



NATIONAL BOARD OF ACCREDITATION

SELF ASSESSMENT REPORT

(SAR)

**FOR FIRST TIME ACCREDITATION OF UNDER GRADUATE
ENGINEERING PROGRAM (TIER-II)**

(ELECTRONICS & COMMUNICATION ENGINEERING)



IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)

Kalkheda, Ratibad Main Road,
Bhopal-462044, Madhya Pradesh, India

2020-2021

[SELF ASSESSMENT REPORT]

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IES COLLEGE OF TECHNOLOGY (0177) ELECTRONICS AND COMMUNICATION ENGINEERING

Part A: Institutional Information

1 Name and Address of the Institution

IES COLLEGE OF TECHNOLOGY, IES CAMPUS KALKHEDA RATIBAD MAIN ROAD, BHOPAL (M.P.) 462044

2 Name and Address of Affiliating University

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

3 Year of establishment of the Institution:

2007

4 Type of the Institution:

University	Autonomous
Deemed University	<input checked="" type="checkbox"/> Affiliated
Government Aided	

5 Ownership Status:

<input type="checkbox"/> Central Government	<input type="checkbox"/> Trust <input type="checkbox"/>
<input type="checkbox"/> State Government	<input type="checkbox"/> Society
<input type="checkbox"/> Government Aided	<input type="checkbox"/> Section 25 Company
<input checked="" type="checkbox"/> Self financing	<input type="checkbox"/> Any Other (Please Specify)

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6 Other Academic Institutions of the Trust/Society/Company etc., if any:

Name of Institutions	Year of Establishment	Programs of Study	Location
IES PUBLIC SCHOOL, BHOPAL	2014	HIGHER SECONDARY SCHOOL (CBSE)	BHOPAL
IES INSTITUTE OF PHARMACY, BHOPAL	2017	PHARMACY	BHOPAL
IES UNIVERSITY, BHOPAL	2019	EDUCATION, NURSING, PARAMEDICAL, ENGG. ETC ETC	BHOPAL

7 Details of all the programs being offered by the institution under consideration:

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Electronics & Communication Engineering	UG	2007	2007	60	Yes	120	Applying First time	--	--	Yes	4
VLSI Design & Embedded System	PG	2011	2011	18	No	18	Eligible but not applied	--	--	No	2

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8 Programs to be considered for Accreditation vide this application:

S No	Level	Discipline	Program
1	Under Graduate	Engineering & Technology	Computer Science & Engineering
2	Under Graduate	Engineering & Technology	Electrical & Electronics Engineering
3	Under Graduate	Engineering & Technology	Electronics & Communication Engineering
4	Under Graduate	Engineering & Technology	Mechanical Engineering

9 Total number of employees in the institution

A. Regular*Employees (Faculty and Staff):

Items	2020-21		2019-20		2018-19		2017-18	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	96	96	83	83	80	80	85	85
Faculty in Engineering (Female)	16	16	20	20	22	22	22	22
Faculty in Maths, Science & Humanities (Male)	22	22	22	22	21	21	17	17
Faculty in Maths, Science & Humanities (Female)	23	23	21	21	19	19	20	20
Non-teaching staff (Male)	44	44	45	45	46	46	46	46
Non-teaching staff (Female)	05	05	05	05	05	05	05	05

B. Contractual*Employees (Faculty and Staff):

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Items	2020-21		2019-20		2018-19		2017-18	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering(Male)	04	04	08	08	04	04	03	03
Faculty in Engineering (Female)	0	0	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (Male)	0	0	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (Female)	0	0	0	0	0	0	0	0
Non-teaching staff (Male)	0	0	0	0	0	0	0	0
Non-teaching staff (Female)	0	0	0	0	0	0	0	0

10 Total number of Engineering Students:

Engineering and Technology-UG	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
Engineering and Technology-PG	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
Engineering and Technology- Polytechnic	<input type="checkbox"/> Shift1	<input checked="" type="checkbox"/> Shift2
MBA	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
MCA	<input type="checkbox"/> Shift1	<input type="checkbox"/> Shift2

Engineering and Technology- UGShift-1

Items	2020-21	2019-20	2018-19	2017-18
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Total no. of Boys	481	630	615	624
Total no. of Girls	23	23	44	36
Total	504	653	659	660

Engineering and Technology- PGShift-1

Items	2020-21	2019-20	2018-19	2017-18
Total no. of Boys	43	29	40	38
Total no. of Girls	9	8	11	5
Total	52	37	51	43

Engineering and Technology- Polytechnic Shift-2

Items	2020-21	2019-20	2018-19	2017-18
Total no. of Boys	137	200	234	293
Total no. of Girls	1	6	5	7
Total	138	206	239	300

Engineering and Technology- MBA Shift-1

Items	2020-21	2019-20	2018-19	2017-18
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Total no. of Boys	119	113	34	37
Total no. of Girls	61	67	26	23
Total	180	180	60	60

11 Vision of the Institution:

To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students

Mission of the Institution:

- M1.** To provide the best facilities, environment, and infrastructure for the achievement of objectives.
- M2.** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.
- M3.** To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.
- M4.** To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities
- M5.** To tie up with Industries and Institutions for developing innovative and entrepreneurial skills of students.

12 Contact Information of the Head of the Institution and NBA coordinator, if designated:

Head of the Institution

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Name	Dr. Gyanendra Kumar Pandey
Designation	Principal
Mobile No.	9285009752
Email ID	iesbpl@gmail.com

NBA Coordinator, If Designated

Name	Dr.Pallavee Bhatnagar
Designation	HOD, Department Electrical and Electronics Engineering
Mobile No.	9229251477
Email ID	nba.coordinator@iesbpl.ac.in

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CRITERION 1	Vision, Mission and Program Educational Objectives	60
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1. VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES (60)

1.1 State the Vision and Mission of the Department and Institute (5)

A. Availability of Vision and Mission statements of the department

Vision of the Institute

“To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students”.

Mission of the Institute:

- M-1:** To provide the best facilities, environment, and infrastructure for the achievement of objectives.
- M-2:** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.
- M-3:** To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.
- M-4:** To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities.
- M-5:** To tie-up with Industries and Institutions for developing innovative and entrepreneurial skills of students.

Vision of the Department

To create technocrats in the field of Electronics and Communication Engineering through an effective teaching-learning process, to make them competent in futuristic analytical and design skills with professional ethics

Mission of the Department:

- M-1.** To provide appropriate facilities and environment for the effective teaching-learning process.
- M-2.** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers.
- M-3.** To put in dedicated efforts for inculcating human values in the students through motivational classes, extracurricular and co-curricular activities.
- M-4.** To provide value-added courses through Industry-Institute interactions.
- M-5.** To make students competent for higher studies and to develop entrepreneurial skills for enhancing their employability.

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B. Consistency of the Department statements with the Institute statements

Table 1.1.: Justification of mapping of Institute vision with Department Vision

	Vision of the department: To create technocrats in the field of Electronics and Communication Engineering through an effective teaching-learning process, to make them competent in futuristic analytical and design skills with professional ethics.	Justification
Vision of the Institute: To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students	Consistency: High	Quality education/ Effective teaching process
		Professional ethics/ human values
		Overall development/ competent
		Quality education/ analytical and design skills

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Table 1.2: Justification of mapping of Institute Mission with department Mission

Mission of the Institute /Mission of the Department	To provide appropriate facilities and environment for the effective teaching-learning process.	To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers.	To put in dedicated efforts for inculcating human values in the students through motivational classes, extracurricular and co-curricular activities.	To provide value-added courses through Industry-Institute interactions	To make students competent for higher studies and to develop entrepreneurial skills for enhancing their employability.
To provide the best facilities, environment, and infrastructure for the achievement of objectives.	High (Best facilities, environment, objective of effective teaching learning)	High (availability of best facilities/ faculty, achieving objectives/ competent engineers)	High (achievement of objectives/ inculcating human values)	Medium (provide best facilities/ value added courses)	Medium (Achievement of objectives/ competent for higher studies and entrepreneur skills)
To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.	Medium (Provide intellectual assets/ facilities)	High (Provide best faculty/ best faculty, develop competent engineers)	Medium (Develop competent engineers/ develop human values, available assets/ activities)	Medium (Providing assets/ Industry Institutional interaction)	Medium (Develop competent engineers/ develop entrepreneur skills)
To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.	Low (inculcate human values/ effective teaching learning)	Medium (developing overall personality/ developing competent engineers)	Medium (inculcating human values/ inculcating human values)	-	Low (develop Overall personality/ competent students)
To provide value-added	High (Provide	High (provide value-	Medium	High	Medium

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<p>courses and projects through Industry-Institute interactions for effective learning and better career opportunities.</p>	<p>value added courses/ provide appropriate facilities, effective teaching learning/ effective teaching learning)</p>	<p>added courses and projects through Industry-Institute interactions/ availability of intellectual assets, better career opportunities / developing competent engineers)</p>	<p>(provide value-added courses projects through Industry-Institute interactions/ through motivational classes, extracurricular and co-curricular activities)</p>	<p>(provide value-added courses and projects through Industry-Institute interactions/ To provide value-added courses through Industry-Institute interactions)</p>	<p>(effective learning and better career opportunities/ develop entrepreneurial skills for enhancing their employability)</p>
<p>To tie-up with Industries and Institutions for developing innovative and entrepreneurial skills of students.</p>	<p>Medium (Provide facilities through industry institute tie-ups/ provide appropriate facilities and environment)</p>	<p>Medium (tie-up with Industries and Institutions/ availability of intellectual assets, developing innovative and entrepreneurial skills/ developing competent engineers)</p>	<p>Low (tie-up with Industries and Institutions/ extracurricular and co-curricular activities)</p>	<p>Medium (tie-up with Industries and Institutions/ through Industry-Institute interactions)</p>	<p>Medium (developing innovative and entrepreneurial skills/ develop entrepreneurial skills)</p>

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1.2. State the Program Educational Objectives (PEOs) (5)

A. Listing of the Program Educational Objectives of the program.

PEO1. Work as an Electronics and Communication professional in the area of software development, networking, electronic and communication industries by applying fundamental and practical knowledge.

PEO2. Engage in research, higher studies or entrepreneurship by adopting emerging technology and trending scientific knowledge.

PEO3. Use acquired knowledge of Electronics and Communication Engineering to provide real-life solutions to technical problems with societal, environmental and ethical responsibility.

1.3. Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders (10)

The vision and mission are exclusively explained to the newly enrolled students and their parents during orientation program. The alumni are updated about the Mission and Vision during alumni interaction. The statements are communicated to the industry/employers through introductory presentation during industrial visits, placement drives and other industry-institute interactions. Faculty and staff members recruited newly are also informed and explained about Mission and Vision and PEOs at the time of orientation program. In addition, the dissemination of PEOs to various stakeholders is also done through faculty meetings and Department Academic Advisory Committee meeting. Various platforms where Vision & Mission and PEOs are disseminated are given as under:-

- Web-site of the institute
- News letters published by the institute: **QUEST**
- Admission brochure of the institute.
- Notice board of the Institute located at strategic places of the Institute.
- Handbook of the Institute.
- Display boards.
- Seminar hall.
- Class Room & Labs
- Course file of the Faculty
- HOD Office
- Staff rooms

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- Department Library
- Lab Manuals
- Placement Office

The Vision and Mission and PEOs are published

Particulars	Internal Stake Holders	External Stake Holders
Web-site of the institution (www.icot.co.in)	✓	✓
News Letters published by the Institution: QUEST	✓	✓
Admission brochure of the Institution	✓	✓
Handbook of the Institution	✓	

The Vision & Mission and PEOs are disseminated at:

S.No.	Where published/disseminated	Target stake holders
1	Institute website	Students, parents, faculty; alumni, Industry, Management.
2	Annual Functions	Students, parents, faculty, alumni, industry.
3	Prospectus	Management, Governing Body Members, faculty, students and parents
4	Display boards:	Students, Faculty, Parents, Management
5	Department main corridor, notice board, HOD cabin,	Students, Faculty, Parents, Industry, Alumni, Employers, Management, Governing Body Members, , Department Advisory
6	Principal room, Faculty rooms, Laboratories, Seminar hall.	Students, Parents, Faculty,

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1.4 State the process for defining the Vision and Mission of the Department, and PEOs of the program (25)

A. Description of process involved in defining the Vision, Mission of the Department

The department established Vision and Mission through consultative process involving stakeholders, faculty, industry persons and many other relevant areas considering scope and growth of the college, future societal needs & also following points in view:

1. Vision and Mission of the institute
2. Need of industry and society
3. Changing technical environment
4. Requirement of academia
5. NBA - Program Outcomes
6. Recruiters and Employers
7. Stakeholders/Management
8. Parents, Alumni
9. Guest speakers of industry experts
10. Brainstorming sessions in faculty meetings
11. Students and staff
12. Periodic review of vision, mission and PEOs are prepared through the suggestion from faculty meetings.

Following process adopted in developing Departmental Vision and Mission statements:

Step 1: Vision and Mission of the institution were taken as the guiding base.

Step 2: A detailed survey was conducted on various college websites & salient points like Vision & Mission of the institute, need of industry and society, & changing technical environment etc. were also given consideration.

Step 3: Through discussions & deliberations with internal stakeholders, the department drafted Vision and Mission and sent it to external stake holders for their views/ opinions.

Step 4: The feedback from all stake holders was obtained and given due consideration.

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Step 5: The views were analyzed and reviewed to check the consistency with the vision and mission of the institution as a whole; the departmental faculty developed and improved the departmental Vision and Mission.

Step 6: IQAC endorsed the final vision and mission statements.

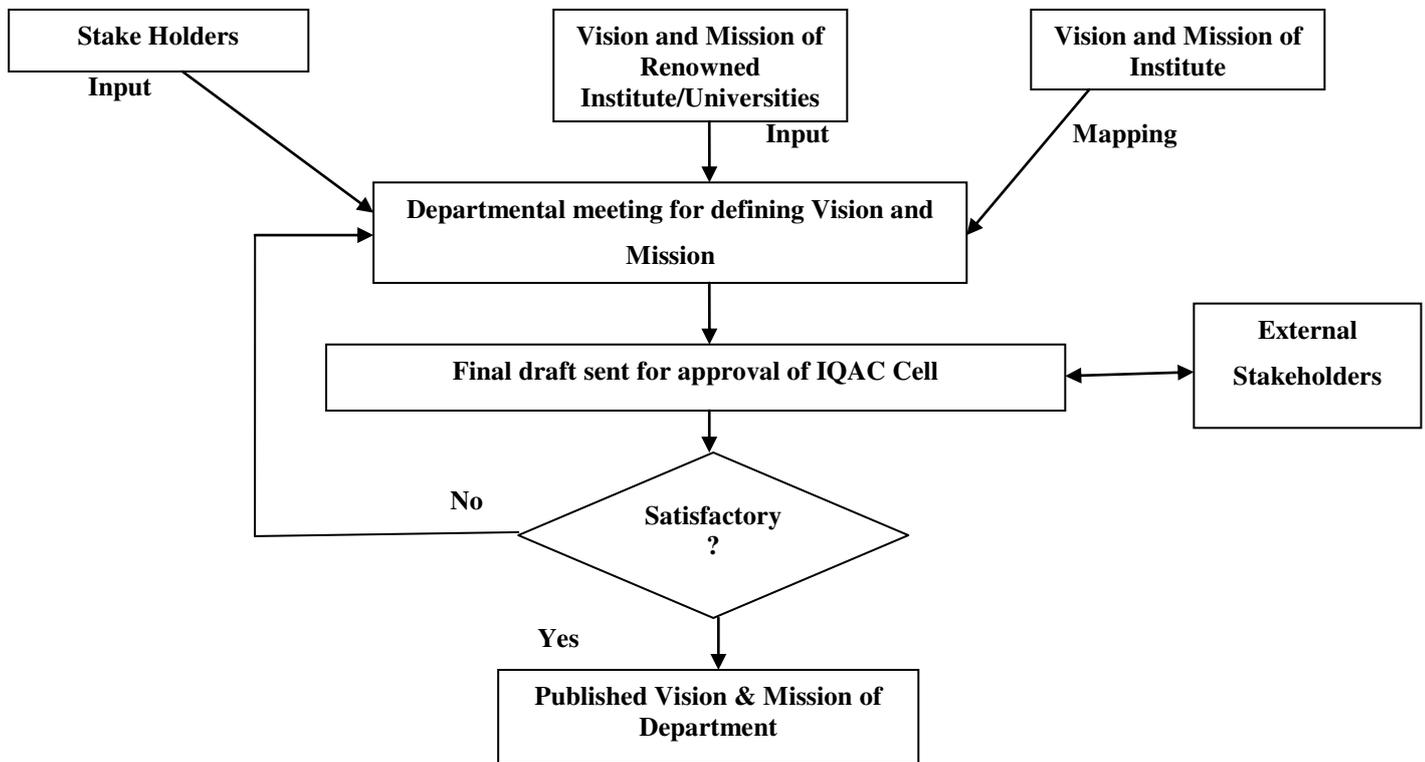


Figure 1.1. Flow chart of defining Vision and Mission of the department

B. Description of process involved in defining the PEOs of the program.

The program educational objectives (PEOs) were formulated / reviewed through a consultative process among faculty members, alumni representatives, Industry experts, Training experts and Departmental Academic Advisory Committee.

The PEOs are established through the following steps:

Step-1: Program outcomes from NBA as well as Vision and Mission of the Institute and Department were taken as guidelines for consultation with various stakeholders.

Step-2: All documents relating to the program were reviewed. These include instructional material, which is collected for all the courses. The outcomes in all courses were listed for the program and graduate attributes were taken into account.

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- Step-3:** The inputs from all stake holders were collected and draft of PEOs was prepared and circulated among all stake holders for feedback.
- Step-4:** In the light of current status of the institute, teaching-learning environment, and based on the review of feedback, PEOs were discussed.
- Step-5:** The proposed PEOs were reviewed and recommended at the institution level to IQAC committee.
- Step-6:** After approval by the IQAC, the PEOs were finalized & given wide publicity.

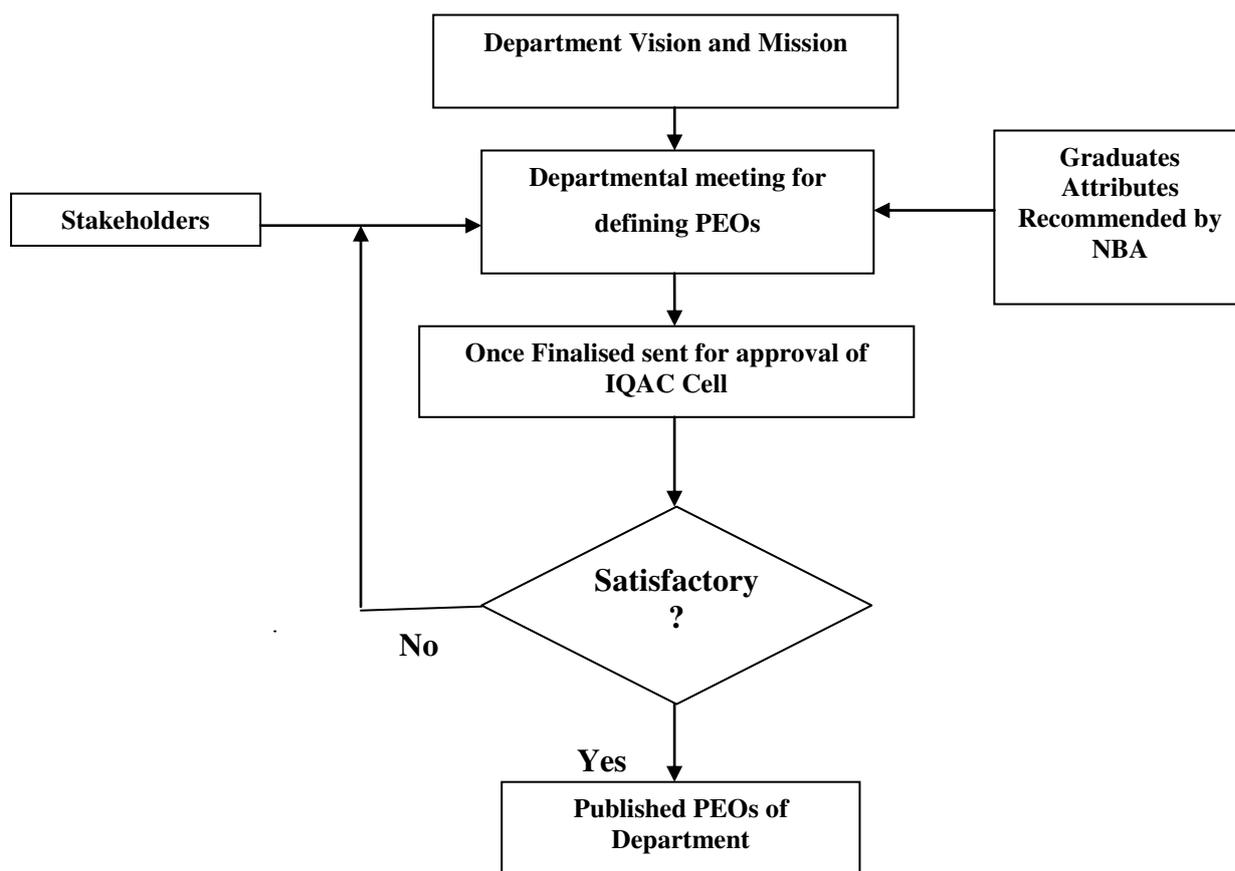


Figure.1.2. Flow chart of defining PEOs

1.5 Establish consistency of PEOs with Mission of the Department (15)

A. Preparation of a matrix of PEOs and elements of Mission statement.

Table: 1.3 Mapping of PEOs with Mission of the Department

PEOs	M1	M2	M3	M4	M5
PEO1	3	3	3	2	2
PEO2	2	2	-	2	3
PEO3	3	1	2	3	2

Slight (Low):1

Moderate (Medium):2

Substantial (High):3

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B. Justification of co-relation parameters of the above matrix.

Table: 1.4 Justifications of Mapping of PEOs with Mission of the Department

PEOs	M1	M2	M3	M4	M5:
	3	3	3	2	2
PEO1	Provide strong correlation with PEO1 as inculcating practical and fundamental knowledge of analog, digital and signal processing with advanced teaching methods, extra classes, extra lab hours, tutorial sessions, and conducting of various engineering activities to develop professional ethics.	Strongly support to achieve PEO1, as the objective is to develop the ability among students to understand the concepts and fundamentals which can be accomplished, if graduates are facilitates understanding of new technology through best faculties and infrastructure.	Co-curricular activities and extra-curricular activities in the department like social activities by technical club, participation in programme for social cause, tech-fests awareness through celebrations on important days of national interest develop the professional and ethical values and help them to be corporate ready	Industry based training programs, preparations for placements, -mock interviews, aptitude sessions, group discussions, workshops, industry visits, expert talks, personality development classes, online certifications, activities through student technical clubs aims at developing software skills as required by the industries/companies.	Aims at achieving PEO1 through the use of real time examples, problems & mini projects, contests on programming, tech-fests, innovative projects, and industry trainings thereby making successful software professionals

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	2	2	-	2	3
PEO2	Supports PEO2 to get entrepreneurship skills by participating in career oriented value addition programs based on electronic systems like technical contests, tech-fests, innovative projects, real world projects and industry trainings in the department.	Focuses on imparting strong fundamental and practical knowledge of microprocessor controller, VLSI and digital system labs through teaching excellence by inculcating a scientific temper in practical science via conduction of additional labs, hands-on sessions on technical concepts, class room presentations, major and minor projects, participation in technical competitions, and industrial visits.	-	Use of real world examples in various EC industry and live demonstration helps to build entrepreneurship skills by adopting latest technology in signal processing areas.	Aims at inculcating professionalism, ethicality, team-work and leadership qualities with the skills developed in the students in their course of study with research oriented qualities to pursue higher studies or become entrepreneur
PEO3	3	1	2	3	2

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	Supports PEO3 at developing the ability in students to solve complex engineering problems related to environment and ethical context.	Students participate in various seminars, events, and quiz conducted by the department itself or outside develops the competing sprits among students and exposure to real life problems.	Aims at transforming students gains human values by attending extra motivation classes and activities which live demonstrate the problems existing in real scenario.	Aims at providing a platform for the students by visiting various reputed industry to see live VLSI and microcontroller labs which can be helpful to analyze actual solutions to existing problems.	Supports PEO3 in developing skills in students for higher studies and entrepreneurship qualities which will help the student in lifelong learning
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Criterion 2	Program Curriculum and Teaching Learning Processes	120
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Criterion 2 Program Curriculum and Teaching Learning Processes**2.1. Program Curriculum (20)**

2.1.1. State the process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexure I. Also mention the identified curricular gaps if any (10)

A. Process used to identify extent of compliance of university curriculum for attaining POs and PSOs

Program Curriculum:

The college is affiliated to Rajiv Gandhi Proudyogiki Vishwavidyalaya, (RGPV) Bhopal and curriculum of the Department is framed as per university guidelines. The curriculum comprises of Basic Sciences, Humanities and Social Sciences including Engineering Sciences, Professional core and elective subjects, Project work and industrial training related to the field.

Basic Sciences and Humanities:

The stream includes courses like Engineering Mathematics, Engineering Physics, Engineering Chemistry, professional ethics and Environmental studies.

Basic Engineering Courses:

The stream include courses like Basic electronics, Basic electrical engineering, Programming in C, Computer aided engineering drawing, Elements of mechanical engineering and Elements of civil engineering. These courses provide the fundamental knowledge on all engineering disciplines.

Professional Core Courses:

The stream include courses like Analog and Digital circuits, Electronic Devices & Circuits, Digital Circuits & System, Network Analysis, Signal and Systems, Integrated Circuits and its Applications, Communication Systems, Control Systems, Microprocessor and Microcontroller, Digital Communication etc. Project work and technical seminars are included in final year to provide opportunity for students to develop understanding of the inter relationship between courses, develop and demonstrate higher order skills, and to apply the gained knowledge.

Management Courses:

The stream includes courses like Management and Entrepreneurship. These are essential to create awareness on managerial & entrepreneurial skills, finance management, project management and quality control techniques.

Elective Courses:

The stream includes courses like Nano Electronics, RFID, Statistical signal Processing, IPR (Intellectual Property Rights), Data Communication, Information Theory & Coding, Power Electronics, Wireless Communication, Digital Image Processing, Operating Systems etc.

As per the R.G.P.V Bhopal regulations, the first year Bachelor of Technology (B-Tech) course is on Grading System (GS) (Academic year 2017-18) and Bachelor of Engineering (BE) course is on CBCS/CBGS system (Academic year 2015-19 and 2016-2020 Batch) BE Grading system (as shown in Table: 2.1 to Table 2.3). Total semesters under consideration are eight (08). The contents of each theory subject are well defined and the experiments are specified for each laboratory. The university included assignments and quizzes. These are scientific in nature and aimed at supplementing the gaps in the syllabus. Although it is difficult to identify gaps, however each faculty has thoroughly understood the needs and identified the gaps and attempted to fill them with relevant teaching-learning methods, to further strengthen the program educational objectives (PEO's) and program outcomes (PO's). Subjects are mapped with (POs), Programme Specific Outcomes (PSOs) and gaps are identified. The process to fill the gap after identifying the subjects and feedback from various stakeholders like students, alumni, industry, and academia by departmental academic advisory committee. Thereafter contents are identified and taught along with university syllabus in order to fill the gap to update knowledge and thus prepare students with knowledge, skills and abilities expected in current scenario of industry, research & academia. These are then referred to IQAC committee. Such an effort allows the college to be branded and stakeholders would appreciate the needs. Thus the college attempted to rise above the benchmarking level.

The Program Educational Objectives (PEOs)

- PEO1.** Work as an Electronics and Communication professional in the area of software development, networking, electronic and communication industries by applying fundamental and practical knowledge.
- PEO2.** Engage in research, higher studies or entrepreneurship by adopting emerging technology and trending scientific knowledge.
- PEO3.** Use acquired knowledge of Electronics and Communication Engineering to provide real-life solutions to technical problems with societal, environmental and ethical responsibility.

Program Specific Outcomes (PSOs)

Graduates will be able to

- PSO-1:** The ability to create, design and test specifies electronic communication systems for analog and digital signal processing as per industry requirements.
- PSO-2:** The ability to Formulate, solves, design and implement the realistic problems of society relevance to VLSI and embedded industries.
- PSO-3:** Graduates will be able to Formulate, solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.

Program Outcomes (POs)

- PO-1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- PO-2. Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- PO-3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- PO-4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO-5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- PO-6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- PO-7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

- PO-8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO-9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO-10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO-11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- PO-12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Following process is adopted to identify extent of compliance of the University curriculum for attaining the Program Outcomes (POs) and Program Specific Outcomes (PSOs):

- Define Program Specific Outcomes (PSOs)
- Define Course Outcomes for each subject.
- Map each COs with POs and PSOs.
- Categorize entire Curriculum into Core Courses, Science & Humanities, Inter Disciplinary Projects / Lab Practices; Map each category with POs and PSOs.
- Feedback given by Recruiters in Campus Placements and by prospective Employers.
- Inputs given by Principal/Management in Departmental academic advisory meetings.
- Feedback given by industry experts visiting for guest lecture / technical fests/ Workshops/ other events organized by the Department from time to time.
- Feedback by visiting expert members during Department Advisory Committee meetings.
- Feedback given by faculty members handling the courses.
- Feedback given by alumni.

The feedback obtained as above is reviewed in faculty meetings in Departmental Academic Advisory meetings in particular and the curricular gaps are identified.

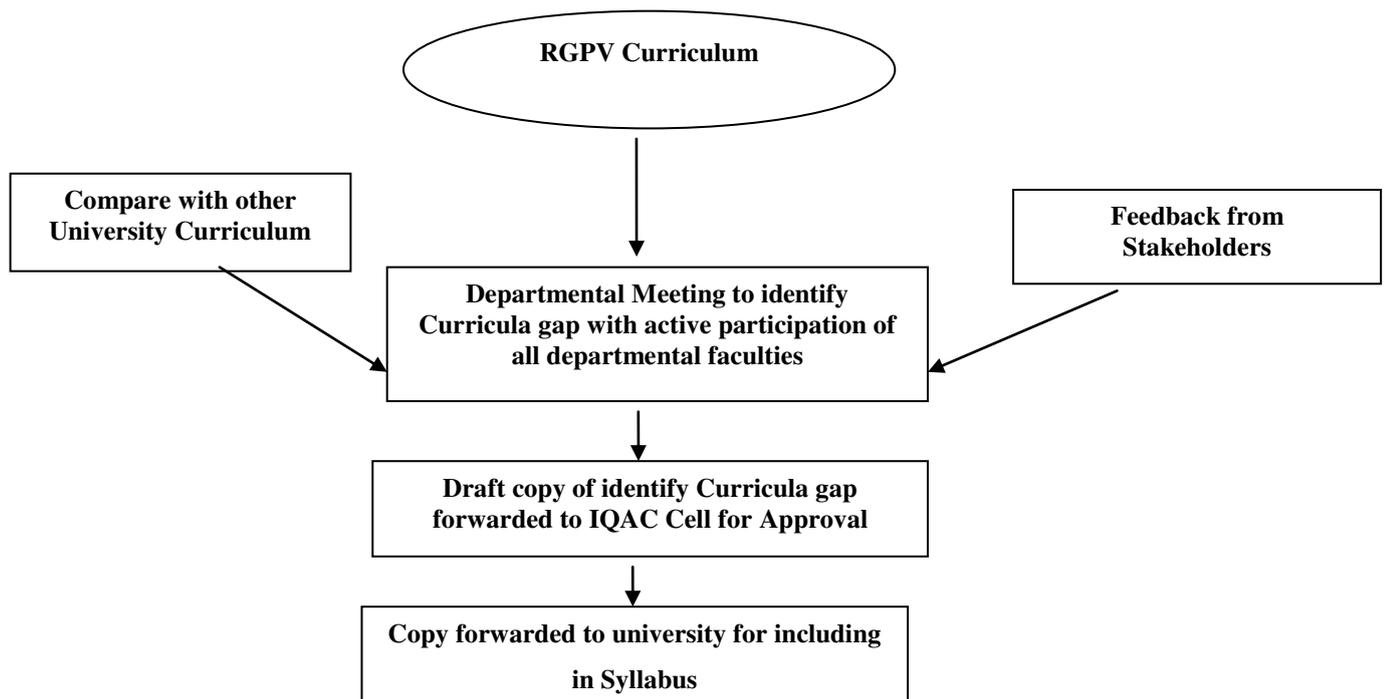


Figure 2.1 Curriculum gap identify process

Various Streams of program curriculum are shown in the table below:

Program Curriculum Grouping Based on Course Component	Number of Subjects	PO	PSO
Basic Sciences & Humanities	09	1,2,3,4, 5.6,7,8,9,10,11, 12	1,2,3
Basic Engineering Courses	8	1,2,3,5,6,7,9,12	1,2,3
Professional Core Courses	12	1,2,3,5.6,7,8,9,10,12	1,2,3
Management Courses	1	1,2, ,8,9,10,12	3
All/Total	30	1,2,3,4,5.6,7,8,9,10,11, 12	1,2,3

Program Curriculum Grouping based on Course Component	Number of subjects	PO	PSO
Professional Core Courses	22	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
Management Courses	2	6,7,8,9,10,11,12	3
Elective Courses	6	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3
All/Total	30	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3

Program Curriculum Grouping based on Course Component	Number of subjects	POs	PSO
Basic Sciences & Humanities	7	1,2,5,6,7,8,9,10,11,12	1,2
Basic Engineering Courses	6	1,2,3,4,5,6,7,8,9,10,11,12	1,2
Professional Core Courses	27	1,2,3,4,5,6,7,8,11,12	1,2,3
Management Courses	1	1,2,5,6,,8,10,11,12	1,2,3
Elective Courses	2	1,2,3,5,6,7,8,9,10,12	1,2,3
Project, Seminar & Lab Practices	15	2,3,7,9,10,11,12	1,2,3
All/Total	56	1,2,3,4,5,6,7,8,9,10,11,12	1,2,3

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Department of Electronics and Communication Engineering																			
Evaluation Sheet (Analysis of Course components)																			
Batch: 2015-2019 Batch [B.E. CBCS (Choice Based Credit System)] [1st, 2nd, 3rd and 4th SEM]																			
S.No	Program Curriculum Grouping based on Course Component	Subject Code	Subject Name	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
1	Basic Sciences & Humanities	MA110	Maths-I	1.2	1.8	3.0	1.0	-	1.0	1.0	-	-	-	1.0	1.0	1.2	1.0	1.0	
2		PH110	Physics	1.4	1.0	-	-	1.0	-	-	-	1.0	-	-	1.0	1.0	1.0	1.0	
3		MA111	Maths-II	1.6	2.4	-	-	-	-	-	-	-	-	-	1.0	1.0	1.0	1.0	
4		CY110	Chemistry	2.4	2.1	-	-	0.5	0.5	-	-	0.8	-	-	1.0	1.0			1.0
5		ML110P	Environmental Sciences	2.0	1.0	3.0	-	1.0	1.3	1.3	-	1.3	-	-	1.0	1.4	1.3	1.7	
6		MA220	Maths-III	2.4	2.2		-	-	1.0	1.0	-		1.0		1.0	1.4	1.0	1.0	
7		HU110	English	2.4	1.8		-	-	1.0		-	1.0			1.3	1.1	1.0	1.3	
8		HU220	Communication Skills	1.8	2.0	1.5	-	1.0	0.0	0.5	-	1.9	1.5		1.5	1.5	1.0	1.0	
9		HU111P	Communication	2.6	2.4	1.0	-	1.0	1.5		1.0	1.6	3.0		1.6	1.0	1.0	1.0	
1	Basic Engineering Courses	ME111	Engg. Graphics	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5	1.0	1.0	1.0	
2		CE110	Engg Mechanics	2.2	2.2	-	-	-	1.7	1.0	-	-	-	-	1.3	1.1		1.0	
3		EC 110P	Introduction to Electronics Engg.	2.2	2.0	-	-	-	-	-	-	-	-	-	1.4	2.0	1.0	1.0	
4		ME112	Concepts in engg. Design	2.0	1.4	-	-	1.0	1.0	-	-	1.5	-	-	1.0	1.6	1.0	1.0	

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5		EE111	Fundamentals of Electrical Engg.	2.2	1.9	-	-	1.0	1.0	-	-	1.5	-	-	1.0	1.6	1.3	1.0
6		ES221T	System Engg.	2.8	2.0	2.0	-	-	-	-	-	-	-	-	1.0	2.0	1.5	1.0
7		CS110P	Computer programming	2.0	2.4	3.0	-	-	1.0	-	-	1.5	-	-	1.0	1.4	1.0	1.0
8		ME113P	Manufacturing practices	2.2	2.2	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0	1.6	1.0	1.0
1	Professional Core Courses	EC 221	DCS	2.3	1.9	2.8	-	1.0		-	-	1.4	-	-	1.0	2.2	1.4	1.0
2		EC 222	NW Analysis	1.9	2.5	1.5	-	1.0	0.5	-	-	1.4	-	-	1.1	2.0	1.2	1.0
3		EC 223	EDC	1.9	2.5	3.0	-	1.5		0.5	0.5	1.5			1.8	2.1	1.3	1.0
4		EC 224	Measurements & Inst.	1.4	2.4	-	-	1.0	-	-	-	1.0	0.5		1.0	1.5	1.5	1.0
5		EC225	Signals & Systems	2.0	2.2	-	-	1.0	-	-	-		-	-	1.0	1.4	2.0	1.0
6		EC226	IC & Its applications	1.9	2.6	1.3	-	1.0	0.5	0.5		1.0	-	-	1.0	1.6	1.5	1.0
7		EC227	Communication systems	2.2	2.0	1.0	1.0	1.0	-	-	-	-	-	-	1.0	2.0	1.3	1.0
8		EC228	Control systems	2.2	2.2	1.0	-	1.0	-	-	-	-	-	-	1.0	2.2	1.2	
9		EC112	Electronics-I	1.8	1.6	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0	1.6	1.3	1.0
10		EC229	Simulation Lab	1.8	2.6	1.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	2.4	1.3	1.0
11		HU221	Idea Generation	1.6	1.6	-	-	-	1.0	1.0			1.0	-	1.4			
12		ES220T	Material Sciences	2.8	1.0	1.7	-	-	-	-	-	-	-	-	-	1.0	2.0	1.4

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1	Management Courses	HU112P	Rural outreach	2.6	2.8	1.0	-	-	1.0	1.0	1.3	1.8	1.5	-	1.0	1.0	2.0	1.0
Batch: 2015-2019 Batch [B.E. CBGS (Credit Based Grading System)] [5th, 6th, 7th and 8th SEM]																		
1	Professional Core Courses	EC-5001	EMT	1.4	1.6	-	-	1.0	-	-	-	-	-	-	1.0	2.2	1.0	0.0
2		EC-5002	DCS	1.4	2.0	3.0	-	1.0	-	-	1.0	1.0	1.0	-	1.0	1.6	1.7	1.0
3		EC-5003	Microprocessor and MC	1.5	1.9	2.7	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0	2.0	1.6	1.0
4		EC-5004	CNTL	1.6	2.2	3.0	-	1.0		1.0	1.0	1.0	1.0	-	1.0	1.7	1.6	1.0
5		EC-5008P	Innovative Thinking	1.6	1.6	1.0	1.0	1.7	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.2	1.3	1.4
6		EC-6001	CMC	1.4	2.8	-	1.0	1.0	-	-	1.0		1.0	-	1.0	1.6	1.0	1.0
7		EC-6002	DSP	1.6	2.8	2.3	1.0	1.0	-	-	1.0	1.0	1.0	-	1.0	2.1	1.0	1.0
8		EC-6003	AWP	1.6	2.3	1.0	0.0	1.4	-	-	0.0	1.0	1.0	-	1.0	1.6	1.2	1.0
9		EC-6004	VLSI circuits and systems	1.4	2.0	3.0	1.5	1.5	-	1.0	1.0	1.5	1.0	-	1.5	2.0	1.4	1.0
10		EC-6007 P	Creativity and Entrepreneurship development	1.2	1.8	3.0	1.0	1.5	1.0	1.0	1.5	1.5	1.0	1.0	1.4	2.2	1.4	1.8
11		EC-6008 P	Startup/Industrial lectures	1.2	1.6	2.0	1.5	1.0	1.0	1.0	1.3	1.5	1.5	1.0	1.6	1.3	1.0	1.6
12		EC-7001	MW Engg.	2.1	2.4			1.5		1.0	1.5	1.4	1.0		1.3	2.6	1.8	1.2
13		EC-7002	Satellite Comm.	1.8	2.3	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.6	2.2	1.0
14		EC-7003	Optical Comm.	2.2	2.4		1.0	1.0			1.0	1.0	1.0		1.3	1.8	2.0	1.5
15		EC-7006	Project-I	1.2	2.6	3.0	1.0	1.3	1.0	1.0	1.5	1.5	1.8	1.0	1.5	2.5	1.8	1.7
16		EC-7007	Industrial Training (2 weeks)	1.8	2.0	1.0	1.0	1.3	1.0	1.0	1.6	1.5	1.3	1.6	1.4	2.5	2.0	1.5
17		EC-8001	VLSI Design	1.7	2.1	3.0	1.0	1.5	2.0	1.0	1.0	1.0	1.0	-	1.3	2.2	2.3	1.3
18		EC-8002	ACS	2.1	2.6	3.0	2.0	1.2	2.0	1.0	1.0	1.0	1.0	-	1.6	2.3	2.0	1.7
19		EC-8005P	Project-II	1.2	2.6	3.0	1.0	1.3	1.0	1.0	1.5	1.5	1.8	-	1.5	2.5	1.8	1.7

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20		EC-5006P	Workshop-I	2.6	2.6	3.0	-	1.5	-	-	-	1.0	-	-	2.6	2.6	1.8	1.0
21		EC-6006 P	Workshop-II	1.8	2.4	2.5	-	1.5	-	-	-	1.0	1.0		1.8	2.2	1.3	1.0
22		EC-8006P	Departmental choice	1.3	2.0	-	-	1.0	1.0	1.0	1.3	1.8	2.4	2.0	1.6	1.3	1.3	2.4
1	Management Courses	EC-5007P	Management skill development	1.8	1.6	1.0	1.0	1.0	1.0	1.3	1.8	1.0	1.3	1.4	1.6	2.0	1.6	1.0
2		EC8007P	Group Discussion	1.3	1.0	-	-	1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.3	1.0	1.0	1.6
1	Elective Courses	EC-5005	Industrial Electronics (Elective-I)	1.6	1.8	3.0	1.0	1.0	-	-	-	1.0	-	-	1.0	1.6	1.0	1.0
2		EC6005	Nanoelectronics (Elective-II)	1.2	2.2	-	-	1.0	-	1.0	1.5	1.5	1.0	-	1.0	1.0	1.0	1.0
3		EC-7004	Elective-III (Power Electronics)	1.4	2.6	-	-	1.0	-	1.0	1.0	1.0	1.0	-	1.0	1.6	2.3	1.0
4		EC-7005	Elective-IV (Wireless commu.)	1.4	2.6	-	-	1.0	-	1.0	1.0	1.0	-	-	1.0	2.0	1.8	1.0
5		EC-8003	Elective-V (Principles Management & economics)	1.6	2.8	-	-	1.0	1.3	1.3	1.3	1.2	1.3	1.0	1.4	1.0	1.0	1.5
6		EC-8004	Elective-VI (Radar Engg.)	2.0	2.2	-	-	1.0		1.0		1.0	1.0		1.3	2.3	2.3	1.0

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B. List of curricular gaps for the attainment of defined POs and PSOs

The courses and the course contents prescribed in the curriculum are mapped to the relevant POs and PSOs through individual course outcomes (COs). Curriculum gaps are identified through consolidation of average CO – PO/PSO mapping of all courses. The identified curricular gaps are as listed below in **Table: 2.4**.

Table: 2.4 Curricular Gaps Identified

2020-2021

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	5G Technology	1,2,3,4,5	1,2,3
Gap2	Skill based Training	2,3,4,5,12	1,2,3
Gap3	Exposure to Equipment and software currently used in the industry	3,4,5	1,2,3
Gap 4	Quantitative & Verbal Aptitude	1,2,3, 5,12	1

2019-2020

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	IOT applications and PCB Design	1,2,3,4,5,8,11,12	1,2,3
Gap2	5G Technology	1,2,3,4,5,8,9,11,12	1,2,3
Gap3	Inadequate ability to apply practical problems in real life	1,2,3,4,5	1,2,3
Gap4	Skill based Training	2,3,4,5,12	1,2,3
Gap5	Exposure to Equipment and software currently used in the industry	3,4,5	1,2,3
Gap 6	Quantitative & Verbal Aptitude	1,2,3, 5,8,9,11,12	1

(2017-2018/2018-2019)

Gap No.	Gaps Identified	Relevance to	
		POs	PSOs
Gap1	IOT applications and PCB Design	1,2,3,4,5,8,11,12	1,2,3
Gap2	Application of Embedded System	1,2,3,4,5,8,11,12	1,2,3
Gap3	5G Technology	1,2,3,4,5,8,9,11,12	1,2,3
Gap4	Inadequate ability to apply practical problems in real life	1,2,3,4,5	1,2,3
Gap5	Skill based Training	2,3,4,5,12	2
Gap6	Exposure to Equipment and software currently used in the industry	3,4,5	1,2,3
Gap 7	Quantitative & Verbal Aptitude	1,2,3, 5,8,9,11,12	1

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Table: 2.5 Curricular Gaps Identified and communicated to University

Bra nch	S. N	Subject	Course Beyond Syllabus	Sem	Curriculum gap	Justification	POs/PSOs
EC	1	Antenna and wave propagation	5G Antennas	VI	Hands on 5G Communication Antenna like massive mm wave antenna array	Recent communication technology adopted 5G Technology and needed students should be aware about 5G Antennas	PO1, PO2, PO3, PO5, PO6, PO12, PSO1, PSO3
	2	Electronics and circuits	Electronics tool and PCB Design	III & IV	Hand on tools and PCB Design part should be included	As per industry requirements hand on electronics tools and PCB Design part should be included	PO1, PO2, PO3, PO5, PO12, PSO1, PSO2, PSO3
	3	Image Processing	Realistic application of Image processing	II	Realistic application of Image processing Subject should be included in curriculum	Image processing is often viewed as arbitrarily manipulating an image to achieve an aesthetic standard or to support a preferred reality. However, image processing is more accurately defined as a means of translation between the human visual system and digital imaging devices.	PO1, PO2, PO5, PO12, PSO1

The activities, which are in place in the Department for overcoming the curricular gaps so as to attain POs and PSOs, are illustrated in Table: 2.6

Table: 2.6 Activities in the Department for bridging the curricular gaps

S. No.	Activities in place in the Department to overcome the Curricular gaps	Relevance to POs/ PSOs							
		1	2	3	4	5	6	7	
1	Additional course “English lab”		√			√		√	PO10, PSO2
2	Quantitative & Verbal Aptitude classes		√				√	√	PO1, PO2, PO10, PSO3

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3	Campus Recruitment Training Classes		√			√	√	√	PO1, PO2, PO10, PSO3
4	Organizing Workshops/Guest Lectures/Symposia for students	√	√	√	√	√			All POs and PSOs
5	Student seminars on recent technologies	√	√	√	√	√			PO2 to PO7, PO10 to PO12, PSO 1,2,3
6	Student participation in Workshops/Symposia at other institutes	√	√	√	√	√			PO2 to PO7, PO10 to PO12, PSO 1,2,3
7	Industrial visits	√	√	√	√				All POs, PSO 1,2,3
8	Coverage of Topics beyond curriculum by faculty in each subject	√	√	√					PO2-PO7, PO10- PO12, PSO 1,2,3
9	Faculty seminars on recent technical topics	√	√	√	√	√			PO2-PO7, PO10, PO12, PSO 1,2,3
10	Student participation in technical contests	√	√	√	√				All POs, PSO 1,2,3
11	Student Club activities					√			PO6,PO7,PO8,PO9,PO10
12	Games and Sports events								PO6,PO7,PO8,PO9,PO10
13	Project work with recent technologies	√	√	√	√				PO2 to PO7
14	Faculty participation in FDPs/STTPs/Conferences	√	√	√	√				PO2 to PO7, PO10 to PO12, PSO 1,2,3
15	Faculty Research & Consultancy	√	√	√	√				PO1,PO2,PO3,PO4,PO6,PO7, PSO 1,2,3
16	Use of Internet by students for browsing journals, NPTEL courses, e-books and other Google resources	√	√	√	√				PO1,PO2,PO3,PO4 , PSO 1,2,3
17	NSS programs								PO6,PO7,PO8,PO9
18	Pedagogical initiatives by faculty	√	√	√	√				PO1,PO2,PO3,PO4, PSO 1,2,3
19	Carrier Guidance for PSU/Gate		√						PO1,PO2,PO3,PO4, PSO 1,2,3

[SELF ASSESSMENT REPORT]

2.1.2 State the delivery details of the content beyond the syllabus for the attainment of POs and PSOs (10)

A. Steps taken to get identified gaps included in the curriculum

The department has initiated the following measures to bridge the identified curricular gaps.

- **Guest lecturers:** More Experts from industry and academia are invited to deliver lectures on the latest trends and thrust areas.
- **Technical talk:** Students are kept updated about the advances in technologies through technical seminars.
- **Workshops:** The department has introduced a novel initiative for students, wherein they are encouraged to participate in hands-on workshops, thereby enhancing their application skills.
- **Communication classes:** Communication classes are included in the timetable.
- **Industrial visits:** Visits to industries of repute are organized to keep the students abreast with practical knowledge.
- **Internships:** Students are encouraged to take-up short-term internships in industries to understand industry practices
- **NPTEL video lectures:** NPTEL lectures both for faculties and students are included on regular basis.
- **Extracurricular activities:** More Extracurricular activities are included
- **University consideration:** As department follow RGPV Curriculum we have communicated RGPV about the identified gaps and suggested inclusion of certain topics and subjects also In process for adopting teaching and learning process as per outcome based education, in addition to the activities proposed to bridge the gap, the university is also requested to add some changes in the curriculum. In order to attain the Programme Outcomes (POs) and Programme Specific Outcome (PSOs) of all the years at Under Graduate level in Engineering, we have already adopted some of the changes in Course curriculum of B. E. / B. Tech. Electronics and Communication of all the years prescribed by RGPV, Bhopal. The details of identified gaps in curriculum were enclosed with letter for university consideration and were requested to do the necessary process for the approval of the course content in the Course curriculum of under graduate course in Engineering as per RGPV, Bhopal ordinance.

[SELF ASSESSMENT REPORT]

B. Delivery details of content beyond syllabus

Table 2.7 Delivery details of content beyond syllabus 2020-2021 Academic Year

S. N	Gap	Action taken	Date	Resource Person with designation/Organizer	% of Students	Relevance to POs/PSOs
1	Gap1 (5G Technology)	Expert lecture on “Recent Development and limitations of 5G Technology”	29/07/ 2020	Prof. (Dr.) Ram Bilas Pachauri- IIT Indore, Prof. (Dr.) Abhishek Rawat- IITRAM, Ahmadabad, Prof. (Dr.) Jyoti Singhai- MANIT, bhopal	80%	PO1, PO2, PO3, PO4, PO5, PO6 PSO1, PSO3
2	Gap 2 (Skill based Training)	Expert lecture on “Artificial Intelligence in Gaming and Robotics”	12/02/ 2021	Dr. Sandeep Raghuwanshi, Assitant Professor, Data Science ML –AI Researcher, SATI Vidisha	65%	PO1, PO2, PO3, PO4, PO5, PO12 PSO1, PSO2, PSO3
3	Gap 2 (Skill based Training)	Hands on workshop on “Electronics tool LT Spice”	31/10/2020	Prof. Pramod Patel (Associate Professor) IES College of Technology Bhopal	80%	PO2, PO3, PO4, PO5, PO12 PSO1, PSO3
4	Gap3 (Exposure to Equipment and software currently used in the industry)	Expert Lecture on “Electronic System Design and Manufacturing India 2.0”	29/07/2020	Dr. Gourav Trivedi, Associate Professor (IIT, Guwahati)	80%	PO1, PO2, PO3, PO5, PO12 PSO1, PSO2, PSO3
5	Gap3 (Exposure to Equipment and software currently used in the industry)	Expert lecture on “Emerging Trends in Automotive Industry - Digital Age”	08/07/ 2020	Ms. Preeti Sakhre, HR Professional, Tata Motors Pvt.ltd Pune	82%	PO2, PO3, PO4, PO5, PO6, PO7 PSO1, PSO2, PSO3
6	Gap4 (Quantitative & Verbal Aptitude)	Training and Placement classes	Throughout semester	Training and Placement Department	80%	PO1, PO2, PO12, PO8, PO10, PSO3

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Table: 2.8 Delivery details of content beyond syllabus (CAYm1: 2019-2020)

S. N	Gap	Action taken	Date	Resource Person with designation/Organizer	% of Students	Relevance to POs/PSOs
1	Gap1 (IOT applications and PCB Design)	Expert lecture on “PCB Designing”	06/03/ 2020	Prof. Deepak Mishra Assistant Professor (IES College of technology)	80%	PO1,PO2,PO3, PO5,PO12 PSO1,PSO2, PSO3
2	Gap2 (5G Technology)	Expert lecture on “5G antennas”	20/08/2019	Dr Rajesh Nema Professor (IES College of technology)	75%	PO1, PO2, PO3, PO4, PO5, PO12,PSO1, PSO2, PSO3
3	Gap3 (Inadequate ability to apply practical problems in real life)	Expert lecture on “Cautions on Internet Usage”	29/04/2020	Ms Akancha Shrivastava, Cyber Crime Expert	60%	PO5,PO12 PSO3
4	Gap4 (Skill based Training)	AWS cloud computing	22-07 to 29-07-2019	Mr. Sourabh Kumar Technical Consultant WebTek Labs Pvt Ltd	70%	PO1, PO2, PO12 PSO3
5	Gap5 (Exposure to Equipment and software currently used in the industry)	Guest Lecture on “Artificial intelligence”	26/02/ 2020	Dr Ravi Shankar Mishra, Professor Guru Nanak Institute of Technology Bhopal	75%	PO2, PO5,PO12 PSO3
6	Gap6 (Quantitative & Verbal Aptitude)	Training and Placement classes	Throughout semester	Training and Placement Department	80%	PO1, PO2, PO12, PO8, PO10, PSO3

Table: 2.9 Delivery details of content beyond syllabus (CAYm1: 2018-2019)

S. N	Gap	Action taken	Date	Resource Person with designation/Organizer	% of Students	Relevance to POs/PSOs
1	Gap 1 (IOT applications and PCB Design)	Expert lecture on “PCB Designing with IOT”	11/06/2019	Dr. Puran Gour (Associate Professor) NRI College of Technology Bhopal	55%	PO1, PO2, PO3, PO4, PO5, PO6, PO12, PSO1, PSO2, PSO3
2	Gap 2 (Application of Embedded System)	Hands on Training on “Embedded System”	2/01/2019 to 14/01/2019	Mr Nikhil Trainer CRISP, Bhopal	60%	PO1, PO2, PO3, PO5, PO12,PSO2,
3	Gap 3 (5G Technology)	Expert lecture on “5G Network Architecture”	18/09/2018	Dr. Abhishek Rawat (Assistant Professor) IIIT RAM Ahmadabad	75%	PO1, PO2, PO4, PO6, PO12, PSO1, PSO3

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4	Gap 4 (Inadequate ability to apply practical problems in real life	Project Base on real life problems	Throughout Semester	Mr. Ashish Kumar Parashar Assistant Professor IES College of Technology	100%	PO1,PO2, PO6,PO7, PO8, PSO3
5	Gap 5 (Skill based Training)	In-house training on “C Language”	21/12/2018 to 3/1/2019	Mr. Abhigyanam Giri IndEyes Infotech Pvt Ltd., Bhopal	75%	PO1, PO2, PO3, PO5, PO12, PSO3
6	Gap 6 (Exposure to Equipment and software currently used in the industry)	Workshop on “Entrepreneurship awareness camp” by EDII Cell	11/03/2019 to 13/03/2019	NSTEDB, DST GOI	80%	PO5, PO8, PO9, PO10, PO11, PO12, PSO3
7	Gap 6 (Exposure to Equipment and software currently used in the industry)	Industrial Visit at CRISP Bhopal	30/01/ 2019	Ms. Asha Nair, (asha@crispindia.com) CRISP, Bhopal	30%	PO3, PO4, PO5, PO6, PO7, PO12, PSO1, PSO2, PSO3
8	Gap6 (Quantitative & Verbal Aptitude)	Training and Placement classes	Throughout semester	Training and Placement Department	80%	PO1, PO2, PO12, PO8, PO10, PSO3

Table: 2.10 Delivery details of content beyond syllabus (CAYm2: 2017-2018)

S.N	Gap	Action taken	Date	Resource Person with designation/ Organizer	% of Students	Relevance to POs/PSOs
1	Gap 1(IOT applications and PCB Design)	Workshop on “PCB Designing and Robotics”	15/11/2017 to 26/11/2017	Mr. Abhigyanam Giri IndEyes Infotech Pvt Ltd., Bhopal	75%	PO1, PO2, PO3, PO5, PO6, PO12, PSO1, PSO2, PSO3
2	Gap 2 (Application of Embedded System)	Training on “PLC,SCADA and Embedded Aurdino system”	04/07/2017 to 29/7/2017	Ms Ruchi Singhal, Assistant Manager, SOFCON India pvt. Ltd, Bhopal	55%	PO2,PO3, PO5, PSO1, PSO2, PSO3
3	Gap 2 (Application of Embedded System)	In-house Training on “Embedded System”	2/06/2018 to 14/6/2018	Mr. Abhigyanam Giri IndEyes Infotech Pvt Ltd., Bhopal	80%	PO1,PO2,P O3,PO5, PSO1, PSO2, PSO3

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4	Gap 3 (5G Technology)	National Workshop on “Different Channel coding techniques for 5G network and future implementation”	18/08/2017 & 19/08/2017	1. Dr. Preety D. Swami, Dept. of EI, SATI Vidisha 2. Dr. Ravi Sindal, Professor, Dept of ECE, IET DAVV Indore (MP) 3. Dr. Varun Bajaj, Assistant Professor, IITDM Jabalpur (MP)	85%	PO1,PO2,P O3,PO4,PO 6,PO7,PO12 PSO1, PSO3
5	Gap 4 (Inadequate ability to apply practical problems in real life)	Project Based on real life problems	Throughout Semester	Mr. Ashish Kumar Parashar Assistant Professor IES College of Technology	100%	PO1,PO2, PO6,PO7, PO8, PSO3
6	Gap 5 (Skill based Training)	Workshop on “Basics of MATLAB Programming with applications”	07/06/ 2018-08/06/2018	Mr. Ramanath Narhete Director On price InfoTech pvt Ltd Bhopal.	70%	PO1, PO2, PO3, PO5, PO12, PSO1
7	Gap 6 (Exposure to Equipment and software currently used in the industry)	Industrial Visit at BSNL Bhopal	11/10/2017	Smt. Rashmi Karandirar, JTO, BSNL, Bhopal	70%	PO2,PO3, PO6, PO7, PO12, PSO1,PSO2 , PSO3
8	Gap6 (Quantitative & Verbal Aptitude)	Training and Placement classes	Throughout semester	Training and Placement Department	80%	PO1, PO2, PO12, PO8, PO10, PSO3

2.2 Teaching-Learning Processes (100)

2.2.1 Describe Processes followed to improve quality of Teaching & Learning (25)

The Teaching and Learning process is given foremost importance in the department. The initiatives for Quality improvement in teaching and learning are achieved through a well defined system of an academic components and procedures which are explained as follows:

- A. Well defined Academic Calendar and Adherence to Academic Calendar
- B. Improved and Innovative Instruction Methods/ Pedagogy
- C. Implementation of Mentor teaching-learning system: Methodology to support weak students and encourage bright students

[SELF ASSESSMENT REPORT]

- D. Initiatives and Implementation of improving quality of class room teaching
- E. Initiatives and Implementation of improving quality of Laboratory Experiments
- F. Student feedback of teaching learning process and action taken
- G. Initiatives and Implementation of learning through Co-curricular activities.

A. Well defined Academic Calendar and Adherence to Academic Calendar

Institutional calendar is prepared and aligned with academic calendar of RGPV with concern of COVID19 guidelines. In addition to events proposed by the college in academic calendar, department introduces many other events and activities that are beneficial in overall development of the students. The academic calendar is implemented as per schedule with respect to commencement of class work, Mid-I and Mid-II examinations, Last working day, End semester exams (theory) and End semester exams (Practical) in each semester/year. In addition, FDPs, guest lectures, workshop/symposia, industrial visits, etc., are also implemented by the faculty members under the review and guidance of the HoD and Departmental Academics Advisory Committee and prepare extracurricular activity calendar also. Academic Calendar for July-Dec session, 2020 is as shown below.

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IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)

	ACADEMIC CALENDER
	BE/B.TECH ODD SEMESTER
	SESSION:2020-2021 (JULY-DEC 2020)

S.NO	NAME OF ACTIVITY	SCHEDULE DATE
		3rd /5th/7th Sem
1	Commencement of Academic Session	6th August 2020
2	End of Teaching	28th Nov 2020
Assignments:-		
3	1st Assignment Submission	17th to 21st august 2020
4	2nd Assignment Submission	1st to 5th Sept.2020
5	3rd Assignment Submission	17th to 22nd Sept.2020
6	4th Assignment Submission	12th to 16 oct. 2020
7	5th Assignment Submission	2nd to 7th Nov. 2020
Internal Examination:		
8	Mid Semester-I	12th to 16th Oct.2020
9	Mid semester II	23rd to 27th Nov. 2020
	Institute Events: Orientation	Presentation of Internship from 1st day
10	Motivational Lecture	Every Monday in week
11	Visit	Industrail Visit according to Dept Activity
12	External Exmintation	Accoding to RGPV
13	Theory Examination	Accoding to RGPV
14	Holiday: 1.Rakashabandhan	3 Aug.2020
	2..Independance Day	15th Aug 2020
	3.Dashera	25th Oct. 2020
	4.Deepawali	12th to 18th Nov. 2020
	5.Gurunanak Jayanti	30th Nov.2020
15	Sem Break	15 days after RGPV Examination
16	ACADEMIC WORKING DAYS	
	Month	Working days
	July	0
	August	16
	September	22
	October	19
	November	14
	Total	71

PRINCIPAL
(ICOT)
Gurubandhan
Principal
IES College of Technology,
Bhopal

HEAD OF DEPARTMENT
(ICOT)
W.e.f.: 6th August 2020


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In the beginning of every academic session, the academic calendar is framed and issued to the faculty members and students. An academic calendar is framed based on the discussions with the Controller of Examinations, Department Heads, club coordinator and other decision-making authorities.

Subject allotment is done well in advance for the staff to prepare lesson plans, and hard/soft copies of the lecture notes. Lesson plan with course outcomes are prepared by the faculty handling the subject before commencement of the semester and is duly approved by the Head of the department and made available to the students. Execution of lesson plan has been documented in the academic file to ensure coverage of syllabus, monitored by Head of the department.

Subjects allotment/ Workload:

Faculty is offered with preferred courses. Considering their options, the Head of the department will allot the course for the individual faculty and the workload is finalized. Faculty members are given choice to give options 1, 2, 3... etc. for subject's allotment. Mostly faculty will be allotted one subject of their 1st choice. The second subject is also given as per the choice of the faculty, subject to the needs of the Department.

Time Table:

Structured time table will also have an impact in proper planning of work. A well- organized timetable basically helps the faculty to take control of the day from one hour to the next. Time table consists mainly of four domains: students, faculty, timing and venue.

Course File:

All faculty members prepare course file after subject allotment for the course that they handle. Department Vision, Mission statements, timetable, syllabus, lesson plan, subject notes, record of attendance, Analyze the performance of students, previous year University question papers, Assignment Question papers, laboratory experiments etc.

Quality Lecture notes

Faculty members prepare/update lecture notes for allotted subjects by consulting various prescribed text books, Question banks of previous examinations, relevant NPTEL courses and other e-resources from Google.

Lesson Plan

Lesson plans are prepared by faculty members, based on the Academic calendar, syllabus and weekly load, which is reviewed and approved by HoD.

Instruction Delivery

Faculty members take classes as per time table and lesson plan, duly compensating for lost classes due to leaves, unexpected holidays, and following various teaching-learning techniques, methods etc.

[SELF ASSESSMENT REPORT]

B. Improved and Innovative Instruction Methods/ Pedagogy

Apart from basic teaching requirements, the Department has adopted various initiatives to improve instructional pedagogy methods for the attainment of POs. The faculty members are oriented towards Outcome based Education (OBE) and are actively utilizing the OBE to cater the learning need of students by innovative methods. The faculty of department adopts various innovative Teaching & Learning methodologies to create the best learning environment for students. These methodologies include traditional black board teaching, presentations, video lecturing, collaborative learning methods etc. as given below.

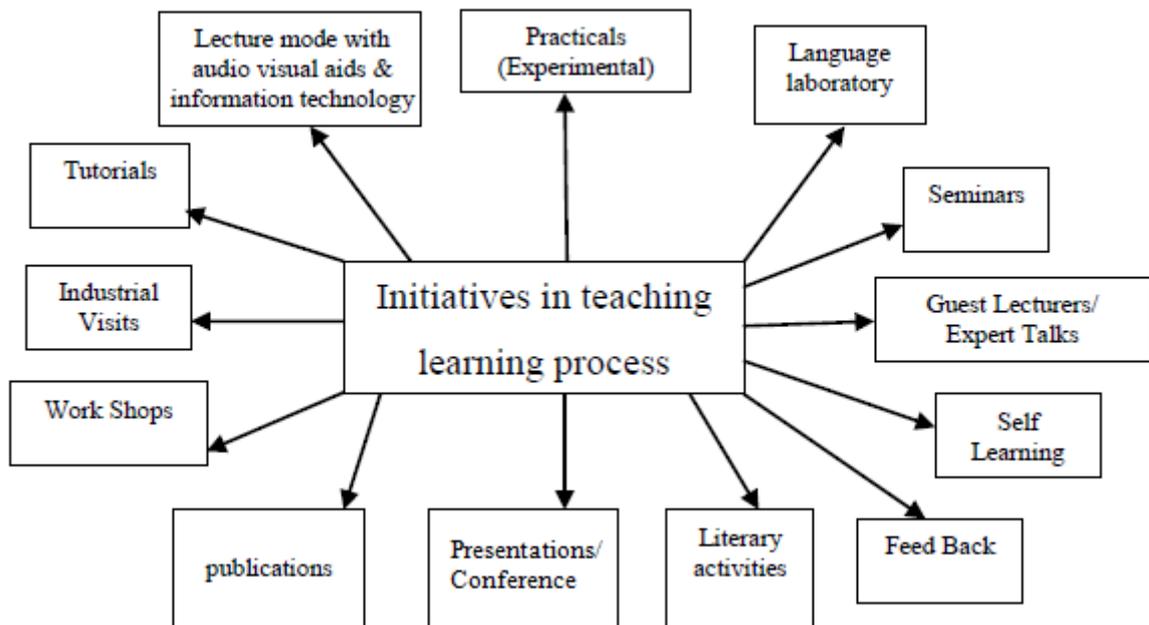


Figure 2.2: Different initiatives in teaching and learning process.

1. Improved/Innovative Classroom Teaching learning method

- The faculty use chalk and board and audio-visual aids in teaching.
- Students are encouraged to actively interact during the lecture hour by getting the doubts clarified.
- Further, students are also encouraged to give seminars/presentations relevant to the subjects which add to their presentation and communication skills.
- Revising the topics covered in the previous class through simple questions and answers at the beginning of each class
- Repeating important points in each class
- Use pedagogy like TPS (Think Pair Share) activity In Tutorial class.
- Revision of syllabus before examinations
- Identifying uniqueness of each student, understanding the variations among students
- Equal attention on the student, his strengths and limitations, along with the subject matter

[SELF ASSESSMENT REPORT]

- Effective counselling based on the student's individual social and financial background.
- Motivating students to set multiple career goals to sustain their interest in the learning process.
- Assigning complex design problems individually to enhance the problem skills of students
- Giving assignments to the students on topics beyond curriculum.

2. Improvement through Project-based learning

During pre-final year, the students are encouraged to carry out minor projects and in the final year major projects are executed under the guidance of faculty. The aim of project based learning is:

- Exposing students to real world through Examples
- Presenting the real life engineering problems.
- Implementing the solutions of engineering problems using models and charts for better subject understanding.
- Providing exposure to real world of Engineering by taking students to on-going projects within and outside the campus
- Building entrepreneurship skills

3. Improvement through Computer-assisted learning

The department is equipped with sufficient number of computers, LCD projectors, internet facility, application software and system software which are effectively used for teaching and learning.

- E-boards
- Faculty members are making effective use of *virtual labs* for effective teaching.
- Use of e-resources.
- Using electronic presentations (PPT) on difficult topics for better understanding.
- Use of e-learning - resources from *National Programme on Technology Enhanced Learning* (NPTEL).
- Presenting videos which show the recent technologies.
- PPT is incorporated as an item in Course Plan in all subjects wherever relevant
- The *Google classroom* is an innovative tool which is very effectively used in our campus for every course. Faculty members add all students to it before commencement of every semester for every course. They also upload course plans, course materials, video lectures, question banks etc. It helps the students to come prepared to the class. The tools in the Google class room facilitate online assessment of students, which can be used to measure the outcomes of each course.

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4. **Guest Lectures:-** Guest lectures are organized by industry and academic experts which provide industry exposure, entrepreneurship skills and exposure for higher studies to the students beyond the class room learning and curriculum. The details are provided in Sec.2.1.2.
5. **Students Participation in Workshops/symposia:-** Students are encouraged to participate in workshops and technical symposia organized by IES College of Technology and various engineering colleges including IITs and NITs etc. This adds to the knowledge and enhances their knowledge, aptitude and communication skills. The details are provided in Sec.2.1.2.
6. **Special Classes:-** Communication skill classes are organized for the students, news paper distribution, and online test is conducted for placement preparation.
7. **Expert Lectures: -** T&P classes are organized, Experts lectures from industry and academia are invited to deliver lectures on the latest trends and thrust areas to improve the employability of students.
8. **Collaborative Learning: -** Through collaborative learning students are exposed to learn various topics and hands-on experience under different laboratories, related to program curriculum as depicted in table 2.11.

Table: 2.11. Collaborative learning

S. No.	COURSE	ASSOCIATED LAB
Semester - I		
1	Engineering Physics	Physics lab
2	English	Language Lab
Semester - II		
3	Engineering Chemistry	Chemistry lab
4	Basic Electrical & Electronics Engineering	BEEE lab
Semester - III		
5	Electronics Devices Analog Circuits	Analog Electronics lab
6	Digital Circuit & system	Digital Electronics lab
Semester -IV		
7	Analog communication	Analog /Digital communication lab
8	Software (MATLAB)	Software Lab
Semester -V		
9	Digital Communication	Analog/ Digital communication lab

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10	Microprocessor & Embedded System	Microprocessor & Microcontrollers Lab
Semester -VI		
11	Digital Signal Processing /Fundamentals of VHDL	Software Lab
Semester -VII		
12	Data Communication	Data communication lab
Semester -VIII		
13	Project Work	Project Lab

Impact analysis of Initiatives and Implementation of Improving Quality of Teaching and Learning

The following are the positive outcomes observed after adopting the innovative TLP:

- Improved attendance of students for every class.
- Active participation of students in OBE (Outcome Based Education) activities.
- New view points and new project ideas are derived in class.
- Better bonding between students and faculty.
- Appreciation from the parents.
- Better outcome in terms of projects.

C. Implementation of Mentor teaching-learning system: Methodology to support weak/slow learner students and encourage bright students

Department adopts Mentor Teaching Learning system to support slow learner and bright students equally. Mentoring is to support and encourage students to manage their own learning so that they may maximize their potential, develop their skills, improve their performance and become the person they want to be. Mentoring is a powerful personal development and empowerment tool. It is an effective way of helping students to progress in their careers and is becoming increasingly popular as its potential is realized. Faculty members are assigned with the responsibility of mentorship. Each mentor is allotted with 20-30 students. In first year, students on the basis of their percentage are grouped into two categories: students below 50% marks in 12th board are classified as slow learner students and students above 50% as brighter students. From second year onwards the students who secure less than 5-CGPA in their Continuous Assessment or with more than 3 backlogs are identified and considered as academically weak students. Others are considered as academically bright students. Weak students are given counselling for their career guidance. Bright students are encouraged to take up new challenges time to time. The parents are also informed about the progress report like result, attendance and performance of the students. The students needing improvement are groomed not only for improving

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academic performance, but also given opportunity to showcase their skills through events, competitions etc and this helps to improve academic performance also.

1. Assistance for weak/slow learner students:

- Mentors from time to time follow their progress and counsel them to attend the classes
- Subject handling Faculty members conduct remedial classes.
- Faculty members inculcate theoretical concepts through model specimen/charts/ video lectures/ online lectures.
- Confidence is boosted by motivating them to participate in sports, NCC, NSS and other activities.
- Slow learners are supported in difficult areas of learning; like encouraging students to sharpen their listening, writing skills and improving communication skills.

2. Encouraging bright students

- Students securing First and Second rank in end semester examination are awarded with certificate of merit.
- Student securing 100% attendances are also awarded by certificate.
- Students are motivated for attending workshops, seminars and technical contests.
- Students are encouraged to undergo Industrial Internships.

Impact analysis of Initiatives and Implementation of Mentor Teaching-Learning system

- Based on the extra care/ initiatives taken for weak students their academic performance improves.
- Based on the action taken, not only the academic performance is improved but they are also selected by the recruiters.
- Students participated in various activities and performed outstandingly in various national level technical and nontechnical contests.
- Improvement is seen in the assessment of weaker students.

D. Initiatives and Implementation of improving quality of class room teaching

Teaching-Learning process is crucial part of outcome based education and implements/employs as the set of activities engaging with students to enable them to acquire the knowledge, skills and attitudes.

The basic and primary activities adopted at IES College of technology for the Teaching Learning basis consists of:

1. Providing Infrastructure, E-boards, projectors, well equipped labs /Procurement of Quality Equipment
2. Faculty Recruitment

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3. Academic calendar/Adherence to Academic calendar
 - Subjects allotment
 - Time Table
 - Course File
 - Quality lecture notes
 - Lesson Plan
 - Instruction Delivery
4. Continuous Evaluation
5. Review of Syllabus Coverage
6. End Semester Exams, class tests, unit tests, presentations, quiz etc.
7. Results Analysis
8. Assessment of CO-PO Attainment/Action for unattained COs/POs/PSOs
9. Faculty Annual Appraisal

Institution develops and deploys action plans for effective Outcomes Based Education (OBE) implementation in following manner:-

1. Providing Infrastructure/Procurement of Quality Equipment

The resources needed for Teaching-Learning process are met by suitable Budget. Quality equipment is procured by the Department. Similarly the infrastructure requirements of the Department are also proposed by the Department and provided/ approved by the Principal/Management

2. Faculty Recruitment

Effective Teaching-Learning process requires qualified and competent faculty members. Eligible and qualified candidates are selected through proper selection process.

3. Academic calendar/Adherence to Academic calendar

Institutional calendar is prepared and aligned with academic calendar of RGPV as described in detail in section A of 2.2.1

4. Continuous Evaluation

This consists of Mid Semester exams, Assignments, class tests etc., for theory courses and viva voce, Observation and Record evaluation and internal lab exam for Laboratory courses.

5. Review of Syllabus Coverage

HoD reviews the coverage of syllabus on a regular basis in faculty meetings. Class Review meetings with regular students of the class along with class faculty is organized before each Mid Examination.

6. End Semester Exams

These are conducted as per the Academic calendar.

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7. Results Analysis

Analysis of Results is done by concerned faculty

8. Assessment of CO-PO Attainment/Action for unattained COs/POs/PSOs

The procedure for assessment of CO-PO attainment has been evolved over a period of time in the Department. CO and PO attainment is done by the concerned subject faculty. An action plan for unattained POs/PSOs is drafted.

9. Faculty Annual Appraisal

Faculty members submit an appraisal of their performance annually, in a prescribed format, which is further reviewed by HOD and Principal for appraisal/ corrective action.

E. Initiatives and Implementation of improving quality of Laboratory Experiments

- Faculty members of respective subjects prepare lab manual before the commencement of semester.
- The practicals are conducted as per university scheme.
- Every batch consists of around 30 students. Each batch is further split into smaller batches of 4 to 5 students per team.
- Lab manuals are given to students before start of the experiment.
- Students perform the experiments under the guidance of the staff, so that doubts if any related to the experiments can be clarified in the lab itself.
- Viva voce is conducted at the end of every experiment to check the students' understanding level
- The student writes complete experiment along with observation results and these are checked by faculty.
- Virtual labs are also included in few labs for performing experiments.
- The college organizes intra and inters college contests (Tech Fest), to encourage students to demonstrate their Practical and programming skills.

Continuous Assessment in the Laboratory

- Observation notebooks are maintained by the students in which they record the values related to their experiments.
- The calculation is done based on the observation made which is checked and verified by the concern faculty.
- Viva questions are asked to check the understanding level of the students
- Marks are awarded based on the level of understanding of each experiment.

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- Student records the experiment in the record note book and submit it to the concerned faculty.
- Rubrics are used for continuous assessment of students in each lab class.

Lab Performance Evaluation Rubric

Student Name: ----- Enrollment Number: -----

Evaluation Date: -----

S.N	Method of Evaluation	Rubrics	Exceeds expectation(3)	Meets expectation(2)	Doesn't meet expectation (0-1)	Marks
1	Conduction of Experiments (Hardware)	Lab Participation	1. Student demonstrates an accurate understanding of the lab objectives and concepts. 2. The student can correctly answer questions and if appropriate, can explain concepts to fellow classmates. 3. Student is eager to participate and assists when needed.	1. Student arrives on time to lab, but may be unprepared. 2. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	1. Student tardiness or unpreparedness makes it impossible to fully participate. 2. If able to participate, Student has difficulty explaining key lab concepts. OR Student was absent from lab	.
2		Equipment connection	Student has made correct equipment/component connections as per standard circuit diagrams.	Student needed guidance to make correct equipment/component connections as per standard circuit diagrams.	Student was unable to make correct equipment/Component connections as per standard circuit diagrams.	
3		Data Recording/Collection	Student has correctly measured the relevant parameters	Student has performed incorrect measurement of relevant parameters	Student was unable to identify /measure relevant parameters	
4		Results	Accurate results have been achieved	The achieved results are not accurate but are within tolerance range	No results are achieved OR The achieved results are meaningless	
5		Troubleshooting	Student has ability to detect and	Student can detect the error but unable	Student was unable to	

[SELF ASSESSMENT REPORT]

			correct the errors	to correct it	detect the error	
6	Conduction of Experiments (Hardware)	Lab Report	<p>1. Student demonstrates an accurate understanding of the lab objectives and concepts.</p> <p>2. Questions are answered completely and correctly. Graphs are neat, creative and include complete titles and accurate units. Errors, if any are minimal</p>	<p>1. Student has a basic knowledge of content, but may lack some understanding of some concepts. 2. Questions are answered fairly well and/or graphs could have been done more neatly, accurately or with more complete information.</p>	<p>1. Student has problems with both the graphs and the answers. 2. Student appears to have not fully grasped the lab content and the graph(s) possess multiple errors. OR Student turns in lab report late or the report is so incomplete</p>	
7	Ethics	Safety	Student carefully observes the safety rules and procedures during practical work	Student observes safety rules and procedures with minor deviation during practical work	Student does not care about safety rules during practical work.	
8		Punctuality	Student was on time and stay till the completion of task	Student was on time but wasted time outside the work place during the experiment.	Student was not on time and left class before time.	
9		Workplace Clearance	The student uses the equipment responsibly and clears the leftovers at the work place on completion of lab work	The student has shown responsibility towards using the equipment while he didn't care about the cleanliness of work place	The student has shown irresponsibility using the equipment and didn't clear the leftovers at the workplace on completion of lab work	
10	Team Work	Research & gather information	Student has collected a great deal of information which goes beyond the basics.	Student has collected basic information related the topic.	Student has not collected any information that relates to the topic	
11		Fulfil team role's duties	Student has performed the duties assigned and actively assisted others.	Student has shown limited performance in the duties that are assigned	Student has not performed any duties of assigned team role.	
12		Listen to	Consistently	Usually doing most	Student shows	

[SELF ASSESSMENT REPORT]

		other teammates	listens and responds to other appropriately	of the talking rarely allowed others to speak.	an assertive behaviour and was unable to show respect towards other teammates.	
13	Conduction of Experiments (Software)	Familiarity with software	Student has full command on the basic tools of the software.	Student has limited command on the basic tools of the software.	Student has no idea how to use the basic tools of the software.	
14		Simulation Steps	Has applied all the steps in correct sequence to obtain the results.	Some steps are followed but not in proper sequence	Student has no idea regarding the steps to be followed to perform simulation	
15		Coding Skills	The code is completely functional and responds correctly producing the correct outputs.	The Code is correct with regard to syntax but required output is not correct.	The code has several syntax errors. Important parts of code are missing.	
16	Conduction of Experiments (Software)	Schematic of the Circuit	Schematic of circuit/board is made with proper connections/wiring .	Schematic of circuit/board is made with only basic proper connections/wiring	Schematic of circuit/board is made with only basic connections/wiring and has several errors.	

Impact analysis for the Initiatives and Implementation of Improving Quality of Laboratory Experiments

- The completion of the experiments by the students is ensured.
- Improvement in analytical abilities of students thus improves their skills.
- The students are encouraged to result better in university practical examination.
- Improvement in analytical abilities of students which helps in their placements.
- Simulating environment make students to learn other programming languages.
- Stimulate the problem solving approach to real time engineering problems.
- Student learnt about individual and team work skill.
- Awareness about modern tools and their application.
- Student learnt about Professional ethics and communication skills
- Student learnt lifelong learning.
- Student learnt about Design and development skills.
- Student learnt about Engineering and society issues.

[SELF ASSESSMENT REPORT]

F. Student feedback of teaching learning process and action taken

Feedback is taken from students on the effectiveness of teaching and subject learning twice during the semester. Feedback is taken from representative students which have attended more than 90 % of each class by HOD / senior faculty member after 15 to 20 days of commencement of classes. If students are facing difficulty in any subject, the concerned faculty member is informed of the same. Necessary guidance and support is given by HOD and another senior subject faculty member. This consists of asking the faculty member to give a mock class in presence of HOD and another senior subject faculty, giving guidelines for improvement, reviewing the lecture notes and offering necessary support in the subject. At the end of the semester, the feedback is again taken from students in that subject for necessary action. In extreme cases, where the faculty member is unable to improve up to the minimum desired standard, the action is taken accordingly. The feedback is summarized and communicated to all faculty members. This feedback is considered part of the Annual Performance Appraisal of the faculty member.

G. Initiatives and Implementation of learning through Co-curricular activities

Various technical events are organized under community development through intra and inter college tech fests like poster presentation, models, tech rangoli fests, essay writing, presentation, quiz, robotics, etc as per the table given below. Apart from indoor and outdoor sports activities, College fest etc. are conducted during academic year. Students participate in various Co-curricular activities and achieve distinctions as under:

Table: 2.12. Co-curricular activities

1. NPTEL Certification

Session: 2019-20

S.N.	Course	Participant	Score	Relevance with POs and PSOs
1	Embedded system design with ARM	Rohan Raj	69%	PO1,PO2,PO3,PO5,PO12,PS O2,PSO3
		MD. Danish	72%	PO1,PO2,PO3,PO5,PO12,PS O2,PSO3
		Satish kumar Gupta	59%	PO1,PO2,PO3,PO5,PO12,PS O2,PSO3
		Nandlal Kumar	61%	PO1,PO2,PO3,PO5,PO12,PS

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		Gupta		O2,PSO3
		Sonu Kumar	69%	PO1,PO2,PO3,PO5,PO12,PS O2,PSO3
2	Python for data science	Vinay Kumar	88%	PO1,PO2,PO3,PO5,PO12,PS O3
3	Problem solving through programming in C	Vinay Kumar	92%	PO1,PO2,PO3,PO5,PO12,PS O3

Session: 2018-19

S.N.	Course	Participant	Score	Relevance with POs and PSOs
1	Control Engineering	Sarika Kumari	41%	PO1,PO2,PO3,PO5,PO12,PSO1,PSO3

2. Annual technical events (Tech fest)

3. NSS/NCC Activities :

Table: 2.13. Different Co-Curricular activities

Sn.	NCC Activity	Details	Date	Person	EC	Relevance to POs/PSOs
1	Army Attachment Camp Gwalior	Attachment of NCC Cadets with regular Army Unit	4/9/17 to 20/9/2017	Gwalior military Station	1	PO6, PO7, PO8, PO9, PO12, PSO3
2	NCC 'B' Certificate Examination 2017-18	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	20-21/02/ 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	3	PO6, PO7, PO8, PO9, PO12, PSO3
3	NCC 'C' Certificate Examination 2017-18	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	27-28/2/ 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2	PO6, PO7, PO8, PO9, PO12, PSO3

[SELF ASSESSMENT REPORT]

4	International yoga day	10 Cadets of IES College Participated in Yoga Day program of Chief minister at Lal Parade ground	6/6/2018	Akhilesh Dwivedi (NCC Caretaker), R S Dhumketi (PI Staff)	2	PO6, PO7, PO8, PO9, PO12, PSO3
5	Enrollment of NCC 2018 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	14/08/2018	Akhilesh Dwivedi (NCC Caretaker), Sub S D Pandey, JCO, Sub R P Chavan NCO	2	PO6, PO7, PO8, PO9, PO12, PSO3
6	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15/9/2018 - 02/10/ 2018	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	4	PO6, PO7, PO8, PO9, PO12, PSO3
7	NCC 'B' Certificate Examination 2018-19	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	23-24/02/ 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	1	PO6, PO7, PO8, PO9, PO12, PSO3
8	NCC 'C' Certificate Examination 2018-19	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	19-20/02/ 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	1	PO6, PO7, PO8, PO9, PO12, PSO3
9	Enrollment of NCC 2019 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	12/8/2019	Akshay Varkale (NCC Incharge) & PI Staff	4	PO6, PO7, PO8, PO9, PO12, PSO3
10	No Plastic Awareness Campaign	Under Unnat Bharat Abhiyaan the NCC & NSS Volunteers team of IES College of Technology organized No Plastic Awareness	16/09/2019	Akhilesh Dwivedi (NCC Caretaker), Prof. R C Maheshwari	5	PO6, PO7, PO8, PO9, PO12, PSO3

[SELF ASSESSMENT REPORT]

		Campaign at adopted village Berkhedi Vzyaft				
11	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23/01/ 2020	2 MP AIR SQN NCC Bhopal	2	PO6, PO7, PO8, PO9, PO12, PSO3
12	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15/9/2019 - 01/10/2019	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	7	PO6, PO7, PO8, PO9, PO12, PSO3
13	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23/06/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	2	PO6, PO7, PO8, PO9, PO12, PSO3
14	Firing Practice	Firing by .22 Rifle at firing range Sukhi Sevaniya Bhopal	13-14/12/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & NCC Unit - 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	5	PO6, PO7, PO8, PO9, PO12, PSO3
15	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	20 to 29/12/ 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	1	PO6, PO7, PO8, PO9, PO12, PSO3

[SELF ASSESSMENT REPORT]

16	NCC 'B' Certificate Examination 2019-20	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	18 - 19/02/ 2020	Under Supervision of Col. N P semalti (Commanding Officer) 1 MP CTR	5	PO6, PO7, PO8, PO9, PO12, PSO3
17	NCC 'C' Certificate Examination 2019-20	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	25 - 26 /02/ 2020	Under Supervision of Col. N P Semalti (Commanding Officer) 1 MP CTR	1	PO6, PO7, PO8, PO9, PO12, PSO3
18	Enrollment of NCC 2020 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	13/08/2020	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	5	PO6, PO7, PO8, PO9, PO12, PSO3
19	Online Inauguration Ceremony of National Constitution Day	Organized by Ministry of Defence & Youth and sports ministry at Directorate NCC (MP&CG) Chief Guest : Rajnath Singh (Defence Minister) & Guest of Honour : Kiran Rijiju (Youth & Sports Minister)	18/11/2020	Akhilesh Dwivedi (Associate NCC Officer) & ADG NCC Directorate Bhopal (MP&CG)	1	PO6, PO7, PO8, PO9, PO12, PSO3
20	Online Webinar on National Constitution Day	Online Webinar on National Constitution Day, Expert ; Justice Alok Verma (Judge High Court	26/11/2020	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	7	PO6, PO7, PO8, PO9, PO12, PSO3

Impact analysis of Initiatives and Implementation of learning through Co-curricular activities

- Students learn to work in team
- Professional and ethical learning
- Learn to apply their knowledge for Societal and environmental cause
- Helps in boosting confidence, improving communication, widening ones scope of knowledge
- Develop certain hobbies or skills, learning manners.

[SELF ASSESSMENT REPORT]

2.2.2 Quality of internal semester Question papers, Assignments and Evaluation (20)

A. Process for internal semester question paper setting and evaluation and effective process implementation

The assessments are designed in a relevant manner in order to ensure that the learner achieves the intended learning outcomes. Thus, the evaluation of assessment tasks with regards to both content and form is necessary. Our Institution has well-defined guidelines for question paper setting and preparing key points for answers with mark distribution. While setting question papers the following guidelines are kept in mind and strictly adhered to enhance quality.

The department conducts two internal assessment tests in one semester before appearing in the final exam for each course. This procedure enhances the confidence level for the students to prepare for the end term exam and also provides a better understanding in the respective course.

- The department conducts two mid semester tests in one semester for a maximum of 20 marks each.
- Mid semester 1 covers 40% coverage of COs and remaining 60% coverage of COs is covered in mid semester 2.
- Duration of the test is two hours and question papers are set in such manner that it makes the students to learn time management.
- The question papers are prepared based on course outcomes. Each question is mapped with the corresponding course outcome.
- While setting the question paper previous university exam papers are taken into consideration.
- The HOD/ Exam coordinator review the Mid semester exam question paper for validation with respect to COs and Bloom's taxonomy of learning objectives before submission in the exam section.
- If any question paper is not satisfying, then it is not accepted and resent to the faculty for improving the quality of questions level.
- Marks are recorded in the exam cell after valuation and are finally considered for calculation of internal marks.
- The valued answer scripts are shared with the students.
- Students affix their signature on the answer script after scrutiny.
- Average of the two assessments marks is chosen in mid semester examination (MSE) at the time of awarding internal marks.

[SELF ASSESSMENT REPORT]

Evaluation Process of Question paper setting

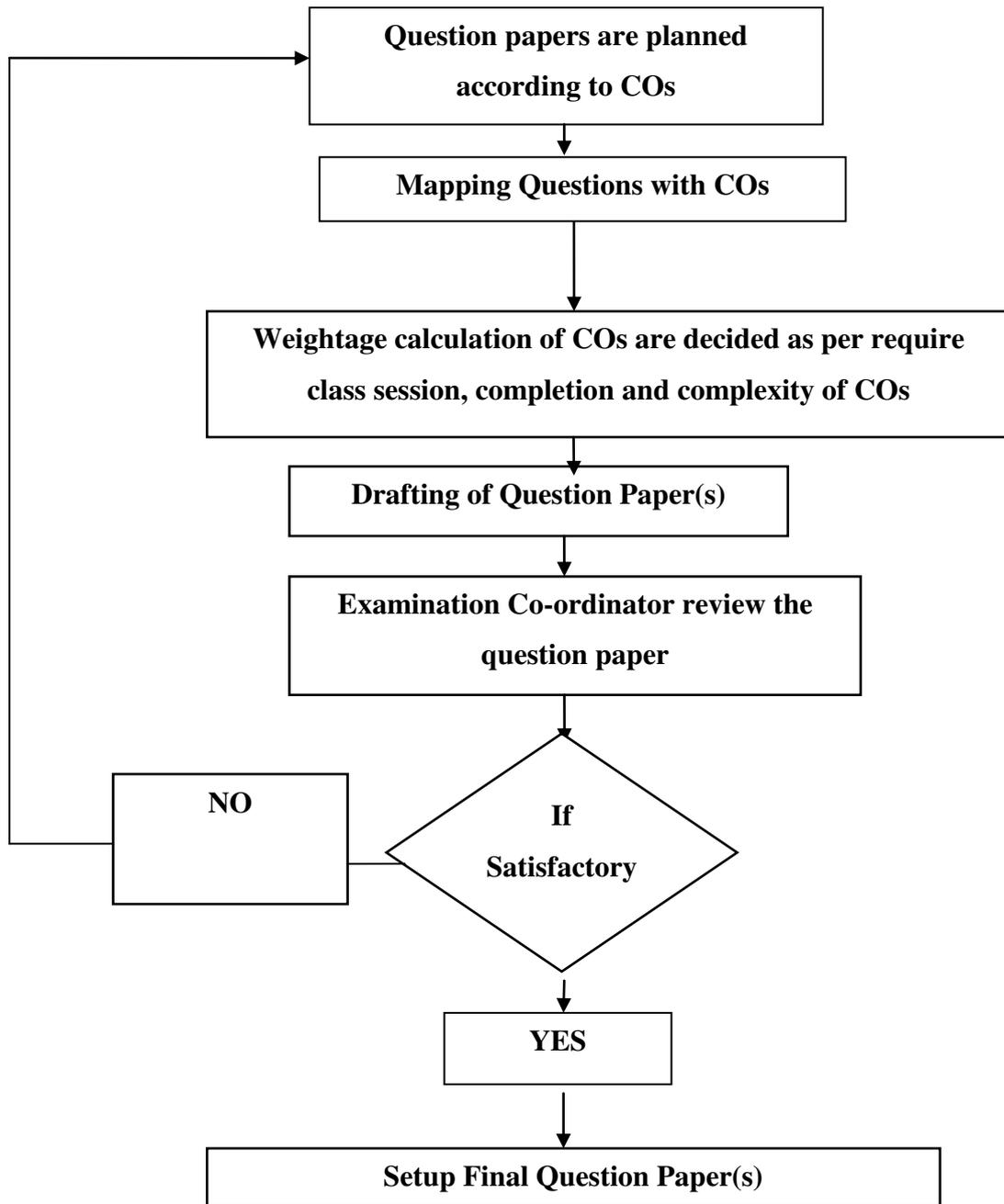


Figure 2.3 Evaluation Process

B. Process to ensure questions from outcomes/ learning levels perspective

- Direct attainment of COs is determined from the performances of students in 30% of Internal Evaluation (IE) and 70% of Semester End Examination (SEE)
- 30% of Internal Evaluation (IE) is calculated from 67% of Mid Semester Examination and 33% of Assignment/theory quizzes.
- For assessment of Mid Semester Examination marks, two Mid Semester are conducted and final marks is consider as an average of two mid marks. Mid semester 1 covers 40% coverage of COs and remaining 60% coverage of COs is covered in mid semester 2.

[SELF ASSESSMENT REPORT]

- First Mid Semester Examination includes four to six questions with respect to COs.
- Second Mid Semester Examination includes four to six questions with respect COs.
- The examination section reviews the Mid semester exam question paper on the above basis and the report is submitted to HOD for further action.
- If any question paper is not satisfying, then it is not accepted and resent to the faculty for improving the quality of questions level.

C. Evidence of COs coverage in class test/mid-term examination

	Total No. of Questions: 04 Enrollment No. _____ IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)		
MID SEMESTER EXAMINATION- I			
Session			
Branch :	Electronics and Communication		
Semester:	VI	Max. Marks: 40	
Subject :	Antenna and Wave-propagation	Sub Code:EC602	Time: 2Hrs

Course Outcome

- C602.1. Demonstrate the Electromagnetic field and antenna parameters for dipole antenna under far field and near field approximation
- C602.2. Design linear and non linear antenna array.
- C602.3. Categorize antennas, application and its measurements for communication system.
- C602.4. Analyze Numerical tool, Radiation mechanism, and application of Aperture and slot antennas
- C602.5. Classify the ground, ionosphere and troposphere wave propagation and its parameters.

Question No.	Question	Marks	CO Mapping
	UNIT I		
1(A)	Explain the retarded vector potential in detail?	10	C602.1
1(B)	Explain far field component of a half wave dipole of an antenna?	10	C602.1
	UNIT II		
2(A)	Develop the expression for the far field pattern of an array of 2 – isotropic point sources i) Equal amplitude and phase ii) Equal amplitude and opposite phase iii) Unequal amplitude and any phase	10	C602.2
2(B)	Estimate for the array of N- sources of equal amplitude and spacing- Broad side case (i) Direction of pattern maxima ii) Direction of pattern minima iii) Beam width of major lobe	10	C602.2

[SELF ASSESSMENT REPORT]

	Total No. of Questions: 06	Enrollment No. _____	
IES COLLEGE OF TECHNOLOGY, BHOPAL(0177)			
MID SEMESTER EXAMINATION- II Session 2019-20			
Branch :	Electronics and Communication	Max. Marks: 60	
Subject :	Antenna and Wave propagation	Sub Code:EC602 Time: 2Hrs	
Course Outcome C602.1. Demonstrate the Electromagnetic field and antenna parameters for dipole antenna under far field and near field approximation C602.2. Design linear and non linear antenna array. C602.3. Categorize antennas, application and its measurements for communication system. C602.4. Analyze Numerical tool, Radiation mechanism, and application of Aperture and slot antennas C602.5. Classify the ground, ionosphere and troposphere wave propagation and its parameters.			
Question No.	Question	Marks	CO Mapping
	UNIT III (Solve any 2)		
1(A)	Classify the special features of various types of Horn antennas and frequency independent antennas?	10	C602.3
1(B)	Analyze Yagi antenna with a suitable diagram?	10	C602.3
1(C)	List the radiation modes and operation for helical antenna?	10	C602.3
	UNIT IV (Solve any 2)		
2(A)	Analyze the field components radiated from a thin slot antenna in an infinite cylinder?	10	C602.4
2(B)	List the steps of designing of Microstrip antenna?	10	C602.4
2(C)	Analyze the radiation from a rectangular aperture?	10	C602.4
	UNIT V (Solve any 2)		
3(A)	Analyze Maximum Usable Frequency for the calculation of MUF?	10	C602.5
3(B)	Discover the effect of Earth's Magnetic Field on Radio wave Propagation?	10	C602.5
3(C)	Examine briefly about Ionosphere abnormalities?	10	C602.5

[SELF ASSESSMENT REPORT]



IES COLLEGE OF TECHNOLOGY, BHOPAL
DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING

Branch/Semester	EC/6th	Session	2019-2020
Name of Faculty	Dr. Rajesh Kumar Nema		
Subject	Antenna and wave propagation	Sub Code	EC - 602
Date of Submission			

ASSIGNMENT-V

Course Outcome

- C602.1:** Demonstrate the Electromagnetic field and antenna parameters for dipole antenna under far field and near field approximation
- C602.2:** Design linear and non linear antenna array.
- C602.3:** Categorize antennas, application and its measurements for communication system.
- C602.4:** Analyze Numerical tool, Radiation mechanism, and application of Aperture and slot antennas
- C602.5:** Classify the ground, ionosphere and troposphere wave propagation and its parameters.

S.No	Question	Marks	CO Attained
1	Classify fading in wave propagation?	4	C602.5
2	Examine Ground Wave Propagation in detail?	4	C602.5
3	Classify the Structure of Atmosphere?	4	C602.5
4	Analyze (a) Skip Distance (b) Optimum Working Frequency (c) Super Refraction and duct propagation	4	C602.5
5	Analyze the Effective Earth's Radius in Space Wave Propagation	4	C602.5

D. Quality of Assignments and its relevance to COs

- For assessment of assignment three to five assignments are given and each assignment includes three to five questions with respect to concern COs.
- The questions framed in the assignments are taken from multiple sources (previous question papers, text books, etc).
- Mapping is done for all questions of the assignment with the CO's of the course.

[SELF ASSESSMENT REPORT]

- The assignments are evaluated within two weeks after submission and the valued assignments are returned to the students for their scrutiny and improvement.
- Assignment issue and submission dates are mentioned in academic calendar and announced by respective faculty members.
- Assignment questions are prepared as per COs, Bloom's Taxonomy process and previous years' university question papers.
- Sample copies of checked assignments are analyzed by the HOD.

Evaluation of assignments:

The assignments are assigned to the students to cover the important concepts in a particular subject. Assignments are vital in the process of learning and continuous evaluation of a student. It is the mode of active learning in opposition to passive receiving of knowledge. Strategies include brief question and answer or in depth reading of advanced topic or a topic in syllabus. Writing assignment, seminars and PPT presentation enhance the teaching learning process. Subject in charge finalizes the modes of assignment and the time frame for the assignments.

The Formative assessments and Summative assessments are used to evaluate the student's performance to achieve the targets. The Rubrics are designed to judge performance indicators and shared with the faculty of department. This helps faculty to understand against which parameter they should be judged for their own assessment. These rubrics can be used by students in revising, and judging their own work and progress.

- Assignments are used as a tool for practice.
- Assignments are given to the students before the start of any unit and submission date is fix mostly after the completion of unit.
- Assignments are displayed on notice boards or given through Google class rooms.
- Students who submit assignment on time will usually see higher grades than students who miss the deadline.
- Doing assignments is a compulsory academic activity.
- Assignments are checked within two weeks after submission by students
- Marks are recorded in the exam cell after valuation and are finally considered for calculation of internal marks.
- Evaluation of assignments are done as under

[SELF ASSESSMENT REPORT]

Table 2.14 Evaluation of Assignments and Allocation of Marks

Evaluation Components (Grading System)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		
1	Mid Semester Tests	20	30
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		70
TOTAL			100

Evaluation Components (CBCS)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		
1	Mid Semester Tests	30	40
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		60
TOTAL			100

Evaluation Components (CBGS)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		
1	Mid Semester Tests	20	30
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		70
TOTAL			100

Impact analysis of initiative of improving the quality of internal semester Question papers, Assignments and Evaluation

- Results are observed in end- semester examination and in overall performance of students according to the POs, COs and PSO.
- Stimulating environment make students to plan their study for better performance.
- At the end of every semester the feedback form from the students give feedback for the course taught this feedback given by students help the department to judge effectiveness of course taught in achieving POs.

[SELF ASSESSMENT REPORT]

- The Formative assessments and Summative assessments help the students to overcome his/her difficulties and achieved the outcome of course and program.

2.2.3 Quality of student projects (25)

A. Identification of projects and allocation methodology to faculty members

At the end of seventh semester and at the beginning of eighth semester HOD / project coordinator addresses the students about how to choose the project domain. The students are also encouraged to do projects in industries and are guided to choose projects that are creative, innovative and offering solution to real world problems. Projects are selected based on various considerations like application, product and research. Factors such as environment, safety, ethics and cost are also taken into account for choosing the topic.

Each Project to be carried out by a group of students of the department is selected by matching with department Vision & Mission, POs and PSOs and mandated to make project based on University based curriculum. Faculty member can supervise at most 3 projects in an academic year. However, as a special case HODs can permit a faculty member to supervise more than 3 projects.

The group size preferably made is 3 to 5 students. Formation of student group is done in such a way so that they can get the knowledge related to their field and fulfil industry scenario. After formation of group any left out student is randomly attached to any group. Students are provided with brief idea of various fields for selecting project ideas. The list of previous year projects is displayed at notice board which ensures no repetition of project work and also encourages students to improve the previous works. The faculties encourage the students to carry out projects and support is provided with all necessary software, hardware & finance. The faculties encourage students to participate in project exhibitions. The aim of such activities is to provide common platform to exhibit their innovations and work towards excellence in latest technology

B. Course Outcomes for Student Projects

The quality of student projects is ensured and assured through the achievement of the well articulated Course outcomes, as given in Table below. All student project works consider the factors such as environment, safety, ethics, cost and standards. This is ensured through proper instruction by the Project guides as well as through Project reviews, where focus is on attainment of COs.

[SELF ASSESSMENT REPORT]

Table: 2.15 Course Outcomes for student Projects

CO No.	Course Outcomes for student Projects	Relevance to POs/PSOs	
		POs	PSOs
CL8005.1.	Examine the literature Survey	PO1, PO 2, PO5	PSO1
CL8005.2.	Apply the theoretical concepts to solve industrial problems with teamwork and multidisciplinary approach	PO4, PO5, PO10	PSO1, PSO2, PSO3
CL8005.3.	Built hardware of the project	PO3, PO9, PO11, PO12	PSO1, PSO2, PSO3
CL8005.4.	Test the parameters of project	PO3, PO9, PO11, PO 12	PSO1, PSO2, PSO3
CL8005.5.	Demonstrate professionalism with ethics; present effective communication skills and relate engineering issues to broader societal context	PO8, PO9, PO10, PO 12	PSO1, PSO2, PSO3

C. Process for monitoring and evaluation

Guide will give ideas and suggestions for conceptualization and development of projects. Based on the given ideas, students will start their project work. To ensure proper conduction of each project, progress of each project is monitored regularly on a continuous basis by the supervisor and also by HOD. The process is carried out as per following steps:

Step1: Interaction with supervisor

1. Students select area of work based on their area of interest.
2. The maximum limit of the group size can vary from 3 to 5.
3. Students are allowed to select faculty members based on their specialization.
4. Mapping process is carried out between student team and faculty members' specialization.

Step2: Project identification

1. The Projects may be selected to the area based on industrial visits and training.
2. The new ideas of work can be identified by expert lectures, seminars, industrial visits; workshops were conducted by the faculty members association and professional societies.
3. On each area of project students perform the literature review.
4. Finally, project methodology is confirmed based on literature review.

Step3: Monitoring mechanism:

1. The students have to show their report to the concerned supervisor periodically.
2. After conducting primary review and further more reviews are conducted.

[SELF ASSESSMENT REPORT]

3. A brief viva voce examination on project work is conducted before the end semester examination.
4. The students should give a power point presentation during the review.
5. Review panel consists of supervisor and faculty experts.
6. A project team will submit the project report in the prescribed format.
7. Students prepared the power point slides and report based on the guidelines.
8. An end semester project viva voce is conducted with the panel of internal and external examiners.
9. The external examiner from other institution / university is appointed by the RGPV.

Step4: Demonstration of prototypes:

1. The students will demonstrate the working prototype models during the project review and end semester examination.
2. Enhancing relevance of the project: Outcomes of the projects are encouraged to publish as a paper in conference / journals.

D. Evaluation of Project and Process to assess individual and team performance

Assessment of individual or team performance is based on

1. Innovative ideas
 2. Literature Survey
 3. Knowledge about the working model
 4. Application of tools and software
 5. File report
 6. Group activity
 7. Question & answers
 8. Presentation skill and Teamwork
 9. Oral Presentation & working condition of the model
 10. Fabrication & Testing
 11. Society Application
- A project coordinator appointed by the Head of the department who is responsible for planning, scheduling and execution of all the activities related to the student project work.
 - Project progress is assessed after each project class by respective guide.
 - The project seminar should be given by all the project team members according to the division of project.
 - Each student in the project team is assessed to their skill set to deliver the seminar, explain the concept and way to make project assess team to understand their work.

[SELF ASSESSMENT REPORT]

- Each individual and team performance is purely based on this project seminar presentation and the viva voce and progress work they show to their guide.

Project Work Evaluation Rubrics

- Student Name:** ----- **Enrollment Number:** -----
- Evaluation Date:** -----

Method of Evaluation	Evaluation Parameters	Max. Marks	Rubric Parameters	Level of Achievement				
				Excellent (9-10)	Very Good (7-8)	Good (5-6)	Average (3-4)	Poor (1-2)
Process	Attendance	10	Continuity	85% above Attendance	70-85% Attendance	60-70% Attendance	40-60% Attendance	40% Below Attendance
	Design Methodology	20	Conceptual design, Division of problem into modules, Selection of design Framework.	Properly followed & Properly Justified	Properly Followed & Justified Partially	Properly followed & Not Justified	Partially Followed and Partially justified	Not followed and Not justified
	Implementation	20	Design Circuit Model, Algorithm, Coding	Properly Followed & Properly implemented	Properly Followed & Implemented Partially	Properly followed & Not implemented	Partially Followed and Partially implemented	Not followed and Not implemented
Product	Presentation	10	Preparation of Slides, Presentation Consistency	Relevant and consistent	Relevant & partially consistent	Partially relevant & consistent	Partially relevant & partially consistent	Not relevant & inconsistent
	Demonstration	10	Hardware & Software modules, Working and results	Properly demonstrated & Properly Justified Results	Properly Demonstrated & Partially Justified Results	Partially demonstrated & Justified	Partially demonstrated and Partially Justified	Not demonstrated and no justification
	Viva	10	Handling Questions	Answered all questions with proper justification	Answered 80% questions	Answered 60% questions	Answered 40% question	Answered 20% questions
	Project Report	20	Contain of Report	Excellent	Very Good	Good	Average	Poor

[SELF ASSESSMENT REPORT]

Table: 2.16. Samples of Major Projects

IES College of Technology, Bhopal(0177)					
EC 8th SEM Major Projects (Best and average projects of last three batch)					
BATCH:2013-2017 (AY_2017-2018)					
S.No.	Enrollment no.	Name of Student	Name of Project	Project Guide	PO Mapping
1	0177EC131037	Kamlesh Kumar	Scrolling LED Display Using Bluetooth	Mr. Sonu lal	PO2, PO3, PO5, PO6, PO12
	0177EC131101	Shivjee Prasad			
	0177EC13112	Upendra kumar Kumar			
2	0177EC131001	Abhishek Singh	IOT based green house automation system	Mr. Sachin Kalraiya	PO2, PO4, PO5, PO12
	0177EC131030	Govind Kumar			
	0177EC131079	Rakesh Kumar			
	0177EC131084	Randhir kumar Singh			
	0177EC131065	Omprakash Mandal			
	0177EC131109	Suraj Pratap Singh			
3	0177EC131012	Amit Kumar	RF Based device Control System	Mr. Rajneesh Dubey	PO3, PO4, PO6, PO11, PO12
	0177EC131019	Anupama Kumari			
	0177EC131020	Arpna Kumari			
	0177EC131034	Jaya Bhardwaj			
	0177EC131002	Aditya Kumar			
4	0177EC131006	Ajay Kumar	Android based surface cleaning robot	Mr. Vishal Mehra	PO1, PO3, PO5, PO9, PO12
	0177EC131009	Amal Raj			
	0177EC131031	Govind Sharma			
	0177EC131061	Niraj Kumar Pandey			
5	0177EC131039	Kaushal Singh	RF Based attendance Mangement system using Lab	Mr. Deepak Mishra	PO2, PO4, PO5, PO12
	0177EC131086	Raushan Kumar Singh			
	0177EC131076	Rajendra Prasad Gupta			
Batch: 2014-2018 (AY_2018-2019)					
1	0177EC141035	Neetesh Kumar Pandit	GSM/GPS Based vehicle Tracking System	Mr. Jitendra Mathur	PO2, PO3, PO4, PO5, PO12
	0177EC141010	Amit Kumar Yadav			
	0177EC141036	Nitish Kumar Singh			
	0177EC111048	Md. Anayat Tulla Irfani			
	0177EC141041	Ravi kumar Sharma			
2	0177EC141040	Rajeev Kumar	Automatic Plant Irrigation system	Mr. Sonu lal	PO1, PO2, PO3, PO5, PO9,
	0177EC153D02	Deepak Kumar			

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	0177EC131094	Sandeep Nayan	with message Alert		PO12
	0177EC141022	Hridayanand prasad Gupta			
3	0177EC141013	Arbind Kumar	RFID Based attendance system using Arduino	Mr. Ashish Raguwanshi	PO2, PO4, PO5, PO6, PO11, PO12
	0177EC141006	Ajay			
	0177EC141042	Sanjay Chauhan			
	0177EC141021	Geeta Jatav			
	0177EC141038	Pintu kumar			
4	0177EC141017	Chandrashekhar kumar Singh	Theft and fire intimation of the home over GSM SMS & Call as well as Microphone	Mr. Jitendra Mathur	PO1, PO2, PO3, PO6, PO9, PO12
	0177EC141015	Bipin Kumar			
	0177EC141046	Sonu kumar Singh			
	0177EC141026	Manish Awasthi			
5	0177EC141001	Abhay Pratap Singh	4*4*4 LED Cube	Mr. Ashish Raguwanshi	PO2, PO3, PO6, PO12
	0177EC141003	Abhisek			
	0177EC141011	Ankit Tiwari			
	0177EC141016	Chaitanya			
Batch: 2015-2019 (AY_2019-2020)					
1	0177EC151032	Krishna Kapoor	Flame and Smoke detection system using Arduino	Mr. Deepak Mishra	PO4, PO5, PO5, PO6, PO11, PO12
	0177EC151038	Manish Kumar			
	0177EC151031	Khushbu Kumari			
	0177EC151010	Amit Kumar			
2	0177EC151019	Ayush anand	Iot based notice board	Mr. Ashish Raguwanshi	PO1, PO2, PO3, PO4, PO6, PO12
	0177EC151062	Raghuvansh Kumar			
3	0177EC151006	Akanksha Srivastava	Bluetooth controlled pick and place robot based on arduino	Mr Deepak Mishra	PO2, PO3, PO5, PO6, PO9, PO12
	0177EC151024	Divyani Pandey			
	0177EC151027	Geetu Kumari			
	0177EC151037	Laxmi Sahu			
	0177EC151079	Stuti Yadav			
4	0177EC151002	Abhijeet kumar Singh	Arudino based floor cleaning robot using ultrasonic sensor	Mr. Ashish Raguwanshi	PO1, PO2, PO3, PO6, PO9, PO12
	0177EC151007	Akash Kumar			
	0177EC151047	Monazir Hasan			
	0177EC151065	Raja Ali			
5	0177EC151059	Priyanshu Mishra	Control Overheat detection System using IOT	Mrs. Shweta Singh	PO2, PO3, PO4, PO5, PO6, PO9, PO12
	0177EC151090	Wahid Ahmad			
	0177EC151061	Radhe Shyam Singh			
	0177EC151085	Vishal			

Batch: 2016-20 (AY_2020-21)					
1	0177EC161043	Kashif Shehzad	Home Automation Using Arduino Wifi Module Esp8266	Mr. Jamvant Omkar	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161072	Nikita Bhalla			
	0177EC161100	Shikha Patel			
2	0177EC161098	Shashwat Sarathe	Laser Touch-	Dr Rajesh	PO1, PO2,

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	0177EC161088	Raunak Kumar Jha	Based Voice Transmitter	Nema	PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
3	0177EC161070	Neeraj Napit	RFID Based Attendance Management System Using Labview	Mrs. Shweta Singh	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161073	Nitesh Kumar Prasad			
	0177EC173D10	Zahid Khan			
	0177EX161034	Balendra Kumar			
4	0177EC161062	Md Rashid Akhtarkhan	GSM Based Home Security System	Mr. Jitendra Mathur	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161082	Rahul Kumar			
	0526EC161010	Chandan Kumar			
	0177EC161111	Vidyasagar Pandit			
5	0177EC161107	Suruchi Sinha	Design Of Microcontroller Based Temperature Controller	Mr. Deepak Mishra	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161028	Bhagmal			
	0177EC161041	Jyoti Kumari			
	0177EC161047	Kushal Kumar			

Impact analysis

- The project work of the student will develop discipline and interdisciplinary skill of the students
- New innovative ideas floated by students form the basis of their projects and improved understanding.
- Knowledge on various aspects of project management and finance were developed.
- Improved individual and teamwork skills.
- Enhance skill of Implementation and application of the project for Environment and Society benefits.
- Improvement in document preparation and presentation skills.
- Design and development of the project also improved lifelong learning and ethics.

2.2.4 Initiatives related to industry interaction (15)

Industry institute interaction is effected through

- A. MOUs with industries
- B. Industrial visits by students
- C. Guest lectures by industry experts
- D. Workshops
- E. Representation of industry experts in IQAC

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F. Representation of industry experts in Department Academic Advisory committee (DAAC)

G. Student Project works with involvement of industry

A. MOUs with industries

To build up interaction with industries and to keep our students updated with the latest trends in their field, our Institute has signed a number of MOUs with different industries and organizations which are detailed as under:

Table: 2.17. Tie-Up Name of Organisation/ MOU's:

S No	Year	Name of Organisation	Area of Cooperation
1	2020-21	AIC RNTU	E-Cell facilitation, design develop faculty training, design and work simultaneously activity, B-plan competition, Innovation Challenge
		IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness among students
		CRISP Bhopal	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness, Support students in development of Minor, Major Projects
2	2019-20	Confederation of Indian Industry (CII)	YI & Education Partner shall motivate & provide opportunity to students, Promotion of Mutual Cooperation activities
		IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness among students
		CRISP Bhopal	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness, Support students in development of Minor, Major Projects
3	2018-2019	IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness among students
		CRISP Bhopal	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness, Support students in development of Minor, Major Projects
4	2017-18	Red Hat	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness
		BMA	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness
		IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness

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			among students
		CRISP Bhopal	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness, Support students in development of Minor, Major Projects
	2017-18	IndEyes Infotech	Short Term Training programs at UG & PG level, Enhance knowledge, skills, attitudes & awareness among students
		CRISP Bhopal	Provide Short term training programs to UG and PG students, Enhance Knowledge, Skills, Attitudes & Awareness, Support students in development of Minor, Major Projects

B. Industrial visits

Industrial visits are conducted which enable students to integrate theory and practical knowledge. Industrial visit has its own importance in a career of a student who is pursuing a professional degree. It is considered as a part of college curriculum. Industrial visits provide students an insight regarding internal working of companies. We know theoretical knowledge is not enough for making a good professional career. With an aim to go beyond academics, industrial visit provides student a practical perspective on the world of work. It provides students with an opportunity to learn practically through interaction, working methods and employment practices.

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Table: 2.18. Details of Industrial visits

S.No	Industry	Date	Outcome	Relevance with POs and PSOs
1	CRISP Bhopal	21/01/2020	Student Visited various lab VLSI Design, Fiber Optic Networking, Electrical Control and Relay Logic Application, Electronics Maintenance, Power Electronics and Industrial Drives and learned about Instruments application in electronics Fields.	PO1,PO2,PO3,PO4,PO 5, PSO1, PSO2, PSO3
2	BSNL, Bhopal	17/01/2020	Student learned much practical application of Networking, Wired Communication system, Mobile communication, how the connections are established, how they work and explore the latest technology in Telecom Industry.	PO1,PO2,PO3,PO4,PO 5, PSO1, PSO2, PSO3
3	India Metrological Department Bhopal	15/10/2019	Student experienced the know about weather report recorded forecasting and broadcasted to all over station and working of different electronics equipments and measurements are seen.	PO1,PO2,PO3, PSO1
4	CRISP Bhopal	31/01/ 2019	Student Visited various lab VLSI Design, Fiber Optic Networking, Electrical Control and Relay Logic Application, Field Instrumentation and Control, PLC Programming and Application, Electronics Maintenance, Power Electronics and Industrial Drives and learned about Instruments application in electronics Fields.	PO1,PO2,PO3,PO4,PO 5, PSO1, PSO2, PSO3
5	BSNL, Bhopal.	06/10/2018	To enhance their practical knowledge towards communication technology like TDM, FDM and WDM etc, this visit gives practical and better understanding of subjects to students and updates their knowledge.	PO1,PO2,PO3,PO4,PO 5, PSO1, PSO2, PSO3
6	Doordarshan Kendra, Bhopal	19/03/2016	Students experienced the working of TV centre in general and how relay process is possible.	PO1,PO2,PO3, PSO1,PSO2, PSO3

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Industrial visits@ BSNL Bhopal

C. Guest lectures

The Guest lectures are organised with eminent persons from industries and reputed Institutions. They are invited for updating student's knowledge for latest developments in industry and also in their respective fields. Guest lectures are organized by industry experts who provide industry exposure to the students beyond the class room learning and curriculum.

Table: 2.19. Expert lectures organized by the Department:

S.No	Topics	Resource Person	Date	Relevance to Pos and PSOs
1	Recent developments in VLSI design	Dr Pramod Patel Associate Professor (IES College of Technology, Bhopal)	10/03/2021	PO1, PO2, PO3, PO4, PO5, PO12, PSO1 PSO2
2	Different generations of mobile communication	Prof. Shweta singh Associate Professor (IES College of Technology, Bhopal)	09/09/2020	PO1, PO2, PO3, PO4, PO5, PO12, PSO1 PSO3
3	Expert lecture on PCB Designing	Prof. Deepak Mishra Assistant Professor	06/03/2020	PO1, PO2, PO3, PO4, PO5, PO12 PSO1

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		(IES College of Technology, Bhopal)		
4	5G antennas	Dr Rajesh Nema Professor (IES College of technology)	20/08/2019	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO12, PSO1, PSO3
5	MATLAB	Prof. Deepak Mishra Assistant Professor (IES College of technology)	11/03/2019	PO1, PO2, PO3, PO4, PO5, PO12, PSO1
6	Electromagnetic Theory	Mr. Rakesh Talreja (GATE 9th Rankers in 2009), M-Tech IISC, Bangalore	05/02/2018	PO1, PO2, PO3, PO12, PSO1, PSO3
7	Signal and System	Mr. Rakesh Talreja (GATE 9th Rankers in 2009), M-Tech IISC, Bangalore	05/02/2018	PO1, PO2, PO3, PO4, PO5, P12, PSO1
8	Enabling Geospatial Technology for smart city services and application	1. Dr. Sudhir Kumar, AP, Dept of EC, IIT Patna 2. Dr. Vidyadhar Asi, AP, EC, Manipal University, Jaipur, Rajasthan, India 3. Dr. O P Meena, AP, MANIT, Bhopal (MP) 4. Dr. Neelesh Mehra, AP, SATI, Vidisha (MP)	15-16 /9/ 2017	PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO12, PSO1, PSO3
9	Advancement of Smart Antenna	Prof. Amit Udawat, AITR Indore	23-24/09/ 2016	PO1, PO2, PO3, PO5, PO6, PO7, PSO1, PSO3
10	4G: LTE vs WiMax	Shri Mahesh Shukla, Sr. GM, BSNL, Bhopal	13/2/2015	PO1, PO2, PO3, PO5, PO8, PO12, PSO1, PSO3

[SELF ASSESSMENT REPORT]



Mr. Rakesh Talreja (GATE 9th Rankers in 2009), M-Tech in from IISC, Bangalore addressing the audience in expert lecture Signal & System @ IES College of Technology Bhopal



Dr Amit Udawat (A I T R Indore) addressing the audience in expert lecture @ IES College of Technology Bhopal

D. Workshops:

Several workshops are conducted to improvise students in different aspects such as

- Workshops on Entrepreneurship development skills.
- PCB Design workshop, Robotics,
- Workshops on recent ongoing Engineering related topics

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Table: 2.20. Details of Workshops:

S,No	Title	Date	Resource person	Relevance to POs and PSOs
1	Workshop on Matlab	31/12/2019 to 12/01/2020	Mr Nishant Verma (Indeyes Institute Bhopal)	PO1,PO2,PO3, PO5, PSO1, PSO2, PSO3
2	National Student Start-up & Innovation Summit 2019(LNCT)	07/09/2019	<ol style="list-style-type: none"> 1. Mr. Navnit Singh Chatwal, Executive Director, Centre for Entrepreneurship, Madhya Pradesh 2. Mr. RAVI. K, Trade Commissioner Ontario, Canada 3. Vijay Bawra, Regional Head, AP & TS at NASSCOM 4. Kapil Khandelwal, (investment manager, investor & deal maker). 	PO1, PO2, PO3, PO5, PO9,PO10, PSO1, PSO3
3	Workshop on MATLAB	31/12/2018 to 13/01/2019	Mr Nishant Verma (Indeyes Institute Bhopal)	PO1,PO2,PO3, PO5,PSO1, PSO2, PSO3
4	Different Channel coding techniques for 5G network and future implementation	18-19/08/2017	<ol style="list-style-type: none"> 1. Dr. Preety D. Swami, Dept. of EI, SATI Vidisha 2. Dr. Ravi Sindal, Professor, Dept of ECE, IET DAVV Indore (MP) 3. Dr. Varun Bajaj, Assistant Professor, IIITDM Jabalpur (MP) 	PO2,PO3, PO5, PO12,PSO1, PSO3
5	Workshop Mobile adhoc network	2/05/2016	Mr. Niket Chandrawanshi, (Founder CEO of IBS), Bhopal	PO2,PO3,PO5, PO6,PO8, PO12,PSO1, PSO3
6	Embedded System	12/04/2016	Mr. Abhigyanam (Director Indeyes Institute Bhopal)	PO2,PO3,PO5 ,PO12, PSO1, PSO2, PSO3
7	Embedded System	21/04/2015	Mr. Abhigyanam (Director Indeyes Institute Bhopal)	PO2,PO3,PO5 ,PO12, PSO1, PSO2, PSO3

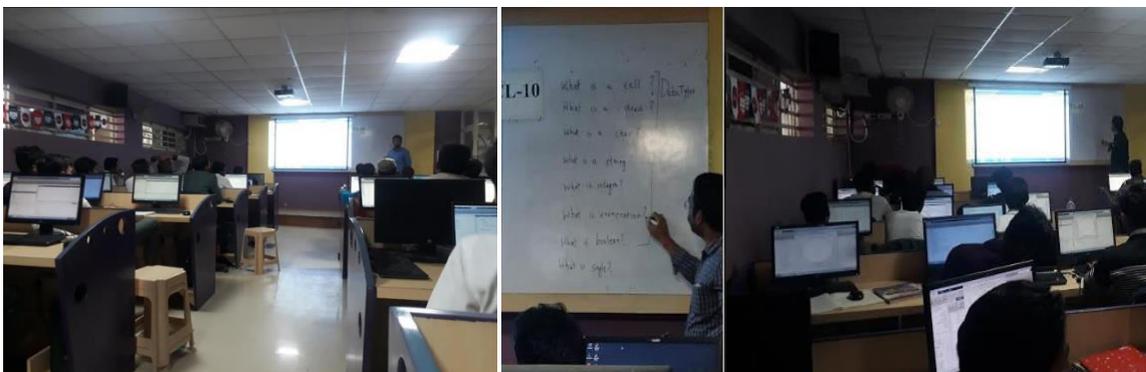
[SELF ASSESSMENT REPORT]



IES Students Participated in National Student Startup & Innovation Summit 2019 at LNCT Bhopal



IES Students Participated in HR Enclave 0.4 at IES College of Technology Bhopal



IES Students Participated in MATLAB Workshop 2019 at IES college of Technology Bhopal

[SELF ASSESSMENT REPORT]



IES Students Participated in Solar Workshop 2019 at MANIT Bhopal

Impact analysis of Initiatives related to industry interaction

- New innovative ideas from students form the basis of some projects.
- Students gained from this exposure to incorporate an entrepreneurial spirit and project based thinking.
- Skills or abilities of students improved.
- Knowledge on various aspects of project management was developed.
- Confidence level of the students was boosted.
- Improved teamwork spirit.
- Implementation and deployment of the project for social benefits.
- Document preparation and presentation.
- Opportunities to showcase their project work in project exhibition.
- Students picked up what they learnt at the workshops to implement their own mini project and also final year projects.



Students Participated in PCB Design Training @IES College of Technology, Bhopal

[SELF ASSESSMENT REPORT]

2.2.5 Initiatives related to industry internship/summer training (15)

A. Industry supported Laboratories

Institute has tie-ups/ MOUs with different industries as mentioned in section 2.2.4 for training/visits/workshops etc. The Electronics and communication engineering department has supported laboratories with the following industries:

1. Indeyes, Bhopal.
2. Crisp Bhopal.

B. Internship / summer training

Provided to the students after 4th and 6th Semester helps the student's in gaining knowledge. It also allows them to gain practical knowledge, to work on real world problem and develops confidence in them. The students are encouraged to take up internship programs during their semester break. Faculty members give their guidance, suggestions scope and contact details for an internship. Department helps the students by interacting with the industry experts, provides recommendation letters and other necessary supports. The alumni coordinator constantly interacts with those alumni who are working in the industries and request them to provide necessary guidelines and supports to their junior. The internship is the one of the process to develop domain specified and domain independent skill of program outcomes. The internship is play major role to overcome the gap between curriculum and industry needs.

This will enable the students

- To gain hands-on experience in implementing whatever they have learnt in their curriculum.
- To train themselves on the state of the art equipments and standards used by the industries.
- To present themselves as complete professionals when they go for placements.

Name of Students who participated in summer training at IES College in 2019-20

Table: 2.21.

S.No	Name of Student	Training Level	Industry Name	Relevance to POs and PSOs
1	0177EC161090	Rita Soren	Drmz Tech Bhopal	PO2,PO3,PO5,PO8,PO12,PSO1,
2	0177EC171011	Akanksha Singh	Microsoft Technology Associate	PO1,PO3,PO5,PO8,PO12,PSO1,PSO2

[SELF ASSESSMENT REPORT]

Table: 2.22 Curriculum based Industrial Training.

S.No	Enrollment No.	Students' Name	Industry Name	Course	Relevance to POs and PSOs
1	0177CE171079	Rajpal kumar Singh	IIT PATNA	MATLAB Programming and Communication Tool Box	PO2,PO3, PO5, PO8,PO12,PSO 1, PSO2
2	0177CE171080	Raju Chaurasiya	ROBO TECH ABS PVT.LTD. (IIT Delhi)	Mobile Robotics Workshop	PO2,PO3,PO5, PO12,PSO1,PSO2
3	0177EC171003	Abhimanyu Kumar	IndEyes Bhopal	Matlab Training	PO2,PO3,PO5, PO8,PO12
4	0177EC171008	Aftab alam	Online Course	Matlab Beginners	PO1, PO2, PO3,
5	0177EC171011	Akanksha Singh	Delhi Technological University	Python Programming With AI	PO1, PO2,PO3 PO5 PO8, PO12,PSO2, PSO3
6	0177EC171019	Anup kumar Tiwari	IndEyes Bhopal	Matlab Training	PO2, PO3, PO5, PO8,PO12
7	0177EC171032	Gautam Thakur	IndEyes Bhopal	Matlab Training	PO2, PO3, PO5, PO8,PO12
8	0177EC171035	Himanshu raj Bhaskar	GIST Technosolutions	C,C++	PO2, PO3, PO4, PO5
9	0177EC171050	Nandlal kumar Gupta	GIST Technosolutions	C,C++	PO2, PO3, PO4, PO5,
10	0177EC171055	Nipu Kumari	IndEyes Bhopal	Matlab Training	PO2, PO3, PO5, PO8,PO12
11	0177EC171060	Piyush Raj	GIST Technosolutions	C,C++	PO2, PO3, PO4, PO5
12	0177EC171061	Pradeep kumar Yadav	IndEyes Bhopal	Matlab Training	PO2,PO3, PO5, PO8,PO12
13	0177EC171062	Pranav Anand	GIST Technosolutions	C,C++	PO2,PO3, PO4, PO5
14	0177EC171064	Pratyush Abhinandan	IndEyes Bhopal	Matlab Training	PO2,PO3, PO5, PO8,PO12
15	0177EC171067	Priyanka Kumari	IndEyes Bhopal	Matlab Training	PO2,PO3, PO5, PO8,PO12

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16	0177EC171068	Pulkit Prakash	IndEyes Bhopal	Matlab Training	PO2,PO3, PO5, PO8,PO12
17	0177EC171070	Rahul Kumar	IndEyes Bhopal	Matlab Training	PO1, PO2, PO3, PO5, PO6,PO7, PO8,PO12
18	0177EC171071	Rahul Kumar	IndEyes Bhopal	Matlab Training	PO2, PO3, PO5, PO8,PO12
19	0177EC171086	Ritu Raj	Online Course	Matlab Beginners	PO1, PO2, PO3,
20	0177EC171098	Sarika Kumari	IndEyes Bhopal	Matlab Training	PO2, PO3, PO5, PO6, PO12
21	0177EC171101	Satya prakash Singh	Vision	Matlab ,DIP workshop	PO2, PO3, PO4, PO5, PO12
22	0177EC171110	Shubham Raj	SCA Bhopal	C	PO2, PO3
23	0177EC171112	Siddharth Anand	Online Course (UDEMY.COM)	Matlab Beginners	PO1, PO2, PO3
24	0177EC171114	Sumit Verma	IndEyes Bhopal	Matlab Training	PO1, PO2, PO3, PO4, PO5, P12,
25	0177EC171119	Vinay kumar	SCA Bhopal	C++	PO2, PO3, PO4, PO5, P12,

Table: 2.23 Curriculum based Industrial Training (2019-20)

S.No.	Enrolment No.	Student Name	Industry/Institute	Course	Relevance to POs and PSOs
1	0177EC161007	Afser Hussain	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6, PO7, PO8,PO9 PO12, PSO1,PSO2
2	0177EC161011	Amarjeet Singh	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6, PO7 PO8, PO9 ,PO12, PSO1,PSO2
3	0177EC161017	Animesh Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6, PO7PO8, PO9,PO12, PSO1,PSO2

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			Design)		
4	0177EC161020	Ashish kumar Pathak	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6, PO7 PO8, PO9 ,PO12, PSO1,PSO2
5	0177EC161022	Asif Hoda	Web Tek Labs Pvt.Ltd. Kolkata	Embedded System & Robotics	PO2, PO3, PO5, PO6, PO7 PO8, PO9, PO12, PSO1,PSO2
6	0177EC161025	Avinash Kumar Pandey	BSNL Patna	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7,PO8,PO12
7	0177EC161026	Ayush kumar Rajbhar	BSNL Patna	Communication Theory and Analysis	PO1, PO2, PO3, PO5, PO6,PO7,PO8,PO12
8	0177EC161027	Bambam Kumar	BSNL Begusarai	Communication Theory and Analysis	PO1, PO2,PO3, PO4, PO5, P12,PO8,PO9
9	0177EC161028	Bhagmal	CRISP (Embedded System Design)	Embedded System Design	PO2, PO3, PO5, PO6, PO7 PO8, PO9 ,PO12, PSO1,PSO2
10	0177EC161036	Hasrat Parwez	Robonauts India	Embedded System Design	PO2, PO3, PO5, PO6, PO7 PO8, PO9 ,PO12, PSO1,PSO2
11	0177EC161038	Intikhab Ansari	Web Tek Labs Pvt.Ltd. Kolkata	Embedded System & Robotics	PO2, PO3, PO4, PO5,P12,PO8,PO9
12	0177EC161039	Javed Akhter	Web Tek Labs Pvt.Ltd. Kolkata	Embedded System & Robotics	PO1, PO2,PO3, PO5, PO6,PO7,PO8,PO12
13	0177EC161041	Jyoti Kumari	CRISP (Embedded System Design)	Embedded System Design	PO2,PO3, PO5, PO6, PO7 PO8, PO9 ,PO12, PSO1,PSO2
14	0177EC161043	Kashif Shehzad	CRISP (Embedded System Design)	Embedded System Design	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
15	0177EC161047	Kushal Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
16	0177EC161055	Mayank Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2

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			Design)		
17	0177EC161058	Md Arman	Robonauts India	Embedded System Design	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
18	0177EC161062	Md Rashid Akhtar Khan	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
19	0177EC161063	Mohd Shad	CETPA Infotech Paivate Limited	Communication Theory and Analysis	PO2, PO3, PO5, PO6,PO7,PO8,PO12
20	0177EC161067	Narender kumar Choudhary	Sathya Technologies	Python	PO2, PO3, PO5, PO6,PO7,PO8,PO12
21	0177EC161069	Navin Prakash	BSNL Patna	Communication Theory and Analysis	PO2, PO3, PO5, PO6,PO7,PO8,PO12
22	0177EC161072	Nikita Bhalla	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
23	0177EC161073	Nitesh kumar Prasad	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
24	0177EC161075	Pankaj Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2,PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
25	0177EC161077	Pawan	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
26	0177EC161081	Pritam Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
27	0177EC161082	Rahul Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
28	0177EC161084	Raja	BHEL Bhopal	Industrial Exposure Related to Electronics	PO3, PO4, PO5, PO6, PO7,P12

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				devices, Electrical Motors and CNC	
29	0177EC161087	Ranjeet Pandit	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
30	0177EC161088	Raunak kumar Jha	Robonauts India/Web Tek Labs Pvt.Ltd.(AWS 60 HRS)	Embedded System Design	PO2,PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
31	0177EC161090	Rita Soren	BHEL Bhopal	Industrial Exposure Related to Electronics devices, Electrical Motors and CNC	PO3, PO4,PO5, PO6, PO7,P12
32	0177EC161094	Sadhvi Saiyam	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
33	0177EC161095	Shailesh Kumar	CRISP (Embedded System Design)	(Embedded System Design)	PO2,PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
34	0177EC161098	Shashwat Sarathe	CRISP (Embedded System Design)	(Embedded System Design)	PO2, PO3, PO5, PO6,PO7 PO8, PO9 ,PO12,PSO1,PSO2
35	0177EC161099	Shekhar Suman Soni	Abyssal pearl infoweb pvt. Ltd	Industrial Exposure Related to Electronics devices and its Manufacturin g ,	PO3,PO4,PO6,PO7,P O9 ,PO5, P12,
36	0177EC161100	Shikha Patel	BSNL Patna	Communicati on Theory and Analysis	PO2, PO3, PO5, PO6,PO7,PO8,PO12

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37	0177EC161107	Suruchi Sinha	BSNL Patna	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12,
38	0177EC161110	Vidyasagar Jha	Web Tek Labs Pvt.Ltd.(AWS 60 HRS)	Embedded System Design	PO1, PO2, PO3, PO4, PO5, P12,
39	0177EC161114	Vikrant kumar Jha	Digital Champions Student Learning Program JIO Life (Platinum Certification)	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12
40	0177EC161116	Vishal Kumar	Digital Champions Student Learning Program JIO Life (Platinum Certification)	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12
41	0177EC161117	Vishal Verma	BSNL Begusarai	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12
42	0177EC173D02	Anil Singh	BHEL BHOPAL	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12
43	0177EC173D06	Manish kumar Munda	BHEL BHOPAL	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12
44	0177EC173D10	Zahid Khan	TechnoBuddy New Delhi	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12
45	0177EC173D11	Zeeshan Alam	TechnoBuddy New Delhi	Communication Theory and Analysis	PO2, PO3, PO5, PO6, PO7, PO8, PO12

[SELF ASSESSMENT REPORT]

Impact Analysis of Initiatives related to industry internship/summer training

- Students are exposed to real time practical experience of the concepts studied in the classrooms and realized the practical importance of the subjects.
- Industrial visit creates more interest in the subjects.
- Students are inspired to do hard work and get placed in such industries.
- Students were exposed to the industry standards and workplace culture.
- Students learn professional and ethical behaviour
- Students can correlate the theoretical knowledge and its practical implementation

D. Student feedback on initiative

Students going for internships are instructed before going to prepare a detailed report on the training and submit it to the HOD after completion of the training also Department organises a presentation of all the students where each and every student gives a power point presentation on the internship. The students are asked to fill feedback forms also for the same.

[SELF ASSESSMENT REPORT]

CRITERION 3	Course Outcomes and Program Outcomes	120
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3. Course Outcomes and Program Outcomes

3.1. Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

A. Program Outcomes (POs)

Engineering Graduates will be able to:

PO-1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO-2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO-3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO-4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO-5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO-6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO-7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO-9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

[SELF ASSESSMENT REPORT]

PO-10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO-12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

B. Program Specific Outcomes (PSOs) :

The graduates of the department will attain:

PSO-1: The ability to create, design, and test the specify electronic communication systems for analog and digital signal processing as per industry requirements.

PSO-2: The ability to Formulate, solves, design and implement the realistic problems of society relevance to VLSI and embedded industries.

PSO-3: Graduates will be able to Formulate, solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.

[SELF ASSESSMENT REPORT]

3.1.1. Course Outcomes (COs) (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked) (05)

Subject & Code	BE 3rd Semester
EC-3002 Digital circuits and system	<p>Students will be able to:</p> <p>C3002.1: Apply the concept of digital number systems and Boolean expressions in digital complex functions.</p> <p>C3002.2: Design the combinational and sequential logic circuits</p> <p>C3002.3: Illustrate logic families and semiconductor memories</p> <p>C3002.4: Design registers and counters for synchronous and asynchronous digital system</p> <p>C3002.5: Analyze logic gates for digital circuit application</p>
Subject & Code	BE 4th Semester
EC-4002 Signals & Systems	<p>Students will be able to:</p> <p>C4002-1: Classify the characteristics of signal for analog and digital communication systems.</p> <p>C4002-2: Analyze the implications of linearity, time-invariance, causality, memory, and bounded-input, bounded out (BIBO) stability.</p> <p>C4002-3: Apply the properties of Z-transform for Linear Time Invariant system.</p> <p>C4002-4: Solve the problems of discrete time signals using Fourier transform and Fourier series.</p> <p>C4002-5: Analyze the characteristics of state space, matrix operation and sampling theorem.</p>
Subject & Code	BE- 5th Semester
EC- 5001 Electromagnetic Field Theory	<p>Students will be able to:</p> <p>C5001.1: Classify the coordinate systems for electromagnetic application</p> <p>C5001.2: Analyze electric fields using Coulomb's Law and Gauss's law for coordinate systems.</p> <p>C5001.3: Classify magnetic fields, their behaviour in transmission media, associated laws, boundary conditions and electromagnetic potentials.</p> <p>C5001.4: Compare the static and time-varying electromagnetic field as governed by Maxwell's equations.</p> <p>C5001.5: Categorize problems involving in lossy media with planar boundaries condition using plane waves</p>
Subject & Code	BE- 6th Semester
EC- 6001 Cellular mobile communication	<p>Students will be able to:</p> <p>C6001.1: Classify the mechanisms of frequency Reuse, channel assignment and handoffs for cellular mobile communication.</p> <p>C6001.2: Compare the performance of the mobile radio propagation of the mobile system and its specifications.</p> <p>C6001.3: Analyze the channel Capacity, cell splitting, sectoring co-channel interferences and channel assignment for cellular mobile communication.</p> <p>C6001.4: Apply multiple access technologies for resource sharing with TDMA, FDMA and CDMA.</p> <p>C6001.5: List the performance of spread spectrum signals in the presence of multiple access interference and standards.</p>
Subject & Code	BE- 7th Semester

[SELF ASSESSMENT REPORT]

EC- 7001 Microwave Engineering	Student will be able to C7001.1: Analyze the electromagnetic fields for wave guide in TE, TM, and TEM Mode C7001.2: Categorize Microwave Networks, Microwave Components and its properties for microwave communication. C7001.3: List the applications and limitations of microwave Semiconductor devices. C7001.4: Analyze microwave sources and detector for microwave communication C7001.5: Classify the microwave measurements techniques.
Subject & Code	BE- 8th Semester
EC- 8001 VLSI Design	Student will be able to C8001.1: Classify the CMOS Production process. C8001.2: Analyze MOSFET Models in High Frequency and small signal. C8001.3: Design MOSFET and BJT Model using SPICE simulation. C8001.4: Analyze memory elements using programmable devices. C8001.5: Classify SRAM latch using VLSI processing techniques

TableB.3.1.1

[SELF ASSESSMENT REPORT]

3.1.2. CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)

➤ **CO-PO matrices of courses**

III SEM

Course Name: EC-3002 Digital circuits & system

- C3002.1:** Apply the concept of digital number systems and Boolean expressions in digital complex functions.
C3002.2: Design the combinational and sequential logic circuits
C3002.3: Illustrate logic families and semiconductor memories
C3002.4: Design registers and counters for synchronous and asynchronous digital system
C3002.5: Analyze logic gates for digital circuit application

POs COs	PO-1 Engineering knowledge	PO-2 Problem analysis	PO-3 Design/development of solutions	PO-4 Conduct investigations of complex problems	PO-5 Modern tool usage	PO-6 The engineer and society	PO-7 Environment and sustainability	PO-8 Ethics	PO-9 Individual and team work	PO-10 Communication	PO-11 Project management and finance	PO-12 Life-long learning
	C3002.1	2	2	-	-	-	-	-	-	-	-	-
C3002.2	2	2	3	-	1	-	-	-	2	-	-	1
C3002.3	3	1	-	-	-	-	-	-	1	-	-	-
C3002.4	1	2	3	-	1	-	-	-	-	-	-	1
C3002.5	3	2	-	-	-	-	-	-	-	-	-	-
SUM	11	9	6	-	2	-	-	-	3	-	-	3
AVG	2.2	1.8	3.0	-	1.0	-	-	-	1.5	-	-	1.0

[SELF ASSESSMENT REPORT]

IV SEM

Course Name: EC-4002 Signals and System

- C4002.1:** Classify the characteristics of signal for analog and digital communication systems.
- C4002.2:** Analyze the implications of linearity, time-invariance, causality, memory, and bounded-input, bounded out (BIBO) stability.
- C4002.3:** Apply the properties of Z-transform for Linear Time Invariant system.
- C4002.4:** Solve the problems of discrete time signals using Fourier transform and Fourier series.
- C4002.5:** Analyze the characteristics of state space, matrix operation and sampling theorem.

POs COs	PO-13 Engineering knowledge	PO-14 Problem analysis	PO-15 Design/developme nt of solutions	PO-16 Conduct investigations of complex problems	PO-17 Modern tool usage	PO-18 The engineer and society	PO-19 Environment and sustainability	PO-20 Ethics	PO-21 Individual and team work	PO-22 Communication	PO-23 Project management and	PO-24 Life-long learning
C4002.1	2	3	-	-	-	-	-	-	-	-	-	1
C4002.2	3	1	-	-	1	-	-	-	-	-	-	-
C4002.3	2	3	-	-	-	-	-	-	-	-	-	-
C4002.4	1	3	-	-	1	-	-	-	-	-	-	1
C4002.5	2	1	-	-	1	-	-	-	-	-	-	-
SUM	10	11	-	-	3	-	-	-	-	-	-	2
AVG	2.0	2.2	-	-	1.0	-	-	-	-	-	-	1.0

[SELF ASSESSMENT REPORT]

VTH SEM

EC- 5001 Electromagnetic Field Theory	Students will be able to: C5001.1: Classify the coordinate systems for electromagnetic application C5001.2: Analyze electric fields using Coulomb's Law and Gauss's law for coordinate systems. C5001.3: Classify magnetic fields, their behaviour in transmission media, associated laws, boundary conditions and electromagnetic potentials. C5001.4: Compare the static and time-varying electromagnetic field as governed by Maxwell's equations. C5001.5: Categorize problems involving in lossy media with planar boundaries condition using plane waves
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POs COs	PO-1 Engineering knowledge	PO-2 Problem analysis	PO-3 Design/development of solutions	PO-4 Conduct investigations of complex problems	PO-5 Modern tool usage	PO-6 The engineer and society	PO-7 Environment and sustainability	PO-8 Ethics	PO-9 Individual and team work	PO-10 Communication	PO-11 Project management and finance	PO-12 Life-long learning
C5001.1	2	1	-	-	-	-	-	-	-	-	-	-
C5001.2	1	2	-	-	-	-	-	-	-	-	-	1
C5001.3	1	1	-	-	-	-	-	-	-	-	-	-
C5001.4	1	2	-	-	1	-	-	-	-	-	-	1
C5001.5	2	2	-	-	-	-	-	-	-	-	-	-
SUM	7	8	-	-	1	-	-	-	-	-	-	2
AVG	1.4	1.6	-	-	1	-	-	-	-	-	-	1

[SELF ASSESSMENT REPORT]

EC- 6001 Cellular mobile communication	<p>Students will be able to:</p> <p>C6001.1: Classify the mechanisms of frequency Reuse, channel assignment and handoffs for cellular mobile communication.</p> <p>C6001.2: Compare the performance of the mobile radio propagation of the mobile system and its specifications.</p> <p>C6001.3: Analyze the channel Capacity, cell splitting, sectoring co-channel interferences and channel assignment for cellular mobile communication.</p> <p>C6001.4: Apply multiple access technologies for resource sharing with TDMA, FDMA and CDMA.</p> <p>C6001.5: List the performance of spread spectrum signals in the presence of multiple access interference and standards.</p>
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POs COs	PO-1 Engineering knowledge	PO-2 Problem analysis	PO-3 Design/development of solutions	PO-4 Conduct investigations of complex problems	PO-5 Modern tool usage	PO-6 The engineer and society	PO-7 Environment and sustainability	PO-8 Ethics	PO-9 Individual and team work	PO-10 Communication	PO-11 Project management and finance	PO-12 Life-long learning
C6001.1	2	3	-	-	-	-	-	-	-	-	-	-
C6001.2	1	3	-	-	-	-	-	-	-	-	-	-
C6001.3	2	3	-	-	-	-	-	-	-	1	-	1
C6001.4	1	2	-	-	-	-	-	1	-	-	-	-
C6001.5	1	3	-	1	1	-	-	-	-	1	-	1
SUM	7	14	-	1	1	-	-	1	-	2	-	2
AVG	1.4	2.8	-	1	1	-	-	1	-	1	-	1

[SELF ASSESSMENT REPORT]

Course Name: Microwave Engineering (EC-7001)

Student will be able to

C7001.1: Analyze the electromagnetic fields for wave guide in TE, TM, and TEM Mode

C7001.2: Categorize Microwave Networks, Microwave Components and its properties for microwave communication.

C7001.3: List the applications and limitations of microwave Semiconductor devices.

C7001.4: Analyze microwave sources and detector for microwave communication

C7001.5: Classify the microwave measurements techniques.

POs COs	PO-1 Engineering knowledge	PO-2 Problem analysis	PO-3 Design/development of solutions	PO-4 Conduct investigations of complex problems	PO-5 Modern tool usage	PO-6 The engineer and society	PO-7 Environment and sustainability	PO-8 Ethics	PO-9 Individual and team work	PO-10 Communication	PO-11 Project management and finance	PO-12 Life-long learning
C7001.1	2	3	-	-	-	-	-	-	1	1	-	1
C7001.2	1	2	-	-	1	-	-	2	-	-	-	-
C7001.3	3	2	-	-	-	-	-	-	2	1	-	1
C7001.4	1	3	-	-	-	-	-	1	2	-	-	1
C7001.5	2	3	-	-	-	-	1	-	1	1	-	1
SUM	9	13	-	-	1	-	1	3	6	3	-	4
AVG	1.8	2.6	-	-	1.0	-	1.0	1.5	1.5	1.0	-	1.0

[SELF ASSESSMENT REPORT]

Course Name: Course Name: VLSI Design (EC -8001)

Student will be able to

C8001.1: Classify the CMOS Production process.

C8001.2: Analyze MOSFET Models in High Frequency and small signal.

C8001.3: Design MOSFET and BJT Model using SPICE simulation.

C8001.4: Analyze memory elements using programmable devices.

C8001.5: Categories SRAM latch using VLSI processing techniques

POs COs	PO-1 Engineering knowledge	PO-2 Problem analysis	PO-3 Design/development of solutions	PO-4 Conduct investigations of complex problems	PO-5 Modern tool usage	PO-6 The engineer and society	PO-7 Environment and sustainability	PO-8 Ethics	PO-9 Individual and team work	PO-10 Communication	PO-11 Project management and finance	PO-12 Life-long learning
C8001.1	3	2	-	-	-	-	-	-	-	1	-	1
C8001.2	2	3	-	-	-	-	-	-	-	-	-	-
C8001.3	1	2	3	-	1	2	-	1	1	-	-	1
C8001.4	1	2	-	1	2	-	-	-	1	-	-	-
C8001.5	3	1	-	-	2	-	-	-	1	-	-	1
SUM	10	10	3	1	5	2	-	1	3	1	-	3
AVG	2.0	2.0	3.0	1.0	1.7	2.0	-	1.0	1.0	1.0	-	1.0

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

[SELF ASSESSMENT REPORT]

- CO-PSOs matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester)

Subject Name /Code	COs	PSO1	PSO2	PSO3
EC3002 Digital Circuits &system	C3002.1	2	1	-
	C3002.2	3	2	1
	C3002.3	2	1	-
	C3002.4	3	2	1
	C3002.5	1	1	-
	SUM	11	7	2
	AVG	2.2	1.4	1.0

Subject Name /Code	COs	PSO1	PSO2	PSO3
Signal and Systems (EC4002)	C4002.1	2	1	-
	C4002.2	2	2	-
	C4002.3	2	1	-
	C4002.4	3	2	1
	C4002.5	1	1	1
	sum	10	7	2
	AVG	2.0	1.4	1.0

Subject Name /Code	COs	PSO1	PSO2	PSO3
EC- 5001 Electromagnetic Field Theory	C5001.1	3	-	-
	C5001.2	1	1	-
	C5001.3	2	-	-
	C5001.4	3	1	-
	C5001.5	2	1	-
	SUM	11	3	-
	AVG	2.2	1	-

[SELF ASSESSMENT REPORT]

Subject Name /Code	COs	PSO1	PSO2	PSO3
EC- 6001 Cellular mobile communication	C6001.1	2	3	-
	C6001.2	1	3	-
	C6001.3	2	3	-
	C6001.4	1	2	-
	C6001.5	1	3	-
	SUM	7	14	-
	AVG	1.4	2.8	-

Subject Name /Code	COs	PSO1	PSO2	PSO3
Microwave Engineering (EC-7001)	C7001.1	2	1	3
	C7001.2	1	-	2
	C7001.3	2	-	1
	C7001.4	1	1	3
	C7001.5	1	1	-
	SUM	7	3	9
	AVG	1.4	1.0	2.3

Subject Name /Code	COs	PSO1	PSO2	PSO3
VLSI Design (EC -8001)	C8001.1	-	1	3
	C8001.2	3	1	2
	C8001.3	2	-	1
	C8001.4	1	1	2
	C8001.5	1	1	3
	SUM	7	4	11
	AVG	1.8	1.0	2.2

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

[SELF ASSESSMENT REPORT]

3.1.3 Program level course-PO matrix of all courses including first year courses (10)

	Subject Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I	MA110	1.2	1.8	3.0	1.0		1.0	1.0	-	-	-	1.0	1.0
	PH110	1.4	1.0	-	-	1.0	-	-	-	1.0	-	-	1.0
	ME111	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5
	HU110	2.4	1.8	-	-	-	1.0		-	1.0	-	-	1.3
	CE110	2.2	2.2	-	-	-	1.7	1.0	-	-	-	-	1.3
	ME111	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5
	ME 110P	2.4	2.0	-	-	-	1.0	1.0	-	-	-	-	1.5
	ML 110P	2.0	1.0	3.0		1.0	1.3	1.3	-	1.3	-	-	1.0
	EC 110P	2.2	2.0	-	-	-	-	-	-	-	-	-	-
HU 111P	2.6	2.4	1.0	-	1.0	1.5	-	-	1.6	3.0		1.6	
II	MA111	1.6	2.4	-	-	-	-	-	-	-	-	-	1.0
	CY110	2.4	2.1	-	-	0.5	0.5	-	-	0.8	-	-	1.0
	EC111	2.2	1.5	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
	ME112	2.0	1.4	-	-	1.0	1.0	-	-	1.5	-	-	1.0
	EE111	2.2	1.9	-	-	1.0	1.0	-	-	1.5	-	-	1.0
	EC112P	1.8	1.6	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
	ME113P	2.2	2.2	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
	CS110P	2.0	2.4	3.0	-	1.0	1.0	-	-	1.5	-	-	1.0
HU112P	2.6	2.8	1.0	-	-	1.0	1.0	1.3	1.8	1.5	-	1.0	
III	ES3001	2.4	2.2	-	-	-	1.0	1.0	-		1.0	-	1.0
	EC3002	2.3	1.9	2.8	-	1.0		-	-	1.4	-	-	1.0
	EC3003	1.9	2.5	3.0	-	1.0	1.0	-	-	1.4	-	-	1.1
	EC3004	1.9	2.5	3.0	-	1.5		1.0	1.0	1.5	-	-	1.8
	EC3005	1.4	2.4	-	-	1.0				1.0	1.0	-	1.0
	EC3006	2.6	2.8	1.0	-		1.0	1.0	1.3	1.8	1.5	-	1.0
	EC3007	1.0	3.0	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
IV	BE3001	2.4	2.2	-	-	1.0	1.0	1.0	1.0	1.0	1.0		1.0
	EC4002	2.0	2.2	-	-	1.0	-	-	-	-	-	-	1.0
	EC4003	1.9	2.6	1.3		1.0	1.0	1.0		1.0	-	-	1.0
	EC4004	2.2	2.0	1.0	1.0	1.0	-	-	-	1.0	-	-	1.0
	EC4005	2.2	2.2	1.0		1.0	-	-	-	1.0	-	-	1.0
	EC4006	1.8	2.6	1.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0
	EC4007	1.2	1.4	-	-	1.2	1.0	1.0	2.0				1.0
V	EC-5001	1.4	1.6	-	-	1.0	-	-	-	-	-	-	1.0
	EC-5002	1.4	2.0	3.0	-	1.0			1.0	1.0	1.0	-	1.0
	EC-5003	1.5	1.9	2.7	-	1.0	1.0	1.0	1.0	1.0	1.0	-	1.0
	EC-5004	1.6	2.2	3.0	-	1.0		1.0	1.0	1.0	1.0	-	1.0
	EC-5005	1.6	1.8	3.0	1.0	1.0	-	-	-	1.0	-	-	1.0
	EC-5006P	2.6	2.6	3.0		1.5	-	-	-	1.0	-	-	2.6
	EC-5007P	1.8	1.6	1.0	1.0	1.0	1.0	1.3	1.8	1.0	1.3	1.4	1.6
	EC-5008P	1.6	1.6	1.0	1.0	1.7	1.0	1.0	1.0	1.0	1.0	1.0	1.4
VI	EC-6001	1.4	2.8		1.0	1.0			1.0		1.0		1.0

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	EC-6002	1.6	2.8	2.3	1.0	1.0	-	-	1.0	1.0	1.0	-	1.0
	EC-6003	1.6	2.3	1.0	0.0	1.4	-	-	0.0	1.0	1.0	-	1.0
	EC-6004	1.4	2.0	3.0	1.5	1.5	-	1.0	1.0	1.5	1.0	-	1.5
	EC6005	1.2	2.2	-	-	1.0	-	1.0	1.5	1.5	1.0	-	1.0
	EC-6006 P	1.8	2.4	2.5	-	-	-	-	-	1.0	1.0	-	1.8
	EC-6007 P	1.2	1.8	3.0	1.0	1.5	1.0	1.0	1.5	1.5	1.0	1.0	1.4
	EC-6008 P	1.2	1.6	2.0	1.5	1.0	1.0	1.0	1.3	1.5	1.5	1.0	1.6
VII	EC-7001	2.1	2.4	-	-	1.3	-	-	1.5	1.5	1.0		1.3
	EC-7002	2.2	2.7	1.0	-	-	1.0	-	1.0	1.0	1.0	1.0	1.0
	EC-7003	2.2	2.4	1.0	1.0	1.0	1.0	-	1.0	1.0	1.0	-	1.3
	EC-7004	1.4	2.6	-	-	1.0	-	1.0	1.0	1.0	1.0	-	1.0
	EC-7005	1.4	2.6	-	-	1.0	-	1.0	1.0	1.0	-	-	1.0
	EC-7006	1.4	2.6	-	-	1.0	-	1.0	1.0	1.0	-	-	1.0
	EC-7007	1.8	2.0	1.0	1.0	1.3	1.0	1.0	1.7	1.5	1.3	1.7	1.4
VIII	EC-8001	1.7	2.1	3.0	1.0	1.5	2.0	1.0	1.0	1.0	1.0	-	1.3
	EC-8002	2.1	2.6	3.0	2.0	1.2	2.0	1.0	1.0	1.0	1.0	-	1.6
	EC-8003	1.6	2.8	-	0.0	1.0	1.3	1.3	1.3	1.2	1.3	1.0	1.4
	EC-8004	2.0	2.2	-	0.0	1.0	-	-		1.0	1.0	-	1.3
	EC-8005	1.2	2.6	3.0	1.0	1.3	1.0	1.0	1.5	1.5	1.8	-	1.5
	EC-8006	1.3	2.0			1.0	1.0	1.0	1.3	1.8	2.4	2.0	1.6
	EC8007	1.3	1.0			1.0	1.0	1.0	1.0	1.0	1.3	1.0	1.3
Average	1.8	2.2	2.2	0.9	1.1	1.1	1.0	1.2	1.2	1.2	1.2	1.2	1.2

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

➤ **Program level course-PSOs matrix of all courses including first year courses**

	Subject Code	PSO1	PSO2	PSO3
I	MA110	1.2	1.0	1.0
	PH110	1.0	1.0	1.0
	ME111	1.0	1.0	1.0
	HU110	1.1	1.0	1.3
	CE110	1.1	-	1.0
	ME111	1.0	1.0	1.0
	ME 110P	1.0	1.0	1.0
	ML 110P	1.4	1.3	1.7
	EC 110P	2.0	1.0	1.0
	HU 111P	1.0	1.0	1.0
II	MA111	1.0	1.0	1.0
	CY110	1.0	-	1.0

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	EC111	1.6	1.0	1.0
	ME112	1.6	1.0	1.0
	EE111	1.6	1.3	1.0
	EC112P	1.6	1.3	1.0
	ME113P	1.6	1.0	1.0
	CS110P	1.4	1.0	1.0
	HU112P	1.0	2.0	1.0
III	ES3001	1.4	1.0	1.0
	EC3002	2.2	1.4	1.0
	EC3003	2.0	1.2	1.0
	EC3004	2.1	1.3	1.0
	EC3005	1.5	1.5	1.0
	EC3006	1.2	1.0	1.0
	EC3007	1.0		1.0
IV	BE3001	1.4	1.0	1.0
	EC4002	2.0	1.4	1.0
	EC4003	2.0	1.5	1.0
	EC4004	1.4	2.0	1.0
	EC4005	1.6	1.5	1.0
	EC4006	2.0	1.3	1.0
	EC4007	1.6	1.3	1.0
V	EC-5001	2.2	1.0	0.0
	EC-5002	1.6	1.7	1.0
	EC-5003	2.0	1.6	1.0
	EC-5004	1.7	1.6	1.0
	EC-5005	1.6	1.0	1.0
	EC-5006P	2.6	1.8	1.0
	EC-5007P	2.0	1.6	1.0
	EC-5008P	1.2	1.3	1.4
VI	EC-6001	1.6	1.0	1.0
	EC-6002	2.1	1.0	1.0
	EC-6003	1.6	1.2	1.0
	EC-6004	2.0	1.4	1.0
	EC6005	1.0	1.0	1.0

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	EC-6006 P	2.2	1.3	1.0
	EC-6007 P	2.2	1.4	1.8
	EC-6008 P	1.3	1.0	1.6
VII	EC-7001	2.5	1.8	1.2
	EC-7002	1.6	2.2	1.0
	EC-7003	1.8	2.0	1.4
	EC-7004	1.6	2.3	1.0
	EC-7005	2.0	1.8	1.0
	EC-7006	2.0	1.8	1.0
	EC-7007	2.5	2.0	1.5
VIII	EC-8001	2.2	2.3	1.3
	EC-8002	2.3	2.0	1.7
	EC-8003	1.0	1.0	1.5
	EC-8004	2.3	2.3	1.0
	EC-8005P	2.5	1.8	1.7
	EC-8006P	1.3	1.3	2.4
	EC8007P	1.0	1.0	1.6
Average		1.6	1.4	1.1

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

3.2 Attainment of Course Outcomes (50)

3.2.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)

In the Outcome Based Education (OBE) assessment is done through one or more processes (carried out by the institution) that identify, collect, and prepare data to evaluate the achievement of course outcomes (CO's).

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Course Outcomes (CO's) Assessment Processes:-

➤ **Evaluation Tool as per University Examination:**

Evaluation Components (Grading System)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		30
1	Mid Semester Tests	20	
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		70
TOTAL			100

Evaluation Components (CBCS)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		40
1	Mid Semester Test	30	
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		60
TOTAL			100

Evaluation Components (CBGS)*

S. No	COMPONENT	MARKS	
I	INTERNAL ASSESSMENTS		30
1	Mid Semester Test	20	
2	Quiz/ Assignment	10	
II	END SEMESTER EXAMINATION		70
TOTAL			100

[SELF ASSESSMENT REPORT]

➤ Assessment tools are categorized into two methods to assess the course outcomes as:

- **Direct methods and indirect methods.**

Formative and Summative assessment are used for evaluation of the internal and external marks in a theory and practical subjects, based on Mid Semester examination, unit tests, assignments, seminar, group discussion, self study, tutorials, internal viva and end semester exam. Students are awarded internal and external marks on the basis of the performance in the above-noted criteria. Projects, internal reviews are conducted and evaluated for judging the level of students' standards.

To know the learning status of the students, assignments are given. At the end of the semester examinations are conducted by the affiliated University- RGPV Bhopal.

➤ Direct Assessment Methods

Direct Assessment Methods		
S.No	Assessment Processes	Method Description
1.	Internal Assessment Test, Assignments, Quizzes, Internal Viva	Formative and summative assessment are used for evaluation of the Internal and external marks in theory and practical subjects, based on Mid semester examination, unit tests, assignments, seminar, group discussion, self study and tutorials generally conducted in between and on completion of course. An improvement test is conducted for those students who score very less marks in internal assessment before the end of the semester to give an opportunity to such students to improve their internal Assessment Marks. It is a metric to continuously assess the attainment of course outcomes. Average of the two Mid Semester marks, assignment marks and tutorials are taken as Internal Assessment Marks for the relevant subject.
2.	Theory / Practical Semester Examination.	Semester examinations are conducted by the affiliating University RGPV Bhopal and the metric to assess whether all the course outcomes are attained or not are framed by the course owner. Semester Examination is more focused on

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		attainment of course outcomes and uses descriptive exam pattern
3.	Seminar, Presentations, Project assessment	The Internal Assessment marks of projects and seminars in the final year are based on the evaluation at the end of 8th semester by a committee consisting of Head of the concerned Department and two senior faculty members of the Department, one of whom is the project / seminar guide.
4.	Project Work Viva-voce	Viva-voce examination of project work is conducted batch-wise.

➤ Indirect Assessment Methods

The indirect assessment methods ask the stake holders to reflect own learning. They assess the opinions or thoughts about the graduate's knowledge or skills and are valued by different stakeholders.

Indirect Assessment Methods		
S. No	Indirect Assessment Method	Method Description
1	Alumni: Survey Questionnaire	Collect Variety of Information About Program Satisfaction And College From the Alumni Students
2	Exit Feedback: Survey Questionnaire	Collect Variety of Information about course and program satisfaction, facilities of College etc. From the Final Year Students.
3	Parent: Survey Questionnaire	Collect Variety Of Information About Program Satisfaction And College From Parents.
4	Employer's Feedback Form	Collect Variety Of Information About The Graduates' Skills, Capabilities And Opportunities.
5	Student Feedback (About OBE)	Collect Variety Of Information About Outcome Based Education In Teaching And Learning Process.

PO Assessment Tools:

Method of Assessment	Source For Data Collection	Setting of Target	Data Assessment

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Internal/External Evaluation	Evaluation Data	Target Set with respect to previous results analysis and internal assessment	End of the Semester
Course Exit Survey	Survey Report	Target Set with reference to previous survey report and internal assessment	End of the Year
Program Exit Survey			
Alumni Survey			

POs	Skill to be Demonstrated	Assessment Tools
PO1	Engineering knowledge:	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO2	Problem analysis	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training

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		<ul style="list-style-type: none"> • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO3	Design/development of solutions:	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO4	Conduct investigations of complex problems:	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO5	Modern tool usage:	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training

[SELF ASSESSMENT REPORT]

		<ul style="list-style-type: none"> • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO6	Engineer and society	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO7	Environment and sustainability	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO8	Ethics	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training

[SELF ASSESSMENT REPORT]

		<ul style="list-style-type: none"> • Course Beyond syllabus • Add on course assessment • Alumni Feedback/Student Feedback/Employer Feedback • Project base and Problem base learning
PO9	Individual and team work	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO10	Communication	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training • Alumni Feedback/Student Feedback/Employer Feedback • Course Beyond syllabus • Add on course assessment • Project base and Problem base learning
PO11	Project management and finance	<ul style="list-style-type: none"> • Internal/External Evaluation as per University exam. • Project work/Lab Experiments • Mentoring, Core software skills • Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities • Course Exit Survey/Program Exit Survey • Industrial Visit/Industrial Training

[SELF ASSESSMENT REPORT]

		<ul style="list-style-type: none">• Alumni Feedback/Student Feedback/Employer Feedback• Course Beyond syllabus• Add on course assessment• Project base and Problem base learning
PO12	Lifelong learning	<ul style="list-style-type: none">• Internal/External Evaluation as per University exam.• Project work/Lab Experiments• Mentoring, Core software skills• Technical/Events/Workshop/conferences/Seminar/ Group discussion/Social Activities• Course Exit Survey/Program Exit Survey• Industrial Visit/Industrial Training• Alumni Feedback/Student Feedback/Employer Feedback• Course Beyond syllabus• Add on course assessment• Project base and Problem base learning

- The assessment process used to evaluate course outcome is mainly assessment with weightage of 80% (direct assessment) and 20% to course exit survey (indirect assessment).
- Assignments are given to improve the internal examination results.
- The IQAC committee verify all evaluation process at the starting of semester.

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Evaluation Process of Question paper setting

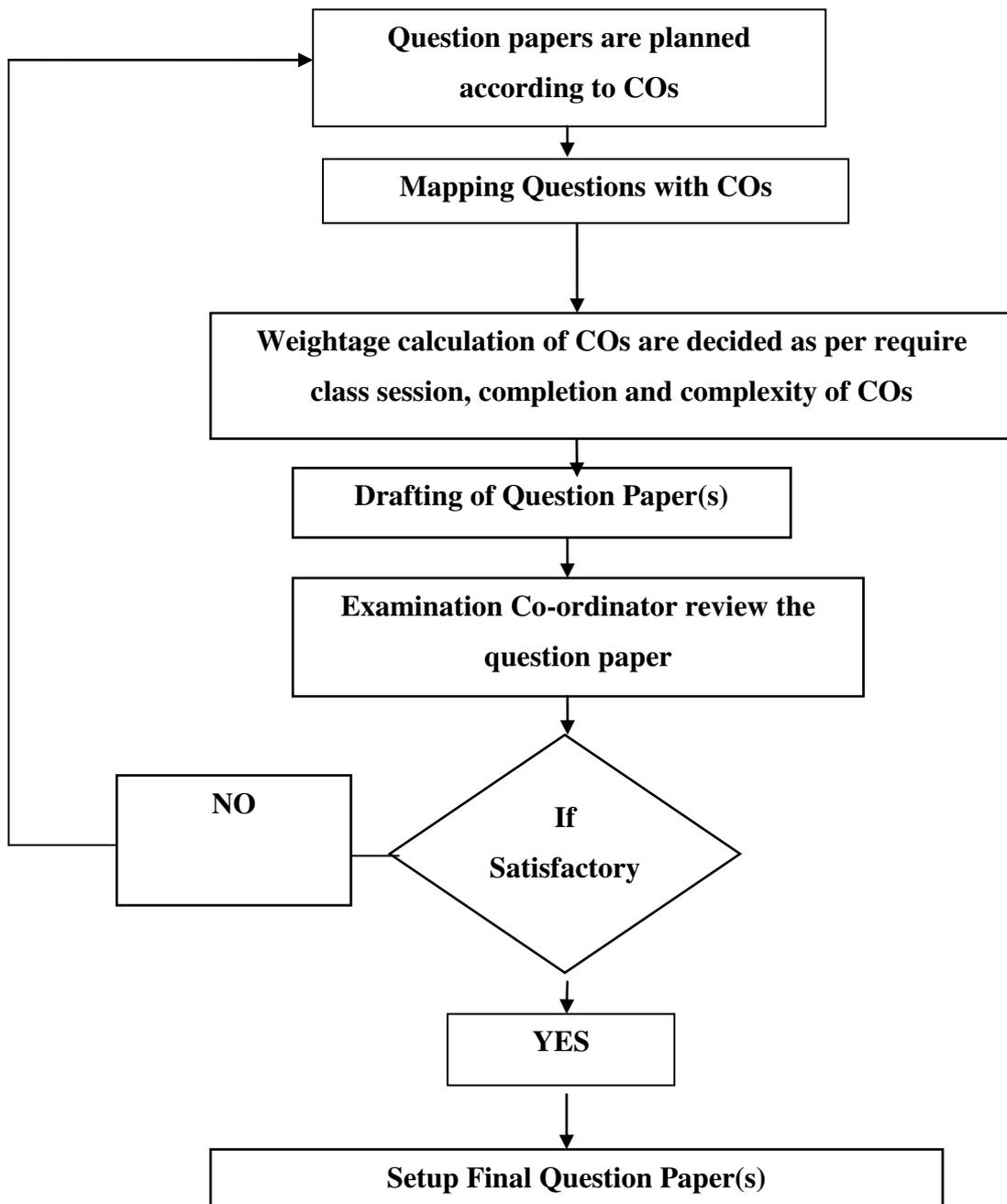


Figure 3.1 Evaluation Process

[SELF ASSESSMENT REPORT]

3.2.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels (40)

A. Setting of Target

Target of the course outcome has decided as per

- Average university examination result
- Subject internal Assessment Average Marks
- Class session require for completion of course outcome

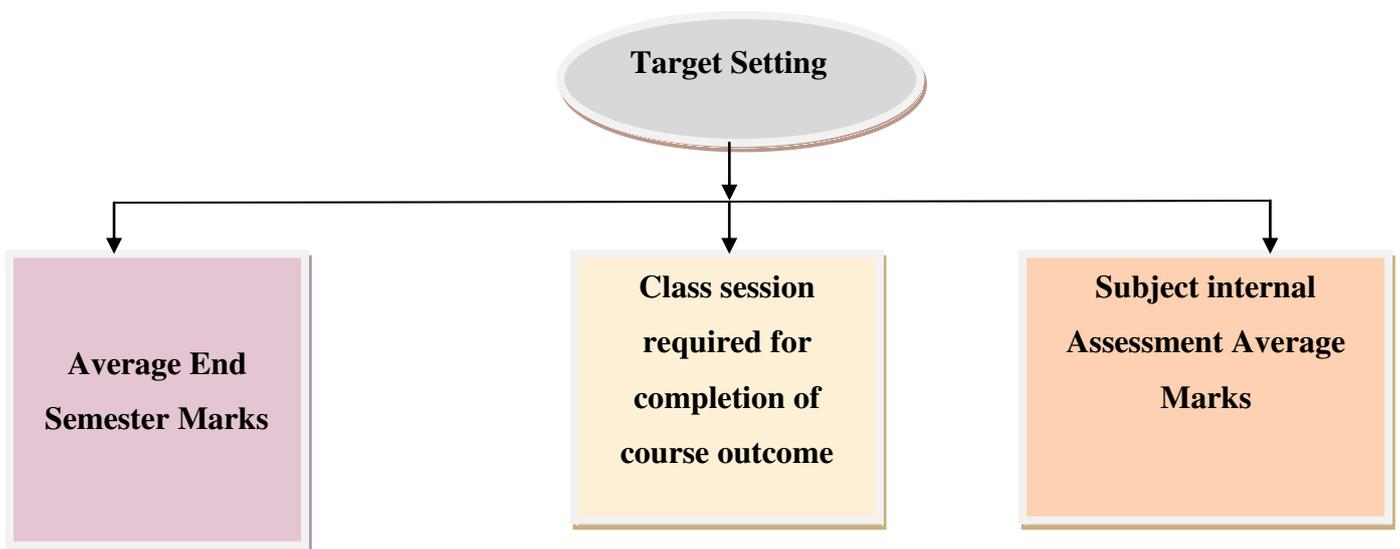
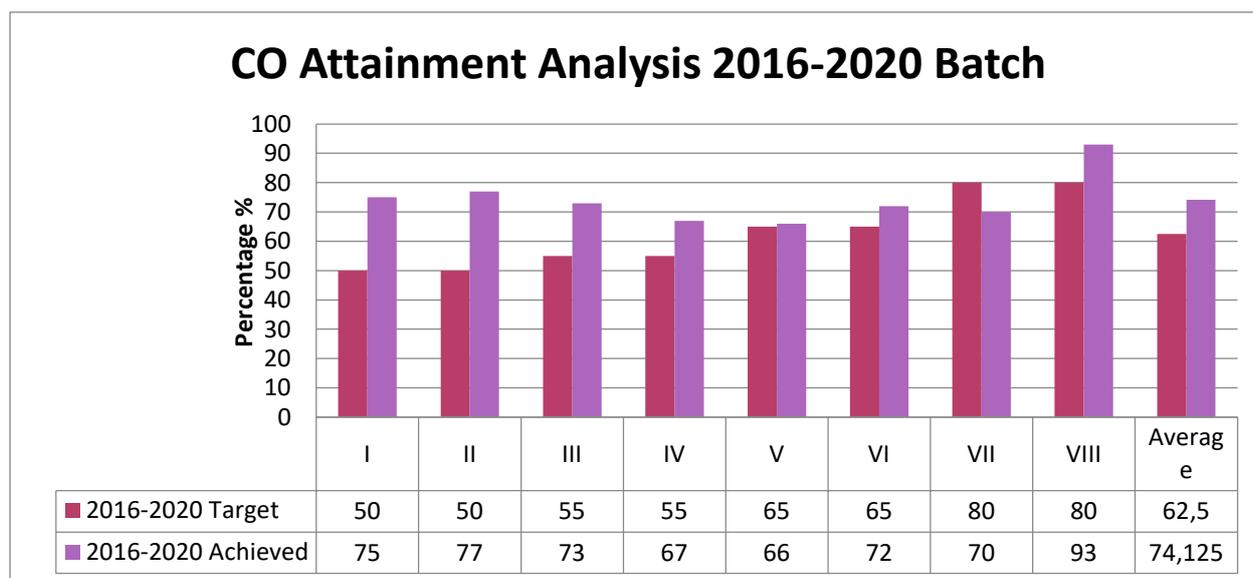


Figure 3.2 Process of Target Setting

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B. CO- ATTAINMENT (2016-2020 Batch)



2016-2020 CO Attainment				
Semester	Target%	Target Level	Achieved %	Achieved Level
I	50	1.5	75	2.25
II	50	1.5	77	2.31
III	55	1.65	73	2.19
IV	55	1.65	67	2.01
V	65	1.95	66	1.98
VI	65	1.95	72	2.16
VII	80	2.4	70	2.1
VIII	80	2.4	93	2.79
Average	62.5	1.875	74.125	2.22375

IES College of Technology, Bhopal [0177]					
Department Electronics & Communication Engineering Semester: All Semester 2016-2020 Batch (BE CBCS)					
COURSE OUTCOME EVALUATION					
	Subject/Course Outcome		Target Level	Total Attainment	Difference
First Semester	Mathematics- I (MA-110)	CMA110.1	1.1	0.6	-0.50
		CMA110.2	1.1	0.9	-0.20
		CMA110.3	1.1	0.9	-0.20
		CMA110.4	1.1	0.9	-0.20
		CMA110.5	1.1	0.6	-0.50
	Physics (PH-110)	CPH110.1	1.2	2.25	1.05
		CPH110.2	1.2	2.20	1.00
		CPH110.3	1.2	2.25	1.05
CPH110.4		1.2	2.15	0.95	

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	English (HU-110)	CPH110.5	1.2	2.15	0.95
		CHU110.1	1.3	2.25	0.95
		CHU110.2	1.3	2.15	0.85
		CHU110.3	1.3	2.15	0.85
		CHU110.4	1.3	2.15	0.85
		CHU110.5	1.3	1.80	0.50
	Engineering Mechanics (CE-110)	CCE110.1	1.2	1.90	0.70
		CCE110.2	1.2	1.80	0.60
		CCE110.3	1.2	1.80	0.60
		CCE110.4	1.2	1.80	0.60
		CCE110.5	1.2	1.80	0.60
	Engineering Graphics (ME-111)	CME111.1	1.35	1.95	0.60
		CME111.2	1.35	1.90	0.55
		CME111.3	1.35	1.95	0.60
		CME111.4	1.35	1.85	0.50
		CME111.5	1.35	3.00	1.65
	Environmental Sciences (ML-110)	CLML110.1	1.95	3.00	1.05
		CLML110.2	1.95	3.00	1.05
		CLML110.3	1.95	3.00	1.05
		CLML110.4	1.95	3.00	1.05
		CLML110.5	1.95	3.00	1.05
	Introduction to Electronics Engineering (EC-110)	CLEC110.1	1.95	3.00	1.05
		CLEC110.2	1.95	3.00	1.05
		CLEC110.3	1.95	3.00	1.05
		CLEC110.4	1.95	3.00	1.05
		CLEC110.5	1.95	3.00	1.05
	Communication (HU-111)	CLHU111.1	1.95	3.00	1.05
		CLHU111.2	1.95	3.00	1.05
		CLHU111.3	1.95	3.00	1.05
		CLHU111.4	1.95	3.00	1.05
CLHU111.5		1.95	3.00	1.05	
		Average	1.5	2.3	
		Average%	50.0	75.1	
Second Semester	Mathematics- II (MA-111)	CMA111.1	1.1	0.80	-0.30
		CMA111.2	1.1	0.80	-0.30
		CMA111.3	1.1	0.80	-0.30
		CMA111.4	1.1	0.70	-0.40
		CMA111.5	1.1	0.80	-0.30
	Electronics-I (EC-112)	CEC112.1	1.3	2.15	0.85
		CEC112.2	1.3	2.15	0.85
		CEC112.3	1.3	2.15	0.85
		CEC112.4	1.3	2.15	0.85
		CEC112.5	1.3	1.85	0.55

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	Fundamentals of Electrical Engineering (EE-111)	CEE111.1	1.2	1.80	0.60
		CEE111.2	1.2	1.80	0.60
		CEE111.3	1.2	1.80	0.60
		CEE111.4	1.2	1.85	0.65
		CEE111.5	1.2	3.00	1.80
	Concepts in Engineering Design (ME-112)	CME112.1	1.2	3.00	1.80
		CME112.2	1.2	3.00	1.80
		CME112.3	1.2	3.00	1.80
		CME112.4	1.2	3.00	1.80
		CME112.5	1.2	3.00	1.80
	Chemistry (CY-110)	CCY110.1	1.35	1.85	0.50
		CCY110.2	1.35	1.85	0.50
		CCY110.3	1.35	1.80	0.45
		CCY110.4	1.35	1.85	0.50
		CCY110.5	1.35	3.00	1.65
	Manufacturing Practices (ME-113)	CLME113.1	1.8	3.00	1.20
		CLME113.2	1.8	3.00	1.20
		CLME113.3	1.8	3.00	1.20
		CLME113.4	1.8	3.00	1.20
		CLME113.5	1.8	3.00	1.20
	Computer Programming (CS-110)	CCS110.1	1.95	3.00	1.05
		CCS110.2	1.95	3.00	1.05
		CCS110.3	1.95	3.00	1.05
		CCS110.4	1.95	3.00	1.05
		CCS110.5	1.95	3.00	1.05
Rural Outreach (HU-112)	CLHU112.1	2.1	2.40	0.30	
	CLHU112.2	2.1	2.40	0.30	
	CLHU112.3	2.1	2.40	0.30	
	CLHU112.4	2.1	2.40	0.30	
	CLHU112.5	2.1	3.00	0.90	
		Average	1.5	2.3	
		Average%	50.0	77.1	
Third Semester	Energy, Environment, Ecology & Society ES-3001	CES3001.1	1.8	3.00	1.20
		CES3001.2	1.8	2.80	1.00
		CES3001.3	1.8	2.80	1.00
		CES3001.4	1.8	2.80	1.00
		CES3001.5	1.8	2.90	1.10
	Digital circuits & system EC-3002	C3002.1	1.5	1.60	0.10
		C3002.2	1.5	1.50	0.00
		C3002.3	1.5	1.45	-0.05
		C3002.4	1.5	1.40	-0.10

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	Network Analysis EC-3003	C3002.5	1.5	1.95	0.45
		C3003.1	1.65	1.50	-0.15
		C3003.2	1.65	1.45	-0.20
		C3003.3	1.65	1.45	-0.20
		C3003.4	1.65	1.50	-0.15
	Electronic Devices & Circuits EC-3004	C3003.5	1.65	1.95	0.30
		C3004.1	1.8	1.65	-0.15
		C3004.2	1.8	1.10	-0.70
		C3004.3	1.8	1.35	-0.45
		C3004.4	1.8	1.55	-0.25
	Measurements and Instrumentation EC-3005	C3004.5	1.8	1.95	0.15
		C3005.1	1.5	1.60	0.10
		C3005.2	1.5	1.40	-0.10
		C3005.3	1.5	1.55	0.05
		C3005.4	1.5	1.45	-0.05
	Rural Outreach (Internal Assessment) EC-3006	C3005.5	1.5	3.00	1.50
		CL3006.1	1.65	3	1.35
		CL3006.2	1.65	3	1.35
		CL3006.3	1.65	3	1.35
		CL3006.4	1.65	3	1.35
	NSS/NCC/Social Work (Internal Assessment) EC-3007	CL3006.5	1.65	3	1.35
		CL3007.1	1.65	3	1.35
		CL3007.2	1.65	3	1.35
		CL3007.3	1.65	3	1.35
		CL3007.4	1.65	3	1.35
		Average	1.65	2.19	
		Average%	55.00	73.01	
Fourth Semester	Mathematics-III BE-3001	C3001	1.50	0.60	-0.90
		C3002	1.50	0.60	-0.90
		C3003	1.50	0.50	-1.00
		C3004	1.50	0.50	-1.00
		C3005	1.50	0.80	-0.70
	Signal and Systems EC-4002	C4002.1	1.65	2.00	0.35
		C4002.2	1.65	1.70	0.05
		C4002.3	1.65	1.55	-0.10
		C4002.4	1.65	1.95	0.30
		C4002.5	1.65	1.80	0.15
	Integrated Circuits and its Applications EC-4003	C4003.1	1.8	1.65	-0.15
		C4003.2	1.8	1.45	-0.35
		C4003.3	1.8	1.30	-0.50
		C4003.4	1.8	1.70	-0.10

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	Communication Systems EC-4004	C4003.5	1.8	2.20	0.40
		C4004.1	1.8	1.90	0.10
		C4004.2	1.8	1.80	0.00
		C4004.3	1.8	1.65	-0.15
		C4004.4	1.8	1.80	0.00
	C4004.5	1.8	0.70	-1.10	
	Control Systems EC-4005	C4005.1	1.65	0.70	-0.95
		C4005.2	1.65	0.80	-0.85
		C4005.3	1.65	0.70	-0.95
		C4005.4	1.65	0.60	-1.05
		C4005.5	1.65	0.70	-0.95
	Simulation Lab EC-4006	CL4006.1	1.8	2.8	1.00
		CL4006.2	1.8	2.2	0.40
		CL4006.3	1.8	2.4	0.60
		CL4006.4	1.8	2	0.20
		CL4006.5	1.8	2.6	0.80
	Programming Tools (Departmental Choice)(Internal Assessment) EC-4007	C4007.1	1.5	3	1.50
		C4007.2	1.5	3	1.50
		C4007.3	1.5	3	1.50
		C4007.4	1.5	3	1.50
		C4007.5	1.5	3	1.50
	Professional Ethics (Internal Assessment) EC-4008	C4008.1	1.5	3	1.50
		C4008.2	1.5	3	1.50
		C4008.3	1.5	3	1.50
		C4008.4	1.5	3	1.50
		C4008.5	1.5	3	1.50
			Average	1.7	2.0
Average%			55.7	67.3	
Fifth Semester	Electromagnetic Field Theory EC-5001	C5001.1	1.95	1.50	-0.45
		C5001.2	1.95	1.40	-0.55
		C5001.3	1.95	1.30	-0.65
		C5001.4	1.95	1.10	-0.85
		C5001.5	1.95	1.20	-0.75
	Digital Communication EC-5002	C5002.1	1.5	1.80	0.30
		C5002.2	1.5	1.55	0.05
		C5002.3	1.5	1.55	0.05
		C5002.4	1.5	1.65	0.15
		C5002.5	1.5	1.75	0.25
	Microprocessor and Microcontroller EC-5003	C5003.1	1.9	1.25	-0.65
		C5003.2	1.9	1.30	-0.60
		C5003.3	1.9	1.25	-0.65
		C5003.4	1.9	1.45	-0.45

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	Communication Networks and Transmission Lines EC-5004	C5003.5	1.9	2.00	0.10	
		C5004.1	1.8	1.70	-0.10	
		C5004.2	1.8	1.60	-0.20	
		C5004.3	1.8	1.55	-0.25	
		C5004.4	1.8	1.50	-0.30	
		C5004.5	1.8	1.50	-0.30	
	Industrial Electronics 5005	EC-	C5005.1	1.5	1.50	0.00
			C5005.2	1.5	1.40	-0.10
			C5005.3	1.5	1.10	-0.40
			C5005.4	1.5	1.30	-0.20
			C5005.5	1.5	1.40	-0.10
	Workshop-I EC-5006		CL5006.1	2.3	2.8	0.50
			CL5006.2	2.3	2	-0.30
			CL5006.3	2.3	2	-0.30
			CL5006.4	2.3	1.8	-0.50
			CL5006.5	2.3	2.2	-0.10
	Management Skill Development EC-5007		CL5007.1	2.3	3	0.70
			CL5007.2	2.3	3	0.70
			CL5007.3	2.3	3	0.70
			CL5007.4	2.3	3	0.70
			CL5007.5	2.3	3	0.70
	Innovative Thinking EC-5008		CL5008.1	2.4	3	0.60
			CL5008.2	2.4	3	0.60
			CL5008.3	2.4	3	0.60
			CL5008.4	2.4	3	0.60
			CL5008.5	2.4	3	0.60
			Average	2.0	2.0	
			Average%	65.2	67.5	
Sixth Semester	Cellular mobile communication EC- 6001	C6001.1	1.8	2.90	1.10	
		C6001.2	1.8	2.80	1.00	
		C6001.3	1.8	2.50	0.70	
		C6001.4	1.8	2.80	1.00	
		C6001.5	1.8	2.50	0.70	
	Digital signal Processing EC-6002	C6002.1	1.6	1.70	0.10	
		C6002.2	1.6	1.70	0.10	
		C6002.3	1.6	1.45	-0.15	
		C6002.4	1.6	1.55	-0.05	
		C6002.5	1.6	2.05	0.45	
	Antennas and wave Propagation 6003	EC-	C6003.1	1.8	1.95	0.15
			C6003.2	1.8	1.95	0.15
			C6003.3	1.8	1.90	0.10
			C6003.4	1.8	2.00	0.20
			C6003.5	1.8	1.70	-0.10
	VLSI circuits and systems EC-6004		C6004.1	1.8	1.30	-0.50
			C6004.2	1.8	1.45	-0.35

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		C6004.3	1.8	1.10	-0.70
		C6004.4	1.8	1.25	-0.55
		C6004.5	1.8	2.20	0.40
	Elective-II Nano Electronics EC-6005	C6005.1	1.5	2.20	0.70
		C6005.2	1.5	1.80	0.30
		C6005.3	1.5	1.70	0.20
		C6005.4	1.5	1.80	0.30
		C6005.5	1.5	2.00	0.50
	Workshop-II EC-6006	C6006.1	2.3	2.8	0.50
		C6006.2	2.3	2.2	-0.10
		C6006.3	2.3	2	-0.30
		C6006.4	2.3	2	-0.30
		C6006.5	2.3	2	-0.30
	Creativity and Entrepreneurship Development** (Internal Assessment) EC-6007	C6007.1	2.3	3.00	0.70
		C6007.2	2.3	3.00	0.70
		C6007.3	2.3	3.00	0.70
		C6007.4	2.3	3.00	0.70
		C6007.5	2.3	3.00	0.70
	Startup / Industrial Lectures (Internal Assessment) EC- 6008	C6008.1	2.46	3.00	0.54
		C6008.2	2.46	3.00	0.54
C6008.3		2.46	3.00	0.54	
C6008.4		2.46	3.00	0.54	
C6008.5		2.46	3.00	0.54	
		Average	2.0	2.2	
		Average%	66	72	
Seventh Semester	Microwave Engineering (EC- 7001)	C7001.1	2.16	2.05	-0.11
		C7001.2	2.16	2.05	-0.11
		C7001.3	2.16	1.90	-0.26
		C7001.4	2.16	2.05	-0.11
		C7001.5	2.16	1.60	-0.56
	Satellite Communication (EC-7002)	C7002.1	2.25	1.55	-0.70
		C7002.2	2.25	1.65	-0.60
		C7002.3	2.25	1.45	-0.80
		C7002.4	2.25	1.30	-0.95
		C7002.5	2.25	2.55	0.30
	Optical Communication (EC- 7003)	C7003.1	2.49	2.20	-0.29
		C7003.2	2.49	2.05	-0.44
		C7003.3	2.49	2.00	-0.49
		C7003.4	2.49	2.15	-0.34
		C7003.5	2.49	2.70	0.21
	Elective-III Data Communication (EC-7004)	C7004.1	2.49	2.70	0.21
		C7004.2	2.49	2.60	0.11
		C7004.3	2.49	2.60	0.11
		C7004.4	2.49	2.50	0.01
		C7004.5	2.49	2.80	0.31

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	Elective-IV Wireless Communication (EC-7005)	C7005.1	1.95	1.10	-0.85
		C7005.2	1.95	1.20	-0.75
		C7005.3	1.95	1.10	-0.85
		C7005.4	1.95	0.90	-1.05
		C7005.5	1.95	1.50	-0.45
	Project -I (EC-7006)	CL7006.1	2.7	2.6	-0.10
		CL7006.2	2.7	2.6	-0.10
		CL7006.3	2.7	2.6	-0.10
		CL7006.4	2.7	2.6	-0.10
		CL7006.5	2.7	2.6	-0.10
	Industrial Training (Two weeks) (EC-7007)	CL7007.1	2.7	3	0.30
		CL7007.2	2.7	2.2	-0.50
		CL7007.3	2.7	2.2	-0.50
		CL7007.4	2.7	2.2	-0.50
		CL7007.5	2.7	2.2	-0.50
		Average	2.4	2.1	
		Average%	80	70	
Eight Semester	VLSI Design (EC-8001)	C8001.1	2.10	2.75	0.65
		C8001.2	2.10	2.65	0.55
		C8001.3	2.10	2.50	0.40
		C8001.4	2.10	2.75	0.65
		C8001.5	2.10	3.00	0.90
	Advanced Communication (EC-8002)	C8002.1	2.25	2.80	0.55
		C8002.2	2.25	2.70	0.45
		C8002.3	2.25	2.60	0.35
		C8002.4	2.25	2.60	0.35
		C8002.5	2.25	3.00	0.75
	Principles Management & Economics (EC-8003)	C8003.1	2.10	3.00	0.90
		C8003.2	2.10	2.90	0.80
		C8003.3	2.10	2.60	0.50
		C8003.4	2.10	2.60	0.50
		C8003.5	2.10	2.60	0.50
	Radar Engineering (EC-8004)	C8004.1	2.20	2.90	0.70
		C8004.2	2.20	2.90	0.70
		C8004.3	2.20	2.70	0.50
		C8004.4	2.20	2.70	0.50
		C8004.5	2.20	2.80	0.60
	Project -II EC-8005	CL8005.1	2.5	3	0.50
		CL8005.2	2.5	2.6	0.10
		CL8005.3	2.5	2.4	-0.10
		CL8005.4	2.5	2.4	-0.10
		CL8005.5	2.5	2.4	-0.10
Departmental Choice (EC-	CL8006.1	2.7	3	0.30	

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	8006)	CL8006.2	2.7	3	0.30
		CL8006.3	2.7	3	0.30
		CL8006.4	2.7	3	0.30
		CL8006.5	2.7	3	0.30
	Group Discussion (EC-8007)	CL8007.1	2.85	3	0.15
		CL8007.2	2.85	3	0.15
		CL8007.3	2.85	3	0.15
		CL8007.4	2.85	3	0.15
		CL8007.5	2.85	3	0.15
			Average	2.4	3
		Average%	80	93	

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3.3 Attainment of Program Outcomes and Program Specific Outcomes (50)

3.3.1 Describe assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes (10)

Program Outcomes (PO's) Assessment Tools:

Assessment tools are categorized into direct and indirect methods to assess the Program Specific outcomes, Program outcomes and course outcomes.

- Direct attainment of COs is determined from the performances of students in 30% of Internal Evaluation (IE) and 70% of Semester End Examination (SEE)
- 30% of Internal Evaluation (IE) is calculated from 67% of Mid Semester Examination and 33% of Assignment/theory quizzes.
- For assessment of Mid Semester Examination marks, two mid semester are conducted and final marks is consider as an average of two mid marks.
- First Mid Semester Examination is included four questions with respect to 40% Coverage of COs.
- Second Mid semester Examination is included six questions with respect to remaining 60% Coverage of COs.
- For assessment of assignment four or five assignments are given and each assignment includes three to five questions with respect to concern COs.
- For practical COs attainment is determined from the performances of students in 40% of Internal Evaluation (IE) and 60% of End Semester Examination (SEE).
- Direct method enables faculty to judge student's knowledge and skills from their performance in the continuous assessment tests, end-semester examinations, presentations, and classroom assignments etc. These methods provide a sample of what students know and/or can do and provide strong evidence of extent of student- learning.
- Under Indirect methods, feedbacks of the stakeholders are considered on students learning. They express their opinions or thoughts about the graduates' knowledge, skills and similar information is collected through different stakeholders.
 - Course/ Program Exit Survey (30%)
 - Alumni Feedback (20%)
 - Employer Feedback (10%)
 - Parents Feedback (10%)
 - 30% Student Feedback (About OBE)

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The process of attainment has described in flow chart

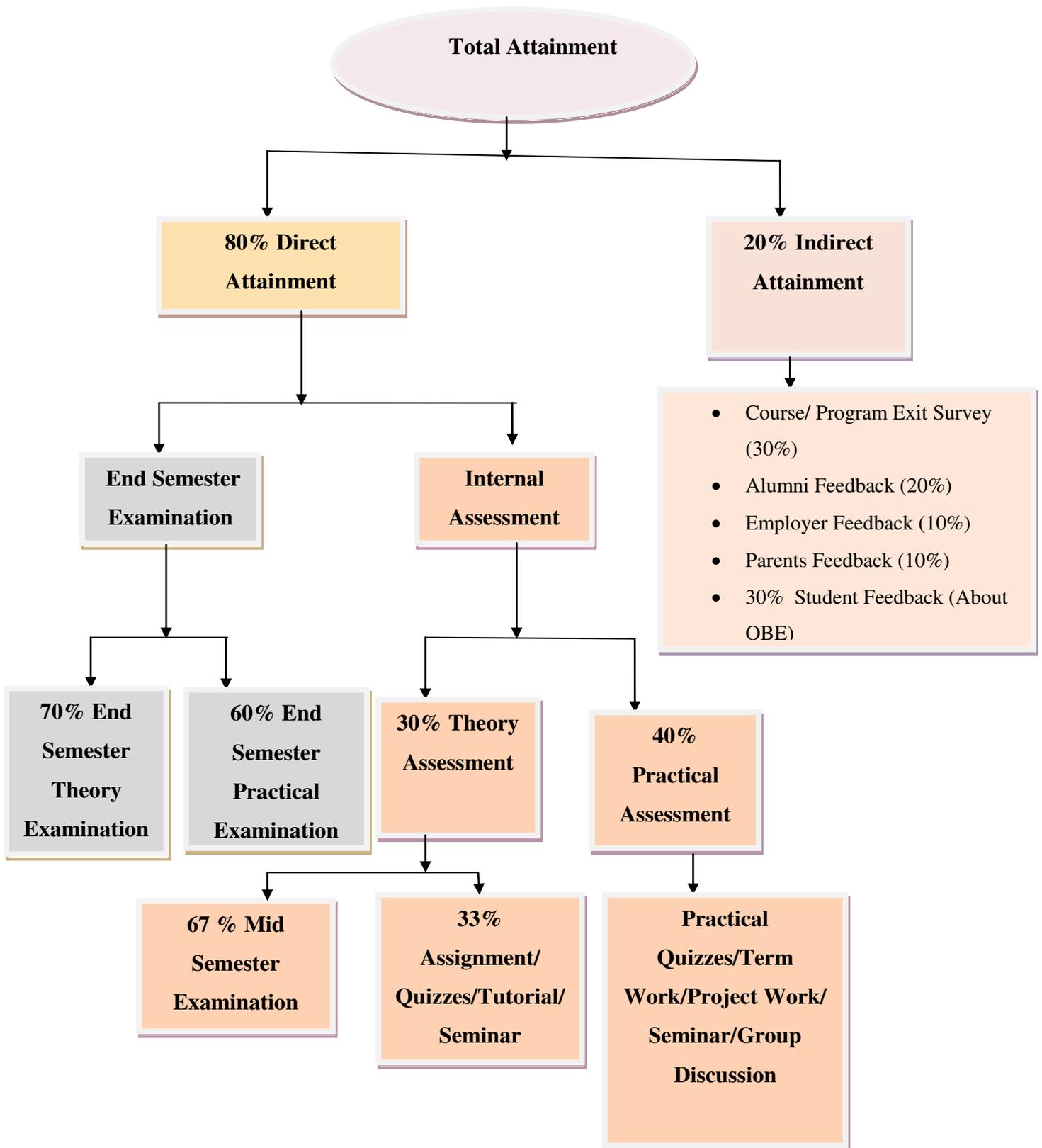


Figure 3.3 Flow Chart of Attainment Calculations

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Use of Rubrics for Evaluation and Assessment of PO's

- The Course/ Program outcomes are difficult to measure e.g. assessment of critical thinking, creativity, analytical skills, and problem solving etc. Hence the department has adopted criterion referenced rubrics to assess the POs and Cos, wherever appropriate. The Rubric criteria are either developed by department faculty or sometimes even with consultation with students and distributed among concerned before an assignment, project or test.
- Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student.
- The rubrics are shared with students before being evaluated so that they are aware of the performance criteria and their weightage.

Rubrics Details

Internal & External Evaluation Rubrics (Theory Subject)

Rubrics	
External Evaluation	If 80% students achieve marks above 50 % marks then attained level is 3
	If 70% students achieve marks above 50% marks then attained level is 2
	If 60% students achieve marks above 50 % marks then attained level is 1
Internal Evaluation	If 80% students achieve marks above 60% marks then attained level is 3
	If 70% students achieve marks above 60% marks then attained level is 2
	If 60% students achieve marks above 60% marks then attained level is 1

Internal & External Evaluation Rubrics (Practical Subject)

Rubrics	
External Evaluation	If 80% students achieve marks above 50 % marks then attained level is 3
	If 70% students achieve marks above 50% marks then attained level is 2
	If 60% students achieve marks above 50 % marks then attained level is 1
Internal Evaluation	If 80% students achieve marks above 60% marks then attained level is 3
	If 70% students achieve marks above 60% marks then attained level is 2
	If 60% students achieve marks above 60% marks then attained level is 1

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Lab Performance Evaluation Rubric

Student Name: -----

Enrollment Number: -----

Evaluation Date: -----

S.N	Method of Evaluation	Rubrics	Exceeds expectation(3)	Meets expectation(2)	Doesn't meet expectation(0-1)	Marks
1	Conduction of Experiments (Hardware)	Lab Participation	Student demonstrates an accurate understanding of the lab objectives and concepts. The student can correctly answer questions and if appropriate, can explain concepts to fellow classmates. Student is eager to participate and assists when needed.	Student arrives on time to lab, but may be unprepared. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	Student tardiness or unpreparedness makes it impossible to fully participate. If able to participate, Student has difficulty explaining key lab concepts. OR Student was absent from lab	
2		Equipment connection	Student has made correct equipment/component connections as per standard circuit diagrams.	Student needed guidance to make correct equipment/component connections as per standard circuit diagrams.	Student was unable to make correct equipment/Component connections as per standard circuit diagrams.	
3		Data Recording/Collection	Student has correctly measured the relevant parameters	Student has performed incorrect measurement of relevant parameters	Student was unable to identify /measure relevant parameters	
4		Results	Accurate results have been achieved	The achieved results are not accurate but are within tolerance range	No results are achieved OR The achieved results are meaningless	
5		Troubleshooting	Student has ability to detect and correct the errors	Student can detect the error but unable to correct it	Student was unable to detect the error	
6	Conduction of Experiments (Hardware)	Lab Report	Student demonstrates an accurate understanding of the lab objectives and concepts. Questions are answered completely and correctly. Graphs are neat, creative and include complete titles and accurate units. Errors, if any are minimal	Student has a basic knowledge of content, but may lack some understanding of some concepts. Questions are answered fairly well and/or graphs could have been done more neatly, accurately or with more complete information.	Student has problems with both the graphs and the answers. Student appears to have not fully grasped the lab content and the graph(s) possess multiple errors. OR Student turns in lab report late or the report is incomplete	
7	Ethics	Safety	Student carefully observes the safety rules and procedures during practical work	Student observes safety rules and procedures with minor deviation during practical work	Student does not care about safety rules during practical work.	
8	Ethics	Punctuality	Student was on time and stayed till the completion of	Student was on time but wasted time	Student was not on time and left class	

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			task	outside the work place during the experiment.	before time.	
9	Ethics	Workplace Clearance	The student uses the equipment responsibly and clears the leftovers at the work place on completion of lab work	The student has shown responsibility towards using the equipment while he didn't care about the cleanliness of work place	The student has shown irresponsibility using the equipment and didn't clear the leftovers at the workplace on completion of lab work	
10	Team Work	Research & gather information	Student has collected a great deal of information which goes beyond the basics.	Student has collected basic information related the topic.	Student has not collected any information that relates to the topic	
11		Fulfil team role's duties	Student has performed the duties assigned and actively assisted others.	Student has shown limited performance in the duties that are assigned	Student has not performed any duties of assigned team role.	
12		Listen to other teammates	Consistently listens and responds to other appropriately	Usually doing most of the talking rarely allowed others to speak.	Student shows an assertive behaviour and was unable to show respect towards other teammates.	
13	Conduction of Experiments (Software)	Familiarity with software	Student has full command on the basic tools of the software.	Student has limited command on the basic tools of the software.	Student has no idea how to use the basic tools of the software.	
14		Simulation Steps	Has applied all the steps in correct sequence to obtain the results.	Some steps are followed but not in proper sequence	Student has no idea regarding the steps to be followed to perform simulation	
15		Coding Skills	The code is completely functional and responds correctly producing the correct outputs.	The Code is correct with regard to syntax but required output is not correct.	The code has several syntax errors. Important parts of code are missing.	
16	Conduction of Experiments (Software)	Schematic of the Circuit	Schematic of circuit/board is made with proper connections/wiring.	Schematic of circuit/board is made with only basic proper connections/wiring	Schematic of circuit/board is made with only basic connections/wiring and has several errors.	
Total Marks						

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Project Work Evaluation Rubrics

Student Name: -----

Enrollment Number: -----

Evaluation Date: -----

Method of Evaluation	Evaluation Parameters	Max. Marks	Rubric Parameters	Level of Achievement				
				Excellent (9-10)	Very Good (7-8)	Good (5-6)	Average (3-4)	Poor (1-2)
Process	Attendance	10	Continuity	85% above Attendance	70-85% Attendance	60-70% Attendance	40-60% Attendance	40% Below Attendance
	Design Methodology	20	Conceptual design, Division of problem into modules, Selection of design Framework.	Properly followed & Properly Justified	Properly Followed & Justified Partially	Properly followed & Not Justified	Partially Followed and Partially justified	Not followed and Not justified
	Implementation	20	Design Circuit Model, Algorithm, Coding	Properly Followed & Properly implemented	Properly Followed & Implemented Partially	Properly followed & Not implemented	Partially Followed and Partially implemented	Not followed and Not implemented
Product	Presentation	10	Preparation of Slides, Presentation Consistency	Relevant and consistent	Relevant & partially consistent	Partially relevant & consistent	Partially relevant & partially consistent	Not relevant & inconsistent
	Demonstration	10	Hardware & Software modules, Working and results	Properly demonstrated & Properly Justified Results	Properly Demonstrated & Partially Justified Results	Partially demonstrated & Justified	Partially demonstrated and Partially Justified	Not demonstrated and no justification
	Viva	10	Handling Questions	Answered all questions with proper justification	Answered 80% questions	Answered 60% questions	Answered 40% question	Answered 20% questions
	Project Report	20	Contain of Report	Excellent	Very Good	Good	Average	Poor

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Seminar

- For the seminar, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding of the topic, and submit it to the department. It will be evaluated by the departmental committee consisting of head of the department.
- The seminar report shall be evaluated for 50 marks. There will be no external examination for the seminar. The committee evaluates seminar based on following parameters.

Assessment Tool	
Internal Assessment	Presentation
	Viva-voce

- **Presentation:** The content, quality of the presentation and communication skill is assessed by the evaluation committee.
- **Viva-voce:** At the end of the presentation, the assessment panel and the peer group ask questions and seek clarifications on specific issues related to the seminar. The effectiveness of the student's response to these queries is assessed.

SEMINAR EVALUATION RUBRIC

- **Student Presenter:** _____
- **Evaluator Date:** -----

Evaluate the student's presentation				
Evaluation Parameters	Outstanding(4)	Admirable(3)	Average(2)	Inadequate(1)
Knowledge and Content	Outstanding	Admirable	Average	Inadequate
Organization of presentation	Information presented as interesting story in logical, easy to follow sequence	Information presented in logical sequence; easy to follow	Most of information presented in sequence	Hard to follow; sequence of information jumpy
Background content	Material sufficient for clear understanding AND exceptionally	Material sufficient for clear understanding AND effectively	Material sufficient for clear understanding but not clearly	Material not clearly related to topic OR background dominated

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	presented	presented	presented	seminar
Methods	Sufficient for understanding and exceptionally presented	Sufficient for understanding and effectively presented	Sufficient for understanding but not clearly presented	Methods too brief or insufficient for adequate understanding
Results (figures, graphs, tables, etc.)	All figures clear	Most figures clear	Majority of figures clear	Some figures hard to read
Contribution of work	Significance exceptionally well explained	Significance explained	Significance mentioned	Significance not mentioned or just hinted. Reasonably explained
Knowledge of subject	Demonstrated full knowledge; answered all questions with elaboration	At ease; answered all questions but failed to elaborate	At ease with information; answered most questions	Does not have grasp of information; answered only rudimentary questions
Presentation Skills	All appropriately formatted	Most appropriately formatted	Majority appropriately formatted	Some explanations lacking
Graphics (use of PowerPoint)	Uses graphics that explain and reinforce text and presentation	Uses graphics that explain text and presentation	Uses graphics that relate to text and presentation	Uses graphics that rarely support text and presentation

[SELF ASSESSMENT REPORT]

- **Rubrics for evaluation of Indirect Assessment**

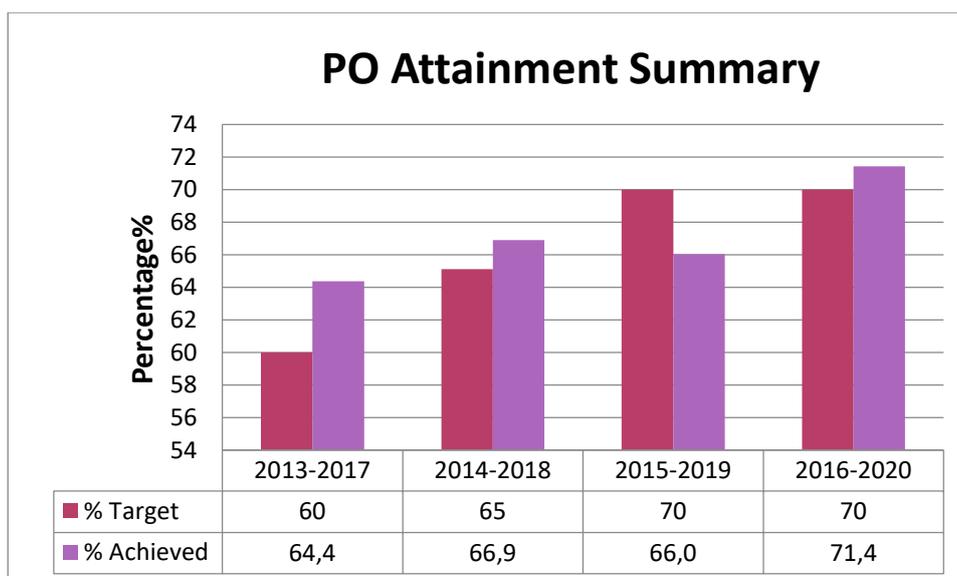
Internal Evaluation	If 60% Parents are giving above 60% attained level is 3
	If 50% Parents are giving above 60% then attained level 2
	If 40% Parents achieve marks above 60% marks then attained level is 1

Internal Evaluation	If 60% Alumni are giving above 60% attained level is 3
	If 50% Alumni are giving above 60% then attained level 2
	If 40% Alumni achieve marks above 60% marks then attained level is 1

Internal Evaluation	If 60% Students are giving above 60% attained level is 3
	If 50% Students are giving above 60% then attained level 2
	If 40% Students achieve marks above 60% marks then attained level is 1

Internal Evaluation	If 60% Employer are giving above 60% attained level is 3
	If 50% Employer are giving above 60% then attained level 2
	If 40% Employer achieve marks above 60% marks then attained level is 1

3.3.2 Provide results of evaluation of each PO & PSO (40)



[SELF ASSESSMENT REPORT]

IES College of Technology, Bhopal [0177] (2016-2020 batch)															
PO Attainment (2020-2021)															
S. N	Sem	Sub Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
1	Ist Sem	MA110	0.80	0.77	0.83	0.60		0.70	0.90	-	-	-	0.60	0.78	
2		CE110	1.83	1.82	-	-	-	1.84	1.85	-	-	-		1.84	
3		ME111	1.89	1.90	-	-	-	1.90	1.90				-	-	1.88
4		PH110	2.19	2.19	-	-	-	-	-	-	-	2.20	-	-	2.21
5		HU110	2.18	2.17	-	-	-	2.25	-	-	-	2.15	-	-	2.20
6		EC110P	3.00	3.00	-	-	-		-	-			-	-	3.00
7		ML110P	3.00	3.00	3.00	-	3.00	3.00	3.00			3.00	-	-	3.00
8		HU111P	3.00	3.00	3.00	-	3.00	3.00			3.00	3.00	3.00	-	3.00
9	2nd Sem	MA111	0.8	0.8	-	-			-	-		-	-	0.801	
10		EC112	2.2	2.2	2.2	-	2.2	2.2	-	-	2.2	-	-	2.2	
11		EE111	1.8	1.8	-	-	1.8	1.9	-	-	1.8	-	-	1.8	
12		ME111	2.2	2.2	-	-	2.2	2.2	-	-	2.2	-	-	2.2	
13		CY110	1.9	1.9	-	-	-	-	-	-	-	-	-	-	1.9
14		HU112	2.3	2.3	2.2	-	-	-	2.3	2.3	2.3	2.3	2.3	-	-
15		ME113P	3.0	3.0	3.0	-	3.0	3.0	-	-	3.0	-	-	-	3
16		CS110	3	3	3	-	3	3	-	-	3	-	-	-	3
13	3rd Sem	ES3001	2.85	2.87	-	-	-	-	2.90	-	-	3.00		2.88	
14		EC3002	1.55	1.55	1.44	-	1.48	-	-	-	1.60	-	-	1.52	
15		EC3003	1.59	1.59		-	1.55	-	-	-	1.54	-	-	1.60	
16		EC3004	1.60	1.50	1.50	-	1.60	-	-	-	1.50	-	-	1.50	
17		EC3005	1.59	1.56		-	1.65	-	-	-	1.57	-	-	1.62	
18		EC3006	3.00	3.00	3.00	-	-	-	3.00	3.00	3.00	3.00	3.00	-	-
19		EC3007	3.00	3.00	-	-	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

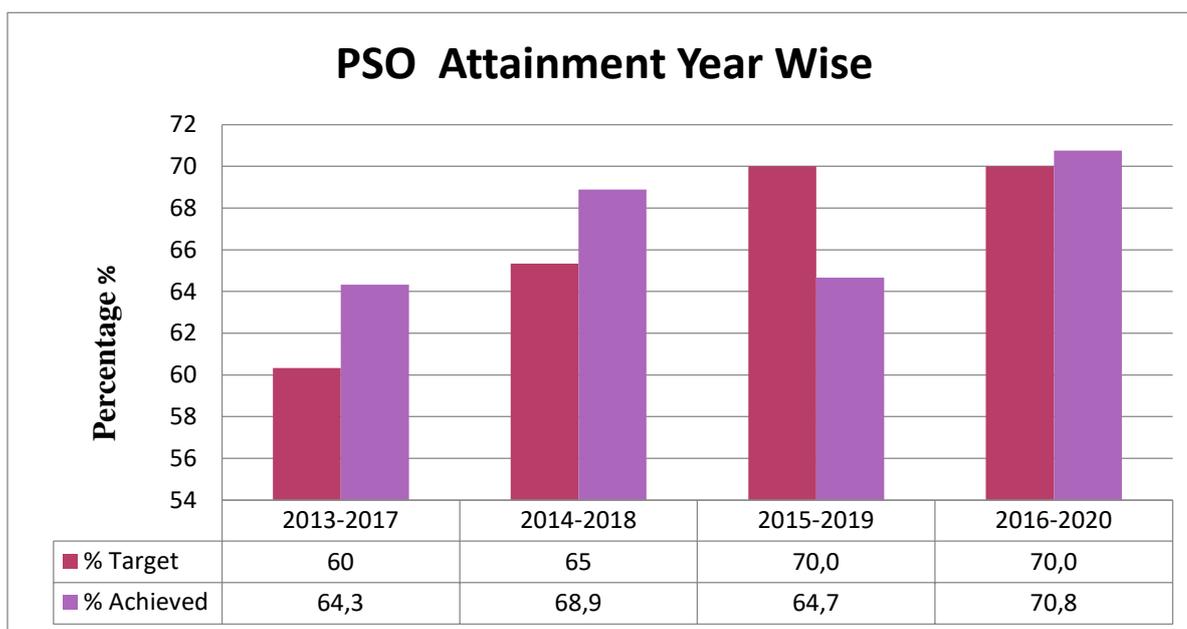
[SELF ASSESSMENT REPORT]

21	4th Sem	BE3001	0.59	0.58	-	-	0.60	0.67	0.67	0.60	0.55	0.60		0.60	
22		EC4002	1.59	1.74	-	-	1.59	-	-	-	-	-	-	-	1.65
23		EC4003	1.28	1.35	1.31	-	1.30	2.80	2.80			1.20	-	-	1.34
24		EC4004	1.63	1.72	1.80	1.80	1.59					1.84	-	-	1.55
25		EC4005	0.70	0.71	0.70		0.70					0.70	-	-	0.70
26		EC4006	1.76	1.92	2.00	2.60	1.84	2.20	2.20	1.10	1.65	2.40	-	-	1.80
27		EC4007	3.00	3.00	-	-	3.00	3.00	3.00	3.00			-	-	3.00
28		EC4008	3.00	3.00	-	-		3.00	3.00	3.00	3.00	3.00	-	-	3.00
29		5th Sem	EC5001	1.32	1.28	-	-	1.10	-	-	-	-	-	-	1.25
30	EC5002		1.71	1.70	1.55	-	-	-	-	-	-	-	-	1.65	
31	EC5003		1.36	1.42		-	-	-	-	-	1.25	-	-	1.43	
32	EC5004		1.68	1.62	1.80		1.68	-	-	-	1.80	-	-	1.80	
33	EC5005		1.39	1.34	1.50	1.40	1.40	-	-	-	1.50	-	-	1.40	
34	EC5006		2.17	2.12	2.00		2.00	-	-	-	2.00	-	-	2.12	
35	EC5007		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
36	EC5008		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
37	6th Sem	EC6001	2.4	2.0	1.0	2.4	2.3	-	-	2.4	1.0	1.3	-	2.4	
38		EC6002	1.7	1.5	1.0	1.7	1.6	-	-	1.5	1.0	0.6	-	1.7	
39		EC6003	2.0	1.6	1.0	0.0	1.9	-	-		1.0	1.0	-	1.9	
40		EC6004	1.4	1.3	1.5	1.1	1.5	-	1.3	1.3	1.1	0.9	-	1.5	
41		EC6005	2.0	1.1	-	-	1.8	-	2.0	1.8	1.9	2.0	-	1.9	
42		EC6006	2.2	2.2	2.0	-	-	-	-	-	2.1	2.1	-	2.2	
43		EC6007	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
44		EC6008	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
45	7th Sem	EC7001	1.80	1.95	-	-	1.99	-	1.05	2.00	1.87	1.75	-	1.93	
46		EC7002	1.52	1.11	-	-	1.27	-	-	1.40	1.05	0.95	-	1.48	
47		EC7003	1.94	1.84	-	2.10	1.89	-	-	1.55	1.80	1.80	-	1.93	

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48		EC7004	2.62	2.63	-		2.80	-	2.70	2.60	2.65	2.70	-	2.75	
49		EC7005	1.17	1.16	-		1.50	-	1.10	0.90	1.10		-	1.17	
50		EC7006	2.17	2.00	2.60	2.60	2.08	1.30	2.60	2.60	2.17	1.49	2.60	1.73	
		EC7007	1.26	2.20	2.20	2.20	1.76	1.47	1.65	1.32	1.83	1.10	0.88	1.57	
51	8th Sem	EC8001	2.5	2.4	2.4	2.3	2.3	2.2		2.3	2.3	2.7	-	2.4	
52		EC8002	2.4	2.4	-	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.5	-	2.3
53		EC8003	2.0	2.0	-	-	1.9	2.0	2.0	2.2	2.0	2.0	2.0	1.9	2.0
54		EC8004	2.1	2.1	-	-	2.0		2.0		2.2	2.1	-	2.1	
55		EC8005	2.6	2.6	2.4	2.6	2.4	2.4	2.5	2.5	2.5	2.5	-	2.5	
56		EC8006	3.0	3.0	-	-	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
57		EC8007	3.0	3.0	-	-	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Direct Attainment			2.08	2.06	2.05	2.08	2.08	2.42	2.33	2.26	2.05	2.18	2.45	2.08	
Indirect Attainment			2.10	1.80	1.80	2.10	2.10	2.10	2.10	1.80	2.30	2.10	2.20	2.40	
Total Achieved Attainment			2.1	2.0	2.0	2.1	2.1	2.4	2.3	2.2	2.1	2.2	2.4	2.1	
Total Achieved Attainment			70	67	67	70	69	79	76	72	70	72	80	71	
Set Target (2016-2020)			2.2	2.1	2.0	2.2	2.0	2.2	2.0	2.2	2.2	2.0	2.1	2.0	
Set Target (2016-2020)%			73	70	67	73	67	73	67	73	73	67	70	67	
Overall Set Target Average			70%												
Overall Total Achieved Attainment			72%												

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PSO Attainment (2020-2021)				
	Subject Code	PSO1	PSO2	PSO3
I	MA110	0.75	0.60	0.60
	CE110	1.83	-	1.80
	ME111	1.89	1.83	1.93
	PH110	2.20	2.17	2.15
	HU110	2.17	2.25	2.15
	EC110	3.00	3.00	3.00
	ML110	3.00	3.00	3.00
	HU111	3.00	3.00	3.00
	II	MA111	0.7812	0.801
EC112		2.2	2.2	2.2
EE111		1.8	1.8	1.8
ME111		2.2	2.1	2.1
CY110		1.9	-	1.8
HU112		2.3	2.2	2.3
ME113P		3	3	3.0
CS110		3	3	3
III	MA111	2.87	2.90	2.90

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	EC112	1.51	1.56	1.43
	EE111	1.58	1.58	1.52
	ME111	1.58	1.53	1.50
	CY110	1.63	1.68	1.50
	HU112	3.00	3.00	3.00
	ME113P	3.00	-	3.00
	CS110	0.59	0.55	0.80
IV	BE3001	1.73	1.68	1.30
	EC4002	1.44	1.67	1.23
	EC4003	1.67	1.78	1.18
	EC4004	0.71	0.67	0.70
	EC4005	2.02	1.96	1.84
	EC4006	3.00	3.00	3.00
	EC4007	3.00	3.00	3.00
	EC4008	1.29	1.24	1.25
V	EC5001	1.69	1.73	1.55
	EC5002	1.40	1.38	-
	EC5003	1.73	1.67	1.70
	EC5004	1.34	1.35	1.50
	EC5005	2.12	2.09	2.00
	EC5006	3.00	3.00	3.00
	EC5007	3.00	3.00	3.00
	EC5008	2.4	2.4	2.4
VI	EC6001	1.7	1.6	1.5
	EC6002	2.0	2.0	2.0
	EC6003	1.4	1.4	1.2
	EC6004	2.0	1.9	2.0
	EC6005	2.3	2.2	2.4
	EC6006	3.0	3.0	3.0
	EC6007	3.0	3.0	3.0
	EC6008	1.83	2.04	2.04
VII	EC7001	1.35	1.13	1.46
	EC7002	2.02	2.10	1.82

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	EC7003	2.64	2.64	2.60
	EC7004	1.19	1.14	1.10
	EC7005	2.08	2.31	1.56
	EC7006	1.76	1.98	1.47
	EC7007	2.4	2.4	2.4
VIII	EC8001	2.4	2.4	2.4
	EC8002	2.1	2.0	2.1
	EC8003	2.1	2.1	2.1
	EC8004	2.6	2.5	2.5
	EC8005	3.0	3.0	3.0
	EC8006	3.0	3.0	3.0
	EC8007	2.10	2.09	2.06
Direct Attainment		2.10	2.09	2.06
Indirect Attainment		2.20	2.10	2.30
Total Achieved Attainment		2.1	2.1	2.1
Total Achieved Attainment %		70.60	69.69	70.21
Set Target (2016-2020)		2.20	1.80	2.30
Set Target (2016-2020)%		73.33	60.00	76.67
Overall Set Target Average		70%		
Overall Total Achieved Attainment		70.17%		

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CRITERION 4	Students' Performance	150
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Criterion-4 Student's Performance (150)

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2020-2021 (CAY)	2019-2020 (CAYm1)	2018-2019 (CAYm2)	2017-2018 (CAYm3)	2016-2017 (CAYm4)	2015-2016 (CAYm5)	CAYm6 2014-2015
Sanctioned intake of the program (N)	120	120	120	120	120	120	120
Total number of students admitted in first year <i>minus</i> number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	39	80	55	89	74	69	47
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	-	22	25	15	11	02	01
Separate division students, if applicable (N3)	0	0	0	0	0	0	0
Total number of students admitted in the Program (N1 + N2 + N3)	39	102	80	104	85	71	48

CAY – Current Academic Year

CAYm1- Current Academic Year minus1= Current Assessment Year

CAYm2 - Current Academic Year minus2=Current Assessment Year minus 1

LYG – Last Year Graduate minus 1

LYGm1 – Last Year Graduate minus 1

LYGm2 – Last Year Graduate minus 2

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Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester/year of study (Without Backlog means no compartment or failures in any semester/year of study)			
		I Year	II Year	III Year	IV Year
CAY (2020-2021)	39	-	-	-	-
CAYm1 (2019-2020)	102	45	-	-	-
CAYm2 (2018-2019)	80	21	19	-	-
CAYm3 (2017-2018)	104	26	28	28	-
CAYm4 ((LYG) (2016-2017)	85	61	33	29	29
CAYm5 (LYGm1) (2015-2016)	71	16	12	10	10
CAYm5 (LYGm1) (2014-2015)	48	6	6	3	3

(N1+N2+N3) – Left Student = Total

Note: *Latest Year Batch and CAYm1, CAYm2, CAYm3, CAYm1 4 and CAYm5 respectively

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated			
		I Year	II Year	III Year	IV Year
CAY (2020-2021)	39	-	-	-	-
CAYm1 (2019-2020)	102	65	-	-	-
CAYm2 (2018-2019)	80	48	71	-	-
CAYm3 (2017-2018)	104	74	83	81	-
CAYm4 ((LYG) (2016-2017)	85	64	73	67	67
CAYm5 (LYGm1) (2015-2016)	71	49	48	47	46
CAYm5 (LYGm1) (2014-2015)	48	30	29	28	28

4.1 Enrolment Ratio (20)

Enrolment Ratio= N1/N

Year	N (From Table 4.1)	N1 (From Table 4.1)	Enrolment Ratio= (N1/N)*100
2020-2021	120	39	32.5
2019-2020	120	80	66.66
2018-2019	120	55	45.83
Average			48.33
Marks			-

[SELF ASSESSMENT REPORT]

4.2 Success Rate in the stipulated period of the program (40)

4.2.1 Success rate without backlogs in any semester/year of study (25)

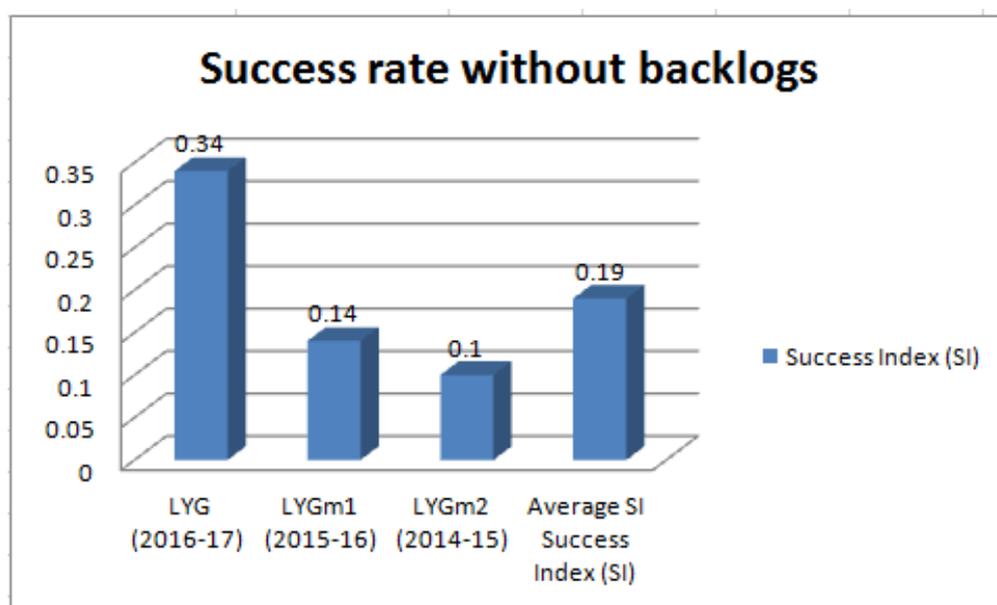
$SI = \frac{\text{Number of students who have graduated from the program without backlog}}{\text{Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable}}$

Average SI = Mean of Success Index (SI) for past three batches

Success rate without backlogs in any year of study = 25 × Average SI

Item	Latest Year of Graduation LYG (2016-17)	Latest Year of Graduation minus 1,LYGm1 (2015-16)	Latest Year of Graduation minus 2,LYGm2 (2014-15)
Number of students admitted in the corresponding First Year + admitted in 2 nd year via lateral entry and separate division, if applicable	85	71	48
Number of students who have graduated without backlogs in the stipulated period	29	10	03
Success Index (SI)	0.34	0.14	0.10
Average SI	0.19		

Success rate without backlogs in any year of study = 25 × 0.19 = 4.75



[SELF ASSESSMENT REPORT]

4.2.2 Success rate with backlog in stipulated period of study (15)

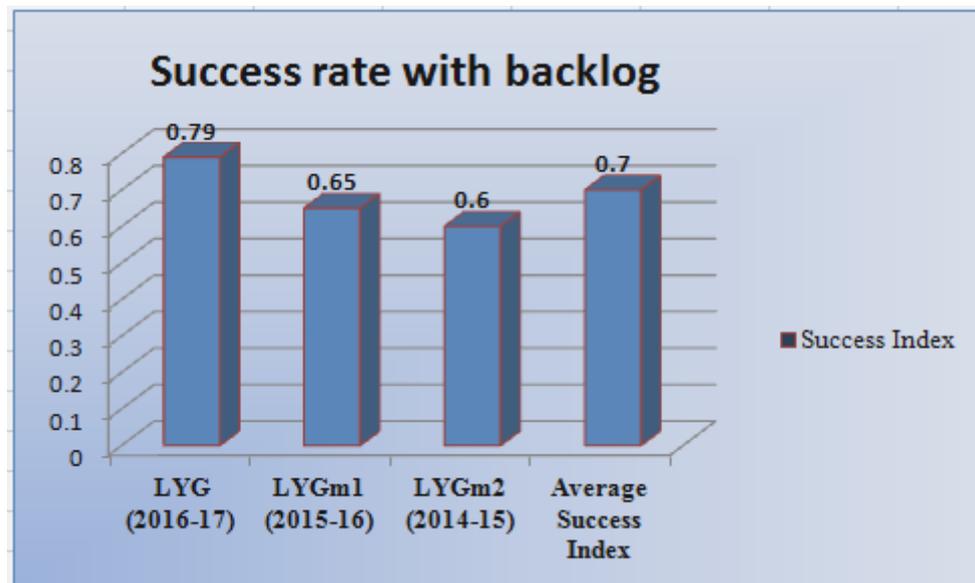
SI= (Number of students who graduated from the program in the stipulated period of course duration)/ (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable)

Average SI = mean of Success Index (SI) for past three batches

$$\text{Success rate} = 15 \times \text{Average SI}$$

Item	Latest Year of Graduation LYG (2016-17)	Latest Year of Graduation minus 1,LYGm1 (2015-16)	Latest Year of Graduation minus 2LYGm2 (2014-15)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	85	71	48
Number of students who have graduated with backlog in the stipulated period	67	46	28
Success Index	0.79	0.65	0.60
Average Success Index	0.70		

$$\text{Success rate} = 15 \times 0.70 = 10.50$$



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4.3 Academic Performance in Third Year (15)

<i>Academic Performance = 1.5 * Average API (Academic Performance Index)</i>			
<i>API = ((Mean of 3rd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Third Year/10)) x (number of successful students/number of students appeared in the examination)</i>			
<i>Successful students are those who are permitted to proceed to the final year.</i>			
Academic Performance	CAYm1(2017-18)	CAYm2 (2016-17)	CAYm3(2015-16)
Mean of CGPA or Mean Percentage of all successful students (X)	7.12	7.24	6.90
Total no. of successful students (Y)	81	67	47
Total no. of students appeared in the examination (Z)	83	73	48
API = x* (Y/Z)	6.95	6.64	6.76
Average API = (AP1 + AP2 + AP3)/3	6.78		

$$\text{Academic Performance Level} = 1.5 * 6.78 = 10.17$$

4.4 Academic Performance in Second Year (15)

*Academic Performance Level = 1.5 * Average API (Academic Performance Index)*
API = ((Mean of 2nd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the Third year.

Academic Performance	CAYm1 (2018-19)	CAYm2 (2017-18)	CAYm3(2016-17)
Mean of CGPA or Mean Percentage of all successful students (X)	6.63	6.76	7.02
Total no. of successful students (Y)	70	83	73
Total no. of students appeared in the examination (Z)	73	89	75
API = x* (Y/Z)	6.36	6.30	6.83
Average API = (AP1 + AP2 + AP3)/3	6.50		

$$\text{Academic Performance Level} = 1.5 * 6.50 = 9.75$$

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4.5 Placement, Higher Studies and Entrepreneurship (40)

Item	CAYm1 (2016-17)	CAYm2 (2015-16)	CAYm3 (2014-15)
Total No. of Final Year Students (N)	71	47	28
No. of students placed in companies or Government Sector (x)	51	33	21
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	2	2	-
No. of students turned entrepreneur in engineering/technology (z)	-	-	-
$x + y + z =$	53	35	21
Placement Index : $(x + y + z)/N$	0.75	0.74	0.75
Average placement= $(P1 + P2 + P3)/3$	0.75		

Assessment Points = 40 × average placement

$$\text{Assessment Points} = 40 * 0.75 = 30$$

List of Placed Students (2016-2020 Batch)

S.No	Student Name	Enrollment No	Employer Name	Appointment No
1	ABHISHEK PARMAR	0177EC161005	Capgemini	HR/Campus/LO2020405869/1
2	AFSER HUSSAIN	0177EC161007	CTS	14065518
3	AMARJEET SINGH	0177EC161011	Ceasfire	27-Jul-20
4	AMIT KUMAR PANDIT	0177EC161014	Mindtree	21-Jan-20
5	ANAND PRAKASH MISHRA	0177EC161015	Pyramid IT	13-Nov-19
6	ANIMESH KUMAR	0177EC161017	Millennium Semiconductors	17-Feb-20
7	ANUP SHARMA	0177EC161019	XL Dynamics	11-Mar-20
8	ASIF HODA	0177EC161022	Pyramid IT	13-Nov-19
9	AVINASH KUMAR PANDEY	0177EC161025	Millennium Semiconductors	17-Feb-20
10	BAMBAM KUMAR	0177EC161027	XL Dynamics	11-Mar-20
11	BHAGMAL MEWADA	0177EC161028	HCL Technology	4-Jan-21
12	GOURAV KUMAR	0177EC161034	Ceasfire	27-Jul-20
13	HARISHANKAR KUMAR	0177EC161035	Mindtree	21-Jan-20
14	HASRAT PARWEZ	0177EC161036	Artech	23-Jul-20
15	INTIKHAB ANSARI	0177EC161038	Ceasfire	27-Jul-20

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16	JAVED AKHTAR	0177EC161039	Pyramid IT	13-Nov-19
17	JAY PRAKASH	0177EC161040	Millennium Semiconductors	17-Feb-20
18	KASHIF SHEHZAD	0177EC161043	HCL Technology	4-Jan-21
19	KUNDAN KUMAR	0177EC161046	Ceasfire	27-Jul-20
20	KUSHAL KUMAR	0177EC161047	Millennium Semiconductors	17-Feb-20
21	MANISH KUMAR YADAV	0177EC161053	Artech	23-Jul-20
22	MAYANK KUMAR	0177EC161055	TCS	TCSLDT/20173873642/Bangalore
23	MAYANK MALVIYA	0177EC161056	Pyramid IT	13-Nov-19
24	MD ARMAN	0177EC161058	HCL Technology	4-Jan-21
25	MOHD SHAD	0177EC161063	Infosys	HRD/3T/1002021903/21-22
26	NARENDER KUMAR CHOUDHARY	0177EC161067	TCS	TCSLDT/20173873676/Mumbai
27	NEERAJ NAPIT	0177EC161070	Millennium Semiconductors	17-Feb-20
28	NIKITA BHALLA	0177EC161072	XL Dynamics	11-Mar-20
29	PANKAJ KUMAR	0177EC161075	HCL Technology	4-Jan-21
30	PRITAM KUMAR	0177EC161081	Millennium Semiconductors	17-Feb-20
31	RAHUL KUMAR	0177EC161082	Artech	23-Jul-20
32	RANJEET PANDIT	0177EC161087	Ceasfire	27-Jul-20
33	SADHVI SAIYAM	0177EC161094	Millennium Semiconductors	17-Feb-20
34	SHAILESH KUMAR	0177EC161095	XL Dynamics	11-Mar-20
35	SHASHWAT SARATHE	0177EC161098	Millennium Semiconductors	17-Feb-20
36	SHEKHAR SUMAN SONI	0177EC161099	Millennium Semiconductors	17-Feb-20
37	SHIKHA PATEL	0177EC161100	XL Dynamics	11-Mar-20
38	SHUBHAM SHUKLA	0177EC161103	Millennium Semiconductors	17-Feb-20
39	VIDYASAGAR JHA	0177EC161110	HCL Technology	4-Jan-21
40	VIDYASAGAR PANDIT	0177EC161111	Millennium Semiconductors	17-Feb-20
41	VIKRANT KUMAR JHA	0177EC161114	Epic Research	16-Jul-20
42	VISHAL	0177EC161115	Pyramid IT	13-Nov-19
43	VISHAL KUMAR	0177EC161116	Infosys	HRD/1001866881/21-22
44	VISHAL VERMA	0177EC161117	XL Dynamics	11-Mar-20
45	YAVAN RAJPUT	0177EC161120	Ceasfire	27-Jul-20

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46	CHANDAN KUMAR	0526EC161010	Mindtree	21-Jan-20
47	ANIL SINGH	0177EC173D02	Pyramid IT	13-Nov-19
48	CHANDAN KUMAR MANDAL	0177EC173D04	Millennium Semiconductors	17-Feb-20
49	MANISH KUMAR MUNDA	0177EC173D06	XL Dynamics	11-Mar-20
50	RAMKRISHNA	0177EC173D08	Millennium Semiconductors	17-Feb-20
51	ZAHID KHAN	0177EC173D10	Pyramid IT	13-Nov-19

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4.6 Professional Activities (20)

4.6.1(A) Professional societies / chapters and organizing engineering events (5)

Year	Professional societies / chapters	Year
1	IETE, IEEE, CII, NPTEL Local Chapters	CAY (2020-21)
2	IETE, IEEE, CII, NPTEL Local Chapters	CAYm1 (2019-20)
3	IETE, IEEE, CII, NPTEL Local Chapters	CAYm2 (2018-19)

(B) Following Details under the societies/ chapters

Following events have been conducted under the IEEE SOCIETY

S.No.	Name of Program	Date	Expert Details	Outcome of Program
1	IEEE Expert talk on Internet of things an opportunity	14 June 2021	Mr Shailesh Mishra Associate Director Telecom service provider Singapore	PO1, PO2, PO3, PO4, PO12, PSO1, PSO3
2	IEEE Expert talk on "How to write an effective technical paper for the IEEE"	13 Feb. 2021	Mr. Pratik Baheti, Vice Chair, Activity planning & management IEEE Bombay Section	PO1, PO2, PO4, PO8, PO12, PSO3
3	IEEE Expert talk on Artificial Intelligence in Gaming and Robotics	12 Feb. 2021	Dr. Sandeep Raghuwanshi Assistant Professor SATI Vidisha (M.P)	PO1, PO2, PO3, PO4, PO12, PSO1, PSO3
4	Know Your IEEE Activity and Advantage	29 Dec.2020	Mr. Saurabh j. Soni Secretary IEEE Bombay Section CS Chaper and Kiriraj R Guard Researcher data Analyst, Holistic Healer and IEEE Brad Ambassdor	PO1, PO6, PO8, PO12, PSO3
5	TEQIP-III Sponsored Seminar on Industry 4.0 future kills Under TEQIP-III	21 & 22 Jan 2020	Mr Rajive Kumar Member secetery AICTE Mr. Amit Dutta Deputy Director AICTE Mr. Rupesh Sizaria Project Manager TCS	PO1, PO6, PO12, PSO3
6	Session on International Study on UK & US	19-20 Aug 2019	Ms. Rupal Parikh Manager Higher Education & Society, west India Ms Padmini Parmeshwaran Director South Asia	PO1, PO8, PO10, PO12 PSO3
7	National Seminar on Internet of Thing(IOT) & Machine Learning	27-28 Mar 2019	Dr. Deepak Abhyankar Software Engg. SCSIT DAVV Indori Mr Neeraj Rathore Mr. Ashutosh Rai	PO1, PO2, PO3, PO4, PO12, PSO1, PSO3

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	with its application		Training Managers & Resource NITTTR Bhopal	
8.	Expert Talk: "IEEE Sight Orientation Program"	19 May 2021	Dr. Hussain F Mahdi, Lecturer, College of Engineering, University of Diyala, Iraq and Dr. Aarti Karande, Chair, IEEE Sight Bombay Pratham Chapter	PO1, PO3, PO4, PO8, PO9, PO10, PO12, PSO1, PSO3

Following events have been conducted under the IETE SOCIETY

S.No.	Name of Program	Date	Expert Details	Outcome of Program
1	Green Communication	5 Dec 2020	Dr. Abhishek Bhatt Dept of E&TC College of Engineering Pune	PO1, PO6, PO8, PO12, PSO3
2	Expert Lecture on "Electronic System Design and Manufacturing India 2.0"	29 July 2020	Dr. Gourav Trivedi, Associate Professor (IIT, Guwahati)	PO1, PO2, PO3, PO5, PO12 PSO1, PSO2, PSO3
3	Recent Development and limitations of 5G Technology"	29 July 2020	Dr. Ram Bilas Pachauri IIT Indori Prof Abhishek Rawat IIITRM Ahmadabad, Dr. Jyoti Singhai MANIT Bhopal	PO1, PO2, PO4, PO5, PO6, PO12, PSO1, PSO2, PSO3
4	Job Opportunities in Post COVID-19 Scenario and Challenges thereafter	20 June 2020	Mr. Venka Reddy Global HR Partner Infosys Ltd, Mr. Praveen Kamath K GM & HR Head Wipro Mr. Ashish Gakrey Founder HR Shapers	PO1, PO6, PO12, PSO3
5	Transformation in Education Challenges & Opportunities in Post Covid 19	18 June 2020	Prof.(Dr.) Rajive Kumar Member Secretary AICTE New Delhi Shri B.R Shankaranand ji Sah Sangathan Mantri Bhartiya Shikshan Mandal	PO1, PO6, PO12, PSO3
6	In-house Training on Arduino System	19 Dec-30 Dec 2019	Mr. Abhigyanam Giri IndEyes Infotech Pvt Ltd.	PO1, PO2, PO3, PO5, PO7, PO8, PO11, PO12 PSO2, PSO3
7	MATLAB	31 Dec 2018 to 13 Dec 2019	Mr Nishant Verma (Indeyes Institute Bhopal)	PO1, PO2, PO6, PO7, PO8, PO12

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8	C Language	21 Dec 2018 to 3 Jan 2019	IndEyes Infotech Pvt Ltd., Bhopal	PO1,PO2,PO6,PO7,P O8,PO12
9	In-house Training on Embedded System	02 Jun 2018 - 14 Jun 2018	Mr. Abhigyanam Giri IndEyes Infotech Pvt Ltd.	PO1,PO2, PO3, PO4, PO5, PO12 PSO2, PSO3
10	Expert lecture on “Signal and System”	4 Feb 2018	Mr. Rakesh Talrega, GATE 9 th Rankers	PO1, PO2, PO3, PO5, PO8, PSO1, PSO2
11	Electromagnetic Theory	5Feb 2018	Mr. Rakesh Talreja (GATE 9th Rankers in 2009), M- Tech from IISC, Bangalore	PO1, PO2, PO3, PO4,
12	Workshop on PCB Designing and Robotics	15 Nov to 26n Nov 2017	Mr. Abhigyanam Giri Ind Eyes Pvt. Ltd. Bhopal	PO1, PO2, PO3, PO4, PO5, PO12 PSO2, PSO3
13	Different channel coding techniques for 5G network and future implementation	18-19 Aug 2017	Dr preety D swami dept vof EI SATI Vidisha Dr Ravi sindal dpt of EC, IET DAVV Indore Dr Varun Bajaj AP, IIITDM JABALPUR	PO1,PO2,PO6,PO7,P O8,PO12
14	Enabling geospatial technologies for smart city services and application	15-16 Sep 2017	Dr Sudhir Kumar AP Dept of EC IIT Patna Dr Vidyadharasi,AP,EC Manipal university jaipur Dr O.P. Meena AP MANIT, Bhopal Dr Neelesh Mehra AP SATI Vidisha	PO1,PO2,PO6,PO7,P O8,PO12

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Following events have been conducted under the CII SOCIETY

S.No.	Name of Program	Date	Expert Details	Outcome of Program
1	Session on" Startup and Incubation"	09 Jan 2021	Shri Sumit Kumar Founder & CEO, Acupace Technologies Pvt. Ltd.	PO1, PO4, PO5, PO8, PO9, PO10, PO11, PO12 PSO 2, PSO3
2	Live National Expert talk on: "Things should know by innovators about IP"	20 Jan 2021	Mr. Parag M More, IPR Consultant and advisor	PO1, PO2, PO3, PO5
3	Expert talk on "Entrepreneurship Activity Fund Supports Available for Incubates".	08 Jan 2021	Shri Kishore Kumar Tolani Financial Literacy Counsellor Bank of India, Bhopal.	PO1, PO2, PO9, PO10, PO11
4	Expert Talk "Professional In You"	14 May 2021	Mr.Ajay Tyagi, Founder CEO, Valt consulting pvt. Ltd.	POs – PO1, PO3, PO4, PO8, PO9, PO10, PO12, PSO1, PSO3

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Following Students have been got NPTEL certification under NPTEL Local Chapters

Students are enrolled in various online courses conducted by NPTEL for the certification.

NPTEL CERTIFICATION

NPTEL CERTIFICATION in 2020-2021			
S.N	Certification Course	Student Name	Score
1	Introduction to Internet of things	Ankit Vishwakarma	65%
NPTEL CERTIFICATION in 2019-20			
S.N	Certification Course	Student Name	Score
1	Embedded system design with ARM	Rohan Raj	69%
		MD. Danish	72%
		Satish kumar Gupta	59%
		Nandlal Kumar Gupta	61%
		Sonu Kumar	69%
2	Python for data science	Vinay Kumar	88%
3	Problem solving through programming in C	Vinay Kumar	92%
NPTEL CERTIFICATION in 2018-19			
S.N	Certification Course	Student Name	Score
1	Control Engineering	Sarika Kumari	41%

4.6.2 Publication of technical magazines, newsletters, etc. (5)

QUEST is published on half yearly basis and is being circulated among faculty, students and parents.

Editorial Board for news letter:

S. No.	Academic Year	Name of The Newsletter	Month and Year of Publication	Name of editors	Name of Publishers
1	2020-2021	QUEST	2020-2021	Chief Editor: 1. Dr. Sunita Singh, Director, IES group of institutions, Bhopal Student Editors: 1. CSE- Tanya Sharma 2. EC- Pulkit Prakash 3. EX- Priya Patel 4. ME- Jayshankar Chouhan 5. CE- Shilpy Maithli	IES College of Technology, Bhopal

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4.6.3 Participation in inter-institute events by students of the program of study (10)

(The Department shall provide a table indicating those publications, which received awards in the events/conferences organized by other institutes.)

Table 4.6.3.1: Participation in Inter-Institute Events by Students

S.No.	Name of Students	Event	Date	Organized by	Event outcomes
1.	Abhishek Parmar	Examination	2017-2018	RGPV	vice chancellor scholarship
2.	Sonu Kumar	Robo Tech Labs	08-09 /02/2020	IIT Indore	Certificates
3.	Raju Kumar	Robo Tech Labs	13-16 /10/ 2018	IIT Delhi	Certificates
4.	Raju Kumar	NOESIS 5.0	2018-2019	MANIT	Certificates

Table 4.6.3.2: Participation in Inter-Institute Sports Events by Students

S.No.	Name of Students	Tournament	Year	Organized By	Result
1.	Raksh Pal Singh	Volleyball	2019-2020	R.G.P.V Bhopal	Select for nodal team
2.	Nishant Kumar	Volleyball	2018-19	Oriental Group of Institutes, Bhopal	Certificate
3.	Nishant Kumar	Volleyball	2018-19	Corporate Group of Institutes, Bhopal	Certificate

Detail of NCC:-

Students are enrolled in NCC Program

Sn.	Regtl no.	Rank	Name of Students	Father's name
1	MPSD18A110902	Cadet	Abhimanyu Kumar Kushwaha	Mainejar Singh
2	MPSD18A110906	Cadet	Anup Kumar Tiwari	Shashidhar Tiwari
3	MPSD18A110907	Cadet	Ayush Raj Chouhan	Rajkumar Chouhan
4	MPSD18A110919	Cadet	Rajpal Kumar Singh	Janak Kumar Singh
5	MPSD18A110902	Cadet	Abhimanyu Kumar Kushwaha	Mainejar Singh
6	MP16SDA110917	Cadet	Vishal Chouhan	Virendra Chouhan
7	MP/SD/14/17501	Cadet	Sunil kumar	Mann Razak
8	MPSD/14/17497	Cadet	Rajeev kumar	Binod Kumar singh
9	MPSD/15/17503	Cadet	Sharad Kumar	Shakti kumar singh
10	MP/SD/14/17495	Under officer	Suraj Pratap singh	Mr. Suresh singh

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Criterion 5: Faculty Information and Contributions [200]

B3. Information of Faculty

Kindly note that the year mentioned here is exemplary, institute has to consider the academic years as per the definition given in the document and according to the prevailing year.

YEAR 2020-2021

S.No.	Name	PAN No	Qualification	Area of Specialization	Designation	Date of Joining	Date on which Designated as Professor/ Associate Professor	Currently Associated (Y/N)	Nature of Association (Regular/Contract/ Adjunct)	If contractual mention Full time or Part time	Date of Leaving (In case Currently Associated is "No")
1.	Dr. RAJESH KUMAR NEMA	AFYPN1984P	PhD	Microwave and Millimeter wave	Professor	01/07/2019	-	Y	Regular	-	-
2.	Dr. SHWETA SINGH	BSTPS9716F	Ph.D	Digital Comm.	Associate Professor	14/07/2009	-	Y	Regular	-	-
3.	Dr. JITENDRA PRATAP SINGH MATHUR	BCTPM3402L	Ph.D.	EC	Asst Professor	31/12/2016	-	Y	Regular	-	-
4.	Mr. SONU LAL	AETPL8261R	M.Tech	E C	Asst Professor	17/08/2009	-	Y	Regular	-	-
5.	Mr. VISHAL MEHRA	BAYPM7518Q	M.Tech	E C	Asst Professor	18/01/2011	-	Y	Regular	-	-
6.	Ms. PRATIBHA MAINA	BZGPM0746K	M.Tech	E C	Asst Professor	15/01/2011	-	Y	Regular	-	30/05/21
7.	Mr. MD NAIM ANSARI	AUOPA5027B	M.Tech	EC	Asst Professor	1/2/2016	-	Y	Regular	-	-
8.	Ms. ANITA JAMLIYA	AOHPJ8676A	M.Tech	EC	Asst Professor	1/2/2016	-	Y	Regular	-	-
9.	Mrs. ANTIMA SAXENA	AXKPB9409P	M.Tech	VLSI	Asst Professor	31/07/2016	-	Y	Regular	-	-
10.	Mr. ANURAG KUMAR TIWARI	AHWPT7440G	M.Tech	EC	Asst Professor	12/07/2016	-	Y	Regular	-	-
11.	Mr. PANDIT VIVEK KUMAR PANDEY	BTKPP5964J	M.Tech	EC	Asst Professor	12/07/2016	-	Y	Regular	-	-

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12.	Ms. KAMINI SINGH	DJFPS0651N	M.Tech	EC	Asst Professor	2/1/2017	-	Y	Regular	-	-
13.	Mr. ANNAPURNA NAND TIWARI	ALAPT1645H	M.Tech	EC	Asst Professor	6/2/2017	-	Y	Regular	-	-
14.	Mr. RAKESH SINGH	BUMPS8531H	M.Tech	EC	Asst Professor	23/06/2017	-	Y	Regular	-	-
15.	Mr. ASHEESH KHARYA	BVUPK0097H	M.Tech	EC	Asst Professor	1/9/2017	-	Y	Regular	-	-
16.	Mr. DEEPAK MISHRA	BDVPM0114L	M.Tech	EC	Asst Professor	01/08/2014	-	Y	Regular	-	-
17.	Mr. DEEPAK KUMAR GUPTA	ALTPG7971L	M.Tech	EC	Asst Professor	01/07/2019		Y	Regular	-	-
18.	Mr. DEVENDRA KUMAR SAKET	EMRPS0190C	M.Tech	EC	Asst Professor	01/04/2019		Y	Regular	-	-
19.	Mr. ABHISHEK GOYAL	AZJPG3992K	MTech	EC	Asst Professor	03/03/20	-	Y	Regular		
20.	Ms. RICHA CHOUHAN	AQGPC2993Q	M.Tech	EC	Asst Professor	02/03/2020		Y	Regular		
21.	Mr. SONU SHARMA	DWAPS6060P	M.Tech	EC	Asst Professor	01/07/2019		Y	Regular	-	-
22.	Ms. SANA ALI	BHXPA5243E	M.Tech	EC	Asst Professor	18/03/2020		Y	Regular	-	-
23.	Mr. JAMVANT OMKAR	AAXPO2038B	M.Tech	EC	Asst Professor	18/03/2020		Y	Regular	-	-
24.	MS. MEENAKSHI GUPTA	BAWPG5643L	M.Tech	VLSI Design & Embedded	Asst Prof	05/06/2017	-	Y	Regular		
25.	Mr. ANIL SHARMA	BRXPS4232F	M.Tech	VLSI	Asst Professor	1/9/2015	-	Y	Regular	-	-
PG FACULTY LIST											
26.	Dr. PRAMOD PATEL	BDLPP7934F	PhD	VLS Design & Embedded System	Associate Professor	9/7/2019	-	Y	Regular	-	-
27.	Mr. ROHIT VAISH	AGXPV4865B	M.Tech	EC	Asst Professor	15/07/2011	-	Y	Regular	-	-
28.	Mr. ANKIT VERMA	AJJPV5744Q	M.Tech	EC	Asst Professor	15/07/2011	-	Y	Regular	-	-


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Bhopal

[SELF ASSESSMENT REPORT]

5.1 Student-Faculty Ratio (SFR) (20)

(To be calculated at Department Level)

No. of UG Programs in the Department (n): 01

No. of PG Programs in the Department (m): 01

No. of Students in UG 2nd Year = 425

No. of Students in UG 3rd Year = 414

No. of Students in UG 4th Year= 389

No. of Students in PG 1st Year= 18

No. of Students in PG 2nd Year= 18

No. of Students = Sanctioned Intake + Actual Admitted lateral entry students

(The above data to be provided considering all the UG and PG programs of the department)

$S = \text{Number of Students in the Department} = \text{UG1} + \text{UG2} + \dots + \text{UGn} + \text{PG1} + \dots + \text{PGm}$

$F = \text{Total Number of Faculty Members in the Department (excluding first year faculty)}$

$\text{Student Teacher Ratio (STR)} = S / F$

Year	CAY 2020-21	CAYm1 2019-20	CAYm2 2018-19
u1.1	120+23=143	120+27=147	120+15=135
u1.2	120+27 = 147	120+15 = 135	120+12=132
u1.3	120+15 = 135	120+12 = 132	120+02=122
UG1	425	414	389
p1.1	18	18	18
p1.2	18	18	18
PG1	36	36	36
Total No. of Students in the Department (S)	461	450	425
No. of Faculty in the Department (F)	28	28	24
Student Faculty Ratio (SFR)	16.46	16.07	17.71
Average SFR	16.75		

[SELF ASSESSMENT REPORT]

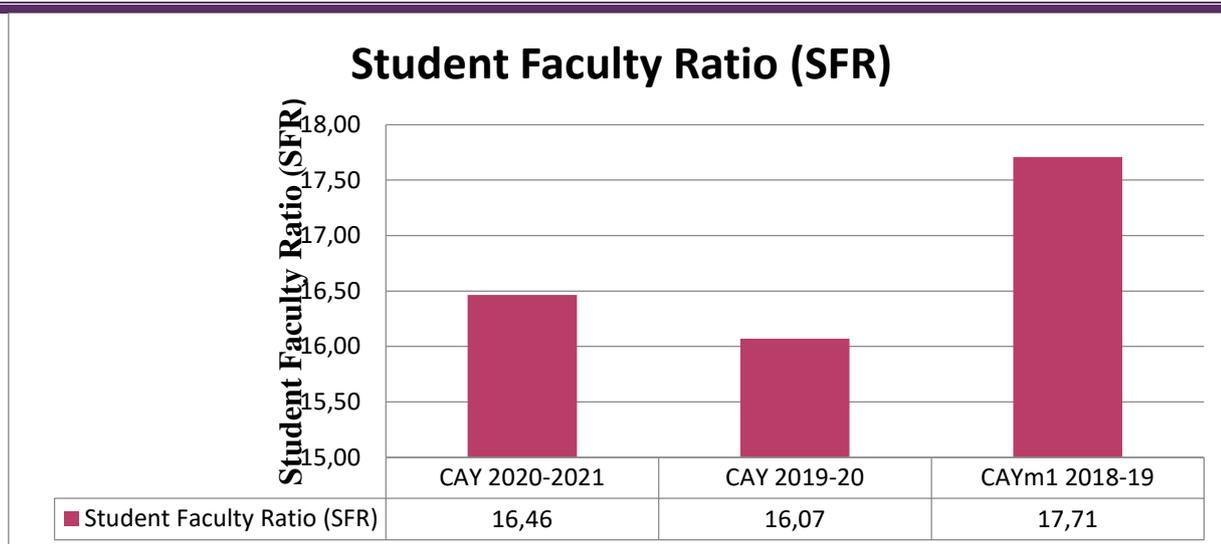


Figure 5.1: Student Faculty Ratio

5.1.1. Provide the information about the regular and contractual faculty as per the format Mentioned below:

Table 5.1 Faculty Information

Year	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY (2020-2021)	28	-
CAYm1 (2019-2020)	25	3
CAYm2 (2018-2019)	23	1

5.2 Faculty Cadre Proportion (25)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

F1: Number of Professors required = $1/9 \times$ Number of Faculty required to comply with 20:1 Student Faculty ratio based on no. of students (N) as per 5.1

F2: Number of Associate Professors required = $2/9 \times$ Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

F3: Number of Assistant Professors required = $6/9 \times$ Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

Table 5.2 Faculty Cadre Details

Year	Professors		Associate Professors		Assistant Professors	
	Required (F1)	Available (AF1)	Required (F2)	Available (AF2)	Required (F3)	Available (AF3)
CAY 2020-21	2	1	5	2	15	25
CAYm1 2019-20	2	3	5	0	15	25
CAYm2 2018-19	2	2	4	1	14	21
Average Numbers	RF1=2	AF1=2	RF2=4.66	AF2=1	RF3=14.66	AF3=23.66

[SELF ASSESSMENT REPORT]

$$\text{Cadre Ratio} = \left[\frac{AF1}{RF1} \right] + \left[\frac{AF2*0.6}{RF2} \right] + \left[\frac{AF3*0.4}{RF3} \right] * 12.5 = 22.18$$

5.3 Faculty Qualification (25)

FQ = 2.0 x [(10X + 4Y)/F] where x is no. of regular faculty with Ph.D., Y is no. of regular faculty with M. Tech., F is no. of regular faculty required to comply 20:1 Faculty Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1)

Table: 5.3 Faculty Qualifications

Year	X	Y	F	FQ=2.5x[(10X+4Y)/F]
CAY 2020-21	2	26	23	13.47
CAY _{m1} 2019-20	3	25	22	14.77
CAY _{m2} 2018-19	3	21	21	13.57
Average Assessment				13.94

5.4 Faculty Retention (25)

No. of regular faculty members in

CAY [2020-2021] = 18

CAY_{m1} [2019-2020] = 20

S.NO.	Description	CAY _{m1} [2019-20]	CAY [2020-21]
01	No of Faculty Retained	20	18
02	Total No. of Faculty	23	23
03	% of Faculty Retained	86.95	69.23

Average: 78.09

Item	Marks
>=90% of required Faculty members retained during the period of assessment keeping CAY _{m2} as base year	20
>=75% of required Faculty members retained during the period of assessment keeping CAY _{m2} as base year	
>=60% of required Faculty members retained during the period of assessment keeping CAY _{m2} as base year	
>=50% of required Faculty members retained during the period of assessment keeping CAY _{m2} as base year	
<50% of required Faculty members retained during the period of assessment keeping CAY _{m2} as base year	

Assessment marks: 20.00

[SELF ASSESSMENT REPORT]

5.5 Innovations by the Faculty in Teaching and Learning (20)

Innovations by the Faculty in teaching and learning shall be summarized as per the following description.

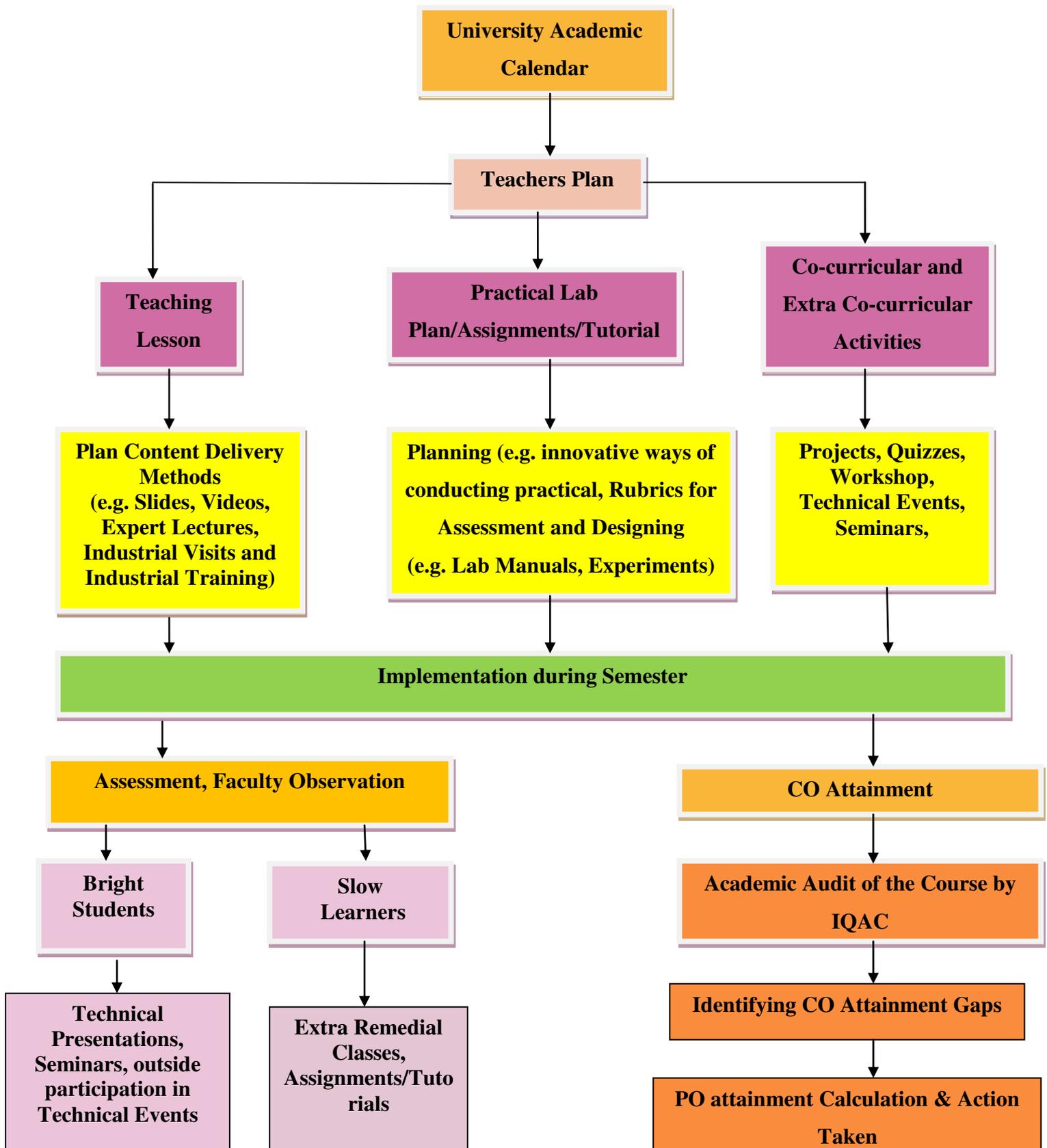


Figure 5.2 Innovations by the Faculty in Teaching and Learning Process

[SELF ASSESSMENT REPORT]

Innovation by the faculty in teaching and learning

Traditional educational methodology is complemented by innovative, updated techniques for the benefit of the learners. Several activities are included which contribute towards enhancement of learning, at the same time facilitating ease of understanding in students with variegated learning styles. These activities involve innovative use of trending technologies, customized instruction module and techniques, Online/Offline assessment, evaluation and inclusive class rooms that lead to effectiveness of instruction delivery.

1. Various diagrams, flow charts and 3D models are used for facilitating better understanding.
2. Demonstration using industrial standard simulation software aid in comprehension of processes.
3. Group assignments are provided in labs and in classes also to ensure healthy competition, team work and new, improved outcomes of the existing problem while promoting peer to peer learning.
4. Faculty members deliver lectures with the help of Videos and Animations in class room. This practical approach for demonstrating complex procedures/topics ensures student can visualize and follow the content with ease.
5. Research papers are used to teach student latest technologies to bridge research gap and help students to gain knowledge of trends and advanced techniques as well to select a viable project for the final terms.
6. Beyond curricula content includes emerging and advances technologies, latest updates, news features, etc which faculty introduce new experiments designed keeping in mind the University syllabus and student existing skill levels.
7. NPTEL, SWAYAM portals with their have Nationally-mapped Curricula are accessed by faculties and students for audio-visual support to textual material.
8. Technical Quizzes Online and offline test, Workshops etc. are adopted to support assessment process.
9. Provide students with the keywords of the related topic to make student grasp the procedure easily.
10. Laboratory Improvement future trends-the designed faculty member constantly update manuals with different activities.
11. Assessments are designed innovatively and also modified as require collecting the attainment levels of course outcomes and program outcomes on frequent basis.
12. Innovations in Evaluations include use presentation skills and such process which can enhance the understanding level and assure fair outcomes.

[SELF ASSESSMENT REPORT]

13. Traditional forms of teaching around the world are changing during covid-19 rapidly with the advancement of technology. Even in physical classrooms, technology has taken on a bigger role, changing how lessons are delivered and received.

Online Teaching Methods

Listed below are some of the most effective methods of online teaching.

Presentations

Here are a few presentation tools to get started with

Google Slides

Microsoft PowerPoint

Subject Notes

Online, presentations are more effective when delivered over video conferencing with a tool like Zoom or Google Meet.

Online Whiteboard.

Google Form

Google Drive

Google Classroom

[SELF ASSESSMENT REPORT]

5.6 Faculty as participants in Faculty development/training activities/STTPs (15)

A Faculty scores maximum five points for participation

Participation in 2 to 5 days Faculty development program: **3 Points**

Participation > 5 days Faculty development program: **5 Points**

S. No	CAYm1 (2019-20)		CAY m2 (2018-2019)		CAY m3(2017-2018)	
	NAME OF THE FACULTY	POINTS	NAME OF THE FACULTY	POINTS	NAME OF THE FACULTY	POINTS
1	Dr. RAJESH KUMAR NEMA	5	Mrs. SHWETA SINGH	5	Mrs. SHWETA SINGH	3
2	Dr. PRAMOD PATEL	5	Mr. SONU LAL	5	Ms. PRATIBHA MAINA	5
3	Mrs. SHWETA SINGH	5	Mr. VISHAL MEHRA	5	Mr. RAJNISH DUBEY	3
4	Mr. SONU LAL	5	Ms. PRATIBHA MAINA	5	Mr. SACHIN KALRAIYA	3
5	Mr. VISHAL MEHRA	3	Mr. MD NAIM ANSARI	5	Mr. SACHIN JAIN	3
6	Ms. PRATIBHA MAINA	5	Ms. ANITA JAMLIYA	5	Mr. SONU LAL	3
7	Mr. MD NAIM ANSARI	3	Mr. ASHISH KUMAR PARASHAR	5	Mr. SUMIT RAGHUWANSHI	3
8	Ms. ANITA JAMLIYA	5	Mrs. ANTIMA SAXENA	5	Mr. VISHAL MEHRA	3
9	Mrs. ANTIMA SAXENA	3	Mr. ANURAG KUMARTIWARI	3	Ms. ANITA JAMLIYA	5
10	Mr. ANURAG KUMARTIWARI	5	Mr. PANDIT VIVEK KUMAR PANDEY	3	Mrs. ANTIMA SAXENA	3
11	Mr. PANDIT VIVEK KUMAR PANDEY	5	Mr. JITENDRA PRATAP SINGH MATHUR	5	Mr. ANURAG KUMAR TIWARI	3
12	Mr. JITENDRA PRATAP SINGH MATHUR	5	Ms. KAMINI SINGH	5	Mr. JITENDRA PRATAP SINGH MATHUR	5
13	Ms. KAMINI SINGH	5	Mr. ANNAPURNA TIWARI	5	Ms. KAMINI SINGH	3
14	Mr. RAKESH SINGH	3	Mr. RAKESH SINGH	5	Mr. MD NAIM ANSARI	3
15	Mr. DEEPAK MISHRA	5	Mr. DEEPAK MISHRA	5	Mr. PANDIT VIVEK KUMAR PANDEY	5
16			Mr. ANKIT VERMA	5	Mr. DEEPAK MISHRA	3
17			Mr. SACHIN BHAIJI JAIN	3	Mrs. RUCHI GUPTA	3
18					Mr. ANKIT VERMA	5

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SUM	54		79		64
RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1	28		24		27
Assessment = 3 × (Sum/0.5RF)	11.57		19.75		14.22
(Marks limited to 15)					
Average Marks	15				

5.7 Research and Development (30)

5.7.1 Academic Research (10)

Academic research includes research paper publications, PhD guidance, and faculty receiving PhD during the assessment period.

- Number of quality publications refereed/SCI Journals, citations, Books/Book Chapters etc. (6)
- PhD guided/PhD awarded during the assessment period while working in the institute (4).

• Details of Ph.D.

Table 5.7.1.A. Details of Faculty who awarded/Submitted PhD during the assessment year 2019-2020

S.N	Faculty name	Research Topic	University	Guide	Date of registration	Number of quality publications in refereed / SCI Journals, citations, Books/ Book Chapters
1	Dr. Pramod Patel	Design Simulation of high-performance NT SRAM	MANIT, Bhopal	Dr. Tarun Kumar Gupta	9 Sep. 2014	06
2	Dr Jitendra Mathur	Design of LDPC Code	MANIT, Bhopal	Dr Alpana Pandey	2014	03

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- **Faculty Publication:** Following table indicates the list of ECE department faculty publications during the three assessment years.

S. No.	Faculty	Scopus	SCI	UGC	Conference	Other Journals
1.	Dr. Rajesh Nema	06	02	55	10	
2.	Dr Pramod K Patel	-	03	-		-
3.	Dr Jitendra Mathur	02	02	-	2	-
4.	Prof Sonu Lal	-	-	-	-	06
5.	Prof Ashish Raghuwanshi	-	-	3	-	8
6.	Dr.. Shweta Singh	-	-	-	-	04
7.	Mr. Deepak Mishra	--	-	-	-	01
8.	Mr. Jamvant Omkar	-	-	-	-	01

Table 5.7.1.B. List of Publications

IES College of Technology, Bhopal						
Department of Electronics and Communication						
List of Publications						
S. N.	Author's name	Title	Journal	ISSN	Publication Year	Citation
1	Dr Rajesh K. Nema	Analysis of five different dielectric substrates on microstrip patch antenna	International journal of computer applications 55 (14)	0975-8887)	2012	58
2		E-shape micro strip patch antenna on different thickness for pervasive wireless communication	International Journal of Advanced Computer Science and Applications 2 (4)	2156-5570	2011	23
3		New multiband E-shape microstrip patch antenna on RT DUROID 5880 substrate and RO4003 substrate for pervasive wireless communication	International Journal of Computer Applications 975, 8887	0975 - 8887	2010	16
4		Review and survey of compact and broadband Microstrip Patch Antenna	International Conference on Advances in Engineering & Technology Research	2347-9337	2014	16

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5	Dr Rajesh K. Nema	Review of impedance matching networks for bandwidth enhancement	International Journal of Emerging Technology and Advanced Engineering 2(1), pp 92-96	2250-2459	2012	15
6		Performance analysis of AODV, OLSR, DSR and GRP routing protocol of Mobile Ad hoc Network-a Review	Int. J. Sci. Res.(IJSR) 2 (5), 275-278	2320-088X	2013	6
7		A low power consumption single stage source coupled CMOS Voltage Controlled Oscillator (VCO) using 0.18 μm CMOS technology	International journal of Emerging Technology Advanced Engineering	2250-2459	2012	4
8		Dual band E-shape micro strip patch antenna on RT-duroid 5880 substrate for pervasive wireless communication'	International Journal of Computer Science and Information Technologies, Vol. 2 (3) , 2011	0975-9646	2011	4
9		Review on designing of CMOS op-amp using reverse nested miller compensation technique	International Journal of Latest Research in Science and Technology 2 (2), 65-67	2278-5299	2013	3
10		Review on designing of CMOS op-amp using reverse nested miller compensation technique	International Journal of Latest Research in Science and Technology 2 (2), 65-67	2278-5299	2013	3
11		Efficient Contrast Enhancement using Kernel Padding and DWT with Image Fusion	International Journal of Computer Applications 975, 8887	0975 – 8887	2013	3
12		Advance NOC router with LOW Latency & Low Power consumption by wormhole switching	Int J Recent Technol Eng (IJRTE) 1 (6), 5-7	2277-3878	2013	3
13		Design & implementation of fpga based on pid controller with motor & sensor	International Journal of Emerging Science and Engineering (IJESE), Volume-1, Issue-3,	2319-6378	2013	3
14		Reflection coefficient analysis of Chebyshev impedance matching network using different algorithms	International Journal of Innovative Research in Science, Engineering and Technology 1 (2), 214-218	2319-6378	2012	3

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15		Investigation Of Triangular Microstrip Patch Antenna On Six Different Substrates For X-Band Applications	International Journal of Engineering Research and Applications	2250-2459	2012	3
16		PAPR reduction in OFDM via separation of complex baseband signal	International Journal of Computer Applications, Volume 16- No.4	0975 – 8887	2011	3
17	Dr. Pramod K. Patel	A read-disturb-free stable low power and high-density GNRFET 6T SRAM with multi-VT technology	Circuit World, Emerging Publishing Limited	0305-6120	2020	2
18		An ultra-low-power and high-performance SRAM cell design based on GNRFETs	International Journal of Electronics Letters, Taylor & Francis, https://doi.org/10.1080/21681724.2020.1794048		2020	
19		Performance Evaluation of Single-Ended Disturb-Free CNTFET-Based Multi-Threshold SRAM	Microelectronics Journal (Elsevier), [Online Published] DOI: 10.1016/.	0026-2692	2019	6
20	Prof. Jitendra Mathur	Frame Error Performance Analysis and optimization of diagonal structure based construction of Parity check matrix using Lower and upper decomposition for regular QC-LDPC Codes with Girth 12	Journal of Electrical Engineering and Technology (Springer),	1975-0102	2020	1
21		Efficient Construction and Counting the Number of Girth 6 for Sparse Quasi Cyclic Low Density Parity Check Codes using Modified Gallager Approach	International Journal of Engineering and Advanced Technology, IJEAT, Volume 8, Issue 5, pp. 1382-1386	2249-8958	2019	2
22		Comparative Analysis of LDPC decoding by Bit flipping Algorithm using QAM and QPSK modulation techniques for DVB-S2	2018 8th International Conference on Communication Systems and Network Technologies (CSNT)	2329-7182	2018	

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23		Efficient Counting to Number of girth 4 for Sparse Quasi Cyclic Low Density Parity Check Codes	International Journal of Electronics, Electrical and Computational System, Volume 6, Issue 10, pp 219-225	2348-117X	2017	2
24		Performance Analysis of QC-LDPC Codes with Girth 6 using Log Domain Sum Product Algorithm	IEEE Sponsored International Conference on Inventive Computing and Informatics (ICICI 2017) by ISBN: 4031-	0978-5386	2017	2
25		Constructions and Performance Analysis of Diagonally Shifted Column Structured RPM based Regular Quasi Cyclic-LDPC Codes with Girth 10	International Journal of Engineering and Technology, UAE, Volume 7, Issue 4, pp. 4722-4725,	2227- 524X	2018	1
26	Dr. Shweta Singh	Wireless Sensor Node Energy Optimization by Packet Routing and Clustering	International Journal of Scientific Research & Engineering Trends Volume 7, Issue 4, July-	2395-566X	2021	0
27		A survey on various techniques and features of digital image watermarking	International Journal of Scientific Research & Engineering Trends	2395-566X	2020	
28		Digital Image Watermarking In Dct Frequency Region By Swapping Concept	International Journal of Advanced Research in Engineering and Technology (IJARET) Volume 11, Issue 11,	: 0976-6499	2020	0
29		Robust Image Watermarking Using Dwt Swapping And Artificial Neural Network	Journal of Advanced Research in Engineering and Technology (IJARET) Volume 11, Issue 12	0976-6499	2020	0
30	Mr. Sonulal	Survey paper on Radix DIT & DIF Fast Fourier Transform using Complex Input	International Journal of Innovative Research in Computer and Communication Engineering	2320-9801	2018	0

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31		Result Analysis of Reversible Data Hiding in Encrypted JPEG Bitstream	International Journal of Computer Applications	0975-8887	2017	0
32		Area Efficient VLSI Architecture for FFT using radix-2 Butterfly and folding Technique	International Journal of Innovative Research in Computer and Communication Engineering	2320-9801	2018	0
33		BER Improvement in OFDM-IM using TCM	International Research Journal of Engineering and Technology (IRJET) Volume: 05 Issue: 06	2395-0056	2018	0
34		A Comprehensive Review on Image Enhancement Based on Image Fusion	International Research Journal Of Technology And Applied Science Vol. 1 Issue 2 Feb.17	2396-9889	2017	0
35		Comparative Analysis of OFDM PAPR using SLM & PTS Techniques	International Journal of Research, Science, Technology & Management e-ISSN: 2455-2240, Vol 7 Issue 2, July 2017	2455-2240	2017	0
36	Ashish Raghuwanshi	An Implementation of 128 bit Blowfish Algorithm with Performance Improvement for High Speed Digital Processing Applications	Journal of Emerging Technologies and Innovative Research (JEITR), Volume 8, Issue 3, March 2021	2349-5162	2021	
37		FPGA Implementation of Multi Error Correction and Detection for IoT based WSN Applications	Journal of Emerging Technologies and Innovative Research (JEITR), Volume 8, Issue 3, March 2021	2349-5162	2021	
38		An Implementation and Performance Enhancement of Built In Self Test with Linear Feedback Shift Register for Advance Digital Processing	Journal of Emerging Technologies and Innovative Research (JEITR), Volume 8, Issue 3, March 2021	2349-5162	2021	
39		A Verilog Implementation of 64 bit Rounding Based Approximate Multiplier Design	Journal of Emerging Technologies and Innovative Research (JEITR), Volume 8, Issue 3, March 2021	2349-5162	2019	

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40		Efficient I/O order Radix-2 FFT Architecture using Vedic Multiplier	International Journal of Engineering Technology and Applied Science (IJETAS), Volume 5, Issue 9	2395 3853	2019	
41		Novel Forced Stack based Power-on-Reset circuit for low energy application	International Journal of Scientific Research & Engineering Trends (IJSRET), Volume 4, Issue 3	2395-566X	2018	
42		A design and implementation of Reversible logic based combinational circuit with low quantum cost	International Journal of Trend in Scientific Research and Development (IJTSRD)	2456-6470	2017	
43		A Survey on Low-Power High Speed Full Adder Circuit in DSM Technology	International Journal of Engineering Trends and Technology (IJETT), Volume 43, Issue 3.	2231-5381	2017	2
44		Improved Computational Time for Circular / Linear Convolution using FFT by Matrix Multiplication	International Journal of Engineering Innovations and Research (IJEIR), Volume 6, Issue 2.	2277-5668	2017	
45		Comparative Analysis of Low Power Adiabatic Logic Circuits in DSM Technology	International Journal of Engineering Trends and Technology (IJETT), Volume 45, Issue 3.	2231-5381	2017	
46		A Multi Threshold Technique Based 12T SRAM Cell for High Stability and Low Power Dissipation	International Journal of Science Technology and Engineering (IJSTE) Volume 4, Issue 4	2349-784X	2017	
47	Mr. Jamvant Omkar	Wireless Sensor Node Energy Optimization by Packet Routing and Clustering	International Journal of Scientific Research & Engineering Trends Volume 7, Issue 4, July-	2395-566X	2021	-

[SELF ASSESSMENT REPORT]

5.7.2 Sponsored Research (5)

- Funded research: Applied**

S.No	Title of the Project	Funding Agency	Year	Name of the Principal Investigator/Co-investigator	Amount	Status
1	An Optimal Design of mmWave Massive MIMO Antenna array for Satellite Communication system under 5G Communication Technology.	DST	2021-2022	Dr Rajesh Nema/ Dr.Pramod Patel	80 Lac	Applied
2	Design of high speed Ultra low 10T SRAM for highly reliable terrestrial application	MPCST	2019-2020	Dr.Pramod Patel/ Dr Rajesh Nema	842000/	Applied
3	Different Channel Coding Techniques For 5g Network And Future Implementations	ISRO	2017-18	Prof. Jitendra Mathur	50000	Received
4	Enabling Geospatial Technology For Smart City Services And Application	ISRO	2017-18	Prof. Jitendra Mathur	50000	Received
5	Advancement of Smart Antenna	MPCST	2016-17	DR.VISHWANATH	50000	Received

5.7.3 Development activities (10)

- Product Development**

S.No.	Title of Product Develop by Faculty	Assessment Year
01	Automatic distance measurement system using Ultrasonic sensor	2019-2020
02	GSM based automatic garbage collecting system using microcontroller	2019-2020
03	Examination paper leakage control box system using GSM module	2018-2019
04	Bluetooth and GSM based double layer security system	2018-2019
05	Ultra advance parking system using RFID module	2017-2018

Patent Applied

S.No	Faculty Name	Patent Title	Status
1	Dr. Rajesh Kumar Nema	An Apparatus and System For Denoising Signals Using Wavelets.	Applied
2	Dr. Rajesh Kumar Nema	Backfire Micro-strip Patch Antenna	Applied
3	Dr. Rajesh Kumar Nema	A Backfire Antenna Meta-material device for wireless charging system	Applied

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➤ Best Projects Guided by Faculty members

IES College of Technology, Bhopal(0177)					
EC 8th SEM Major Projects (Best and average project list of three batch)					
2017-2018					
S.No.	Enrollment no.	Name of Student	Name Of Project	Project Guide	PO Mapping
1	0177EC131037	KAMLESH KUMAR	Scrolling Led Display Using Bluetooth	Mr. Sonu lal	PO2, PO3, PO5, PO6, PO12
	0177EC131101	SHIVJEE PRASAD			
	0177EC131101	UPENDRA KUMAR KUMAR			
2	0177EC131001	ABHISHEK SINGH	IOT Based Green House Automation System	Mr. Sachin Kalraiya	PO2, PO4, PO5, PO12
	0177EC131030	GOVIND KUMAR			
	0177EC131079	RAKESH KUMAR			
	0177EC131084	RANDHIR KUMAR SINGH			
	0177EC131065	OMPRAKASH MANDAL			
	0177EC131109	SURAJ PRATAP SINGH			
3	0177EC131012	AMIT KUMAR	RF Based Device Control System	Mr. Rajneesh Dubey	PO3, PO4, PO6, PO11, PO12
	0177EC131019	ANUPAMA KUMARI			
	0177EC131020	ARPNA KUMARI			
	0177EC131034	JAYA BHARDWAJ			
	0177EC131002	ADITYA KUMAR			
4	0177EC131006	AJAY KUMAR	Android Based Surface Cleaning Robot	Mr. Vishal Mehra	PO1, PO3, PO5, PO9, PO12
	0177EC131009	AMAL RAJ			
	0177EC131031	GOVIND SHARMA			
	0177EC131061	NIRAJ KUMAR PANDEY			
5	0177EC131039	KAUSHAL SINGH	RF Based Attendance Management System Using Lab	Mr. Deepak Mishra	PO2, PO4, PO5, PO12
	0177EC131086	RAUSHAN KUMAR SINGH			
	0177EC131076	RAJENDRA PRASAD GUPTA			
2018-2019					
1	0177EC141035	NEETESH KUMAR PANDIT	GSM/GPS Based Vehicle Tracking System	Mr. Jitendra Mathur	PO2, PO3, PO4, PO5, PO12
	0177EC141010	AMIT KUMAR YADAV			
	0177EC141036	NITISH KUMAR SINGH			
	0177EC111048	Md. Anayat Tulla Irfani			
	0177EC141041	RAVI KUMAR SHARMA			
2	0177EC141040	RAJEEV KUMAR	Automatic Plant Irrigation System With Message Alert	Mr. Sonu lal	PO1, PO2, PO3, PO5, PO9, PO12
	0177EC153D02	DEEPAK KUMAR			
	0177EC131094	SANDEEP NAYAN			

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	0177EC141022	HRIDAYANAND PRASAD GUPTA			
3	0177EC141013	ARBIND KUMAR	RFID Based Attendance System Using Arduino	Mr. Ashish Raguwanshi	PO2, PO4, PO5,PO6, PO11, PO12
	0177EC141006	AJAY			
	0177EC141042	SANJAY CHAUHAN			
	0177EC141021	GEETA JATAV			
	0177EC141038	PINTU KUMAR			
4	0177EC141017	Chandrashekhar Kumar Singh	Theft And Fire Intimation Of The Home Over GSM SMS & Call As Well As Microphone	Mr. Jitendra Mathur	PO1, PO2, PO3, PO6, PO9, PO12
	0177EC141015	Bipin Kumar			
	0177EC141046	Sonu Kumar Singh			
	0177EC141026	Manish Awasthi			
5	0177EC141001	ABHAY PRATAP SINGH	4*4*4 Led Cube	Mr. Ashish Raguwanshi	PO2, PO3, PO6, PO12
	0177EC141003	ABHISEK			
	0177EC141011	ANKIT TIWARI			
	0177EC141016	CHAITANYA			
2019-2020					
1	0177EC151032	Krishna Kapoor	Flame And Smoke Detection System Using Arduino	Mr. Deepak Mishra	PO4, PO5, PO5, PO6,PO11, PO12
	0177EC151038	Manish Kumar			
	0177EC151031	Khushbu Kumari			
	0177EC151010	Amit Kumar			
2	0177EC151019	AYUSH ANAND	Iot Based Notice Board	Mr. Ashish Raguwanshi	PO1, PO2, PO3, PO4, PO6, PO12
	0177EC151062	RAGHUVANSH KUMAR			
3	0177EC151006	AKANKSHA SRIVASTAVA	Bluetooth Controlled Pick And Place Robot Based On Arduino	Mr Deepak Mishra	PO2, PO3,PO5, PO6, PO9,PO12
	0177EC151024	DIVYANI PANDEY			
	0177EC151027	GEETU KUMARI			
	0177EC151037	LAXMI SAHU			
	0177EC151079	STUTI YADAV			
4	0177EC151002	ABHIJEET KUMAR SINGH	Arudino Based Floor Cleaning Robot Using Ultrasound Sensor	Mr. Ashish Raguwanshi	PO1, PO2, PO3, PO6, PO9,PO12
	0177EC151007	AKASH KUMAR			
	0177EC151047	MONAZIR HASAN			
	0177EC151065	RAJA ALI			
5	0177EC151059	Priyanshu Mishra	Control Overheat Detection System Using IOT	Mrs. Sweta Singh	PO2, PO3, PO4, PO5, PO6, PO9,PO12
	0177EC151090	Wahid Ahmad			
	0177EC151061	Radhe Shyam Singh			
	0177EC151085	Vishal			

[SELF ASSESSMENT REPORT]

2020-2021

Batch: 2016-20 (AY_2020-21)					
1	0177EC161043	Kashif Shehzad	Home Automation Using Arduino Wifi Module Esp8266	Mr. Jamvant Omkar	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161072	Nikita Bhalla			
	0177EC161100	Shikha Patel			
2	0177EC161098	Shashwat Sarathe	Laser Touch-Based Voice Transmitter	Dr Rajesh Nema	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161088	Raunak Kumar Jha			
3	0177EC161070	Neeraj Napit	RFID Based Attendance Management System Using Labview	Mrs. Shweta Singh	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161073	Nitesh Kumar Prasad			
	0177EC173D10	Zahid Khan			
	0177EX161034	Balendra Kumar			
4	0177EC161062	Md Rashid Akhtarkhan	GSM Based Home Security System	Mr. Jitendra Mathur	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161082	Rahul Kumar			
	0526EC161010	Chandan Kumar			
	0177EC161111	Vidyasagar Pandit			
5	0177EC161107	Suruchi Sinha	Design Of Microcontroller Based Temperature Controller	Mr. Deepak Mishra	PO1, PO2, PO3, PO4, PO6, PO7, PO8, PO9, PO10, PO11, PO12
	0177EC161028	Bhagmal			
	0177EC161041	Jyoti Kumari			
	0177EC161047	Kushal Kumar			

- **Research Laboratories:**

- Research lab has 30 Computers with essential software.
- E-journals are available
- All other labs are open for the students to completion of their projects throughout the day.
- Research lab is exclusively for the research and project work with the hardware and software facilities listed below:

Sr. No.	Name of the Facilities	Utilization
1.	R & D Lab	UG/PG students and Faculty members utilize for their mini projects, projects, and research activities.

- **Hardware/ Software Facilities:**

S. No.	Name of the Facilities
1.	Antenna and microwave components in communication system Lab

[SELF ASSESSMENT REPORT]

2.	Xilinx Open source software used for designing and verification of codes of digital design.
3.	Model Sim 10.1
4.	FPGA XC3S50 trainer
5.	Piggy bank Module for Xilinx CPLD XC9572
6.	PSpice Open source software used software for implementation of power circuits.
7.	Lab view Open source software.
8.	MATLAB licensed version software.
9.	Multi-Sim
10.	Arduino 2560 Development board
11.	Raspberry Pi Development board
12.	TINA-PRO Tools Open source software
13.	Scientific 3MHz Function Generator Supply
14.	100 MHz 2 channel Digital storage oscilloscope
15.	Transmission line trainer
16.	Fiber optic Trainer (PC to PC communication)
17.	Equipment for PCB Fabrication , Drilling Machine, Grinder, Winding Machine ,Printer etc.
18.	Project seminar hall which includes projector, PC system, software, audio systems.
19.	Research and Development Lab
20.	Internet of 50Mbps and Wi-Fi of 50Mbps
21.	10KVA UPS 240 VDC along with batteries

- **Instructional Materials:**

- Instructional Manuals
- Laboratory Manuals
- Power Point Presentation
- Handouts
- Subject notes
- Video Lectures

- **Working models/charts/monograms etc.**

Charts displayed in all Laboratories. The department has many models created by students and has been displayed in research Laboratory. This prototype models helps the students to understand the working of basics and recent technologies in a better manner. Also this can be used for better teaching and learning process.

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S.N	List of Charts
1	555 Pin Diagram & Architecture
2	Display Devices
3	Cathode Ray Oscilloscope (CRO)
4	MOSFET Characteristics
5	Transistor Configurations And Its Characteristics
6	Transistor Hybrid Model And H-parameter
7	Components Symbols
8	Classification of Signals
9	Antenna Arrays
10	8086 Pin-layout & Architecture
11	8255a The Programmable Peripheral Interface
12	8259 A: The Programmable Interrupt Controller
13	8051 Block Diagram
14	8051 SFR: Special Function Registers
15	Pulse Code Modulation (PCM)
16	Multiple Access Techniques (FDMA/CDMA/TDMA)
17	Digital Carrier Line Encoding Techniques
18	Hub and Switch
19	Types of Computer Networks
20	Satellite Communication
21	Electromagnetic Frequency Spectrum
22	Losses In Optical Fiber

2020-2021

01	Application of IOT (2020-2021)
02	Modern means of communication

5.7.4 Consultancy (from Industry) (5)

2019-2020

Project Title	Duration	Funding Agency	Amount
Maintenance of Computers and Networking	2 Year	Bharat Computer Bhopal	2,25000

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Cumulative Amount: 2, 25000

5.8 Faculty Performance Appraisal and Development System (FPADS) (30)

- **A well-defined system for faculty appraisal for all the assessment years (10)**
 - Faculty Performance Appraisal format is collected from each faculty in which they need to show their innovations and research for their self-renewal to cope up with changes in technology and develop expertise for effective implementation of the curricula. The format of Faculty Performance Appraisal format is provided in annexure.
 - Institute organizes a meeting every month for faculty for feedback in which they discuss about the class conduct, performance, assignment, unit test, class test and activity of students. For the same faculty feedback is also considered on results, behaviour and own performance for active participation and achievements, discipline and quality basis, complied annually for two semesters (even and odd). Institute acknowledge faculty on the basis of self-appraisal report. Increments are assigned given according to appraisal report.
 - **Process for the appraisal –**
 - Format given by the Head of the department
 - Filled by the concerned faculty
 - Submitted to Head of the department for remarks
 - Final submitted to principal office for verification of marks and appropriate action (Increments/Reward)

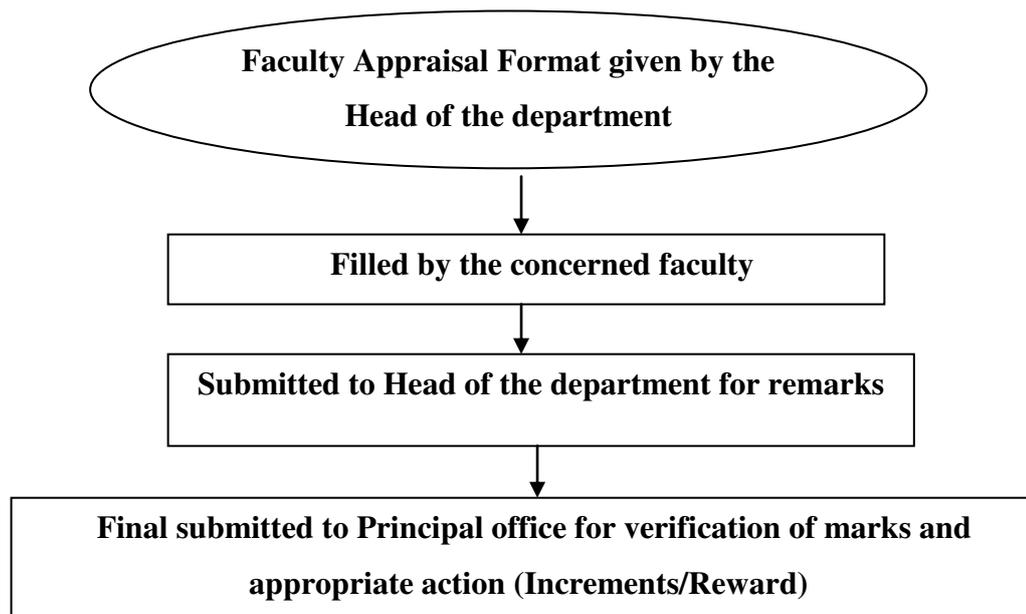


Figure 5.3 Flow chart of Faculty Appraisal Process

[SELF ASSESSMENT REPORT]

➤ Faculty Appraisal Performa

Key points for faculty appraisal are:

1. Students Aggregate Attendance
2. Results of Previous Semester Subjects Taught
3. Research Papers/ Book Published/ICT Tool uses
4. Grant received from AICTE/UGC/MAPCST/Other Government bodies/Consultancy
5. Students Projects/Product made by faculty
6. Students Feedback
7. Extra Curricular involvement/FDP /Conferences /Seminar(Attended / Organized)
8. New Lab Establishment / Lab Maintenance/ Uses of virtual labs
9. Ph.D. /M. Tech Thesis Guided
10. Responsibility((Exam Control Room/TG/Anti Ragging/ Monitoring)

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Faculty Appraisal Performa 2018-2019												
(Information Sheet)												
1	Name of the Faculty Member	Mr. JITENDRA PRATAP SINGH MATHUR										
2	Designation	Assistant Professor										
3	Department	Electronics & Communication Engg. Department										
4	Institute	IES College of Technology Bhopal(0177)										
5	Qualification	M. Tech, Ph.D*										
6	Subjects taught in last Session: 2018-2019											
S.No.	Name of Subject	Branch	Sem	Sub. code	No. of Students	Aggregate % Attendance	% of result	Result			Student Feedback%	HOD Verification
								No. of students passed with A+	No. of students passed with A	No. of students passed with B+/B		
a	EMI	EC-I	III	EC - 3005		80%						
b	IE	EC-II	V	EC - 5001		77%						
c	AWP	EC-I	VI	EC-6003		82%						
d	ADSP	EC-I	VIII	EC-8004		80%						
TOTAL												
Research Papers/ Book Published/ICT Tool uses												
7	1	"Constructions and Performance Analysis of Diagonally Shifted Column Structured RPM based Regular Quasi Cyclic-LDPC Codes with Girth 10 " International Journal of Engineering and Technology, UAE,Volume 7, Issue 4, pp. 4722-4725, October 2018										
	2	"Efficient Construction and Counting the Number of Girth 6 for Sparse Quasi Cyclic Low Density Parity Check Codes using Modified Gallager Approach" International Journal of Engineering and Advanced Technology, IJEAT, Volume 8, Issue 5,pp. 1382-1386, June 2019										
8	Grant received from AICTE/UGC/MAPCOST/Other Government bodies/Consultancy											

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9	Extra Curricular involvement/FDP /Conferences /Seminar(Attended / Organized)								
	S.N	Name of Event	Title	Detail of Organizer	Sponsored By	Date/Duration			
	a.	Workshop	C and C++	ICT at IIT Bombay	MHRD, GOI	29-02-2020			
	b	FDP	Internet of Things	MANIT Bhopal	ATAL Academy, New Delhi	09-12-2019 to 13-12-2019			
	c	Workshop	Linux	ICT at IIT Bombay	MHRD, GOI	23-08-2019			
10	Students Projects Guided/Product made by faculty	B.E.	Yes	No. of Project	2	No. of Product made by faculty			
		Ph.D/M. Tech	Yes	No. of Thesis	0				
11	Extra Curricular Duties Performed:								
		1	Worked as Committee Member of the departmental Techfest						
		2	Worked as Committee Member of the event Sports in departmental Techfest						
12	Administration Duties of Mentor/Anti Ragging/Monitoring Duties: (Excuding Counselling)		1	Performed the duties of Mentor					
			2	Member of anti Ragging Committee					
			3	Member of attendance monitoring and maintaining the discipline of the department.					
13	New Lab Establishment / Lab Maintenance/ Uses of virtual labs								
								(Name)	
								Date:	

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➤ **Its implementation and effectiveness (20)**

Head of the department evaluate appraisal for awarding marks and forwarded to director office for final evaluation (Increment /Rewarded).

• **Faculty Appraisal Evaluation Rubrics**

Faculty Appraisal Evaluation Rubrics					
S.No	Title	Verification Authority	Marking Scheme	Obtained Marks	Signature of Verified Authority
1	Students Aggregate Attendance (20Marks)	HOD & Principal	< 40% = 0		
			< 40 to 50% = 5		
			< 50 to 65% = 10		
			< 65 to 75% = 15		
			> 75 = 20		
2	Results of Previous Sem Subjects Taught(15Marks)	HOD & Principal	<u>No. of students with respect to grade A+/A/B+/B</u>		
			If total A+/A/B+/B		
			> 30% then 15		
			if A+/A/B+/B > 20% then 8		
			A+/A/B+/B > 10% then 5		
3	Research Papers/ Book Published/ICT Tool uses (10Marks)	Principal	If 1 book published award =5, ICT Tool uses =5		
			1 SCI Paper Published = 5		
			3 Papers with ISSN/UGC = 5		
			if Published up to 2 papers = 2		
			NIL = 0		
4	Grant received from AICTE/UGC/MAPCOST/Other Government bodies/Consultancy (5Marks)	Principal	YES = 5		
			NO = 0		
5	Students Projects/Product made by faculty(10Marks)	HOD & Principal	If among best project = 10		
			Otherwise if guided =5		
			Product made by faculty=5		
			Not Guided = 0		
6	Students Feedback(20Marks)	HOD & Principal	Excellent = 20		
			Very Good = 18		
			Good = 15		
			Average = 10		
			Satisfactory = 5		
7	Extra Curricular involvement/FDP /Conferences /Seminar(Attended / Organized) 5 Marks	HOD/	Yes (Actively involved) = 05		
		Principal	Participated = 02		
			Organized=03		

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			NO = 0		
8	New Lab Establishment / Lab Maintenance/ Uses of virtual labs (5Marks)	HOD/	If YES = 5		
		Principal	NO = 0		
9	Ph.D. /M. Tech Thesis Guided (5Marks)	HOD/	1 Mark/Thesis if completed within time Maximum mark = 05		
		Principal			
10	Responsibility (5Marks)	HOD/	If doing with full cooperation then 05		
11	(Exam Control Room/TG/Anti Ragging/ Monitoring 5Marks)	Principal	doing without co operation then 3		
			Refusing = 0		
	Forwarded by HOD		Signature of Faculty		Principal

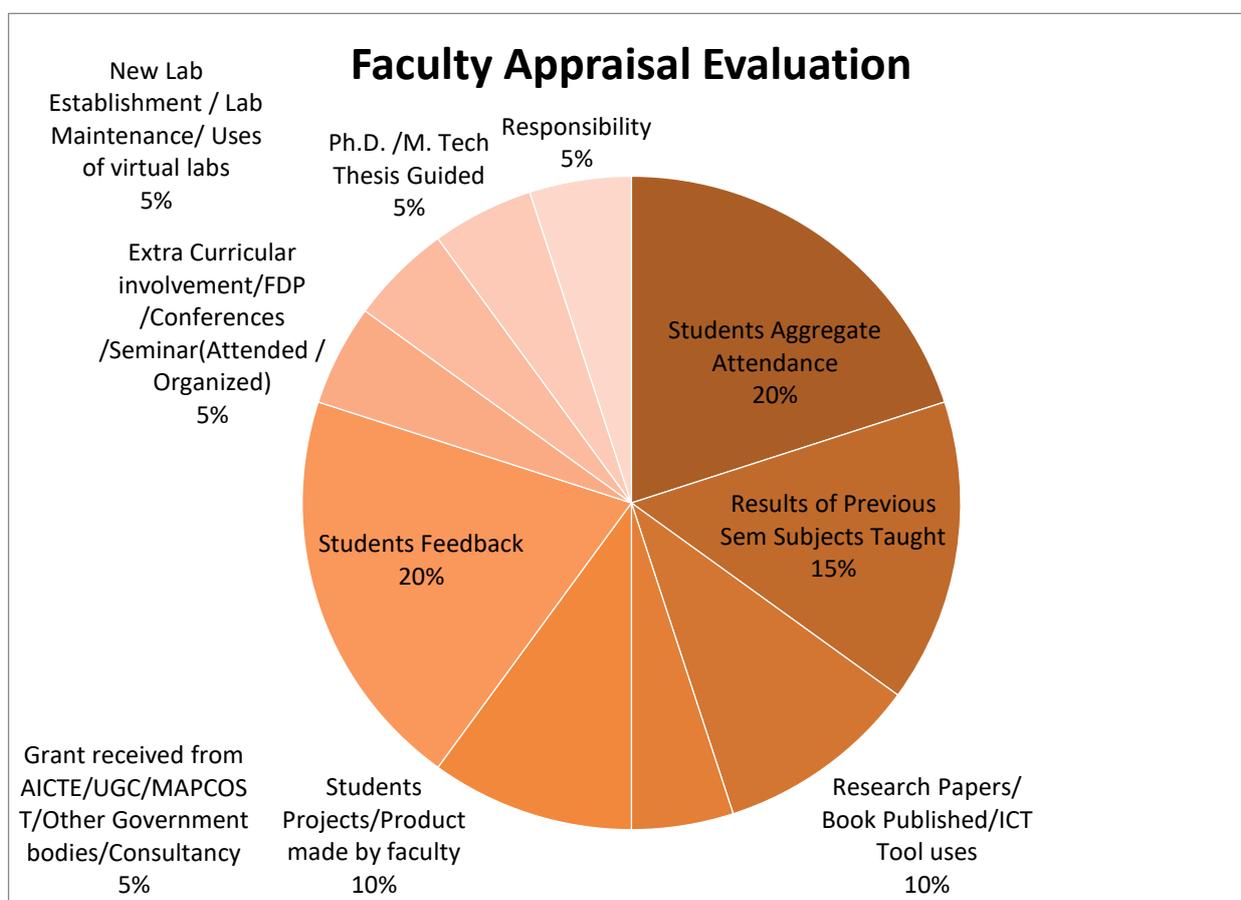


Figure 5.4 Flow chart of Faculty Appraisal Process

5.9 Visiting/Adjunct/Emeritus Faculties. (10)

Adjunct faculty also includes Industry experts. Provide details of participation and contributions in teaching and learning and/or research by visiting /adjunct/ Emeritus faculty etc.

for all the assessment years: Provision of in visiting/having visiting/adjunct/emergitus faculty (1) Minimum 50 hours per year interaction with adjunct faculty from industry/retired professors etc.

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(Minimum 50 hours interaction in a year will result in 3 marks for that year; 3marks x 3Years = 9 marks)

S. No.	Academic Year	Semester	Name of the course	Name of the Industry Expert	Hours
01	2019-2020	III	Communication System	Dr. V.N. Yadava	150
02		IV	Training on MATLAB	Mr. AizazTrimizi	
03		II	VLSI and Embedded System	Mr. Chetan Chuahan	
01	2018-2019	III	Communication System	Dr. V.N. Yadava	52

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CRITERION 6	Facilities and Technical Support	80
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6. FACILITIES AND TECHNICAL SUPPORT (80)

6.1 Adequate and Well-Equipped Laboratories, and Technical Manpower (30)

- 1 **Adequacy of Laboratory:** The adequate well equipped laboratories are available to run the entire program specific curriculum.
- 2 **Equipment of Laboratory:** The lab has all the required equipments as per the curricular. The maintenance of the laboratory equipment's are excellent with best services and laboratories are well equipped with air ventilation, good ambience with adequate lighting facility, fan facility, power supply to run the machine.
- 3 **Adequacy of Man Power:** The students are also allowed to do lab experiments after their lab hours within working hours with technical support after getting the permission from the staff in charge of the respective lab. Beyond working hours, the laboratories are available for the students to do their projects. Faculty and technicians use to support the project works during late hours too. Availability of adequate and qualified technical supporting staff as per norms listed below.

S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1	Digital System Design Lab (EC-303)	4(30)	<ol style="list-style-type: none"> 1. Logic Gates (6-in-1) 2. 4 Bit Adder & Subtractor 3. Digital Logic Trainer 4. Digital Full adder & subtractor 5. 4/8 line to 1 line Multiplexer 6. 1 to 4/8 Line De-multiplexer 7. Circuit Designer Board 8. Pulse/Clock Generator using NAND Gate 9. Code conversion (BCD to excess 3) 10. 16:1 line multiplexer & 1:16 line de-multiplexer 11. RS, JK Flip-flop 12. Encoder/Decoder 13. Shift registers 14. Multi-meters 15. TINA-PRO Tools. 16. Virtual Lab 	8hrs	Mr. Rishiraj Singh Thakur	Lab Assistant	B.E.
2	Electronic Devices Lab (EC-304)	4(30)	<ol style="list-style-type: none"> 1. PN Junction Diode characteristic 2. Zener Diode Characteristic 3. Photo diode Characteristic apparatus 4. FET Characteristic apparatus 5. Tunnel Diode Characteristic apparatus 6. Diac Characteristic apparatus 7. Triac Characteristic apparatus 8. SCR Characteristic apparatus 9. IGBT Characteristic apparatus 10. Characteristics of MOSFETs 11. Transistor Characteristics with aluminum panel and square meters 	8hrs	Ms. Sapna Raghuwanshi	Lab Assistant	B.E.

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S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			12. UJT Characteristics application as relaxation oscillator. 13. Darlington Pair Amplifier 14. Class-B Amplifier 15. Common Emitter Amplifier 16. Common Base Amplifier 17. Class-A Amplifier 18. Class-C RF-tuned amplifier 19. RC coupled amplifier 20. Complementary symmetry Amplifier 21. Feedback amplifier 22. Differential Amplifier 23. FET Common Source Amplifier 24. IFT amplifier 25. Audio Amplifier 26. Feedback amplifier with series and shunt 27. Function Generator 3 MHz 28. Multimeters 29. Power Supply 30. CRO 31. Virtual Lab				
3	Network Analysis Lab (EC-305)	4(30)	1. Thevenin's theorem 2. Superposition theorem 3. Reciprocity theorem 4. Maximum Power Transfer theorem 5. Millman's theorem 6. Cascaded two port network 7. LCR Resonance Apparatus 8. Cascaded two port network 9. Transient response of LCR circuit 10. Multimeters 11. CRO 12. Virtual Lab	8hrs	Mr. Pawan Pawar	Lab Assistant	B.E.
4	Electronic Measurement & Instrumentation Lab (EC-306)	4	1. Cathode Ray Oscilloscope 2. Function Generator 3 MHz 3. Displacement Measurement using LVDT 4. Q-meter 5. Strain gauge trainer 6. Temp. Meas. & Control using RTD 7. Temp. Measurement using Thermocouple 8. 4/8 Bit Analog to Digital Converter 9. 4/8 Bit Digital to Analog Converter 10. Conductivity attachment for Kelvin's bridge 11. Wheat Stone Bridge 12. Schering Bridge 13. Wein's Bridge 14. Hay's bridge 15. Spot reflecting Galvanometer 16. Power supply for Kelvin Bridge	8hrs	Mr. Pawan Pawar	Lab Assistant	B.E.

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S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			17. Multimeters 18. Virtual Lab 19. Power Supply				
5	Signal and Systems Lab (EC-402)	1 (30)	1. Computer Lab 2. MATLAB software/Sci-Lab 3. Virtual Lab	8hrs	Mr. Rishiraj Singh Thakur	Lab Assistant	B.E.
6	Analog Communication Lab (EC403)	4(30)	1. CRO 2. Function generator 3. Amplitude Modulation & Demodulation Trainer kit 4. Frequency Modulation & Demodulation Trainer 5. Detection of FM using phase locked loop(PLL) 6. Pre-emphasis and De-emphasis 7. Balance Modulator 8. AM Transmitter and AM Receiver kit 9. Phase Modulation & Demodulation 10. DSB/SSB AM Transmitter 11. DSB/SSB AM Receiver 12. Analog Lab Trainer 13. PLL Trainer Kit 14. Analog Signal Sampling and reconstruction unit 15. Virtual Lab	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.
7	Control System (EC-404)	1(30)	1. Computer Lab 2. MATLAB Software	8hrs	Mr. Pratipal Singh Parihar	Lab Assistant	B.E.
8.	Analog Circuits Lab (EC-405)		1. CRO 2. Function generator 3. OPAMP as inverting non inverting, summing, and difference amplifier with one digital voltmeter 4. Applications of operational amplifier (discrete component trainer) 5. Application of IC 555 6. Digital multi-meter	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.
9	Simulation Lab (EC-406)	1(30)	1. Computer Lab 2. TINA-PRO Tools/PSPICE.	8hrs	Mr. Pratipal Singh Parihar	Lab Assistant	B.E.
10	Microprocessors Lab (EC-501)	4(30)	1. 8086 microprocessor Trainers With LCD display 2. 16*9 line alphanumeric display 3. 8155 study card 4. D to A Converter study card 5. 8251 card 6. 8259 card 7. A to D converter study card	8hrs	Mr. Rishiraj Singh Thakur	Lab Assistant	B.E.

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S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
			8. 8255 study card 9. ADC/DAC interface card 10. 2-channel 8-bit DAC 11. Elevator Simulator Card 12. Assemble language programming in operating system. 13. Computer System				
11	Digital Communication (EC-502)	4(30)	1. Function Generator 3 MHz 2. DSO 3. Analog Signal Sampling & Reconstruction 4. Time Division Multiplexing & De-multiplexing Unit, 5. Band Pass Demodulation with Channel Decoder 6. Band Pass Modulation with channel Encoder 7. Pulse Code Modulation Transmitter 8. Pulse Code Modulation Receiver 9. PAM –PWN Modulation & Demodulation 10. ASK, PSK and FSK 11. Virtual Lab 12. MATLAB Lab/Sci-Lab	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.
12	CNTL Lab (EC-505)	4(30)	1. Transmission Line Trainer kit 2. CRO 3. LCR- Q Meter. 4. Multimeters	8hrs	Mr. Pawan Pawar	Lab Assistant	B.E.
13	MATLAB Programming (EC-506)	1(30)	1. Computer Lab 2. MATLAB Software	8hrs	Mr. Rishiraj Singh Thakur	Lab Assistant	B.E.
14	Digital Signal Processing Lab (EC-601)	1(30)	1. Computer Lab 2. MATLAB /Sci-Lab software 3. DSP Trainer Kit 4. DSO	8hrs	Mr. Rishiraj Singh Thakur	Lab Assistant	B.E.
15	Antenna & Wave Propagation Lab (EC-602)	4(30)	1. Beginner Antenna trainer with 22 Antenna	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.
16	Data Communication Lab (EC-603A)	4(30)	1. Data Communication Concept Trainer Kit 2. LAN Trainer 3. PC System	8hrs	Mr. Pratipal Singh Parihar	Lab Assistant	B.E.
17	Microcontrollers & Embedded System (EC-		1. 8051 microcontroller Board 2. Elevator controller card 3. DC motor controller card 4. Stepper motor controller card 5. 7 segment LED display	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.

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S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
	606)		<ol style="list-style-type: none"> 6. Traffic light controller card 7. DC Motor Controller 8. DC Motor Interface with Microcontroller 9. Embedded arm 7 Development board 10. Connector set with IBM compatible board 				
18	VLSI Design lab (EC-8001)	4(30)	<ol style="list-style-type: none"> 1. CPLD Starter Kit 2. FPGA Starter Kit 50K gates 3. P Spice/LT-Spice/Xilinx 4. PC System 	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.
19	Microwave Engineering Lab (EC-7001)	4(30)	<ol style="list-style-type: none"> 1. Microwave bench (Gunn Power Supply) 2. Microwave Bench (Klystron power supply) 3. Fixed attenuator 4. Variable attenuator 5. Magic-Tee 6. MHD Coupler 7. Circulator 8. CRO 9. VSWR Meter 	8hrs	Mr. Pawan Pawar	Lab Assistant	B.E.
20	I.O.T. Lab (EC-705)	1(30)	<ol style="list-style-type: none"> 1. Computer Lab 2. Raspberry/ Arduino Board 	8hrs	Mr. Pratipal Singh Parihar	Lab Assistant	B.E.
21	Optical Communication (EC-7003)	4(30)	<ol style="list-style-type: none"> 1. Advance OFC Trainer kit 2. Laser diode modulation and demodulation kit 3. CRO 	8hrs	Mr. Pawan Pawar	Lab Assistant	B.E.
22	Advanced Communication system (EC-8002)	4(30)	<ol style="list-style-type: none"> 1. Advance Optical Fibre Communication Trainer kit 	8hrs	Mr. Pawan Pawar	Lab Assistant	B.E.
23	TV & Radar Engineering Lab (EC-8003)	4(30)	<ol style="list-style-type: none"> 1. Doppler radar training system 10GHz with target/velocity simulator cum jammer, 2. Pattern generator for TV radar unit 3. Colour T.V demonstrator with 20" CRT. 	8hrs	Mr. Vinod Verma	Lab Assistant	B.E.
24	Project Lab (EC-8004)	1(30)	<ol style="list-style-type: none"> 1. PC System 2. Fabrication tools 3. Printed circuit Board 4. Electronics Components 5. Testing tools 6. CRO 7. PCB Designing facility 	8hrs	Mr. Pratipal Singh Parihar	Lab Assistant	B.E.
25	Basic Electrical and		<ol style="list-style-type: none"> 1. CRO 2. Function generator 3 MHz 3. Analog meter 4. Digital multimeter 	16hrs		Lab Assistant	B.E.

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S. N.	Name of the Laboratory	No. of students per setup (Batch Size)	Name of the Important equipment	Weekly utilization status	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
	Electronics Engineering lab (BT-1004)		5. Resistance ,Inductors, Capacitor on board with colour coding 6. PN/ZENER/LED Characteristics apparatus 7. Solar Cell Characteristics Apparatus 8. Photodiode Characteristics Apparatus 9. Half/full wave Rectifier 10. PNP Transistor Kit 11. NPN Transistor kit 12. CE Transistor Amplifier 13. Transistor characteristics apparatus with regulated power 14. Operational Amplifier as inverting non-inverting, 15. Application OF IC 555 16. Universal Gate Trainer 17. Half adder & Full adder kit 18. Demorgan's Theorem 19. Logic Gates Experiment Kit 20. Basic logic gates using TTL 21. 4 Bit Adder & Subtractor Circuits using IC 22. Study of Flip-Flop Circuits 23. LCR bridge kit 24. LCR-Q Meter 25. Study of RC Passive, Low Pass, High Pass 26. Patchcord thin 27. Patchcord thick				

6.2 Additional facilities created for improving the quality of learning experience in laboratories (25)

S. N.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
1.	Smart Class Room	<ul style="list-style-type: none"> E-board & projector facility with the seating capacity of 60. Fully equipped with furniture and teaching aids. 	<ul style="list-style-type: none"> Smart class room is used for animated visuals and video lectures. These visually attractive methods of teaching are sometimes more interesting as compared to teaching in a classroom. 	Throughout the semester	The graphs, design, models, simulation and fabrication of difficult subjects can be easily analyzed and visualized	PO-1, PO-2, PO-3, PO-4, PO-5, PSO-1 & PSO-3

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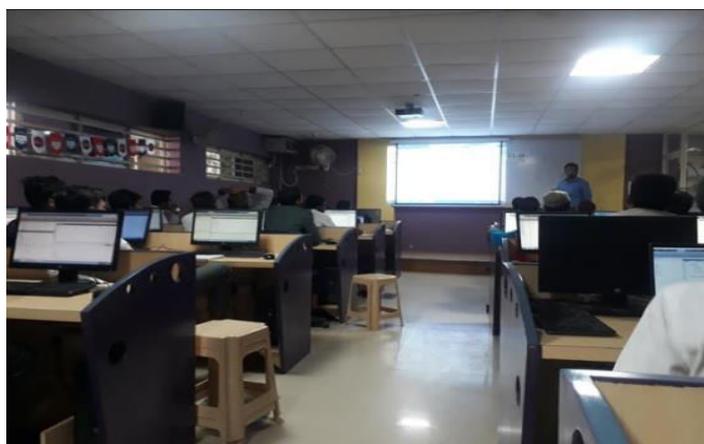
S. N.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
2.	Seminar Hall	Fully equipped shared seminar hall with Computer, Projector, Student Desk, White Board, Air conditioner, Fan, microphone and speaker with capacity of 400.	<ul style="list-style-type: none"> To present technical talk/project seminars/research papers/workshops/ industry interaction/ presentation. 	12hrs per semester	<ul style="list-style-type: none"> To overcome the gap between curriculum and industries. To improve students personality according to industry standard. 	PO-1, PO2, PO-3, PO-12 & PSO-1
3.	Lab Manuals along with instruction materials for all the labs	Manuals are provided to students for all practical subjects of program.	<ul style="list-style-type: none"> To create an understanding about the experiment and to inform need of conducting the same. Students can understand concept of the experiment better in a manner. To maintain the practical lab record using the lab manual. 	Throughout the semester	<ul style="list-style-type: none"> Testing, performance and analysis of different electronics and communications lab Better usage of hardware and software tools. 	PO-1, PO-2, PO3, PO5, PSO-1, PSO2 & PSO3
4.	Departmental Library	Departmental library has a collection of text books, reference books, project / seminar report and NPTEL lecture.	<ul style="list-style-type: none"> To provide academic support to students. To provide advanced information of the seminars and projects. 	Throughout the semester	Student learning process	PO1, PO-2, PO-4, PSO-1, PSO-2 & PSO-3
5.	NPTEL material available	Providing to the students through the central and departmental library.	<ul style="list-style-type: none"> Understand teaching and learning about the new technology in the field of Electronics and Communication 	Throughout the semester	To understand important concept of various subjects and modern tools used in Electronics	PO-1, PO-2, PO 5 & PSO1

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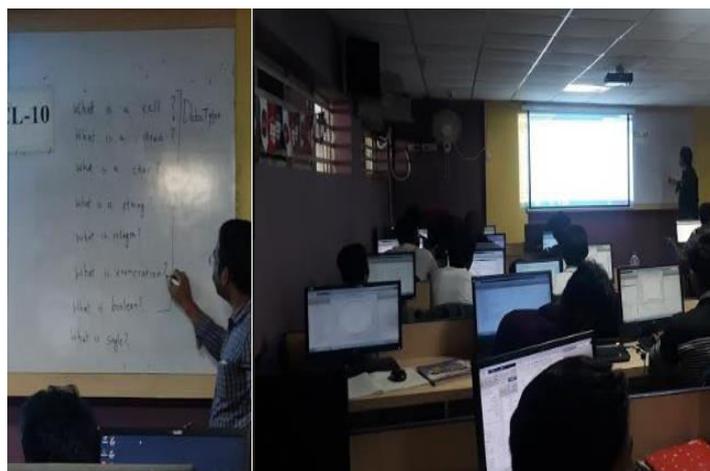
S. N.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
					and Communications engineering	
6.	Training on MATLAB (by Indeyes Institute Bhopal)	<ul style="list-style-type: none"> Provide hand-on training practice in MATLAB simulator. Students will also aware about MATLAB uses in industrial application. 	To enhance solving complex problem capability in electronics and communication domain	As needed	Students would be able to design various project and model in the field of electronics and communication	PO1, PO3, PO4, PO5, PO9, PO11, PO12, PSO-1 & PSO-3
7.	Workshop on “PCB designing” (by Indeyes Institute Bhopal)	Students would be trained in PCB designing through simulations and fabrication processes of the circuit	Improve PCB designing skill	As needed	Develop circuit designing skills, circuit fabrication skill and improve analysis capability in field of electronics circuit design.	PO1, PO2, PO3, PO4, PO5, PO12
8.	Training on “Embedded Systems & Robotics” (by Indeyes Institute Bhopal)	Students would be trained in Embedded Systems & Robotics and they would also be aware about IoT technology.	<ul style="list-style-type: none"> It will help them in grabbing various job opportunities in MNCs. Students will capable on application based projects. 	As needed	Designing capability of embedded and robotics	PO1, PO2, PO3, PO4, PO5, PO8 & PO12,
9.	Training by CRISP Bhopal on various Lab	Students would be trained in Embedded System and VLSI Design, PLC, MATLAB etc.	It will help them in grabbing various job opportunities in MNCs.	As needed	Enhance learning in Embedded System and VLSI Design. PLC, MATLAB	PO1, PO2, PO3, PO4, PO5, PO8 & PO12

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S. N.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning etc.	Relevance to POs/PS Os
10.	Internet Facility	Bandwidth of 50 Mbps and Wi-Fi of 50 Mbps	Self-learning /Seminars /Presentations /Solve assignments, documentation	Unlimited	Courses specified in Curriculum	PO1, PO2, PO3, PO4, PO5, PO8 & PO12
11.	Printed Circuit Board Laboratory	PCB Design facility available in lab	Implementation of projects, design of printed circuit boards	As needed	Industry oriented training	PO4, PO5, PO8 & PO12
12.	Training and placement classes	Training on reasoning, group discussion, and technical skill by experts.	Job oriented training and to improve logical reasoning and technical skills.	As needed	Employability and entrepreneurship	PO4, PO5, PO8 & PO12
13	Virtual Lab	Perform online experiments as additional facility through virtual lab	Providing online practical exposure of the students	As needed	Employability and entrepreneurship	PO1,PO 2,PO3,P O5,PO1 2



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EC branch 2018 batch students participated in MATLAB workshop in 31/12/2019 at Electronics and communication Department, IES college of Technology Bhopal



EC branch 2018 batch students attended in-house training on Arduino System in 19/12/2019 at Electronics and communication Department, IES college of Technology Bhopal

6.3 Laboratories: Maintenance and overall ambiance (10)

The Department is equipped with sophisticated laboratories and state of art instruments to satisfy the curriculum requirements. All laboratories are spacious, well ventilated and provided with adequate electrical fittings to take care of ambiance. Salient features regarding maintenance and ambiance of laboratory facilities are as follows;

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Maintenance:

1. All the equipments in laboratories are maintained on a regular basis by the concerned lab technician under the supervision of faculty members.
2. Regular maintenance of equipment is carried out before commencement of academic year. Servicing of equipments is also done whenever necessary.
3. Stock registers are maintained in each laboratory and verified regularly.
4. Maintenance register is maintained separately for each laboratory to maintain the record, repair and servicing if carried out for the equipments.
5. All the essential software used in computer labs are installed and maintained.
6. Grounding is checked time to time.
7. Qualified technical assistants are available for maintenance of the equipments and software in labs.

Ambience:

1. Ambience has been given special importance for the students to feel refreshed when they enter the campus.
2. Green lawn was developed and trees grown in the campus for good ambience and greenery.
3. To add the protection of environment and to reduce the load on conventional electrical energy, 100kW solar plant is located on the rooftop.
4. As per the university curriculum departments has well equipped labs.
5. All laboratories are acoustics having sufficient natural light and proper ventilation with tubes and fan arrangement.
6. For proper ventilation and natural light, sufficient numbers of windows are available in every laboratories and classroom.
7. All labs are open for students and faculties for projects and research.
8. Laboratory manuals are provided to students.
9. Labs are equipped with green/white board facilities.
10. Fire extinguishers are provided on the entire floor.
11. Bread board and components are available for testing and designing of circuits.
12. Virtual labs are available for additional experimental works.

6.4 Project laboratory (5)

- Technical support for the students available throughout the day.
- All other labs (Signal processing lab, IOT Lab, Embedded System lab etc.) are open for the students to completion of their projects throughout the day.

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- MOU with industries to support students.
- 100kW solar power plant.

The Electronics and Communication department has project laboratory within adequate facilities to help graduates and postgraduate students to complete their project design and fabrication. Project/Research lab is exclusively for the research and project work with the hardware and software facilities listed below:

S. No.	Name of the Facilities	Utilization
1.	Project Lab	UG/PG students and Faculty members utilize for their minor projects, major projects, and research activities.

Hardware/ Software Facilities:

S. No.	Name of the Facilities
1.	Testing Facilities available in Antenna and microwave labs.
2.	Xilinx open source software for designing and verification of codes of digital design.
3.	Model Sim 10.1
4.	FPGA XC3S50 trainer
5.	Piggy bank Module for Xilinx CPLD XC9572
6.	PSPICE and LT –Spice open source software for implementation of power circuits.
7.	Lab view open source software
8.	MATLAB licensed version software.
9.	Multi-Sim open source software
10.	Arduino 2560 Development board
11.	Raspberry Pi Development board
12.	TINA-PRO Tools open source software
13.	Scientific 3MHz Function Generator Supply
14.	100 MHz 2 channel Digital storage oscilloscope
15.	Transmission line trainer
16.	Fiber optic Trainer (PC to PC communication)
17.	Equipment for PCB Fabrication , Drilling Machine, Grinder, Winding Machine ,Printer etc.
18.	Project seminar hall which includes projector, PC system, software, audio systems.
19.	Research and Development Lab

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20.	Internet of 50Mbps and Wi-Fi of 50Mbps
21.	10KVA UPS 240 VDC along with batteries

6.5 Safety measures in laboratories (10)

The following general rules and precautions are observed at all times in the laboratory. These rules are for the benefit of the experimenter as well as those around him/her.

The following safety measures are used in all the labs:

S.N.	Laboratory Name	Safety measure
1	Digital System Design Lab (EC-303)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. Use of cell phones is strictly prohibited. 3. First aid box is available in department. 4. A fire extinguisher is available in floor. 5. The 5V supply or specified voltage level should not be exceeded since this will damage the ICs used during the experiments. 6. Properly handlings of electronic components and kits are required. 7. Equipment should be placed properly after completion of experiments. 8. Clean and structured laboratories are maintained. 9. The switching of power supply has been handled only by authorized person. 10. Faulty in apparatus is identified and serviced at the earliest. 11. Circuits are proper grounded with respect to the power source.
2	Electronic Devices Lab (EC-304)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Make sure mobile is switched off before entering lab. 5. The switching of power supply has been handled only by authorized person. 6. Faulty apparatus are identified and serviced at the earliest. 7. Circuits are proper grounded with respect to the power source. 8. Switch on the power supply after checking connections handle the trainer kit carefully. 9. User instruction manuals are provided for experiments. 10. Properly handlings of electronic components are required. 11. Equipment should be placed properly after completion of experiments. 12. The $\pm 15V$ supply or specified voltage level should not be exceeded since this will damage the ICs used during the experiments.
3	Network Analysis Lab (EC-305)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. Clean and structured laboratories are maintained. 4. A fire extinguisher is available in floor. 5. Use of cell phones is strictly prohibited. 6. User's manuals instructions are provided.

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		<ol style="list-style-type: none"> 7. The switching of power supply has been handled only by authorized person. 8. Faulty apparatus are identified and serviced at the earliest. 9. Circuits are proper grounded with respect to the power source. 10. Switch on the power supply after checking connections handle the trainer kit carefully. 11. Equipment should be placed properly after completion of experiments. 12. The 5V supply or specified voltage level should not be exceeded since this will damage the ICs used during the experiments.
4	Electronic Instrumentation Lab (EC-306)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. A fire extinguisher is available in floor. 3. First aid box is available in department. 4. Clean and structured laboratories are maintained. 5. Faulty apparatus are identified and serviced at the earliest. 6. Circuits are proper grounded with respect to the power source. 7. User instruction manuals are provided for measuring instruments. 8. Switch on the power supply after checking connections. 9. Handle the trainer kit carefully. 10. The switching of power supply has been handled only by authorized person. 11. Equipment should be placed properly after completion of experiments. 12. Temperature should be properly maintained while performing practical on transducers. 13. Proper positioning of multi-meter knob should be maintained before measuring AC /DC Voltage and current measurement. 14. Student should aware about the operation of knobs of the measuring instruments. 15. The 5V supply or specified voltage level should not be exceeded since this will damage the ICs used during the experiments.
5.	Signal and Systems Lab (EC-402)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Use of cell phones is strictly prohibited. 5. Clean and structured laboratories are maintained. 6. Regular maintenance check done on computer. 7. The power switching of computers has been handled only by authorized person.
6.	Analog Communication Lab (EC403)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Make sure mobile is switched off before entering lab. 5. User instruction manuals are provided for experiments. 6. Make sure that equipment working on electrical power is grounded properly. 7. Properly handlings of electronic components and kits are required. 8. Equipment should be placed properly after completion of

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		<p>experiments.</p> <p>9. Student should aware about the operation of knobs of the measuring instruments.</p>
7	Control System (EC-404)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Use of cell phones is strictly prohibited. 5. Clean and structured laboratories are maintained. 6. Regular maintenance check done on computer. 7. The power switching of computers has been handled only by authorized person.
8.	Analog Circuits Lab (EC-405)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. A fire extinguisher is available in floor. 3. First aid box is available in department. 4. Use of cell phones is strictly prohibited. 5. The specified voltage level V_{CC} should not be exceeded since this will damage the ICs used during the experiments. (e.g. Do not apply voltage more than ± 15 V to IC 741) 6. Switch on the power supply after checking connections handle the trainer kit carefully. 7. The switching of power supply has been handled only by authorized person. 8. Faulty in apparatus is identified and serviced at the earliest. 9. Circuits are proper grounded with respect to the power source. 10. Properly handlings of electronic components and kits are required. 11. Equipment should be placed properly after completion of experiments.
9	Simulation Lab (EC-406)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Use of cell phones is strictly prohibited. 5. Clean and structured laboratories are maintained. 6. Regular maintenance check done on computer. 7. The power switching of computers has been handled only by authorized person.
10	Microprocessors Lab (EC-501)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Use of cell phones is strictly prohibited. 6. User instruction manuals are provided for experiments. 7. Switch on the power supply after checking connections handle the trainer kit carefully. 8. Kits should placed in proper way after completion of practical 9. Students should be aware about interfacing ports. 10. At the time of programming on trainer kit keyboard should be

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		handled properly.
11	Digital Communication (EC-502)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Make sure mobile is switched off before entering lab. 5. Clean and structured laboratories are maintained. 6. User instruction manuals are provided for experiments. 7. Properly handlings of electronic instruments are required. 8. Switch on the power supply after checking connections handle the trainer kit carefully. 9. Equipment should be placed properly after completion of experiments. 10. Student should aware about the operation of knobs of the measuring instruments.
12	CNTL Lab (EC-505)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. User instruction manuals are provided for experiments. 6. The switching of power supply has been handled only by authorized person. 7. Use of cell phones is strictly prohibited 8. Equipment should be placed properly after completion of experiments.
13	MATLAB Programming (EC-506)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Use of cell phones is strictly prohibited. 5. Clean and structured laboratories are maintained. 6. Regular maintenance check done on computer. 7. The power switching of computers has been handled only by authorized person.
14	Digital Signal Processing Lab (EC-601)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Use of cell phones is strictly prohibited. 5. Clean and structured laboratories are maintained. 6. Regular maintenance check done on computer. 7. The power switching of computers has been handled only by authorized person.
15	Antenna & Wave Propagation Lab (EC-602)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Use of cell phones is strictly prohibited. 5. Clean and structured laboratories are maintained. 6. The switching of power supply has been handled only by authorized person. 7. User instruction manuals are provided for experiments.

[SELF ASSESSMENT REPORT]

		8. Equipment should be placed properly after completion of experiments.
16	Data Communication Lab (EC-603A)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Use of cell phones is strictly prohibited. 6. The switching of power supply has been handled only by authorized person. 7. Equipment should be placed properly after completion of experiments.
17	Microcontrollers & Embedded System (EC-606)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Use of cell phones is strictly prohibited. 6. User instruction manuals are provided for experiments. 7. Switch on the power supply after checking connections handle the trainer kit carefully. 8. Kits should placed in proper way after completion of practical 9. Students should be aware about interfacing ports. 10. At the time of programming on trainer kit keyboard should be handled properly.
18	VLSI Design lab (EC-8001)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Use of cell phones is strictly prohibited. 6. Students should be aware about interfacing ports. 7. Equipment should be placed properly after completion of experiments.
19	Microwave Engineering Lab (EC-7001)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Make sure mobile is switched off before entering lab. 6. Make sure that equipment working on electrical power is grounded properly. 7. Never handle microwave bench with wet hand. 8. Repplier voltage knob should be clockwise and beam voltage anticlockwise before starting of microwave bench setup. 9. The switching of power supply has been handled only by authorized person.
20	I.O.T. Lab (EC-705)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Use of cell phones is strictly prohibited.

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		<ol style="list-style-type: none"> 6. User instruction manuals are provided for experiments. 7. Switch on the power supply after checking connections handle the trainer kit carefully. 8. Kits should placed in proper way after completion of practical 9. Students should be aware about interfacing ports. 10. At the time of programming on trainer kit keyboard should be handled properly.
21	Optical Communication (EC-7003)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Make sure mobile is switched off before entering lab. 6. Care must be exercised to look through a fiber cable, to ensure that there is visible light coming through the cable. 7. Prior to looking into the end of a cable, use an optical tracer or continuity checker to determine if the fiber is dark. 8. After handling fiber optics, someone who wears contact lenses must wash their hands very thoroughly before handling their contact lenses. Glass shards can lodge in the surface of the eye and cause lacerations. 9. Keep hands away from face. Tiny splinters from the fibers can penetrate the soft skin on the face and be very difficult to remove. 10. Make sure that equipment working on electrical power is grounded properly. 11. Never handle optical trainer kit with wet hand.
22	Advanced Communication system (EC-8002)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed. 2. First aid box is available in department. 3. A fire extinguisher is available in floor. 4. Make sure mobile is switched off before entering lab. 5. User instruction manuals are provided for experiments. 6. Make sure that equipment working on electrical power is grounded properly. 7. Properly handlings of electronic components and kits are required. 8. Equipment should be placed properly after completion of experiments. 9. Student should aware about the operation of knobs of the measuring instruments.
23	TV & Radar Engineering Lab (EC-8003)	<ol style="list-style-type: none"> 1. Do's and don'ts are displayed 2. First aid box is kept in department. 3. A fire extinguisher is available in floor. 4. Clean and structured laboratories are maintained. 5. Use of cell phones is strictly prohibited. 6. User instruction manuals are provided for experiments. 7. The switching of power supply has been handled only by authorized person. 8. Wear hand gloves while handling TV trainer kits. 9. Equipment should be placed properly after completion of experiments.

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24	Project Lab (EC-8004)	<ol style="list-style-type: none">1. Do's and don'ts are displayed2. First aid box is kept in department.3. A fire extinguisher is available in floor.4. Clean and structured laboratories are maintained.5. Use of cell phones is strictly prohibited.6. Wear hand gloves while handling hazardous chemicals.7. Soldering process must be carried out in enclosed area to make sure that the fumes (containing lead) are contained and not released into the open air.8. Adequate care must be taken in soldering and etching process. Soldering requires heat and metal; therefore there is possibility for metal pieces to fly into your eyes. In the etching process, strong acids might emit fumes that are dangerous to your eyes.
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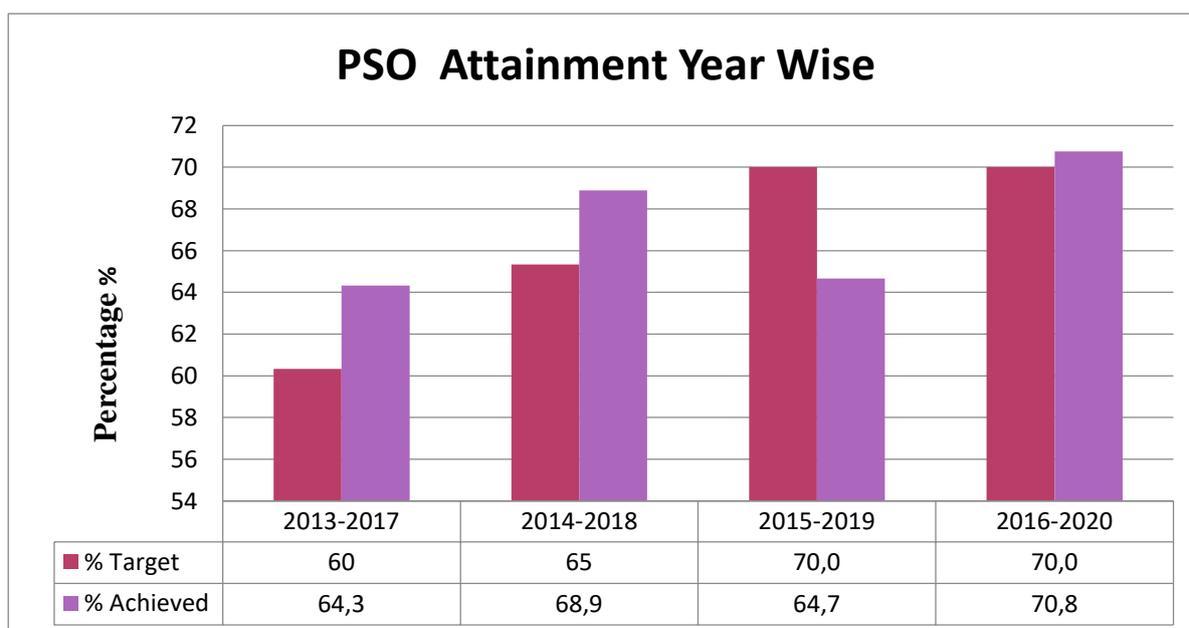
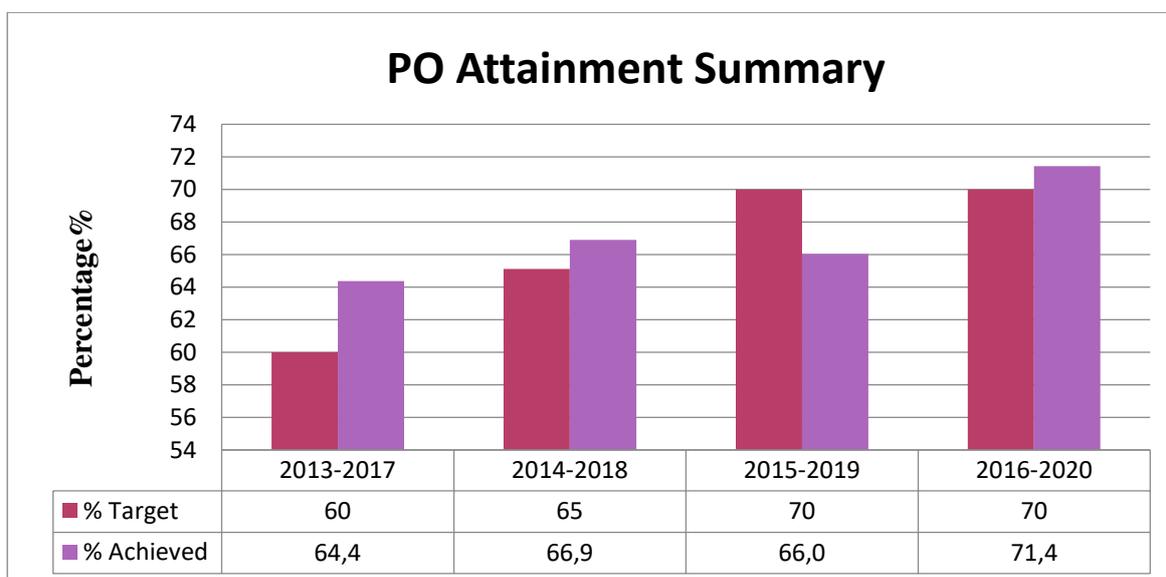
CRITERION 7	Continuous Improvement	50
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Criterion 7 CONTINUOUS IMPROVEMENT (50)

7.1. Actions taken based on the results of evaluation of each of the POs & PSOs (20)

Identify the areas of weaknesses in the program based on the analysis of evaluation of POs & PSOs attainment levels. Measures identified and implemented to improve POs & PSOs attainment levels for the assessment years.

2020-2021



[SELF ASSESSMENT REPORT]

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.2	2.1	Observations Target Not Attained <ol style="list-style-type: none"> 1. Problem in understanding of Mathematics –I & II. 2. Problem in understanding of Control System
Actions <ol style="list-style-type: none"> 1. Remedial classes are conducted in Mathematics –I & II and control system. 2. NPTEL video lecture and assignments are provided to solve the problems of Mathematics and control system. 			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.1	2	Observations Target Not Attained <ol style="list-style-type: none"> 1. Lacking in solving Analytical Problems of Mathematics –I & II. 2. Lacking in solving Analytical Problems of Control System. 3. Extra Analytical classes should be conducted in Major and Minor Projects.
Actions <ol style="list-style-type: none"> 1: Technical events were organized to improve the analytical skills. 2: More numerical problems were practice in class room. 3: More problems were assigned as part of assignment. 4: Remedial classes and NPTEL video session were conducted. 5: In house Training session was organized. 			
PO-3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	2	2	Observations Target Attained <ul style="list-style-type: none"> • Require improvement in Design/ Development solutions in the field of electronic and control system. • Extra session to be conducted for design and development in Major and Minor Projects.
Actions <ol style="list-style-type: none"> 1. NPTEL video lectures were conducted. 			

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2. For the technical understanding of project design technical events, seminar and workshop, webinar and course beyond syllabus session were organized.
3. Industrial training was organized.
4. Extra session classes were conducted for tools and projects.

PO-4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4	2.2	2.1	Observations Target Not Attained 1. Research oriented session should be organized.
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Actions

1. Emphasis given on project based learning by giving the project based assignments.
2. Guest Lectures, Webinar and seminar were conducted.
3. Virtual labs were conducted
4. Various training programs, workshops and industrial visits were organized.

PO-5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO5	2	2.1	Observations Target Attained 1. Should be more emphasis on latest tool and technology. 2. Should be increase frequency of industrial interaction program
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Actions

1. Virtual labs session were conducted
2. Practical done with help of software's (LT-Spice, MATLAB and Xilinx)
3. Webinar and seminar were conducted related to industry issues.
4. Emphasis on online certification courses.

PO-6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO6	2.2	2.4	Observation Target Attained • Improve frequency of conducting events related to
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[SELF ASSESSMENT REPORT]

			safety, legal and cultural issues
ACTION1: <ol style="list-style-type: none"> Students were motive to participate in various technical events, technical project making, social events such as Clean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society. Morning assembly scheduled every Monday to develop awareness about global awareness and social responsibilities. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional. 			
PO-7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.			
PO7	2	2.3	Observation Target Attained <ul style="list-style-type: none"> The issues of global and environmental awareness among the student should be improved.
Action <ol style="list-style-type: none"> Poster presentation competitions were organized relevance to environment and sustainable solution in which global and environmental issues are improve. Students were motive to participate in various technical events, social events such as Clean India Campaign. Tree plantation camps were organized at IES campus every year under NSS. 			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	2.2	2.2	Observation Target Attained <ul style="list-style-type: none"> Professional ethics session should be improved
Action <ol style="list-style-type: none"> Expert sessions and Motivational lectures on professional ethics were conducted by professional society like IEEE, IETE etc. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics. Webinar were conducted in Startup and Entrepreneurial Opportunities Post COVID 			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in			

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diverse teams, and in multidisciplinary settings.			
PO9	2.2	2.1	<p>Observations :</p> <p>Target Not Attained</p> <ol style="list-style-type: none"> 1. It has been observed that some students did not perform given task individual as required.
<p>Actions :</p> <ol style="list-style-type: none"> 1. Motivate students to participate more in National/State/inter and intra college tech fest sports meet, technical and cultural activities to generate the feeling of leadership and working in teams. 2. Final year projects give in group so that to enhance team spirit to work in team collaborations. 			
<p>PO-10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.</p>			
PO10	2	2.2	<p>Observations :</p> <p>Target Attained</p> <ul style="list-style-type: none"> • The speaking and writing skill should be improve
<p>ACTION:</p> <ol style="list-style-type: none"> 1. HR activities such as Group discursion, Personal interview, webinar and technical interview were conducted. 2. Alumni talks were conducted 3. Student presentations like seminar and project were organized. 			
<p>PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	2.1	2.4	<p>Observations :</p> <p>Target Attained</p> <ul style="list-style-type: none"> • More activities should be organized in Project management and finance skill. • Events should be conducted on Intellectual Property Right
<p>ACTION1:</p> <ol style="list-style-type: none"> 1. Webinar, Seminar and guest lecturers were organized to understand the principle of project management and financial. 			

[SELF ASSESSMENT REPORT]

<p>2. Industrial visits and industrial trainings were organized.</p> <p>3. Entrepreneurship & innovation session was organized to develop Entrepreneurship, project management and finance skills.</p>			
<p>PO-12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.</p>			
PO12	2	2.1	<p>Target Attained</p> <ul style="list-style-type: none"> • Improve frequency of organizing events in contemporary issues and lifelong learning.
<p>ACTION :</p> <ol style="list-style-type: none"> 1. Lecture content included new technological developmental tools and knowledge of new Products. 2. Assign projects of electronics and communication to improved lifelong learning 3. Webinar and guest lecturers were organized. 			
<p>PSO-1: The ability to create, design, and test the specify electronic communication systems for analog and digital signal processing as per industry requirements.</p>			
PSO1	2.2	2.1	<p>Observations :</p> <p>Target Not Attained</p> <ul style="list-style-type: none"> • Require more exposure of industry oriented problems.
<p>ACTION1:</p> <ol style="list-style-type: none"> 1. Students are motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies. 2. Virtual labs were included in labs for understanding design and development solutions. 3. Alumni and Expert talks were organized. 4. Remedial classes were conducted. 			
<p>PSO-2: The ability to Formulate, solves, design and implement the realistic problems of society relevance to VLSI and embedded industries.</p>			
PSO2	1.8	2.1	<p>Observations :</p> <p>Target Attained</p> <ul style="list-style-type: none"> • Improved frequency of organizing training and workshop in the field of VLSI and embedded.
<p>ACTION</p> <ol style="list-style-type: none"> 1. Various Training programs, Workshops and Industrial visits were organized 2. Practical pedagogy of teaching was adapted for Design and development of solutions. 3. Organized seminar and guest lecturers in recent technology of electronics and communication. 			

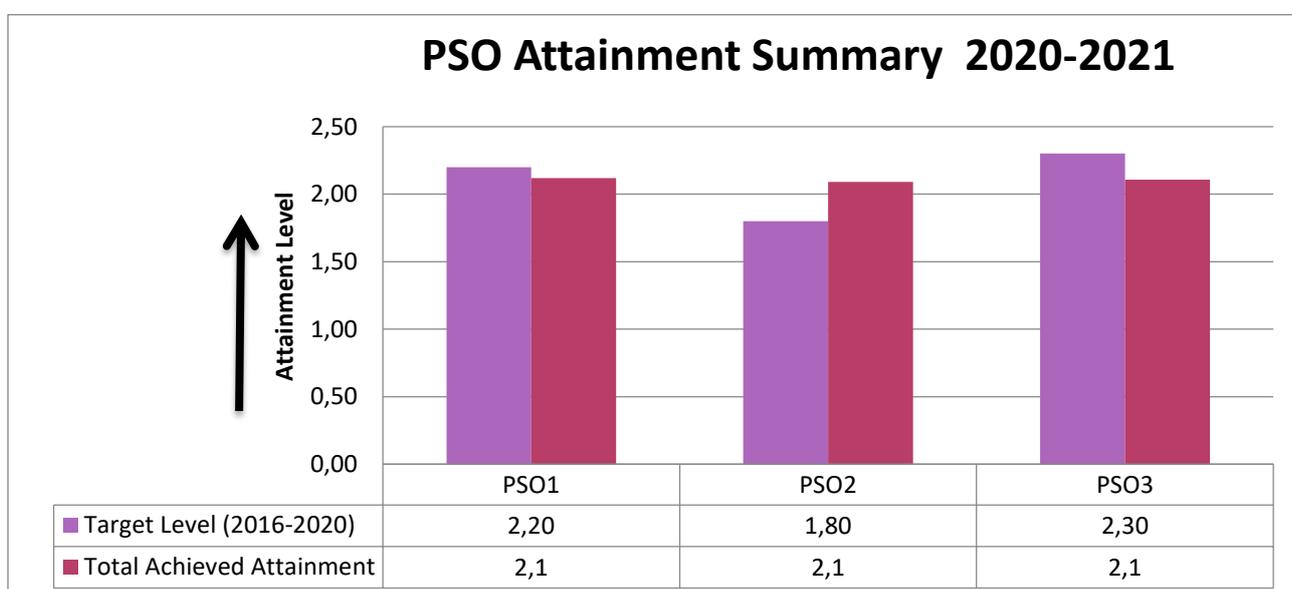
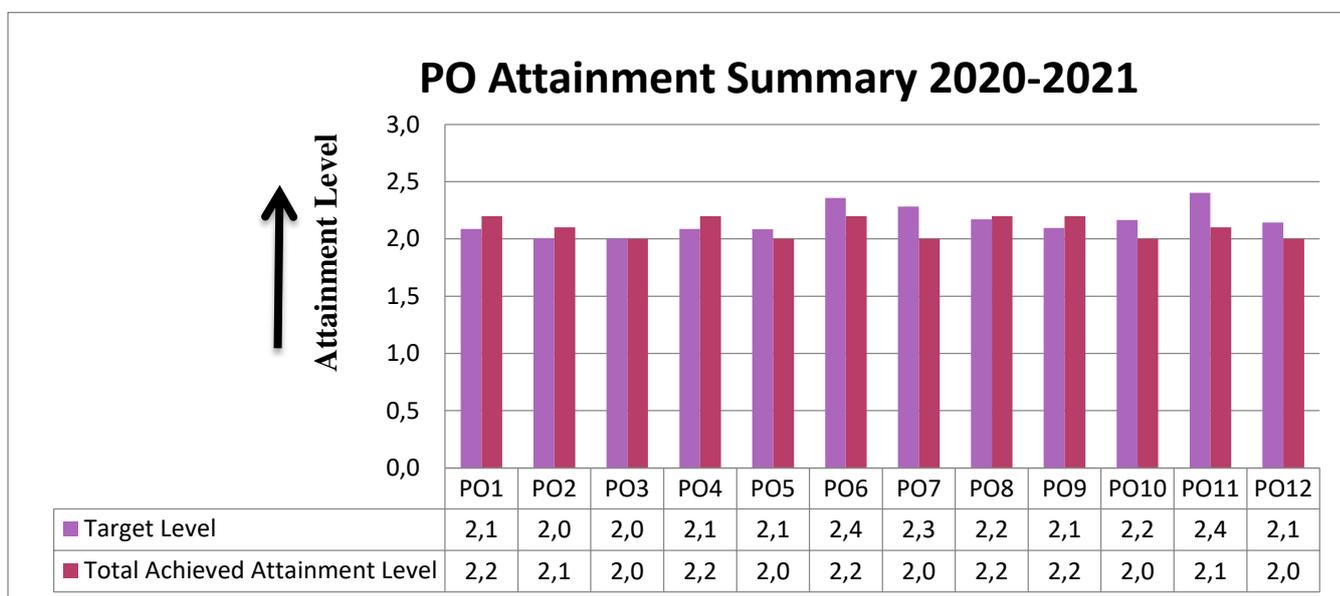
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PSO-3: Graduates will be able to Formulate, solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.

PSO3	2.3	2.1	Observations : Target Not Attained <ul style="list-style-type: none"> Lacking in adoption of changes in tools and technology in Signal and Communication System
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ACTION1:

1. Various Training programs, webinar Workshops were organized in electronics and communication engineering.
2. Career awareness programs were organized in field of electronics and communication engineering.
3. Virtual labs were included in labs for understanding tools and technology.

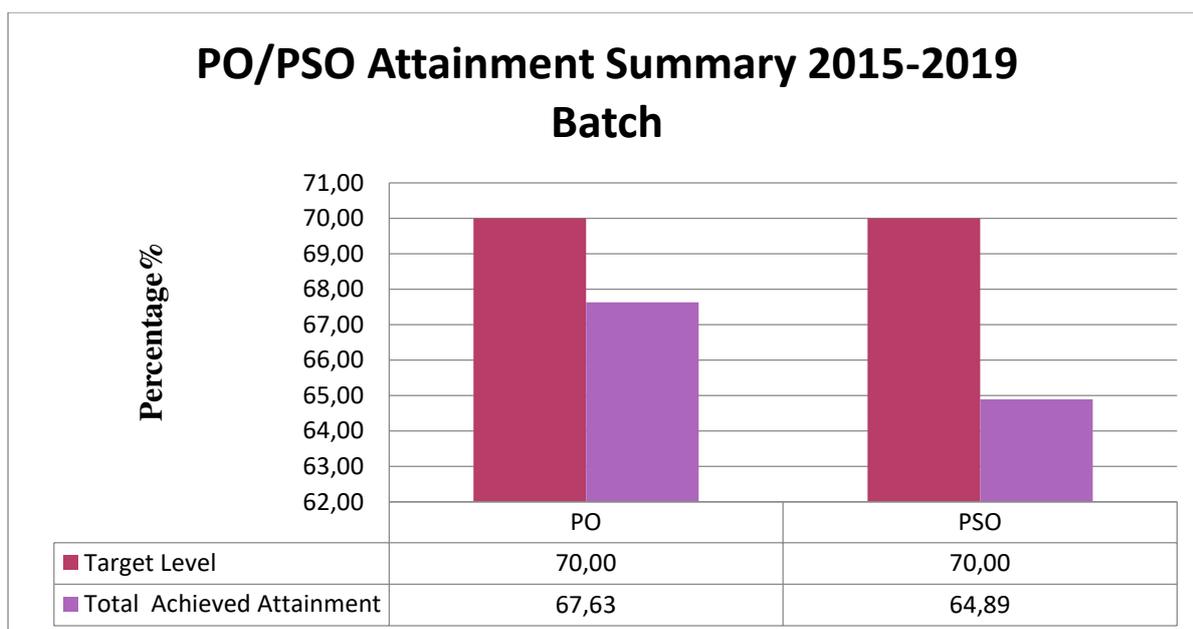
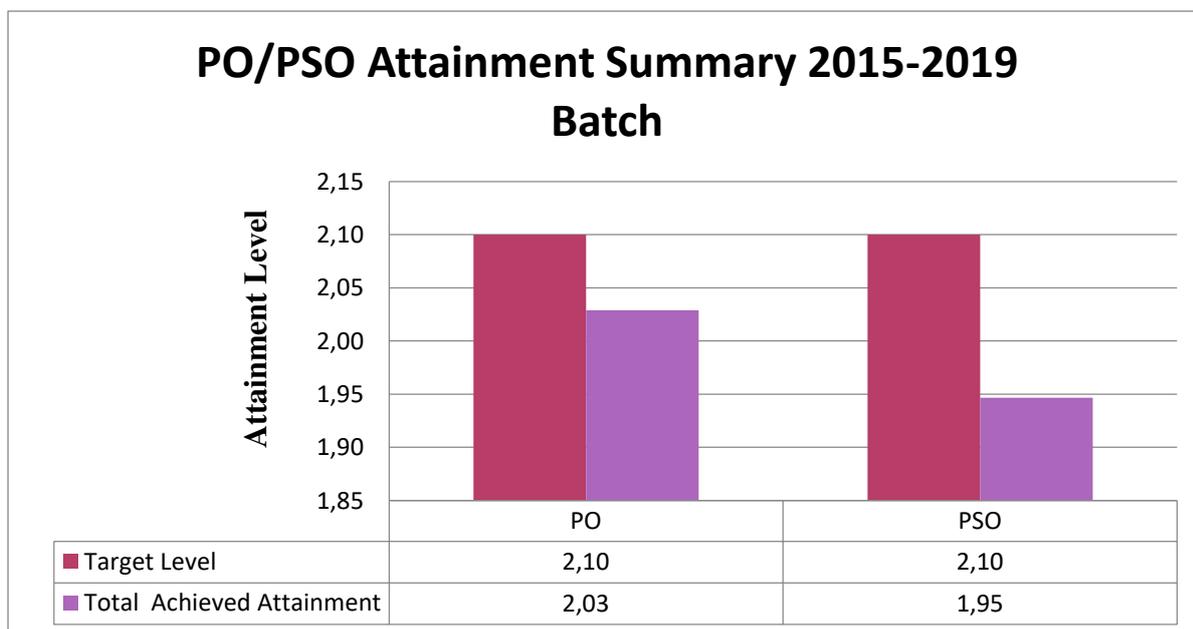


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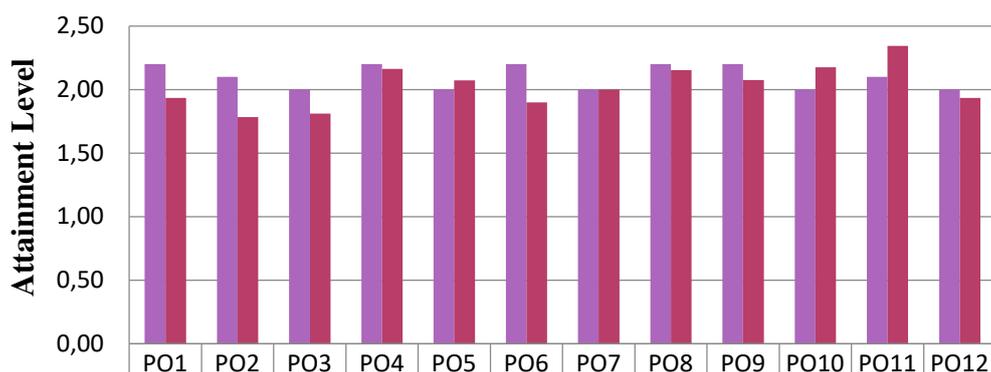
Summary PO Attainment 2019-2020 (2015-2019 Batch)

PO/PSO	Average Target Level	Average Achieved PO Attainment Level
PO	70%	67.66%
PSO	70%	64.89%



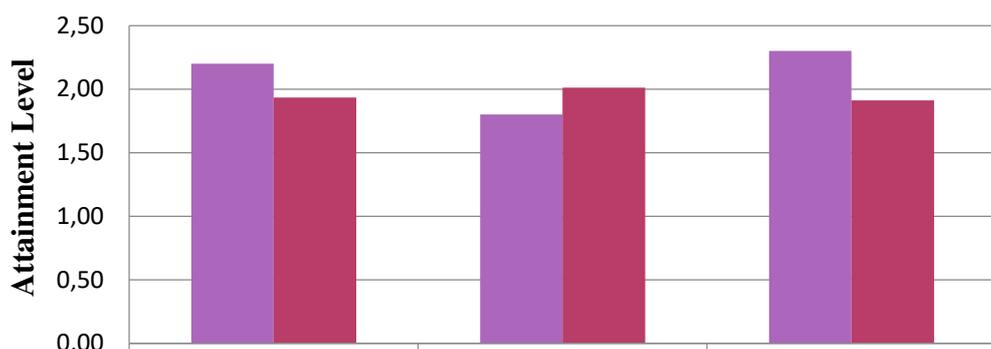
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PO Attainment Level 2019-2020(2015-2019 Batch)



Target Level	2,20	2,10	2,00	2,20	2,00	2,20	2,00	2,20	2,20	2,00	2,10	2,00
Total Achieved Attainment Level	1,93	1,78	1,81	2,16	2,07	1,90	2,00	2,15	2,07	2,18	2,34	1,93

PSO Attainment Level 2019-2020(2015-2019 Batch)



Target Level	2,20	1,80	2,30
Total Achieved Attainment Level	1,93	2,01	1,91

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.2	1.94	Observations Target Not Attained 3. Problem in understanding of Mathematics -II like the Laplace transformation, Inverse Laplace transformation and first and second order differentiation. 4. Problem in understanding concept of electronics instrumentations and bridges like CRO,LVDT, ammeter and voltmeter

[SELF ASSESSMENT REPORT]

			5. Problem in understanding the concept of root locus and bode plot.
Actions <ol style="list-style-type: none"> 3. Remedial classes and NPTEL video session were conducted to solve problems of Mathematics and control system. 4. Pedagogy approach was adopted to understand the concept of measuring instruments. 5. More problems were given for practice in mathematics subjects. 6. Electronics simulators and virtual labs were conducted for understanding the function of measuring instruments like Multi-meter, Ammeter, Voltmeter and CRO. 			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.1	1.78	Observations Target Not Attained <ol style="list-style-type: none"> 1. Need of strong analytical skill requires in Mathematics, CNTL Subjects.
Actions <ol style="list-style-type: none"> 1: Technical events were organized to improve the analytical skills. 2: More numerical problems were practice in class room. 3: More problems were assigned as part of assignment. 4: Extra lectures were conducted to solve analytical problems of Mathematics –III and CNTL. 			
PO-5: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	2	1.82	Observations Target Not Attained <ul style="list-style-type: none"> • Lacking in fulfillment of industrial requirements in designing of minor and major projects. • Basic knowledge of design is not well understood in control system, digital communication, digital signal processing. • Lacking in the writing of assemble language program of microprocessor and microcontroller
Actions <ol style="list-style-type: none"> 1. Teaching Processes include more NPTEL video lectures and board presentation. 2. For the technical understanding of project design technical events, seminar and workshop, course beyond syllabus session were organized. 3. Industrial visits and training were organized. 			

[SELF ASSESSMENT REPORT]

PO-6: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4	2.2	2.16	<p>Observations Target Not Attained</p> <ol style="list-style-type: none"> 1. Lacking in implementation of circuit design during experiment. 2. Lacking in analysis and interpretation of data in data communication and VLSI circuits. 3. Lacking in working in real time projects.
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Actions

1. Emphasis given on project based learning by giving the project based assignments.
2. Guest Lectures and seminar were conducted in academic plane to develop interest into the students towards the recent technology and real life applications.
3. Various training programs, workshops and industrial visits had been organized to develop project and problem base learning.

PO-6: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO5	2	2.07	<p>Observations Target Attained</p> <p>3. RGPV Curriculum was lacking the subjects related to latest tools.</p>
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Actions

1. For practical hands on experience, training on Embedded system was organized.
2. Practical done with help of software's (LT-Spice, MATLAB and Xilinx)
3. Emphasis prior presentation on design tools and solutions.
- 4 Training sessions with hand's on practice of modern tools were conducted.

PO-8: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO6	2.2	1.9	<p>Observation Target Not Attained</p> <ul style="list-style-type: none"> • The students are not able to apply reasoning contextual knowledge to assess safety, legal and cultural issues in real life.
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ACTION1:

1. To understand the safety concerns and social aspects, student's industrial visits and training has been organized to expand their practical knowledge.
2. Students were motive to participate in various technical events, social events such as Clean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society.
3. Morning assembly scheduled every Monday to develop awareness about global

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<p>awareness and social responsibilities.</p> <p>4. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional.</p>			
<p>PO-9: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
PO7	2	2	<p>Observation Target Attained</p> <ul style="list-style-type: none"> The issues of global and environmental awareness among the student should be improved.
<p>Action</p> <ol style="list-style-type: none"> Students were motive to participate in various technical events, social events such as Clean India Campaign, NSS/NCC and outside workshop for awareness of legal and cultural issues of society. Tree plantation camps were organized at IES campus every year. 			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			
PO8	2.2	2.14	<p>Observation Target Not Attained</p> <ul style="list-style-type: none"> Found low professional ethics & moral knowledge in industrial needs.
<p>Action</p> <ol style="list-style-type: none"> Expert sessions and Motivational lectures on professional ethics were conducted by professional society like IEEE, IETE etc. Training sessions on life skills and Professional Ethics. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics. 			
<p>PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>			
PO9	2.2	2.07	<p>Observations :</p> <p>Target Not Attained</p> <ol style="list-style-type: none"> It has been observed that some students did not perform given task individual as required. Lack of co-ordination among the team members during the project work has been observed sometimes
<p>Actions :</p> <ol style="list-style-type: none"> Motivate students to participate more in National/State/inter and intra college tech fest sports meet, technical and cultural activities to generate the feeling of leadership and working in teams. Entrepreneurship & innovation session was organized to develop Entrepreneurship and professional ethics 			
<p>PO-13: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write</p>			

[SELF ASSESSMENT REPORT]

effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	2	2.17	Observations : Target Attained <ul style="list-style-type: none"> • The communication, presentation and report writing skills are to be improved among the students.
ACTION: <ol style="list-style-type: none"> 1. HR activities such as Group discursion, Personal interview, and Technical interview were conducted. 2. Student presentations like seminar, project were organized. 			
PO-14: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			
PO11	2.1	2.34	Observations : Target Attained <ul style="list-style-type: none"> • Needed improvement in Project management and finance skill.
ACTION1: <ol style="list-style-type: none"> 1. The awareness created among the student regarding the management principles and managing projects. 2. Seminar and guest lecturers were organized to understand the principle of project management and financial. 3. Industrial visits and industrial training were organized. 4. Entrepreneurship & innovation session was organized to develop Entrepreneurship, project management and finance skills. 			
PO-15: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	2	1.94	Target Not Attained The pre final year and final year courses of the program are demonstrating the resource for contemporary issues and lifelong learning.
ACTION : <ol style="list-style-type: none"> 1. Lecture content included new technological developmental tools and knowledge of new Products. 2. Assign projects of Electronics and Communication to improved lifelong learning 3. Students were motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies and lifelong learning. 			
PSO-1: The ability to create, design, and test the specify electronic communication systems for analog and digital signal processing as per industry requirements.			

[SELF ASSESSMENT REPORT]

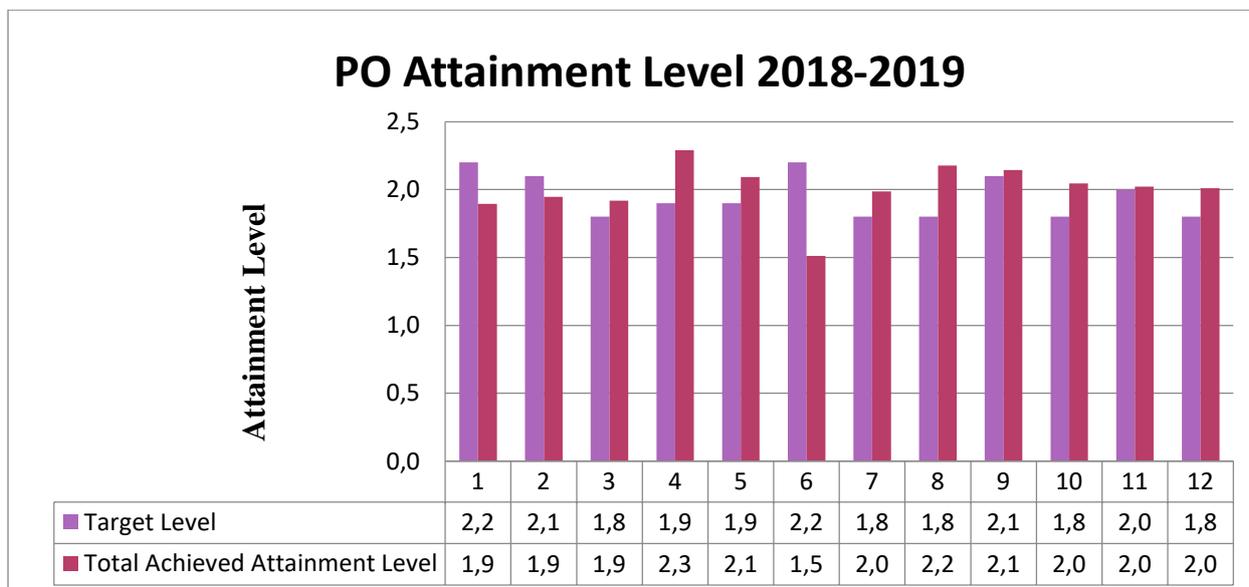
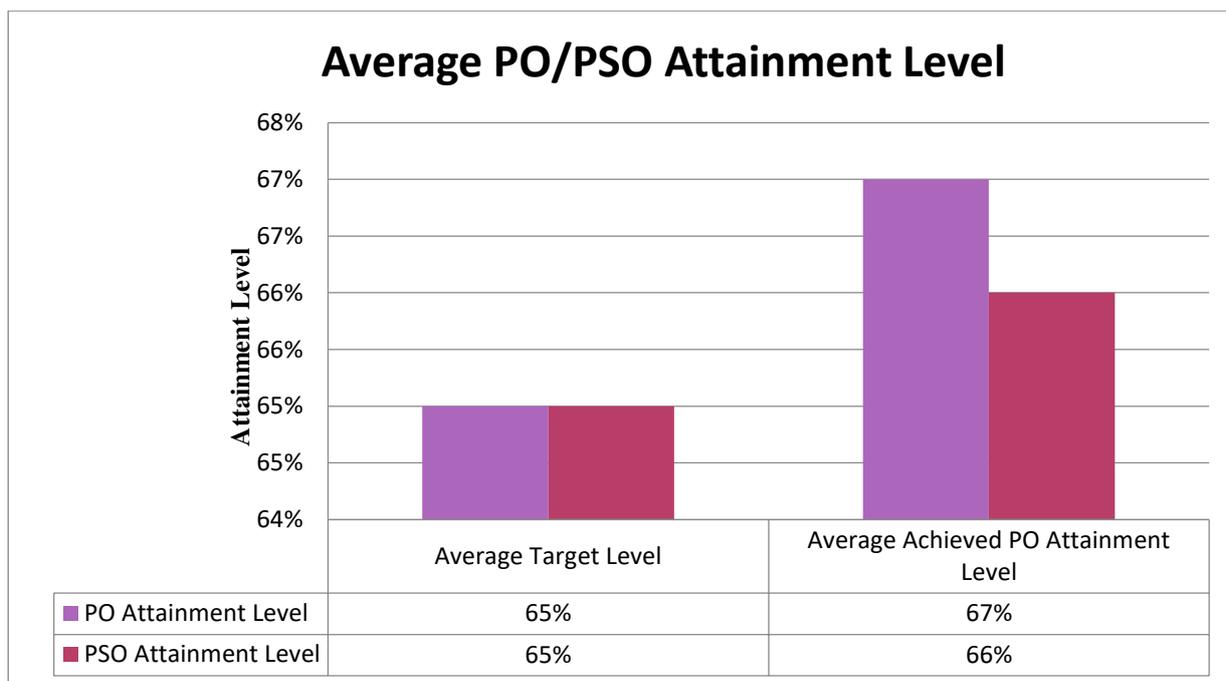
PSO1	2.2	1.93	<p>Observations : Target Not Attained</p> <ul style="list-style-type: none"> • Lacking in fulfillment of industrial requirements in designing of minor and major projects. • Basic knowledge of design is not well understood in designing and testing of electronic circuits, communication and digital signal processing.
<p>ACTION1:</p> <ol style="list-style-type: none"> 1. Students are motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies. 2. Organized workshop on design and development of electronic circuits 3. Virtual labs were included in labs for understanding design and development solutions. 4. Organized industrial visit and training. 5. Simulation based experiments were carried out in Electronics Circuit Lab. 			
<p>PSO-2: The ability to Formulate, solves, design and implement the realistic problems of society relevance to VLSI and embedded industries.</p>			
PSO2	1.8	2	<p>Observations : Target Attained</p> <ul style="list-style-type: none"> • Lacking in usage of different tools for designs, test and maintain of electronics systems, VLSI and embedded system as per as need of industries • Lacking in the writing of assemble language program of microprocessor and microcontroller
<p>ACTION</p> <ol style="list-style-type: none"> 1. Various Training programs, Workshops and Industrial visits were organized 2. Emphasis on industry oriented problems 3. Practical pedagogy of teaching was adapted for Design and development of solutions. 4. More problems were given for practice and extra classes had been conducted. 5. Organized seminar and guest lecturers in recent technology of electronics and communication. 			
<p>PSO-3: Graduates will be able to Formulate, solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.</p>			
PSO3	2.3	1.91	<p>Observations : Target Not Attained</p> <ul style="list-style-type: none"> • Lacking in updating and adoption of changes in tools and technology
<p>ACTION1:</p> <ol style="list-style-type: none"> 1. Various Training programs, Workshops and Industrial visits were organized 2. Career awareness programs and corporate lectures were organized to meet updating in field of electronics and communication engineering. 3. Integrate technology deployment with change management. 4. Expert lectures were organized 			

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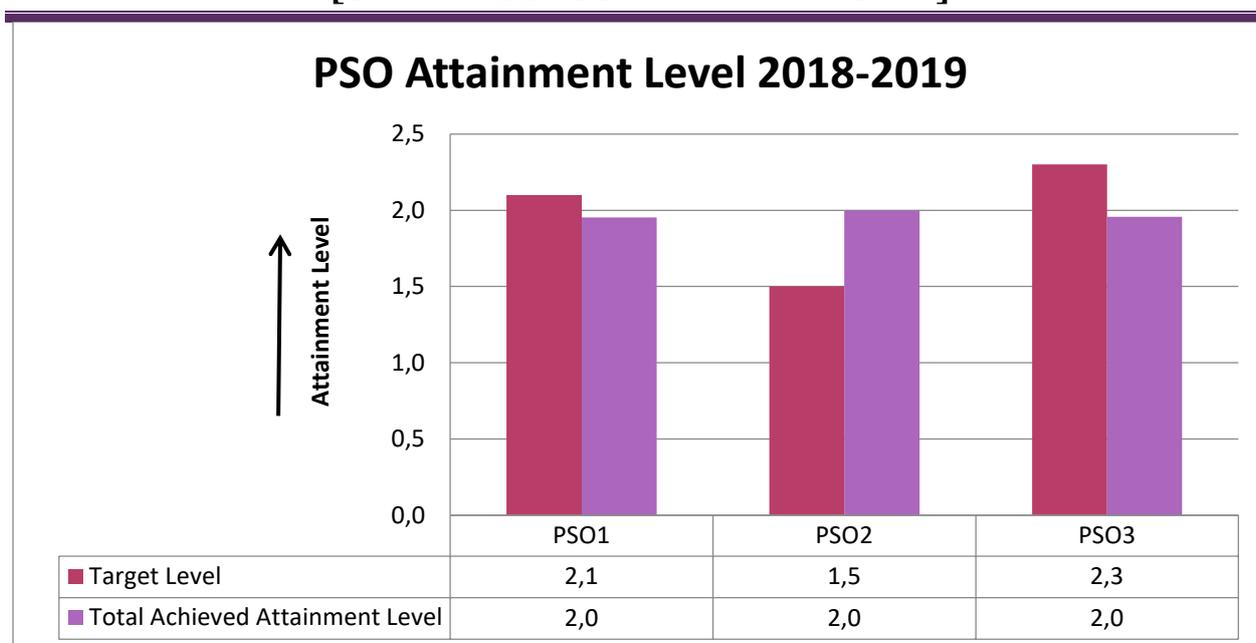
2018-2019

Summary PO Attainment 2018-2019 (2014-2018 Batch)

PO/PSO	Average Target Level	Average Achieved Attainment Level
PO	65%	67%
PSO	65%	66%



[SELF ASSESSMENT REPORT]



POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.2	1.9	<p>Observations</p> <p>Target not attained</p> <ol style="list-style-type: none"> 1. Problem in understanding and solving problems of Mathematics and Network analysis. 2. Problem in understanding concept of electronics measurement instrumentation. 3. Lack of understanding principle of electronics devices for industrial applications.
<p>Actions</p> <ol style="list-style-type: none"> 1. Remedial/Revision classes were conducted to solve problem of network analysis and Mathematics 2. Practical approach of teaching was adapted to understand the concept of measuring instruments system. 3. Organized PCB Design and utilization of electronics instruments workshop for improving practical knowledge of the students. 			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			

[SELF ASSESSMENT REPORT]

PO2	2.1	1.9	<p>Observations Target not attained</p> <ol style="list-style-type: none"> 1. Need of strong analytical skill in industrial electronics, signal system and analog circuits complex problem,
<p>Actions</p> <ol style="list-style-type: none"> 1: Industrial visits and industrial expert lectures were organized to improve the analytical skills. 2: More analytical classes were organized to improve the analytical skill in industrial electronics, Electronics instrumentations and analog circuit's subjects using NPTEL Video. 3: Extra lectures were organized for improving analytical skill about signal system and analog circuits. 			
<p>PO-3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.</p>			
PO3	1.8	1.9	<p>Observations Target attained</p> <ol style="list-style-type: none"> 1. Need improvement in solving problems of digital signal processing like mathematical analysis and filter designing. 2. Problem in design and development solution of communication system. 3. Problems in calculation of field equation of unidirectional and bidirectional antenna.
<p>Actions</p> <ol style="list-style-type: none"> 1. More problems of LTI System and filter designing were given in tutorials for practice. 2. More calculation problems of field equation of unidirectional and bidirectional antennas were given in assignment and tutorial for practice. 3. Presentation were conducted in design and development techniques of communication system. 			
<p>PO-4:Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.</p>			
PO4	1.9	2.3	<p>Observations Target attained</p> <ol style="list-style-type: none"> 1. Need improvement in understanding concept industrial elements in industrial electronics 2. Lacking in solving complex problems of VLSI circuits and system. 3. Lacking in project base learning.
<p>Actions</p>			

[SELF ASSESSMENT REPORT]

<ol style="list-style-type: none"> 1. Seminar was conducted in VLSI designing. 2. Conduction of Technical Fest and motivating students to prepare/build models. 3. Included Questions which are related to synthesis of the VLSI Circuit were included in Mid Term Papers. 4. Various Training programs, Workshops, industrial visits were organized for improving understanding concept of industrial elements in industrial electronics 			
<p>PO-5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.</p>			
PO5	1.9	2.1	<p>Observations Target attained 1. Need improvement in use of modern tools in Electronics instrumentations, Circuits analysis, digital electronics and digital signal processing.</p>
<p>Actions</p> <ol style="list-style-type: none"> 1. Various training programs, workshops and industrial visits were organized for understanding uses of modern tool in Network analysis, digital electronics and digital signal processing. 2. Virtual labs were adopted in Electronics and instrumentations, circuit analysis, digital electronics, digital signal processing to enhance uses of modern tool uses. 			
<p>PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
PO6	2.2	1.5	<p>Observation Target not attained Requirement of subjects related to solution of social issues.</p>
<p>ACTION1: 1.</p> <ol style="list-style-type: none"> 1. Students were motivated to take a part in various social events such as, Clean India Campaign and Blood donation camp. 2. Programmes were conducted on a frequent basis to create social awareness. 3. Students are encouraged to read newspapers daily to know about societal, health, safety, legal and cultural issues and share the information among other students in morning assembly. 			
<p>PO-7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
PO7	1.8	2	<p>Observation Target attained</p> <ul style="list-style-type: none"> • Knowledge of environment and global awareness needs to be improved.
<p>Action</p> <ol style="list-style-type: none"> 1. Students were encouraged to involve in projects related global and environmental issues. 			

[SELF ASSESSMENT REPORT]

<ol style="list-style-type: none"> 2. Students were motivated to take a part in various social events such as, Clean India Campaign and Blood donation camp. 3. Industrial visits and training were organized for development of sustainable solution in field of Electronics and communication. 			
PO-8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	1.8	2	Observation Target attained The students are doing better in improving overall expertise in field of engineering but due to lack of communication ability and professional ethics some of them are lagging in real life situations.
Action <ol style="list-style-type: none"> 1. Expert lectures were arranged from industry. 2. Motivational lectures on Self Realization by class coordinators were given to the students. 3. Students were motivated to take a part in various social and technical events 			
PO-9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	2.1	2.2	Observations : Target attained While working in teams output was not up to the mark.
<ol style="list-style-type: none"> 1. Emphasis was given for making students more and more work in groups such as Projects etc. 2. Students were motivated to organize various social and technical events such as, Departmental Technical fest, Clean India Campaign, and Blood donation camp. 3. Organized industrial visit. 			
PO-10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.			
PO10	1.8	2.1	Observations : Target attained <ul style="list-style-type: none"> • Presentation and communication skills need to be improved.
ACTION: <ol style="list-style-type: none"> 1. Training was conducted to enhance various aspects of communication/technical talks by group discussions, presentations and new learning outcomes. 2. The students with good soft skills formed a group with average students and helped them out in their weak areas and sessions like aptitude and group discussions. 3. More sessions of Mock tests were conducted. 			
PO-11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.			

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PO11	2	2	Observations : Target attained <ul style="list-style-type: none"> • Study of projects according to financial analysis was required.
ACTION: <ol style="list-style-type: none"> 1. The awareness created among the student regarding the management principles, managing projects and financial issues. 2. Leadership qualities will be inculcated to students by allowing them to participate in Project expo and other events in technical symposiums. 3. Expert lectures were arranged from industry. 			
PO-12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.			
PO12	1.8	2	Observations : Target attained <ul style="list-style-type: none"> • Needed resources to enhance lifelong learning
ACTION : <ol style="list-style-type: none"> 1. Library hours are properly utilized by monitoring the students to ensure the effective use of journals, Magazines, Reference Books and internet facilities to browse and update the latest technological developments and current happenings in the industries and society 2. Value added courses are conducted to equip themselves to enhance their curriculum 3. Content beyond syllabus is incorporated to generate self-learning facilities. 4. Industrial visits, seminar and workshop were conducted. 			
PSO1: The ability to create, design, and test the specify electronic communication systems for analog and digital signal processing as per industry requirements.			
PSO1	2.1	2	Observations : Target Not attained <ul style="list-style-type: none"> • Needed industrial exposure in design and test of electronic circuits
ACTION1: <ol style="list-style-type: none"> 1. Students were motivated to take up the industrial oriented problems in project work so that they can design, analyze and find solution which gives exposure to latest technologies. 2. Industrial visits, workshop and training were organized. 			
PSO2: The ability to Formulate, solves, design and implement the realistic problems of society relevance to VLSI and embedded industries.			
PSO2	1.5	2	Observations : Target attained <ul style="list-style-type: none"> • Need improvement in Programming Skill of VLSI and embedded system

[SELF ASSESSMENT REPORT]

ACTION <ol style="list-style-type: none">1. Various training programs, workshops and industrial visits were organized in VLSI and embedded field.2. Emphasis on industry oriented problems3. More problems were given for practice and extra classes were conducted.			
PSO3: Graduates will be able to Formulate, solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.			
PSO3	2.3	2	Observations : Target not attained Improvement requires in solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.
ACTION: <ol style="list-style-type: none">1. Corporate lectures and seminars were arranged to meet required expertise in field of engineering.2. Various Training programs, Workshops and Industrial visits were organized.3. Project Based Learning is introduced in all semester to familiarize students with design concepts.4. Students were encouraged to involve in projects related global and environmental issues.			

7.2. Academic Audit and actions taken therefore during the period of Assessment (10)

A. OVERVIEW OF ACADEMIC AUDIT

Internal Audit shall be done by committee formed by IQAC of the institutions. Internal academic audit is scheduled at end of semester to review the Academic and other activities in the department. The department is expected to develop a strong outcome based approach in teaching-learning. The audit team will assess the activities involved in developing learning outcomes, design and development activities in curriculum, teaching-learning process, student learning assessment process and student engagement programs. The audit team will also assess the quality and quantity of research outcomes in the department.

[SELF ASSESSMENT REPORT]

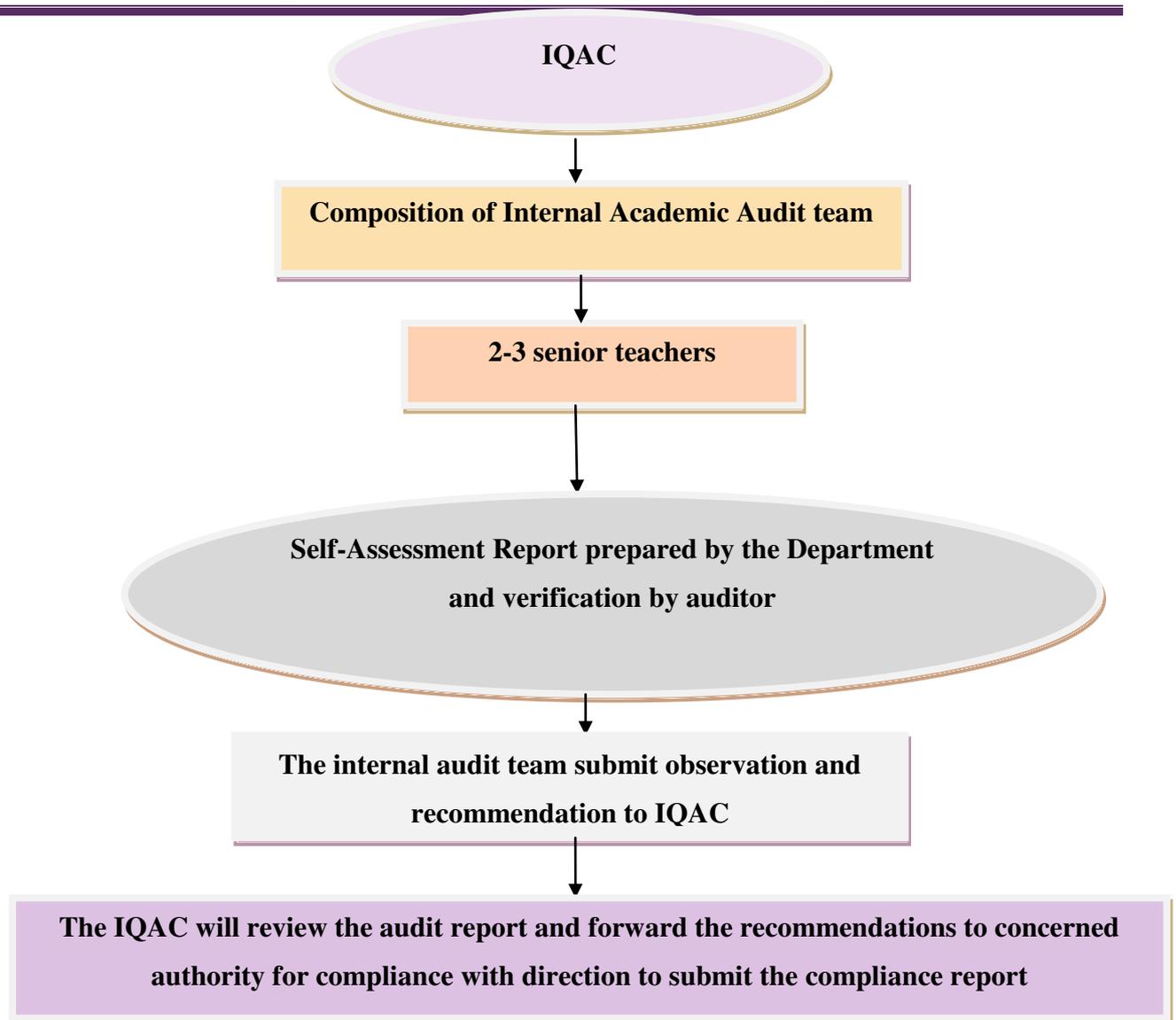


Figure 7.1 Academic audit flow chart

B. Academic Audit committee:

In the department of Electronics and Communication Engineering, the internal quality assurance committee (IQAC) of the institute forms a committee for the Academic audit process. Members of this Academic audit team consist of 2- 3 senior faculty members. The team monitors and enhances the quality of teaching & learning process and student development process, through appropriate guidelines for both faculty and students.

C. Composition of Internal Academic Audit team

The Internal Audit team usually consists of 2-3 senior teachers of the institution.

D. Goal of Audit

The team during Academic Audit process monitor the conduct of the course, adherence to the course plan, time schedule, completion of the syllabus, standard of internal tests and evaluation

[SELF ASSESSMENT REPORT]

process, inspection of labs, monitoring of student development programs and also addresses the difficulties faced by students and takes suitable actions. Following area to be audited:

1. Adherence to Academic Calendar
2. Completion of syllabus
3. Adherence to CO, PSOs, PEOs in course coverage, internal exams, assignments, practical.
4. Student feedback
5. Action taken against feedback
6. PO, PSO and CO mapping; and attainments
7. Gaps identification and action taken
8. Course beyond curriculum / Adherence to Co-curricular calendar
9. Research activities in the department
10. Placement report

E. Frequency of Audit

The Academic audit process is conducted twice in a year. One audit in each semester

F. Stages of the Academic Audit process

Stages of the academic audit process involve the following stages:

1. IQAC provide the department to fill Self-Assessment Report with evidence-based documentation.
2. Department peer review and evaluate the Self-Assessment Report
3. Internal audit by the internal audit team constitute by IQAC
4. On the basis of their observations, the internal audit team submit observations recommendations to the IQAC
5. The IQAC will review the audit report and forward the recommendations to concerned authority for compliance with direction to submit the compliance report
6. Department implement the suggestions and recommendations of the internal audit team.

G. Self-Assessment Report

IQAC shall provide the departments with Self-Assessment Report at the end of the semester after the results are declared. The department will fill the report and present it to the Internal Audit team, which would give its recommendations and observations on the reports and submit it to IQAC. It shall include all the activities of the department with supporting documents/ evidence. Give emphasis to the following points:

[SELF ASSESSMENT REPORT]

- The Course plan and Teaching plan
- Innovations implemented for the teaching, learning and evaluation
- Strategies put into practice for the implementation of Outcome-Based Learning (OBE) and PO, PSO and CO mapping
- Remedial classes/Revision classes , mentoring and counselling, programmes and activities
- Research (including Major and Minor Research), publication, consultancy, project, Tie-ups and collaboration etc.
- Seminar/ Conference/ Workshops conducted by the department as well as attended by the staff and students outside the college including paper presentation and chairing the sessions, Start-ups by students and alumni, etc
- Teacher Performance Appraisal, Feedback Analysis of teachers along with Action Taken Report.
- Best/ exemplary Practices, Green initiatives, Waste management, Swatch Barat, 'Interdepartmental competition', 'Interdepartmental cooperation', etc.
- Minutes of the department meetings, Staff and students welfare activities
- Industry interactions activity
- Alumni Association programmes, activities and interaction and the Resource mobilization through the Alumni.
- Strengths, weaknesses, Opportunities and Threats/ Challenges of the department describing initiatives to address practices that need improvement
- Follows Bloom's Taxonomy and ensures targets set by faculty are realistic
- Future plans and its implementation strategies and priority-wise plans for improvement

Following are the findings during Academic Audit Process by IQAC team in CAY (2020-2021)

AUDIT: 01

- Require to add more online practices in teaching learning process.
- Remedial classes are scheduled in reference to academic progress of the student.
- Awareness programme for impact of COVID-19 should be organized.
- How to write an effective technical paper webinar should be organized

[SELF ASSESSMENT REPORT]

- Start-up and Entrepreneurial activities should be improved
- Intellectual Property Right awareness activity should be organized.
- Job Oriented training and webinar should be improve
- Activity related to Automotive Industry should be organized.
- The uses of Virtual labs classes should be enhance.
- More emphasis is needed on the seminars, expert lecture and industrial visits.

Table 7.2.1 Action Taken and Improvement

Description of Activity
• Included in the departmental activity calendar.
• Virtual labs were conducted.
• Remedial classes were conducted.
• Organized expert lecture and workshop.
• Started model base study.
• Organized seminar, expert lecture and industrial visits.
• Innovative idea submitted by students.
• Students aware about real life problems.
• Different COVID-19 awareness programme organized.
• Seminar, guest lectures and workshop were organized
• Alumni webinars are organized
• Faculty members attended Seminars/ Workshops/ FDPs conducted by various institutions.
• Social events were organized.
• Speaking and writing communication classes were conducted
• Co-Curricular activity and department events were organized.
• Course Beyond syllabus lectures were conducted

Following are the findings during Academic Audit Process by IQAC team in CAY (2019- 20):

AUDIT: 01

- More technical activities are required to add in departmental co-curricular/ activity calendar.
- Suggestion is given to include content beyond the syllabus in few subjects (Communication System, Electronic circuits and devices, VLSI circuits and Digital signal Processing)
- For the understanding of subjects, project based learning is needed.
- The quality of the question paper should be improved.
- Require to give more emphasis on skills development programs.
- More industrial visits and Expert lectures recommended
- Measures to be taken to improve communication

AUDIT: 02

- Suggestion given to include interactive teaching modes such as PPT and video lectures for the delivery of lectures
- More emphasis is needed on the training, workshop and industrial visits.

[SELF ASSESSMENT REPORT]

- Faculty paper publication should be improved.
- Participation frequency of Faculty development program should be improved.
- More encouragement is required to motivate students towards the project base learning.
- Extra classes of Mathematics should be incorporate in a semester.
- Suggestion is given to include virtual labs in some courses.

Table 7.2.2 Action Taken and Improvement

Description of Activity
<ul style="list-style-type: none">• In Departmental Activity calendar some activities were added.
<ul style="list-style-type: none">• Virtual labs were included in Electronics circuits, Electronics instrumentation and other subjects
<ul style="list-style-type: none">• Interactive lecture methods such as Video lectures, Power point presentations were included
<ul style="list-style-type: none">• Industrial visits were organized.
<ul style="list-style-type: none">• Remedial classes were conducted.
<ul style="list-style-type: none">• Class Tests are taken after every unit completion
<ul style="list-style-type: none">• Assignment based on COs is given to the students after completion of each unit
<ul style="list-style-type: none">• The various technical events were conducted.
<ul style="list-style-type: none">• MoU with some industries for mutual exchange of expertise, to provide more exposure to the student regarding Industrial practices were taken up
<ul style="list-style-type: none">• Seminar, guest lectures and workshop were organized
<ul style="list-style-type: none">• Alumni meets/ get together are organized
<ul style="list-style-type: none">• Faculty members attended Seminars/ Workshops/ FDPs conducted by various institutions.
<ul style="list-style-type: none">• Social events were organized.
<ul style="list-style-type: none">• Speaking and writing communication classes were conducted
<ul style="list-style-type: none">• Co-Curricular activity and department events were organized.
<ul style="list-style-type: none">• Course Beyond syllabus lectures were conducted

[SELF ASSESSMENT REPORT]

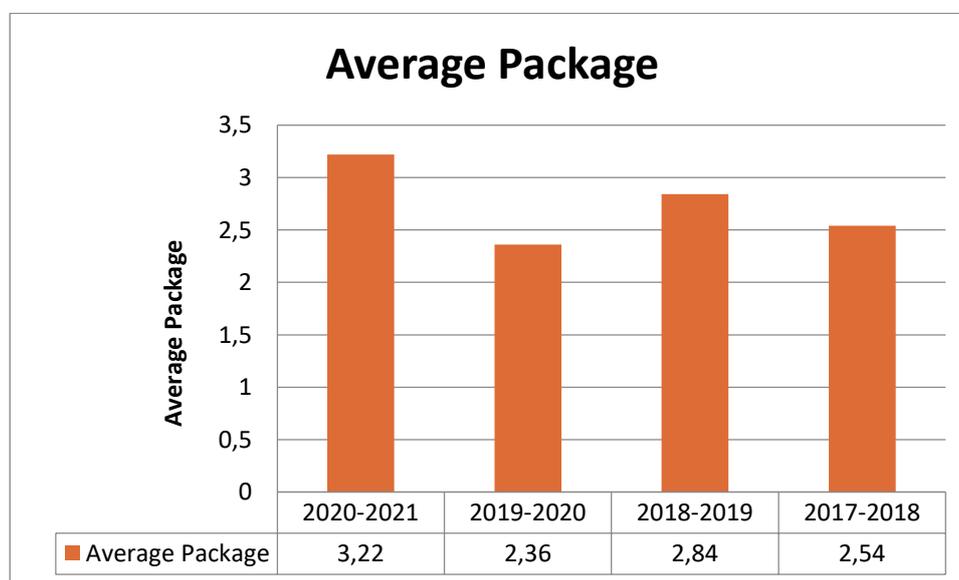
7.3 Improvement in Placement, Higher Studies and Entrepreneurship (10)

Item	LYG (2016-17)	LYGm1 (2015-16)	LYGm2 (2014-15)
Total No. of Final Year Students (N)	71	47	28
No. of students placed in companies or Government Sector (x)	51	33	21
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	2	2	0
No. of students turned entrepreneur in engineering/technology (z)	01	0	0
$x + y + z =$	54	35	21
Placement Index : $(x + y + z)/N$	0.76	0.74	0.75
Average placement = $(P1 + P2 + P3)/3$	0.75		

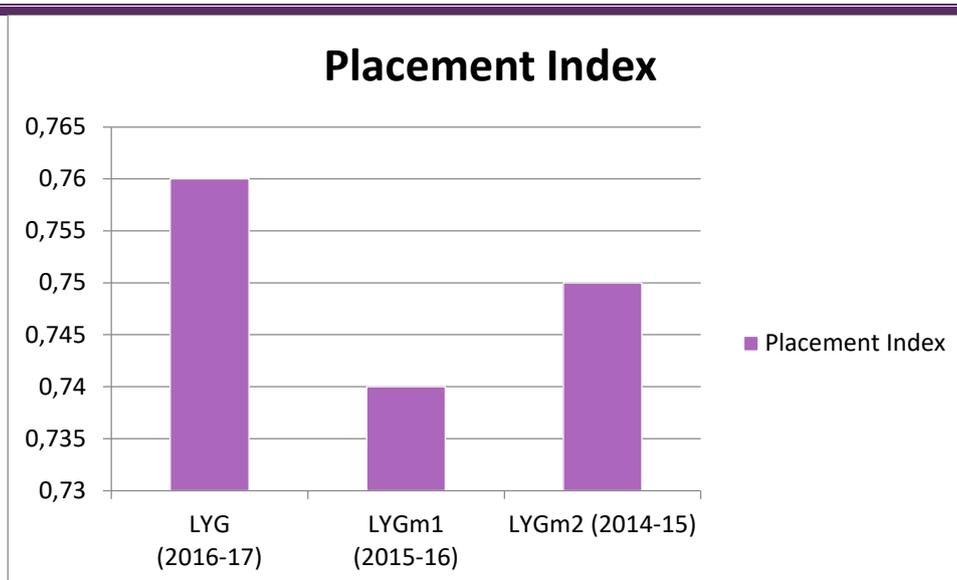
Placement details of three assessment year

Placement Summary

S.N	Academic Year	No of Selection	Average Package
1	2020-2021	51	3.22
2	2019-2020	33	2.36
3	2018-2019	21	2.84
4	2017-2018	42	2.54



[SELF ASSESSMENT REPORT]



2020-2021

Placement details in the academic year 2019-2020 (Company Wise)			
S.No	Company	No of Selection	Package
1	Artech	3	2.3
2	Capgemini	1	3
3	Ceasfire	6	4.5
4	CTS	1	4.01
5	Epic Research	1	2.75
6	HCL Technology	5	2.27
7	Infosys	2	3.36
8	Millennium Semiconductors	13	3
9	Mindtree	3	3.5
10	Pyramid IT	7	3
11	TCS	2	3.36
12	XL Dynamics	7	3.5
Total Placement		51	
Average Package		3.21	

Placement details in the academic year 2019-2020 (Company Wise)			
S.N	COMPANY NAME	NO OF STUDENTS PLACED	SALARY/ANNUM
1	Artech	5	2.3
2	Hexaware	2	3
3	KEC International Ltd	3	3.35
4	Klaxontech Inc	1	2.4
5	NRV Automation and Services	1	2.52

[SELF ASSESSMENT REPORT]

6	QuadGen Wireless Solutions	1	2.3
7	Quess Corp Ltd.	2	1.76
8	Repro India, HARAYANA	7	2.5
9	SAKTHI CADD	1	0.96
10	Scope Teelcome Pvt Ltd.	1	1.44
11	SYSTEMONEX	1	1.8
12	Tata Consultancy Services Ltd.	2	3.36
13	UTC Fire & Security	1	3.75
14	Zicom	5	2.21
Total Placement		33	2.36

Placement details in the academic year 2018-2019 (Company Wise)			
S.N	COMPANY NAME	NO OF STUDENTS PLACED	SALARY/ANNUM
1	Authbridge	2	2
2	Bhilwara infotechnology	3	1.8
3	Ceasfire	7	4
4	eClerx	5	2.3
5	Epic Research	2	2.61
6	Evolve Technology	1	2.17
7	NTT Data	1	5
Total Placement		21	2.84

Placement details in the academic year 2017-18 (Company Wise)			
S.N	MPANY NAME	NO OF STUDENTS PLACED	SALARY/ANNUM
1	47 billion technology	1	2.88
2	EPIC R	3	2.53
3	American Megha Trendes Pvt. Ltd	1	3
4	Artech	5	2.3
5	Bhilwara infotechnology	2	1.8
6	Ceasfire	7	3.04
7	COSYSN ltd. Hyderabad	1	1.8
8	eClerx	8	2.3
9	IBM, banglolre	1	3.05
10	IT Solution	3	2.4
11	wipro	1	3
12	zicom	8	2.4
Total Placement		41	2.54

Based on this table we will have to give analysis (Placement, higher studies, entrepreneurship wise and how & why such implement took place.

[SELF ASSESSMENT REPORT]

Action taken:

- Faculty members incorporate changes suggested by the academic committee, in case of any gaps are found, to ensure quality deliverables.
- Remedial classes are scheduled in reference to academic progress of the student.
- Students are encouraged to enroll with AMCAT and Co-cube portal for taking up N number of online tests.
- Mock interviews will be conducted by the faculty members.
- Special classes were conducted for slow learners regarding placement training
- Technical FDP, expert lectures, seminars were organized.
- Soft skills trainings (Aptitude training, Group discussions, etc) are conducted by institute.
- Career guidance programmes were conducted.
- Students were motivated to go for higher studies.
- Students were guided to prepare for competitive exams like GRE, GMAT and GATE.
- Industrial visits were arranged to enhanced entrepreneurship.

7.1 Improvement in the quality of students admitted to the program (10)

Assessment is based on improvement in terms of ranks/score in qualifying national level entrances tests (JEE Main), percentage of Physics, Chemistry and Mathematics marks in 12th standard and percentage marks of the lateral entry student.

Item		CAY (2020-21)	CAYm1 (2019-20)	CAYm2 (2018-19)
National Level Entrance Examination (JEE MAIN)	No. of Students admitted	6	20	19
	Opening Score/Rank	163000	149484	130050
	Closing Score/Rank	939294	1084326	939404
Lateral entry details (DIPLOMA PERCENTAGE)	No. of Students admitted	-	23	27
	Opening Score/Rank	-	843	972
	Closing Score/Rank	-	3041	3604
Average CBSE/Any other Board Result of admitted Students (Physics, Chemistry & Mathematics)		33	99	100

[SELF ASSESSMENT REPORT]

CRITERION 8	First Year Academics	50
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8.1. First Year Student-Faculty Ratio (FYSFR) (5)

Assessment = $(5 \times 20) / \text{Average FYSFR}$ (Limited to Max. 5)

1. Civil Engineering (120)
2. Computer Science Engineering(180)
3. Electronics and Communication Engineering(120)
4. Electrical and Electrical Engineering(120)
5. Mechanical Engineering(120)

Year	Number of Students (Approved Intake Strength)	Number of faculty members (Considering Fractional Load)	FYSFR	Assessment = (5 x 20)/ FYSFR (Limited to Max 5)
2020-2021	660	40	17	5.00
2019-2020	660	39	17	5.00
2018-2019	660	36	18	5.00
Average	660	38	17	5.00

Data for first year courses to calculate the FYSFR:

[SELF ASSESSMENT REPORT]

8.2. Qualification of Faculty Teaching First Year Common Courses (5)

Assessment of qualification = $(5x + 3y)/RF$, x = Number of Regular Faculty with PhD, y = Number of Regular Faculty with Post-graduate qualification RF = Number of faculty members required as per SFR of 20:1, Faculty definition as defined in 5.1

Year	X	Y	RF	Assessment of faculty qualification $(5X + 3Y)/RF$
	(No of Regular Faculty with PhD)	(No of Regular Faculty with PG Qualification)	(No of Faculty as per SFR of 20:1)	
2020-2021 (CAY)	13	31	33	4
2019-2020 (CAYm1)	11	32	33	4
2018-2019 (CAYm2)	8	28	33	3
Average Assessment	10.7	30.3	33.0	4

[SELF ASSESSMENT REPORT]

S. No.	Name	PAN No	Qualification	Area of Specialization	Designation	Date of Joining	Date on which Designated as Professor/ Associate Professor	Currently Associated (Y/N)	Nature of Association (Regular/Contract/ Adjunct)	If contractual mention Full time or Part time	Date of Leaving (In case Currently Associated is "No")
1.	Dr. VINEETA JAIN	AEJJPJ5862Q	PH.D	PHYSICS	PROFESSOR	24/08/15	-	Y	Regular	-	-
2.	Dr. DHIRENDRA KUMAR GUPTA	ALBPG8333J	PH.D	PHYSICS	PROFESSOR	27/08/12	-	Y	Regular	-	-
3.	Dr. SONALI SAHA	CWDPS4671N	PH.D	PHYSICS	ASSOCIATE PROFESSOR	01/07/2020	-	Y	Regular	-	-
4.	Dr. SANGEETA JANGID	AMJPT1755E	PH.D	PHYSICS	ASSISTANT PROFESSOR	28/12/13	-	Y	Regular	-	-
5.	Mrs. PREETI PANDEY	AXRPP0500C	M.SC	PHYSICS	ASSISTANT PROFESSOR	28/03/08	-	Y	Regular	-	-
6.	DR. ALKA RANI	GYDPS2665Q	PH.D	PHYSICS	ASSISTANT PROFESSOR	14/01/19	-	Y	Regular	-	-
7.	Dr. PREETI CHINCHOLIKAR	ASWEC5687	PH.D.	CHEMISTRY	PROFESSOR	01/08/2020	-	Y	Regular	-	-
8.	Dr. AMAR SINGH THAKUR	ACKPT2376G	PH.D., M.SC	CHEMISTRY	ASSOCIATE PROFESSOR	26/07/08	-	Y	Regular	-	-

[SELF ASSESSMENT REPORT]

9.	Dr. RASHMI SHRIVASTAVA	DHZPS7626R	PH.D.	CHEMISTRY	ASSISTANT PROFESSOR	14/08/15	-	Y	Regular	-	-
10.	Ms. SAVITRI SINGH	CMNPS4192J	M.SC.	CHEMISTRY	ASSISTANT PROFESSOR	07/01/12	-	Y	Regular	-	-
11.	DR. TAJINDER MAJITHIA	ATBPM1885H	PH.D.	CHEMISTRY	ASSISTANT PROFESSOR	01/07/19	-	Y	Regular	-	30.4.21
12.	MR. PRAMOD KUMAR SAKET	EZKPS4252P	M.SC.	PHYSICS	ASSISTANT PROFESSOR	17/08/19	-	Y	Regular	-	-
13.	Dr. GAURAV SHARMA	CLOPS4648M	P.HD	MATHS	ASSOCIATE PROFESSOR	01/07/2019	-	Y	Regular	-	-
14.	Dr. ARCHANA SINGH JADON	CIEPS2569E	P.HD.	MATHS	ASSOCIATE PROFESSOR	01/08/2020	-	Y	Regular	-	-
15.	Mrs. SARITA TRIPATHI	ARDPT9850F	M.SC.	MATHS	ASSISTANT PROFESSOR	07/01/10	-	Y	Regular	-	-
16.	Ms. SUJATA KUMBHARE	DMLPK0154D	M.SC.	MATHS	ASST PROFESSOR	10/05/13	-	Y	Regular	-	-
17.	Mrs. SIMRAN CHHABRA	AQVPC4574E	M.SC., M.PHILL	MATHS	ASST PROFESSOR	26/08/15	-	Y	Regular	-	-
18.	MR. DHIRAJ DIWEDHI	ALAPD1241K	M.SC.	MATHS	ASST PROFESSOR	04/09/17	-	Y	Regular	-	-
19.	MR. SACHIN DEV KUSHWAHA	CGJPK2956E	M.SC., M.PHILL	MATHS	ASST PROFESSOR	16/08/18	-	Y	Regular	-	-

[SELF ASSESSMENT REPORT]

20.	Ms. POOJA RANA	DAAPR0980K	M.SC.	MATHS	ASST PROFESSOR	31/07/17	-	Y	Regular	-	-
21.	MS. BHAVANA SHRIVASTAVA	CEWPS3370F	M.SC.	MATHS	ASST PROFESSOR	17/08/19	-	Y	Regular	-	-
22.	Dr. VANDANA VAISHNAV	AFSPV9496A	PH.D.	COMM.SKILLS	PROFESSOR	01/08/20	-	Y	Regular	-	-
23.	Ms. RUMEET BHATIA KAUR	AOQPB1546E	MA	COMM.SKILLS	ASST PROFESSOR	23/10/07	-	Y	Regular	-	-
24.	Ms. SHWETA TRIPATHI	ANUPT9397E	MA	COMM.SKILLS	ASST PROFESSOR	09/01/10	-	Y	Regular	-	-
25.	Ms. RICHA PANDEY	BBSPR6722A	MA	COMM.SKILLS	ASST PROFESSOR	16/01/10	-	Y	Regular	-	-
26.	Dr. UJJAWALA OJA	AAOPO2063R	PH.D.	COMM.SKILLS	ASST PROFESSOR	01/07/2020	-	Y	Regular	-	-
27.	Ms. ANKITA GHOSH	CFKPW5752D	MA	COMM.SKILLS	ASST PROFESSOR	05/08/2020	-	Y	Regular	-	-
28.	Mr. VIJAY DHOTE	BEZPD3889J	M.Tech	CSE	Asst Professor	16/08/2018	-	Y	Regular	-	-
29.	Mr. SUDHEER LODHI	CHDPK7032E	M.Tech	CSE	Asst Professor	16/08/2018	-	Y	Regular	-	-

[SELF ASSESSMENT REPORT]

30.	Ms. ANKITA SINGH	CPUPS3283N	M.TECH	CSE	Asst Professor	14/08/2020	-	Y	Regular	-	-
31.	Mr. ASHISH PATHAK	BRMPP4718A	M.Tech	CSE	Asst Professor	01/07/2019	-	Y	Regular	-	-
32.	Mr. ASHISH RAGHUWANSHI	BVTPR6094J	M.Tech	EC	Asst Professor	25/06/2014	-	Y	Regular	-	-
33.	Mr. MAHAVIR KASHYAP	DWGPK2721F	M.Tech	Power System	Asst Professor	09/08/2017	-	Y	Regular	-	-
34.	Mr. SWAPNIL GUPTA	ARKPG6001A	ME	Power System	Asst Professor	01/08/2018	-	Y	Regular	-	-
35.	MR. NEERAJ AGARWAL	AIFPA5170N	M.TECH	MECHANICAL ENGINEERING	ASSOCIATE PROFESSOR	22/10/2012	-	Y	Regular	-	-
36.	MR.ARVIND AHIRWAR	AYMPA8095K	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	20/07/2015	-	Y	Regular	-	30/06/21
37.	MR. MANOJ MISHRA	BUAPM5043A	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	16/08/2018	-	Y	Regular	-	30/06/21
38.	MR. ASHISH SAHU	FUQPS3583D	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	06/09/2018	-	Y	Regular	-	-
39.	Mr. MAHENDRA KUMAR	EJLPK8453D	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	16/08/2018	-	Y	Regular	-	-
40.	MR. DHRUVRAJ SINGH	GECPS4997Q	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/07/2019	-	Y	Regular	-	-
41.	Ms. PRAGATI GAJBHIYE	BMIPG7271E	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	01/07/2019	-	Y	Regular	-	-

[SELF ASSESSMENT REPORT]

42.	MR. HARSHIT SHRIVASTAVA	FRZPS3998L	M.TECH	MECHANICAL ENGINEERING	ASSISTANT PROFESSOR	18/03/2020	-	Y	Regular	-	-
43.	Mr. VIKESH KUMAR MEWADA	BETPM8744K	M.TECH	CIVIL ENGINEERING	ASSISTANT PROFESSOR	01/08/2017	-	Y	Regular	-	-
44.	Mr. DHANESH KHALOTIA	CLXPK3685F	M.TECH	CIVIL ENGINEERING	ASSISTANT PROFESSOR	05/09/2018	-	Y	Regular	-	-

[SELF ASSESSMENT REPORT]

8.3. First Year Academic Performance (10)

Academic Performance = ((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks in First Year of all successful students/10)) x (number of successful students/number of students appeared in the examination) Successful students are those who are permitted to proceed to the second year

Academic Performance	2019-2020 (CAYm1)	2018-2019 (CAYm2)	2017-2018 (CAYm3)
Mean of CGPA or mean percentage of all successful students(X)	6.98	5.9	6.35
Total Number of successful students(Y)	89	48	74
Total Number of students appeared in the examination(Z)	97	55	89
API (x*(y/z)	6.40	5.15	5.28

Total Average API: 5.61

[Academic Year of 2020-2021, 2019-2020, 2018-2019]

8.4. Attainment of Course Outcomes of first year courses (10)

8.4.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done (5)

A) We are following the Assessment Process to evaluate the student's Academic Performance

- ✓ Two Mid-Semester exams for maximum marks of 20 are conducted. The average of these two internal marks is taken for final internal assessment marks.
- ✓ 3 to 5 assignments given for evaluation of student's performance.
- ✓ The performance of every student in internal assessment with respect to the COs is recorded.
- ✓ End- semester University examination performance of students for the maximum mark of 70 is considered for external exam performance.
- ✓ The summation of these two performances is considered as cumulative assessment for a prescribed course outcome.

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- ✓ For laboratory assessment, the performance of a student in conduct of lab (10 marks), final lab internal test (10 marks) and external lab exam (30 marks) is considered.

➤ **Evaluation Scheme:**

Table: 8.1 Evaluation Components (Grading System)*

S. No	COMPONENT	MARKS		
I	INTERNAL ASSESSMENTS	30		
1	Mid Semester Tests			20
2	Quiz/ Assignment			10
II	END SEMESTER EXAMINATION	70		
TOTAL		100		

Table: 8.2 Evaluation Components Practical's (Grading System)*

S. No	COMPONENT	MARKS		
I	INTERNAL PRACTICAL ASSESSMENTS	20		
1	Lab Work			10
2	Sessional / Viva-voce			10
II	END SEMESTER PRACTICAL	30		
TOTAL		50		

B. Assessment tools are categorized into two methods to assess the course outcomes as:

Direct method:

Formative and Summative assessment are used for evaluation of the internal and external marks in a theory and practical subjects, based on Mid Semester examination, unit tests, assignments, seminar, group discussion, self study, tutorials, internal viva and end semester exam. Students are awarded internal and external marks on the basis of the performance in the above-noted criteria. Projects, internal reviews are conducted and evaluated for judging the level of students' standards. To know the learning status of the students, assignments are given. At the end of the semester examinations are conducted by the affiliated University- RGPV, Bhopal.

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Table 8.3: Direct Assessment Method

Direct Assessment Method		
S. No	Assessment Processes	Method Description
1.	Internal Assessment Test, Assignments, Quizzes, Internal Viva	Formative and Summative Assessment are used for evaluation of the Internal and external marks in theory and practical subjects, based on Mid semester examination, unit tests, assignments, seminar, group discussion, self study and tutorials generally conducted in between and on completion of course. An improvement test is conducted for those students who score very less marks in internal assessment before the end of the semester to give an opportunity to such students to improve their internal Assessment Marks. It is a metric to continuously assess the attainment of course outcomes. Average of the two Mid Semester marks, assignment marks and tutorials are taken as Internal Assessment Marks for the relevant subject.
2.	Theory / Practical Semester Examination.	Semester examinations are conducted by the affiliating University RGPV, Bhopal and the metric to assess whether all the course outcomes are attained or not are framed by the course owner. Semester Examination is more focused on attainment of course outcomes and uses descriptive exam pattern.
3.	Seminar, Presentations	Seminar in the first year will be conducted semester-wise; the student shall collect the information on the attended seminar on specialized topic(s), showing his/her understanding of the topic through presentation and viva- voce. It shall be evaluated by the committee consisting of Senior Faculty Members. The committee evaluates presentation based on following parameters: i) Presentation ii) Viva-voce

PO Assessment Tools:

We are using following PO assessment tools:

- Internal/External Evaluation as per University exam.
- Lab Experiments
- Mentoring, software skills

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- Technical Events/Workshop/conferences/Seminar/ Group discussion/Social Activities
- Course Beyond syllabus
- Problem Based Learning

Evaluation Process of Question paper setting

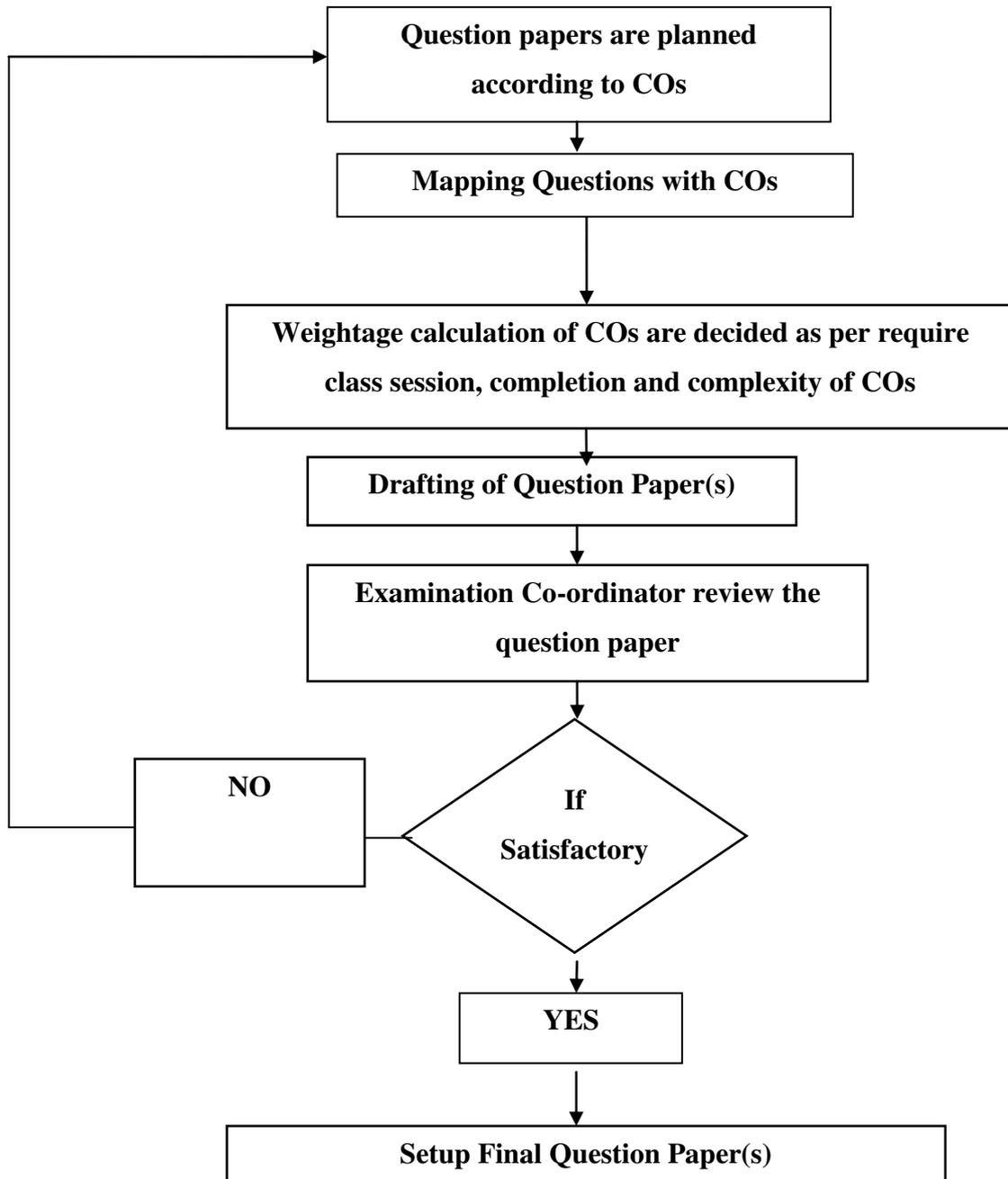


Figure 8.1 Evaluation Process

PO & CO-ATTAINMENT (2019-2020 Batch)

Direct method is used to assess the program outcomes and outcomes

- Direct attainment of COs is determined from the performances of students in 30% of Internal Evaluation (IE) and 70% of Semester End Examination (SEE)

[SELF ASSESSMENT REPORT]

- 30% of Internal Evaluation (IE) is calculated from 67% of Mid Semester Examination and 33% of Assignment/theory quizzes.
- For assessment of Mid Semester Examination marks, two mid semester are conducted and final marks is consider as an average of two mid marks.
- First Mid Semester Examination is included four questions with respect to 40% Coverage of COs.
- Second Mid semester Examination is included six questions with respect to remaining 60% Coverage of COs.
- For assessment of assignment four or five assignments are given and each assignment includes three to five questions with respect to concern COs.
- For practical COs attainment is determined from the performances of students in 40% of Internal Evaluation (IE) and 60% of End Semester Examination (SEE).
- Direct method enables faculty to judge student's knowledge and skills from their performance in the continuous assessment tests, end-semester examinations, presentations, and classroom assignments etc. These methods provide a sample of what students know and/or can do and provide strong evidence of extent of student- learning.

[SELF ASSESSMENT REPORT]

The process of attainment is described in the flow chart

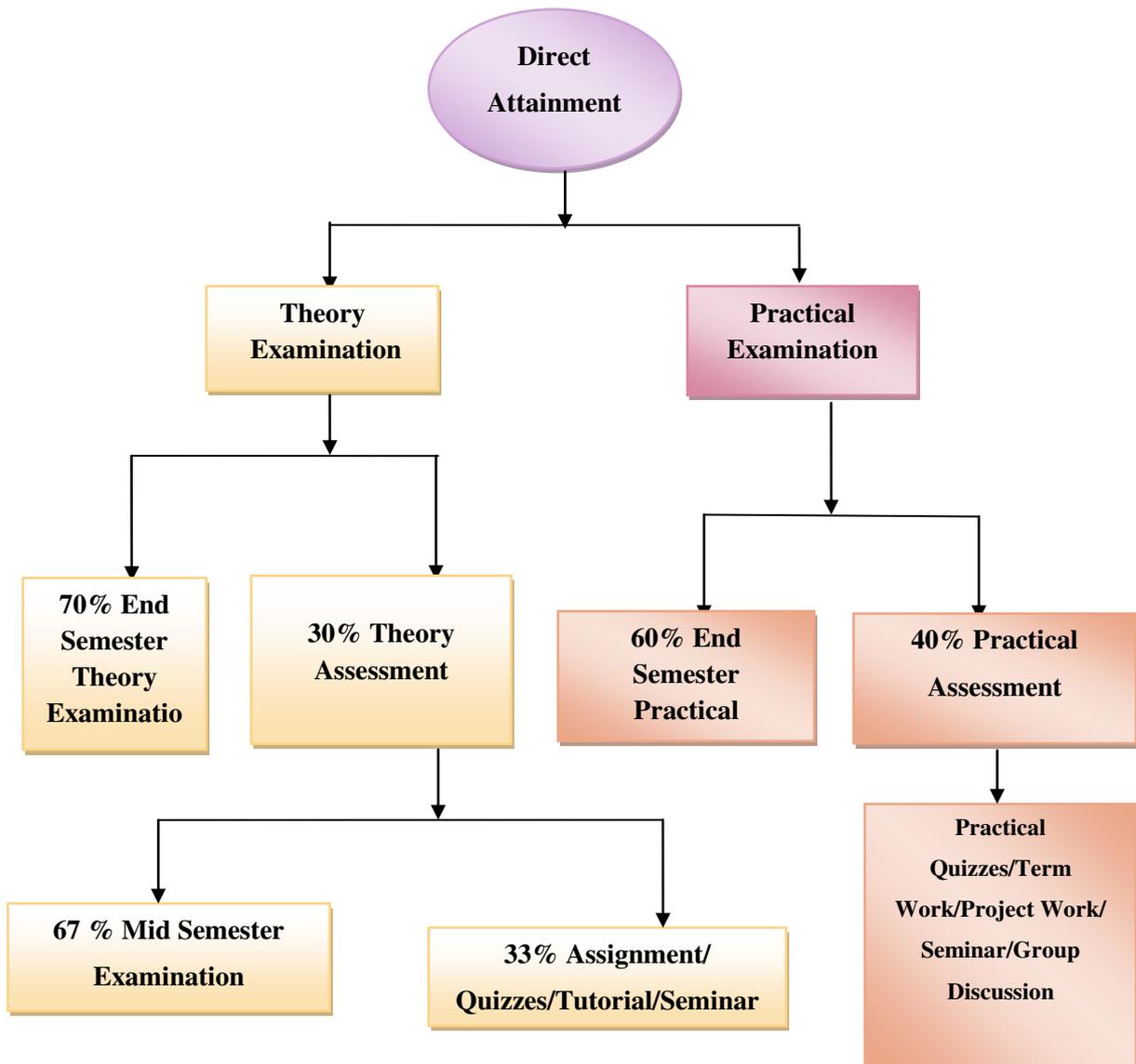


Figure 8.2 Flow Chart of Attainment Calculation

Use of Rubrics for Evaluation and Assessment of PO's

- The Course/ Program outcomes are difficult to measure e.g. assessment of critical thinking, creativity, analytical skills, and problem solving etc. Hence the Department has adopted criterion referenced rubrics to assess the POs and COs, wherever appropriate. The Rubric criteria are either developed by faculty or sometimes even with consultation with students and distributed among concerned before an assignment, project or test.
- Rubrics are used for both formative and summative assessment of students. Same rubric is used for assessing an outcome so that the faculty is able to assess student progress and maintain the record of the same for each student.

[SELF ASSESSMENT REPORT]

- The rubrics are shared with students before being evaluated so that they are aware of the performance criteria and their weight age.

Table 8.4: Internal & External Evaluation Rubrics (Theory Subject)

Rubrics	
External Evaluation	If 80% students achieve marks above 50 % marks then attained level is 3
	If 70% students achieve marks above 50% marks then attained level is 2
	If 60% students achieve marks above 50 % marks then attained level is 1
Internal Evaluation	If 80% students achieve marks above 60% marks then attained level is 3
	If 70% students achieve marks above 60% marks then attained level is 2
	If 60% students achieve marks above 60% marks then attained level is 1

[SELF ASSESSMENT REPORT]

Lab Performance Evaluation Rubric

Student Name: -----

Enrolment Number: -----

Evaluation Date: -----

S.No	Method of Evaluation	Rubrics	Exceeds expectation(3)	Meets expectation(2)	Doesn't meet expectation(0-1)	Marks
1	Conduction of Experiments	Lab Participation	Student demonstrates an accurate understanding of the lab objectives and concepts. The student can correctly answer questions and if appropriate, can explain concepts to fellow classmates. Student is eager to participate and assists when needed.	Student arrives on time to lab, but may be unprepared. Answers to questions are basic and superficial suggesting that concepts are not fully grasped.	Student tardiness or unpreparedness makes it impossible to fully participate. If able to participate, Student has difficulty explaining key lab concepts. OR Student was absent from lab	
2		Equipment connection	Student has made correct equipment/component connections as per standard circuit diagrams.	Student needed guidance to make correct equipment/component connections as per standard circuit diagrams.	Student was unable to make correct equipment/Component connections as per standard circuit diagrams.	
3		Data Recording/Collection	Student has correctly measured the relevant parameters	Student has performed incorrect measurement of relevant parameters	Student was unable to identify /measure relevant parameters	
4		Results	Accurate results have been achieved	The achieved results are not accurate but are within tolerance range	No results are achieved OR The achieved results are meaningless	
5		Troubleshooting	Student has ability to detect and	Student can detect the error but	Student was unable to detect	

[SELF ASSESSMENT REPORT]

			correct the errors	unable to correct it	the error	
6	Conduction of Experiments	Lab Report	Student demonstrates an accurate understanding of the lab objectives and concepts. Questions are answered completely and correctly. Graphs are neat, creative and include complete titles and accurate units. Errors, if any are minimal	Student has a basic knowledge of content, but may lack some understanding of some concepts. Questions are answered fairly well and/or graphs could have been done more neatly, accurately or with more complete information.	Student has problems with both the graphs and the answers. Student appears to have not fully grasped the lab content and the graph(s) possess multiple errors. OR Student turns in lab report late or the report is incomplete	
7	Ethics	Safety	Student carefully observes the safety rules and procedures during practical work	Student observes safety rules and procedures with minor deviation during practical work	Student does not care about safety rules during practical work.	
8	Ethics	Punctuality	Student was on time and stayed till the completion of task	Student was on time but wasted time outside the work place during the experiment.	Student was not on time and left class before time.	
9	Ethics	Workplace Clearance	The student uses the equipment responsibly and clears the leftovers at the work place on completion of lab work	The student has shown responsibility towards using the equipment while he didn't care about the cleanliness of work place	The student has shown irresponsibility using the equipment and didn't clear the leftovers at the workplace on completion of lab work	
10	Team Work	Research & gather information	Student has collected a great deal of information which goes beyond the basics.	Student has collected basic information related the topic.	Student has not collected any information that relates to the topic	

[SELF ASSESSMENT REPORT]

11		Fulfil team role's duties	Student has performed the duties assigned and actively assisted others.	Student has shown limited performance in the duties that are assigned	Student has not performed any duties of assigned team role.	
12		Listen to other teammates	Consistently listens and responds to other appropriately	Usually doing most of the talking rarely allowed others to speak.	Student shows an assertive behaviour and was unable to show respect towards other teammates.	
13	Conduction of Experiments	Familiarity with software	Student has full command on the basic tools of the software.	Student has limited command on the basic tools of the software.	Student has no idea how to use the basic tools of the software.	
14		Simulation Steps	Has applied all the steps in correct sequence to obtain the results.	Some steps are followed but not in proper sequence	Student has no idea regarding the steps to be followed to perform simulation	
15		Coding Skills	The code is completely functional and responds correctly producing the correct outputs.	The Code is correct with regard to syntax but required output is not correct.	The code has several syntax errors. Important parts of code are missing.	
16	Conduction of Experiments	Schematic of the Circuit	Schematic of circuit/board is made with proper connections/wiring	Schematic of circuit/board is made with only basic proper connections/wiring	Schematic of circuit/board is made with only basic connections/wiring and has several errors.	
Total Marks						

[SELF ASSESSMENT REPORT]

STUDENT SEMINAR EVALUATION RUBRIC

Student Presenter: _____

Evaluator Date: _____

Grading Scale: _____

Evaluate the student's presentation					
	Inadequate	Average	Admirable	Outstanding	
Knowledge and Content	1	2	3	4	Score
Organization of presentation	Hard to follow; sequence or information is jumpy	Most of the information presented is in sequence	Information presented in logical sequence; easy to follow	Information presented as interesting story in logical, easy to follow sequence	
Background content	Material not clearly related to topic or background dominated seminar	Material sufficient for clear understanding but not clearly presented	Material sufficient for clear understanding and effectively presented	Material sufficient for clear understanding and exceptionally presented	
Methods	Methods too brief or insufficient for adequate understanding or too detailed	Sufficient for understanding but not clearly presented	Sufficient for understanding and effectively presented	Sufficient for understanding and exceptionally presented	
Results (Figures, graphs, tables, etc.)	Some figures hard to read	Majority of figures clear	Most figures clear	All figures clear	
	Some in inappropriate format	Majority appropriately formatted	Most appropriately formatted	All appropriately formatted	
	Some explanations lacking	Reasonably explained	Well explained	Exceptionally explained	
Contribution of work	Significance not mentioned or just	Significance mentioned	Significance explained	Significance exceptionally well	

[SELF ASSESSMENT REPORT]

	hinted			explained	
Knowledge of subject	Does not have grasp of information; answered only rudimentary questions	At ease with information; answered most questions	At ease; answered all questions but failed to elaborate	Demonstrated full knowledge; answered all questions with elaboration	
Presentation Skills					
Graphics (use of PowerPoint)	Uses graphics that rarely support text and presentation	Uses graphics that relate to text and presentation	Uses graphics that explain text and presentation	Uses graphics that explain and reinforce text and presentation	

[SELF ASSESSMENT REPORT]

8.4.2. Record the attainment of Course Outcomes of all first year courses (5)

Academic year 2019-2020

Record the attainment of Course Outcomes of all courses with respect to set attainment levels

Setting of Target

Target of the course outcome has decided as per

- Average end semester marks
- Subject internal Assessment Average Marks
- Class session require for completion of course outcome

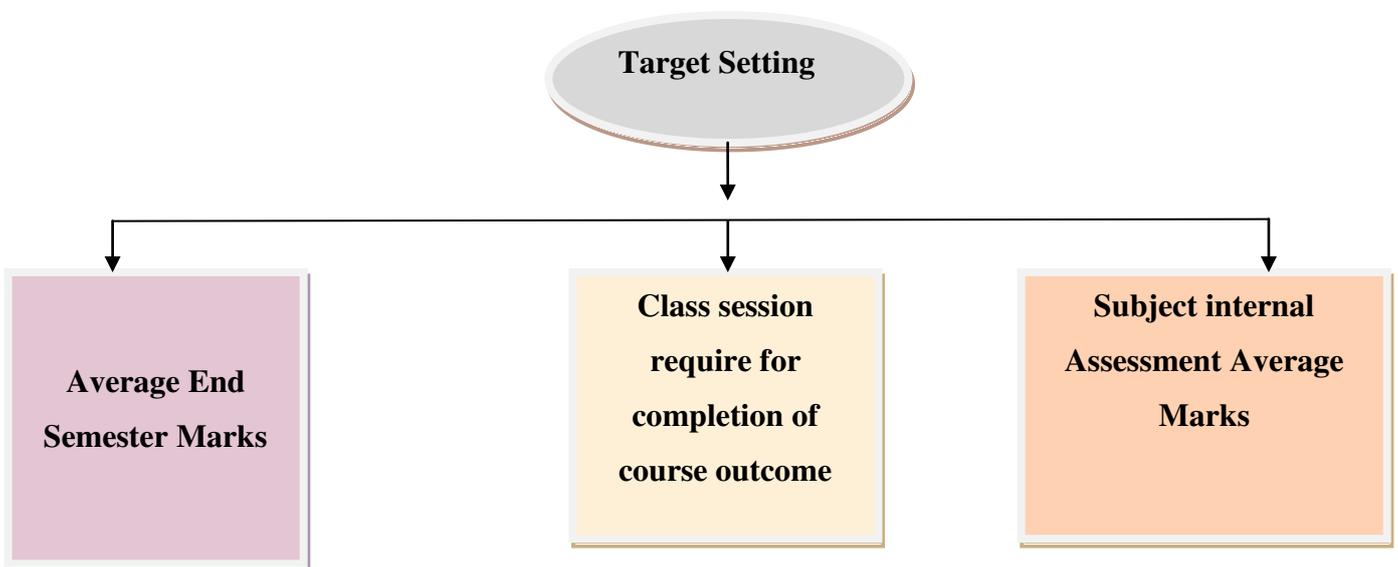


Figure. 3.2 Process of target setting

Table 8.5 Summary of CO Attainment

Academic Year	Overall Target First Year %	Average Achieved Attainment%
2019-2020	65	72.6
2018-2019	60	61.9

[SELF ASSESSMENT REPORT]

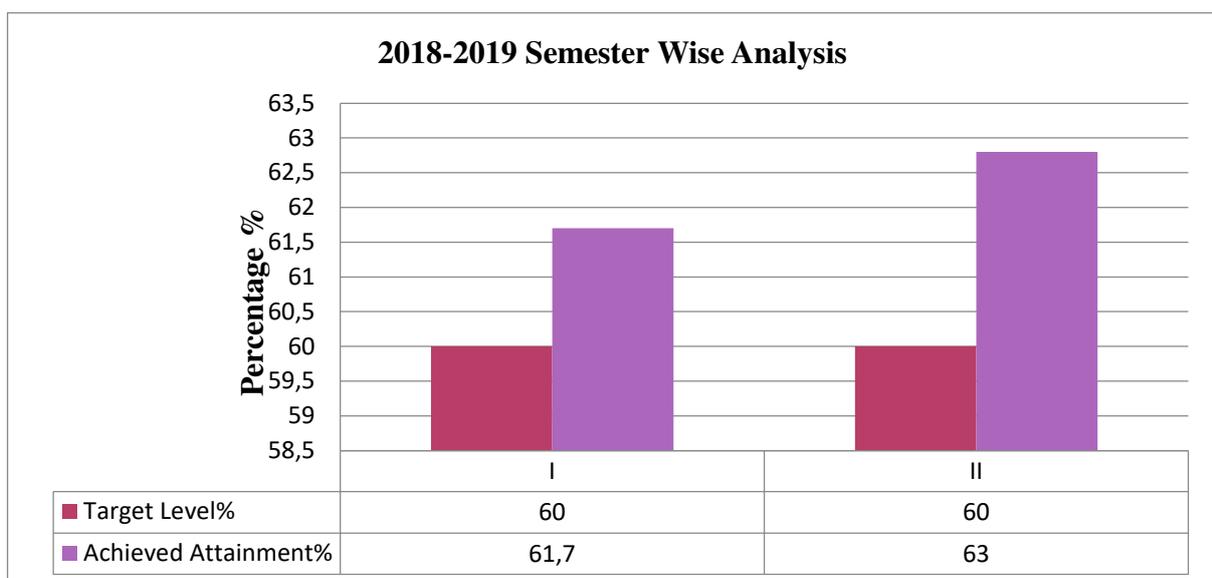
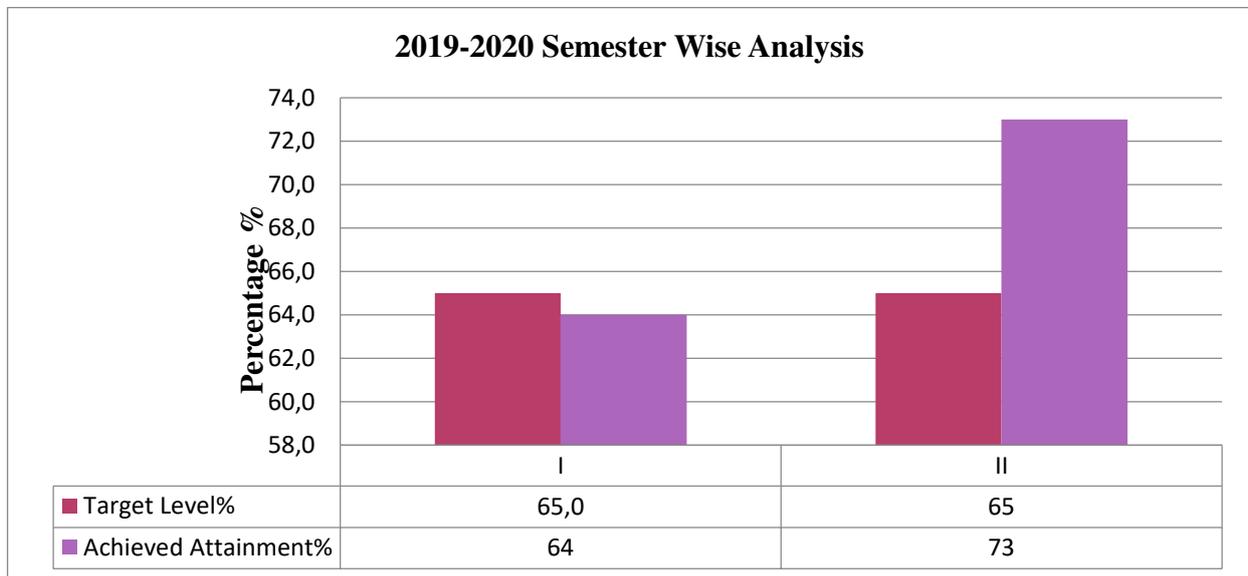
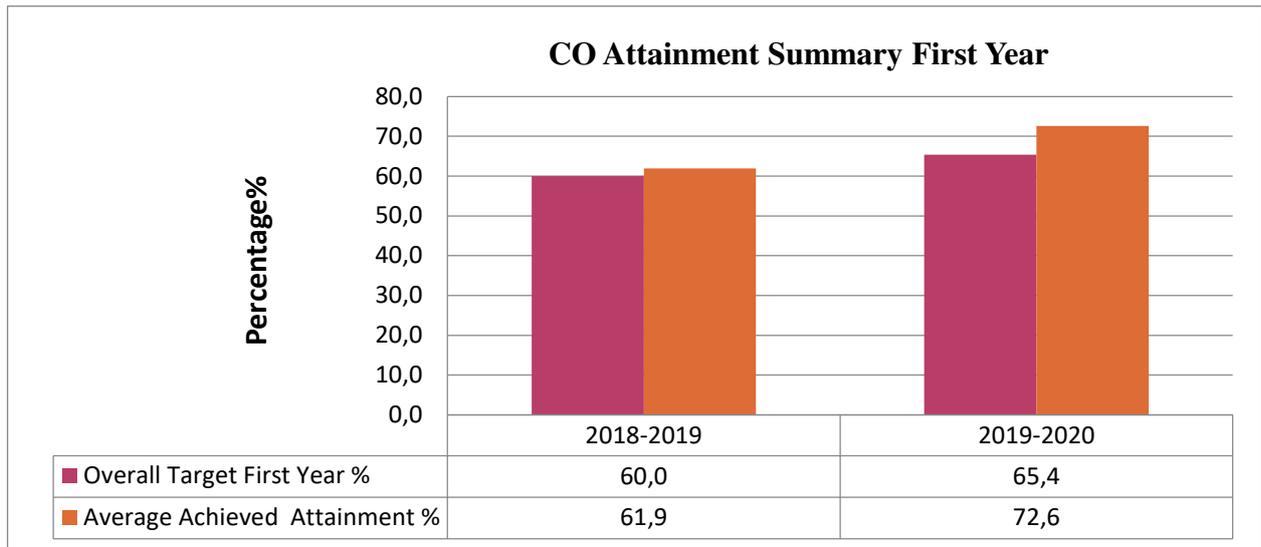


Table 8.6 CO Attainment First & Second Semester

[SELF ASSESSMENT REPORT]

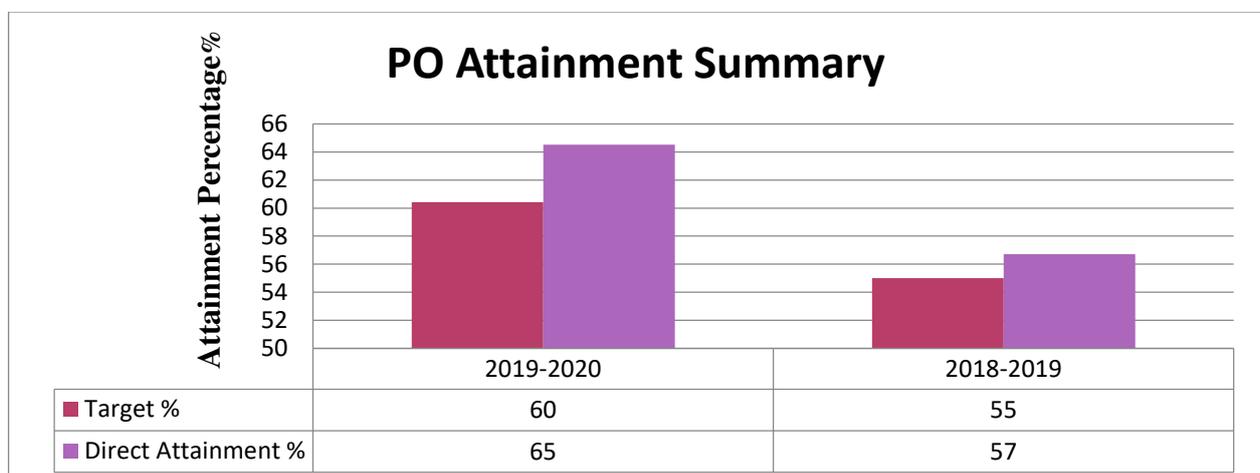
Semester	Subject	Course Outcome	Target	Achieved CO Attainment	Status
I	BT201	C201.1	1.95	2.0	0.1
		C201.2	1.95	1.9	-0.1
		C201.3	1.95	1.9	-0.1
		C201.4	1.95	1.9	-0.1
		C201.5	1.95	1.9	-0.1
	BT102	C102.1	1.3	0.9	-0.4
		C102.2	1.2	0.8	-0.4
		C102.3	1.4	0.7	-0.7
		C102.4	1.2	0.7	-0.5
		C102.5	1.3	0.8	-0.5
	BT203	C203.1	1.95	2.0	0.1
		C203.2	1.95	1.9	-0.1
		C203.3	1.95	1.9	-0.1
		C203.4	1.95	1.9	-0.1
		C203.5	1.95	1.9	-0.1
	BT204	C204.1	1.95	2.0	0.1
		C204.2	1.95	1.9	-0.1
		C204.3	1.95	1.9	-0.1
		C204.4	1.95	1.9	-0.1
		C204.5	1.95	1.9	-0.1
	BT205	C205.1	1.95	2.0	0.1
		C205.2	1.95	1.9	-0.1
		C205.3	1.95	1.9	-0.1
		C205.4	1.95	1.9	-0.1
		C205.5	1.95	1.9	-0.1
BT206P	CL206.1	2.55	3.0	0.5	
	CL206.2	2.55	3.0	0.5	
	CL206.3	2.55	3.0	0.5	
	CL206.4	2.55	3.0	0.5	
	CL206.5	2.55	3.0	0.5	
II	BT101	C101.1	1.95	2.3	0.4
		C101.2	1.95	2.4	0.5
		C101.3	1.95	2.6	0.7
		C101.4	1.95	2.8	0.9
		C101.5	1.95	3.0	1.1
	BT202	C102.1	1.35	2.3	1.0
		C102.2	1.35	2.5	1.2
		C102.3	1.35	2.9	1.6
C102.4		1.35	2.9	1.6	

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		C102.5	1.35	3	1.7
	BT103	C103.1	1.95	2.5	0.6
		C103.2	1.95	2.7	0.8
		C103.3	1.95	2.8	0.9
		C103.4	1.95	3.0	1.1
		C103.5	1.95	3.0	1.1
	BT104	C104.1	1.95	2.4	0.5
		C104.2	1.95	2.2	0.3
		C104.3	1.95	2.5	0.6
		C104.4	1.95	2.7	0.8
		C104.5	1.95	2.7	0.8
	BT105	C105.1	1.8	2.6	0.8
		C105.2	1.8	2.3	0.5
		C105.3	1.8	2.3	0.5
		C105.4	1.8	2.5	0.7
		C105.5	1.8	2.9	1.1
	BT106P	CL106.1	2.4	1.8	-0.6
		CL106.2	2.4	1.8	-0.6
		CL106.3	2.4	1.8	-0.6
		CL106.4	2.2	1.8	-0.4
		CL106.5	2.1	1.8	-0.3
	BT108P	CL108.1	2.25	1.8	-0.5
		CL108.2	2.4	1.8	-0.6
		CL108.3	2.4	2.6	0.2
		CL108.4	2.25	2.6	0.4
		CL108.5	2.25	3.0	0.8
		First year attainment	1.9	2.4	0.3

8.5 Attainment of Program Outcomes from first year courses (20)

8.5.1 Indicate results of evaluation of each relevant PO and/or PSO, if applicable(15)



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Table 8.7 PO Attainment First Year 2019-2020

2019-2020 PO Attainment Summary												
COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
BT201	1.89	1.90	0.75	0.80	-	0.83	0.80	-	3.00	-	0.80	1.89
BT102	0.80	0.80	-	-	-	0.80	-	-	-	-	-	0.82
BT203	1.89	1.89	-	-	-		-	-	3.00	-	-	0.39
BT204	1.90	1.90	-	-	-	1.91	1.90		3.00	-	-	1.91
BT205	1.90	1.90	0.80	-	3.00	-	-	-	3.00	-	-	1.92
BT206	3.00	3.00	3.00	-	3.00	-	-	-	3.00	-	-	3.00
BT101	2.56	2.61	-	-	-	-	-	-	-	-	-	2.54
BT202	2.76	2.74	2.76	-	-	-	2.76	-	-	-	-	2.74
BT103	2.75	2.74	-	-	2.78				2.74	2.75		2.81
BT104	2.43	2.44	-	-	-	-	-	-	-	-	-	2.48
BT105	2.48	2.49	-	-	2.41	-	-	-	-	-	-	2.53
BT106	1.80	1.80	1.80	-	1.80	-	-	-	1.80	-	-	1.80
BT108	2.40	2.33	2.20	-	1.80	2.60			2.35	-	-	2.31
PO Attainment level												
Direct Attainment	2.20	2.20	1.89	0.80	2.46	1.54	1.82	-	2.74	2.75	0.80	2.09
Target	2.1	2.1	1.8	1.5	1.8	1.8	1.5	1.5	2.1	2.1	1.5	1.8

[SELF ASSESSMENT REPORT]

PO Attainment First Year 2019-2020

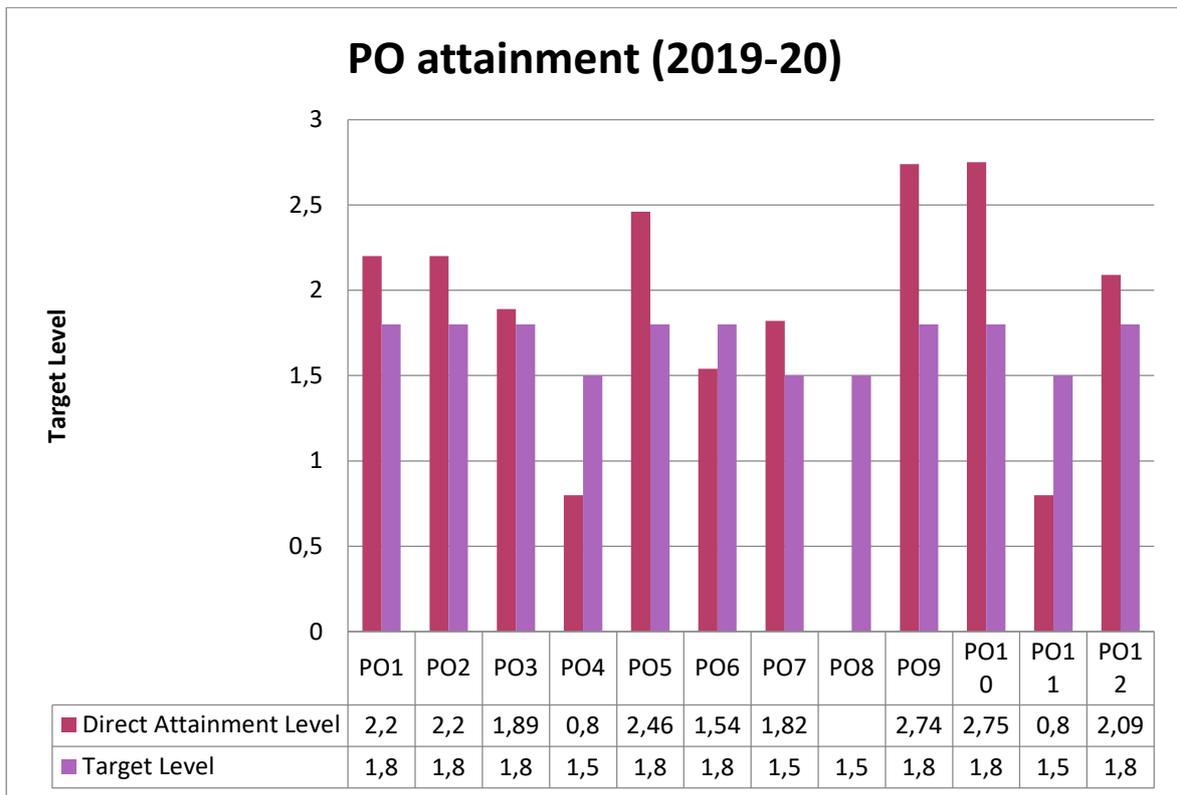
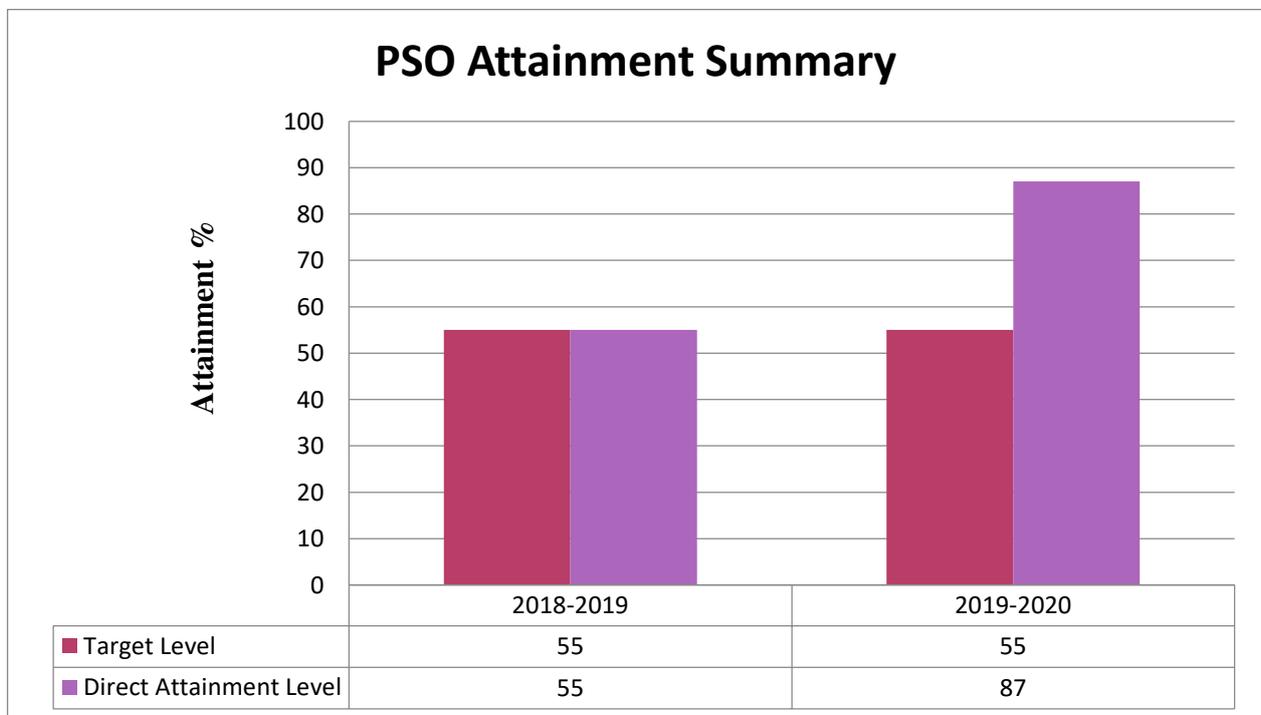


Table 8.7 PSO ATTAINMENT



[SELF ASSESSMENT REPORT]

Table 8.7 PSO Attainment First Year 2019-2020

EC (2019-2020)			
Subject Code	PSO1	PSO2	PSO3
BT201	-	-	1.92
BT102	-	-	0.80
BT203	-	-	1.89
BT204	-	-	1.91
BT205	3.00	-	1.91
BT206	-	-	3.00
BT101	-	-	2.59
BT202	-	-	2.76
BT103	-	-	2.70
BT104	-	-	2.44
BT105	-	-	2.54
BT106	-	-	1.80
BT108	-	-	2.36
Direct Attainment	3.00	-	2.20
Target	1.65	1.5	1.8

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8.5.2 Actions taken based on the results of evaluation of relevant POs (5)

(The attainment levels by direct (student performance) are to be presented through Program level Course-PO matrix as indicated)

PO Attainment Levels and Actions for improvement - CAY – Mention for relevant Pos

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	2.1	2.20	<p>Observations</p> <ol style="list-style-type: none"> 1. Student's not acquainted with the Fundamental concepts in the mathematics /Problem- Oriented subjects. 2. BEEE, BME, engineering chemistry, Basic Computer engineering Subjects
<p>Actions</p> <ol style="list-style-type: none"> 1. Remedial/Revision classes were conducted through NPTEL classes. 2. Numerical problems in BEEE were solved and given for practice in tutorial classes. 3. More numerical based problems on nodal & Mesh analysis and theorems were solved in tutorials. 4. Numerical on, e.m.f. equation, EDTA method and LS-process were conducted in tutorial classes along with extra assignments. 			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	2.1	2.20	<p>Observations</p> <ol style="list-style-type: none"> 1. Need understanding of analytical skill M-I, Electronics, Thevenin's theorem, spectroscopic techniques. In BME fluids module was difficult to understand. 2. Students were facing problem in applying the basic principles

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Actions 1. Audio-Visual lectures were conducted for clearing the concepts. 2. Regularly appeared questions in the previous exam of University Question Papers were solved in the classes. 3. Principles of spectroscopy had been made clear with animated video lectures.			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	1.8	1.89	Observations 1. Students find it difficult to solve engineering problems in BCE &EM. 2. Basic knowledge of design in EG is not well understood. 3. Needs improvement in Programming
Actions 1. Some classes were delivered with the help of NPTEL lectures. 2. More emphasis was given on mathematical basic in the previous course like surveying, planning etc 3. Practical approach of teaching of BCE & EM was included.			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.			
PO4	1.5	0.80	Observations 1. Students find difficulty in solving the engineering problems. 2. Subject involving both analysis and design as in EG, BME needs more understanding of the concepts.
Actions 1. Practical approach of teaching of topics in casting, carpentry and welding had been adapted. 2. More practical problems and exercises were given for practice. 3. Motivated students to participate in activities organized by MPCST & inter-collegiate.			
PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern			

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engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.			
PO5	1.8	2.46	<p>Observations</p> <p>Students are unfamiliar with the use of modern tools.</p>
<p>Actions</p> <ol style="list-style-type: none"> 1. Training/workshop were conducted to enhance the usage of modern tool. 2. More English spoken & written classes were conducted for practice 3. Use of Projector was more beneficial for acquiring presentation skill as well as development of familiarity of ICT Tool. 			
<p>PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.</p>			
PO6	1.8	1.54	<p>Observation</p> <p>The students are not able to apply reasoning contextual knowledge to assess safety, legal and cultural issues in real life.</p>
<p>Actions</p> <ol style="list-style-type: none"> 1. Awareness about environmental change was provided by video lecture. 2. To understand the safety concerns and social aspects, Motivate students to visited like Tribal Museum, Science Centre and many useful places to expand their practical Knowledge. 			
<p>PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.</p>			
PO7	1.5	1.82	<p>Observation</p> <p>Awareness of global and environmental issues was observed among the student that needs to be improved</p>
<p>Action</p> <ol style="list-style-type: none"> 1. Students were encouraged to participate in programs on global and environmental issues (Tree Plantation Program). 2. Video Lecture on environmental awareness and pollution - cause, effect and control were conducted for better understanding of the subject. 3. Students were motivated to take a part in various social events such as, “Swaccha Bharat Abhiyan” of the subject. 			
<p>PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.</p>			

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PO8	1.5	-	<p>Observation</p> <p>1. Need more Professional Ethics & Moral values. 2. Personality of students needs to be upgraded</p>
<p>Action</p> <p>1. Alumni and Campus selected students of final year interaction sessions with fresher, induction programs, T&P classes, activity on human values. 2. Motivational talks, personality development sessions and activities were arranged to overcome short comings Amongst the students. 3. “Thought of the day” is imparted in practice to improve the ethics & moral values.</p>			
<p>PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>			
PO9	2.1	2.74	<p>Observation</p> <p>1. Some students are not able to work as individual while some do not work in team. 2. Self –centeredness amongst Students.</p>
<p>Actions</p> <p>Inter-Collegiate and Inter-Branch competitions as well as collaborations in technical / Non-technical event were conducted to develop team spirit, responsibility, leadership and ownership qualities.</p>			
<p>PO10: Communication: Communicate effectively on complex engineering activities</p>			
PO10	2.1	2.75	<p>Observation</p> <p>1. Fluency in communication is lacking. 2. The communication, presentation and report writing skills are to be further improved by the students.</p>
<p>Actions</p> <p>1. More writing exercise was provided for practice to improve presentation and report writing skills 2. Vocabulary building task were provided.</p>			
<p>PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	1.5	0.80	<p>Observation</p> <p>1. Lack of team spirit, leadership qualities 2. Lacking awareness in financial management. 3. Difficulty in deriving conclusions through observations</p>

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Actions 1. Student were motivated to participate in Tech Fest 2. Self-discipline and management skills were made aware of through motivational lectures, corporate training sessions.			
PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life- long learning in the broadest context of technological change.			
PO12	1.8	2.09	Observation 1. Awareness concerned to independent learning is lacking. 2. Awareness of current trends and development in engineering is lacking
Actions 1. Exposure to newer engineering methods and innovations were imparted through special Expert Lectures from different institutes of repute and through NPTEL. 2. More examples on current issues were practiced by students 3. Practical training at the departments through over the curriculum approach of teaching was adapted.			

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PSOs Attainment Levels and Actions for Improvement (2019-2020)

PSOs	Target Level	Attainment Level	Observations
PSO1: The ability to create, design, and test the specify electronic communication systems for analog and digital signal processing as per industry requirements			
PSO1	1.65	3.00	Observations Need improvement in understanding of electronic and digital circuits
Actions : 1. Virtual lab conducted on Basic Electronics .			
PSO2: The ability to Formulate, solves, design and implement the realistic problems of society relevance to VLSI and embedded industries			
PO2	1.5	-	Observations Need exposure in application of embedded systems
Actions : 1. Expert lectures were conducted. 2. NPTEL VIDEO sessions were conducted.			
PSO3: Graduates will be able to Formulate, solve and adopt rapid changes in tools and technology with appropriate consideration of social and environmental issues.			
PO3	1.8	2.20	Observations Lacking in updating and adoption of changes in tools and technology
Actions : 1. Career awareness programs and corporate lectures were organized to meet updating in field of electronics and communication engineering. 2. Expert lectures were conducted.			

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CRITERION 9	Student Support Systems	50
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9. STUDENT SUPPORT SYSTEMS

9.1. Mentoring system to help at individual level (5)

A. Details of the mentoring system that has been developed for the students for various purposes and also state the efficacy of such system

The role of the mentoring system is to nurture and provide support for the students during the transition period in academic, professional as well as personal growth thus enabling them to deal with the challenges in their life more effectively.

- To bring forth hidden potential of students, thereby improving their overall performance and skills.
- To overcome weaknesses of students.
- To solve various personal and professional issues and problems related to students.
- To provide a platform for students to express their issues freely.
- To form strong relationships/ bonding with student of diverse cultures and backgrounds.

Our department has adopted a mentoring system which takes care of the various issues related to students and enhances their academic performance, develops their personality and helps them to tackle problems in professional and personal life to become a good human being and capable professional. In our mentoring system, HOD keeps a close watch on individual student along with mentors. Department adopts Mentor Teaching Learning system to support weak/slow learner and bright students equally. Mentoring by faculty supports and encourages students to manage their own learning in order that they may maximize their potential, develop skills, improve performance and become the person they want to be. Each mentor is allotted with 20-30 students. To start identifying Slow and Bright learner in this process, the following inputs is needed

- Overall result in preceding examination
- Internal Assessment (Class test/Assignment/Tutorials/Internal Viva/Presentation)
- Class observation by subject teacher

Weak/slow learner students are given counselling for their career guidance, bright students are encouraged to take up new challenges time to time. The parents are also informed about the progress report like result, attendance and performance of the students. The students needing

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improvement are groomed not only for improving academic performance, but also given opportunity to showcase their skills through events, competitions etc and this helps to improve academic performance also. Mentors meet with the mentees in the weekly meeting and prepare report. The report is as shown below in Fig 9.1:

 IES COLLEGE OF TECHNOLOGY BHOPAL							
DEPARTMENT OF _____							
Academic Year :				Semester:			
STUDENT COUNCELLING RECORD							
Class:		Batch:		Name of Mentor:			
Sr.No	Roll No.	Name of the Mentee	Date	Time	Issue	Suggestion	Remark

 IES COLLEGE OF TECHNOLOGY BHOPAL				
DEPARTMENT OF _____				
Academic Year :		Semester :		
IMPROVEMENT STATUS OF MENTEES				
Class:		Batch:		Name of Mentor:
Roll No.	Name of the Student	Active Participation in Mentor Program (Yes/No)	Areas of Improvements Seen in Student	Remark

Figure.9.1 Mentor Formats

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Mentor's Role and Responsibilities:

1. Mentors serve as positive role model, encourage and motivate students to achieve their target/goal.
2. Motivate and guide students in all academic, co-curricular and in extra-curricular activities.
3. Mentors maintain a mentees record.
4. Collect information regarding weak students from the subject teachers on the basis of their previous results, various other skills, having less attentiveness, etc.
5. The record of counselling and mentoring is maintained in file, which is updated on regular basis.
6. Mentors submit a report to HOD and after approval by the Principal seek/ remedial actions taken for improvement
7. Monitoring student's readiness for personal interview, group discussion, technical and non-technical support (including resume making, dressing sense, skills etc.)
8. Encouraging and motivating the students for attending all the classes, expert lectures and other technical sessions for better performance in examination, contests and placement.

Assistance for weak/slow learner students:

- Mentors follow their progress and counsel them from time to time to attend the classes sincerely.
- Subject handling Faculty members conduct extra or revision classes.
- Faculty members inculcate theoretical concepts through model specimen/charts/ video lectures/ online lectures.
- Remedial classes are also conducted for tough subjects/ tough contents.
- Students are encouraged to participate in other activities like essay writing, English role play, model making, anchoring in seminars, functions and in special assembly which is scheduled on every Monday, quiz, poster presentation, inter college competitions, cultural events etc.
- Confidence is boosted by motivating them to participate in sports, NCC, NSS and other activities.
- Slow learners are supported in difficult areas of learning; like encouraging students to sharpen their listening, writing skills and improving communication skills.

Encouraging bright students

- Students are identified and appreciated with certificates.
- Students securing First and Second rank in end semester examination are awarded with certificate of merit.
- Student securing 100% attendances are also awarded by certificate.
- Students are motivated for attending workshops, seminars, and technical contests like Accenture, Hackathon etc.
- Students are encouraged to undergo National level Internships
- Students are encouraged to take charge and supervise competitions and activities like essay writing, English role play, model making, assembly anchoring, quiz, poster presentation, inter and intra college competitions, fashion shows, special assembly etc.

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Table 9.1: List of Mentors along with the number of students

S.No	Name of the Mentor	No. of students
II year (2020-2021)		
1	Mr. Jitendra Pratap Singh Mathur	20
2	Mr. Asheesh Kharya	20
3	Mrs. Antima Saxena	20
4	Md. Naim Ansari	20
5	Mr. Vishal Mehra	20
6	Mr. Deepak Mishra	20
III year (2020-21)		
1	Ms. Kamini Singh	20
2	Mrs. Shweta Singh	20
3	Mr. Rakesh Singh	20
4	Ms. Pratibha Maina	20
5	Mr. Sonu Sharma	20
6	Mr. Devendra Saket	20
IV year (2020-21)		
1	Mr. Sonu Lal	14
2	Mr. Anurag Kumar Tiwari	14
3	Mr. Deepak Gupta	14
4	Mr. Annapurna Tiwari	14
5	Mr. Pandit Vivek Kumar Pandey	14
6	Ms. Anita Jamliya	14

S.No	Name of the Mentor	No. of students
II year (2019-2020)		
1	Mr. Chetan Chauhan	20
2	Ms. Kamini Singh	20
3	Mrs. Antima Saxena	20
4	Md. Naim Ansari	20
5	Mr. Vishal Mehra	20
6	Mr. Asheesh Kharya	20
III year (2019-20)		

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1	Mr. Deepak Mishra	20
2	Mrs. Shweta Singh	20
3	Mr. Rakesh Singh	20
4	Mr. Jitendra Mathur	20
5	Mr. Sonu Sharma	20
6	Mr. Ashish Gupta	20
IV year (2019-20)		
1	Mr. Devendra Kumar Saket	20
2	Mr. Deepak Gupta	20
3	Mr. Annapurna Tiwari	20
4	Mr. Pandit Vivek Kumar Pandey	20
5	Mr. Anurag Kumar Tiwari	20
6	Ms. Anita Jamliya	20

S. No.	Name of the mentor	No. of students
II year (2018-2019)		
1	Mr. Jitendra Pratap Singh Mathur	20
2	Ms. Kamini Singh	20
3	Mr. Annapurna Tiwari	20
4	Mr. Rakesh Singh	20
5	Mr. Asheesh Kharya	20
6	Mr. Deepak Mishra	20
III year (2018-19)		
1	Md. Naim Ansari	20
2	Ms. Anita Jamliya	20
3	Mr. Ashish Kumar Parashar	20
4	Mrs. Antima Saxena	20
5	Mr. Anurag Kumar Tiwari	20
6	Mr. Pandit Vivek Kumar Pandey	20
IV year (2018-19)		
1	Dr. Arup Ratan Ray	20
2	Mr. R S Choubey	20
3	Mrs. Shweta Singh	20
4	Mr. Sonu Lal	20

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5	Mr. Vishal Mishra	20
6	Ms. Pratibha Maina	20

Impact of Mentor Teaching-Learning system

1. Reduced absenteeism.
2. Improvement in overall performance.
3. Improvement in personality.
4. Increased participation in co curricular activities.
5. Improvement in behaviour and attitudes
6. Improved interpersonal relationship with elders and peers.
7. Becoming conscious and worthy citizen.
8. Improvement in performance of weak students.
9. Improvement in campus selection ratio.
10. Receiving awards and recognition.

S.No	Name of the mentor	No. of student
II year (2017-2018)		
1	Mrs. Antima Saxena	20
2	Mr. Sonu Lal	20
3	Mr. Sachin Jain	20
4	Mr. Sachin Kalraiya	20
5	Mr. Sumit Raghuwanshi	20
6	Mrs. Ruchi Gupta	20
III year (2017-18)		
1	Mr. Jitendra Mathur	20
2	Mr. Vijendra Singh Mandloi	20
3	Mr. Deepak Mishra	20
4	Mrs. Shweta Singh	20
5	Mr. Vishal Mehra	20
6	Ms. Pratibha Maina	20
IV year (2017-18)		
1	Mr. Ravi Verma	20
2	Mr. Rajnish Singh	20
3	Mr. Sachin Bhaiji Jain	20
4	Mr. Vishal Pal	20
5	Mr. Ravi Verma	20
6	Ms. Anita Jamliya	20

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9.2 Feedback analysis, rewards and Corrective Measures taken, if any (10)

A. Methodology being followed for analysis of feedback and its effectiveness

The Department continually seeks to review and improve the quality of its teaching and learning by reviewing the feedback about the courses, programs, teaching-learning processes and facilities from students, parents, alumni, employers and passing out students.

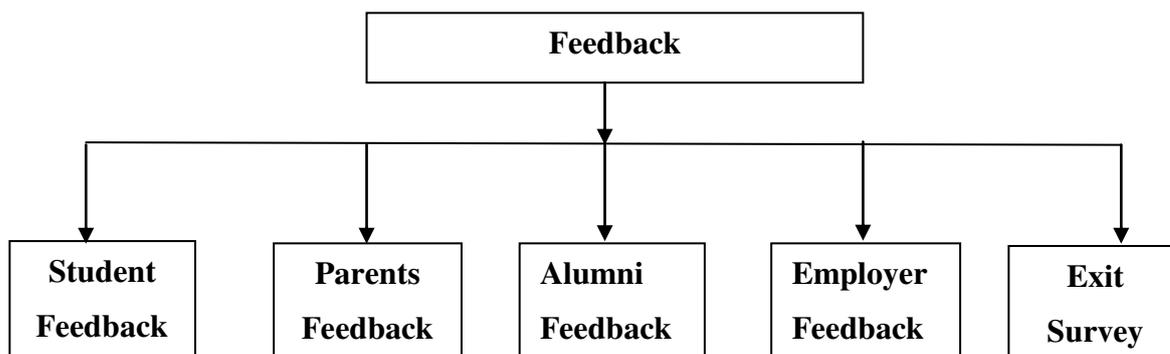


Figure 9.2 Feedback system

Feedback system is well-established in the learning system with a reason to:

- Enhance the students learning skills
- Monitor and review the quality and standards
- Ensure the effectiveness of teaching learning method adopted
- Know good practices and its implementation

The entire process is executed in following three stages

- Feedback collection
- Feedback analysis
- Reward /corrective measures

• Feedback Collection Process

Feedback is collected offline from the student's twice in a semester, from the parents, alumni, employers and passing out students once in a year. Feedbacks are taken from the parents in hard copy provided by the departments. Feedback from Alumni and employers are collected by TNP cell. Exit surveys are collected by the departments from final year students. These feedbacks are evaluated and assessed for corrective actions on the basis of certain parameters.

Feedback on Teaching-Learning by Students:

Feedback is taken from students on the effectiveness of teaching and subject learning twice during the semester. Initially, feedback is taken from representative students and selected students those having attendance more than 90 % from each class by HoD/senior faculty member (appointed by Principal) after 15 to 20 days of commencement of classes. If students are facing

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difficulty in any subject, the concerned faculty member is informed of the same. Necessary guidance and support is given by HoD and another senior subject faculty member. This consists of asking the faculty member to give a mock class in presence of HOD and another senior subject faculty, giving guidelines for improvement, reviewing the lecture notes and offering necessary support in the subject. At the end of the semester the feedback is taken again in offline/online mode from students in that subject for necessary action

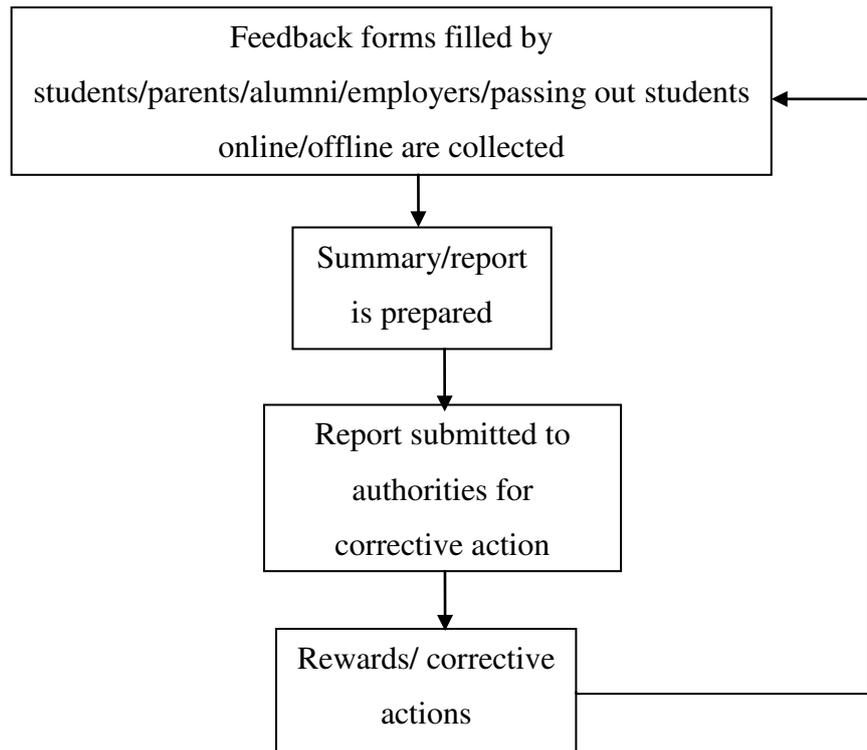


Figure 9.3 Feedback process

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IES COLLEGE OF TECHNOLOGY, BHOPAL

DEPARTMENT OF

Student Feedback Form

Class/Semester----- Session:

S No	Question	Subject Code				
1	Course Objective near clear	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
2	Does the teacher have sound knowledge of the subject that he/she teaches?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
3	How simulates the lecture	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
4	Speed delivery	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
5	Does the teacher have a well - prepared lesson plan for every class?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
6	Does the teacher communicate well in the classroom? Skill	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
7	Does the teacher develop the creativity of the students?	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
8	Temperament of encouraging student in the class while asking question	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
9	Presentation	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
10	Voice Modulation	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
11.	Accessibility of the teacher in and out of the class	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
12	Interest/ Motivation generates by the teacher	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

Note: For given response, please cut yes or no which is not applicable.

Feedback from Alumni:

1. Alumni fill feedback forms whenever they visit the department or the institute.
2. Alumni feedback collected during Alumni meet which held annually in the month of December/January of every year.
3. Feedback received through or hard copy.
4. Sample of Alumni feedback form is shown below:

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IES COLLEGE OF TECHNOLOGY, BHOPAL

Alumni feedback form

Dear Alumni,

We are glad that you have successfully graduated from IES College of Technology, Bhopal. You will be pleased to know that the Institute of which you are Alumni has grown to be one of the leading Institutes. We would like to place on record that your co-operation and support as Alumni of this Institute has contributed in deciding Institute Vision & Mission.

We shall be very much appreciate and be thankful if you can spare some of your valuable time to fill up this feedback form and give us suggestions for further improvement of teaching learning process of the Institute.

Name of the Student:

Branch of student:

Contact No:

Address:

Current Employer:

Designation:

Q1. Which type of profession you are following after graduation?

- a) Job
- b) Self Employed
- c) Research
- d) Higher Studies (Mention Higher Studies.....)

Q2. Suggest few technologies to be included as a part of academic curriculum to reduce the gap between institute and industry?

.....

Q3. Are you working/ worked on solution of any real life problem, which is facilitating others in society?

- a) No
- b) If yes,

Q4. Have you been involved in publishing?

- a) White paper
- b) Research paper in National/ International Journal
- c) Book
- d) Technical Magazines
- e) Patent

Q5. Opinion about Institute's Vision & Mission:

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.....
Q 6. Are you associated with any social activity/ association?

- a) No
- b) If yes,

Q 7. Have you undertaken multidisciplinary projects in your professional career?

- a) No
- b) If yes,

Q 8. Mention how you got placement?

- a) On Campus
- b) Off Campus

Q 9. Have you been awarded/ received letter of appreciation at your work place?

- a) No
- b) If yes,

Q10. Which type of responsibilities you have held after graduation?

- a) Managerial
- b) Team Leader
- c) Team Member
- d) Scientists
- e) Others, if any

Q 11. Have you Qualified GATE/GRE/NET/GMAT/... etc during your academic tenure at ICOT? If yes, mention details

.....

Q12: Feedback on Facilities

Q13. Suggestions (if any):

.....

Signature of the Student

Feedback from Parents:

1. Parent feedback form is given before vacation and collected at the time of registration.
2. Feedback is collected in hard- copy provided by the Mentor's to the mentees to get it filled by the parents and submit it back to Mentor's.
3. Sample of feedback from parents is shown below:

[SELF ASSESSMENT REPORT]



IES COLLEGE OF TECHNOLOGY, BHOPAL

Parent feedback form

Name of the Parent:

Name of the Students:

Branch /Semester of student:

Contact No:

Year of Admission:

Year of Graduation:

Address:

You are here by informed to give your healthy comment for the following

S.N.	Parameters	Excellent (4)	Very Good (3)	Good (2)	Satisfactory (1)
1.	How do you rate the quality of academic resource (such as teaching faculty, course material etc)				
2.	Any other suggestions for improving the Institute as a Institute of excellence.				
3.	Did your son/daughter got encouragement for participation in various co-curricular activities				
4.	Do you recommend IES as a Institute of your choice for admission to you siblings, friends, relatives etc.				
5.	Overall infrastructure of the Institute				
6.	How do you feel about infrastructural facilities such as library, laboratories, workshop, canteen, and other campus facilities				
7.	How do you rate the overall personality development of your son/daughter during their 4 years of stay in the institute				
8.	Your reaction about placement activities conducted.				
9.	Encouragement towards extracurricular activities (sports etc)				
10	Opinion about Institute's Vision & Mission				

Signature of the Parent

From Industry/Employers:

1. During on campus placements drive from the Industry.
2. From industry where IES alumni is/are working.
3. From IES alumnus who have turned entrepreneurs.
4. From industry during academic alliance meets.

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5. From industry and academic expert during seminar, workshop organized by institute.
6. Sample of feedback from employer is shown below:



IES COLLEGE OF TECHNOLOGY, BHOPAL (0177)

Employer feedback form

Dear Employer,

Many graduates of our Institute are working in various esteemed organizations. We are thankful to you for providing them employment with your prestigious Company/Organization. We shall very much appreciate and be grateful to you if you can spare some of your valuable time to fill up this feedback form. It will help us to decide college Vision & Mission and give you better employees in future.

Tick mark the number that best describes your level of satisfaction at each question: 1 - far from satisfied, 2 - not satisfied, 3 - satisfied, 4 - happy, 5 - very happy.

Name of the Industry:

Email:

Address of the Organization:

Contact No:

Name of the evaluating person with Designation:

How satisfied are you with the employee working in your organization / Industry, graduated from IES College of Technology		1	2	3	4	5
1.	Technical knowledge/skill					
2.	Developing practical solutions to work place problems					
3.	Creative in response to workplace challenges					
4.	Innovativeness, creativity					
5.	Ability to contribute to the goal of the organization					
6.	Involvement in social activities					
7.	Ability to contribute in sustainable solutions					
8.	Ability to manage professional skills					
9.	Working as part of a team					

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10.	General communication skills					
11.	Their planning and organization skills					
12.	Self-motivated and taking on appropriate level of responsibility					

On a scale of 1 to 10 how do you rate your overall satisfaction with the outcome based teaching learning process of the student graduated from IES College of Technology, Bhopal.

1	2	3	4	5	6	7	8	9	10

How could our programs be improved? What specific comments do you have regarding the curriculum?

Any other comment(s):

Would you like to recruit more IES College students?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Would you refer us to other organization(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Q13. Opinion about Institute's Vision & Mission:

.....

.....

.....

Q 14. Suggestions (if any):

.....

.....

.....

Date

Signature of the Employer

Feedback in the form of Exit Survey:

Feedback from the passing out students is filled in the final semester by Mentor's in the form of Exit Survey. The report is submitted to the Head of the Department for necessary action.

[SELF ASSESSMENT REPORT]



IES COLLEGE OF TECHNOLOGY, BHOPAL

Course End Feedback Form/ Course end survey

Branch:
Enrolment Number:

Session:
Name of Student:

Batch:

S. N.	Question	Need Improvement <=6	Level 1 (Satisfactory) <=7	Level 2 (Good) <= 8	Level 3 (Excellent) <=10
1.	Have all units of the syllabus suggested by university been covered properly?				
2.	Have you conducted all laboratory experiments up to your satisfaction?				
3.	Have the curriculum gaps if any were covered by the teacher properly?				
4.	Have all of your queries been answered by the teacher.				
5.	Have you been able to grasp the fundamentals of the course taught? (PO1)				
6.	To what level you think this course has enhanced your analytical abilities? (PO2)				
7.	To what extent this course has enriched your ability to design integrated solutions of complex engineering problems considering safety, societal, and environmental issues etc? (PO3)				
8.	To what extent this course has enriched your ability to conduct investigations, draw conclusion and present them for complex problems? (PO4)				
9.	How this course delivery has enriched your ability to use modern tools and practices for complex engineering activities? (PO5)				
10.	How this course delivery has enriched your ability to apply basic engineering reasoning				

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	to analyze societal issues like health, safety, legal and cultural and suggest a solution? (PO6)				
11.	How this course delivery has enriched your ability to analyze impact of suggested engineering solutions in societal and environmental contexts for sustainable development? (PO7)				
12.	How this course delivery has enriched your sensibility to apply professional ethics and norms.(PO8)				
13.	After this course delivery have you learned to work as a leader or member in a team? (PO 9)				
14.	To what extent this course has enriched your ability to communicate about, comprehend and write effective reports? (PO10)				
15.	To what extent this course has enriched your ability to manage engineering projects in multidisciplinary environments as a leader or member in a team? (PO11)				
16.	To what extent this course motivates you towards life-long learning to cope up with technological changes? (PO12)				

Feedback Analysis Process:

Report of the feedback related to course, program and teaching- learning and facilities is prepared according to different metrics. The feedback is shared with the authorities like student feedback, parents, alumni and exit survey report is shared by the Mentors with the HODs while the employer's feedback report is shared to the principal. Apart from these, informal feedbacks are also taken directly by the heads and Principal from time to time during the ongoing semester. A special emphasis is paid on transparency and impact of the feedback system.

Various parameters that are used for collecting the feedback data is as given below.

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- Coverage of syllabus
- Lectures are interesting and informative
- Promptness in Evaluation of Tests, Assignments and Quizzes
- Punctuality of the faculty
- Recap of last lecture, assignments, quizzes, projects, discussion, case studies etc.
- Faculty takes initiative to answer the questions/queries asked by students
- Teacher encourages students to think independently
- Teacher gives real time examples and uses videos, visual labs or other ICT tools
- Teacher is approachable to students for Academic/ personal advice
- Teacher is enthusiastic about teaching
- Teacher provides course and lecture outline at the semester beginning
- Teacher suggests web-links related to the topics taught
- Teacher takes revision classes to ensure learning
- The course materials are helpful in learning the course
- Other facilities

B. Record of Rewards/Corrective Measures

The concerned faculty or team makes the report of the feedback. The feedback report is shared with the department Head. Department Head share report with the individual faculty member, Principal, IQAC and Chairperson as per requirement.

Based on the reports the faculty members are informed about their performance. The faculty members who perform well are appreciated and awarded along with the monetary benefit of increment/ certificates of appreciations in recognition of their commendable efforts for:

- Quality lecture notes, instructional material etc.
- Innovations in teaching and learning methods
- Mentoring work done by faculty
- Work done in academics, research and patenting
- Result of the faculty
- Other contribution in the department or other co-curricular activities

Necessary corrective actions are taken for the faculty members who perform not well as per the department/ college standards, as given below:

- As per feedback, Head of the department advise the faculty about handling and monitoring the class

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- Improvement required in teaching and learning method of some faculties, HOD counsels the concerned faculties.
- Improvement required in facilities as feedback given by students, parents, aluminate and employers. Appropriate corrective actions taken according to feedback.
- Improvement required in academic performance of the weak/slow learner students. Corrective actions were taken for the improvement of academic performance of students.
- Encouraging faculty members to attend more Faculty Development Programs, Conference, Seminars etc.
- In extreme cases, where the faculty member is unable to improve up to the minimum desired standard, action is taken accordingly.
- The feedback is considered part of Annual Performance Appraisal of the faculty member.
- Faculty members will be rewarded by motivating them in weekly meetings or issuing Certificate of Appreciation for each course.

9.3 Feedback on Facilities (5)

Institute takes feedback on facilities from the students, parents, alumni and passing out students in the feedback forms. Apart from these department use departmental complaint registers also to be filled by the students, faculties etc. for the feedback. These facilities include library, training & placement, transportation, hostel, laboratories, medical facility and other general facilities etc. on Excellent, Good, Average basis. The evaluation process on facility feedback shall also be automated, then the corrective actions are taken by institute for the improvement.

1. Facility feedback taken through feedback form in online/offline mode from all the stake holders such as the employers, alumni, parents and students which the Program Objectives have been achieved.
2. Feedback on facility taken through departmental complaint registers by the students, faculties, parents and aluminate.

Table: 9.2 List of facilities at departmental/institute level for support of the students

S.No	Facility	Remarks
1.	Mentors facility	Mentor has been allotted to a group of students.
2.	Support provided to students from SC/ST, OBC and economically weaker sections	Help to acquire scholarship from central and/ or state government of India.
3.	Students with physical disabilities	Provide facility of the wheel chair, college van, ramp and hand bar in toilet etc.

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4.	Students to participate in various competitions at National/International level	Relaxation in the attendance given those students which are participating in the different competitions.
5.	Medical assistance to students	<ul style="list-style-type: none"> • Facility of Medical room, Nurse Facility, doctor visits as per need. • Availability of Ambulance in the campus and Tie-up with hospital (Sharda Hospital, Kotra, Bhopal)
6.	Organizing additional classes for professional improvement of students	<ul style="list-style-type: none"> • The additional classes are regularly conducted by Training & Placement Cell for the campus Placement. • Study material providing towards students, whenever is required.
7.	Support for “slow learners”	<ul style="list-style-type: none"> • Remedial classes for slow learners. • Mentoring facility is providing.
8.	Support for “Bright learners”	<ul style="list-style-type: none"> • To organised expert lectures. • To provide study material. • To organised trainings, seminars and industrial visits.
9.	Skill development (spoken English, computer literacy, etc.,)	<ul style="list-style-type: none"> • Spoken English classes offered to the students for improvement in the communication skill. • For improvement of technical skill, offering the various online courses such as NPTEL, SWAYAM, IIT Bombay remote centre and value-added courses such as embedded system, MATLAB, robotics, PCB design, artificial intelligence etc.
10	Exposure of students to other institution for higher learning and internship	<ul style="list-style-type: none"> • Industrial training provided to the sixth semester students. • Interaction with the corporate world by interaction with guest lecturers from reputed institutions and industries. • Different training programs organised in the various reputed institutions.
11	Anti-Ragging Committee	<p>The committee is constituted to handle to ensure a ragging free environment in and outside the campus and address ragging related issues if any. It performs following roles and responsibilities:</p> <ul style="list-style-type: none"> • To create the awareness about Anti Ragging act and punishments among the students and the appropriate law in force. • To create the awareness about Ragging constitutes (AICTE/UGC Regulation as per the directive of the Supreme Court Ragging

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		<p>CLAUSE 3).</p> <ul style="list-style-type: none"> • To prohibit, prevent and eliminate the source of ragging including any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student. • To prohibit undisciplined activities by any student or students this causes or is likely to cause hardship or psychological harm or to raise fear in any fresher.
12	Library Facility	Central and Departmental libraries provides on line and offline access to a large number of full text journals, books, databases from various publishers and e-journals.
13	Transportation Facility	The Institute self reliance in providing transport facility to the students. IES Provides bus transportation for major locations of town and campus. We have made arrangements for College buses for students as well as staff. This makes them free from mental tension of driving or taking public transport system, to come to the college and go back, so that they can fully concentrate on their studies.
14	Mess and Canteen Facility	Canteen is a place where everyone i.e. students, teachers and other staff members can relax in a comfortable atmosphere. The college canteen is much more than merely an eating place. There is an attractive well equipped canteen on the South-eastern corner of the campus. The canteen provides healthy, tasty eatables fruit juices, hot and cold beverages to the students and faculties at subsidised rates.
15	Hostel Facility	<p>The institute believes that hostels help to develop group dynamics amongst student and widen their socio-cultural horizon as well. Keeping this in mind, we have made provision for excellent hostel facilities for students. The institution provides excellent play fields, gymnasium and cultural hall for extracurricular activities for the development of the student's personality.</p> <ol style="list-style-type: none"> 1. In-House Pantry/Dining Halls. 2. Supervised with residential warden. 3. Recreational and Entertainment facilities. 4. Medical Aid. 5. Round the clock security
16	Green Campus	To aid institute in terms of sustainability, to give clean and Green Campus, various activities are conducted with an inclusive strategy to contribute towards betterment of society by aligning itself with National initiatives like

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		Swachh Bharat, Solar Plant, and Plantation of trees, Waste management, water conservation, resource efficiency, and Green belt development.
17	Wi-Fi Campus	Apart from computer laboratory with internet facility, the Wi-Fi for providing continuous and uninterrupted internet connectivity to students and faculty members is available in the campus.
18	Open Auditorium and Conference Room	<ol style="list-style-type: none"> 1. Institute provides Auditorium hall of 400 seating capacity & an open air theatre for the departmental activities. 2. The conference/Seminar hall is available for organising expert lectures & other programmes. 3. A well furnished fully Air-conditioned meeting room with equipped available for conducting of mock test, GD, industrial instruction and other T&P activities for students.
19	NPTEL Local Chapter and IIT Bombay remote centre (RC ID 1200)	<ol style="list-style-type: none"> 1. The NPTEL local chapter is available to help the engineering and core science courses. Additional web and video courses are created in all major branches of engineering/physical sciences at the undergraduate and postgraduate levels and management courses at the postgraduate level. 2. IIT Bombay remote centre offer workshops which are delivered by IIT faculty members. Video streamed workshops are well complimented by practical open discussion hands-on-sessions (both Tutorials and Labs) for students and faculties.
20	Women's Grievance Cell	<p>It helps women to gain control over their own lives and gives the ability to make strategic choices of life. This cell is constituted to create a harmonious environment and enable women to discharge their responsibilities at workplace with dignity. The functioning of following cell is given below:</p> <ol style="list-style-type: none"> 1. Create social awareness about gender discrimination. 2. Motivate and improve confidence level amongst women staff members 3. Organize workshops and seminars for women development. 4. To promote personality development, leadership quality and role of women in the society.
21	Research and development cell	Institute has promoted meaningful research and development activities; it is acting as the nodal centre for all research related activities.

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22.	Entrepreneurship cell (EC)	The responsibility of EC is to encourage, inspire and nurture young students by supporting them to work with new ideas and innovation while they are in formative years. This cell is also highlight innovative projects carried out by institution's faculty and students.
23.	Housekeeping & maintenance	Housekeeping managers and staffs are there for housekeeping and maintenance
24.	Drinking water facilities & their maintenance	Proper drinking facilities are provided in the department



Figure. 4 Central Library



Figure. 5 Solar Plant Inauguration on 05-04-2018

A. Feedback collection, analysis and corrective actions

Table 9.3: Feedback collection, analysis and corrective actions

S.No	Detail of facility	Feedback parameters	Evaluation Process	Correction Action Taken
1	Hostel	<ol style="list-style-type: none"> 1. Entry in the register 2. Discussion with warden 3. Written application 	Evaluation by students. 1- Unsatisfactory 2- satisfactory 3- Excellent	<ol style="list-style-type: none"> 1. Entry/Exit Timing are fixed but on demand as per permission is provided. 2. Maintenance Entry in register and corrective action will take. 3. Medical facility is provided.

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2	Lab Maintenance	<ol style="list-style-type: none"> 1. Lab records 2. Safety guidelines and instructions 3. Sign the manual /rough record 4. Cleaning and repairing of equipments 	<p>Evaluation by faculty and students.</p> <ol style="list-style-type: none"> 1-Unsatisfactory 2- satisfactory 3- Excellent 	<ol style="list-style-type: none"> 1. Visited by the team of Scientech Technologies for maintenance. 2. It is checked before being put back to use. 3. Proper cleaning of equipments has been done two times in a week.
3	Transportation	<ol style="list-style-type: none"> 1. Written application 2. Meeting with Bus In charge. 3. Committee for monitoring discipline and ragging in buses 	<p>Evaluation by faculty and students.</p> <ol style="list-style-type: none"> 1-Unsatisfactory 2- satisfactory 3- Excellent 	<ol style="list-style-type: none"> 1. Recorded with bus in charge and appropriate action is Taken. 2. Collect the report from committee and corrective actions is taken.
4	Library	<ol style="list-style-type: none"> 1. Time Management 2. Manage Entry register 3. Departmental feedback 	<p>Evaluation by departmental faculty and students.</p> <ol style="list-style-type: none"> 1-Unsatisfactory 2- satisfactory 3- Excellent 	<ol style="list-style-type: none"> 1. Appropriate action taken by Library in-charge. 2. Schedule of library is incorporated with departmental time table.
5	Sports	<ol style="list-style-type: none"> 1. Assigned co-ordinators 2. Requirements of kits 3. Sports in-charge 	<p>Evaluation by students and management.</p> <ol style="list-style-type: none"> 1-Unsatisfactory 2- satisfactory 3- Excellent 	<ol style="list-style-type: none"> 1. Sports in-charge takes appropriation decision 2.Repairing and replacements of kits
6	Medical Assistance	<ol style="list-style-type: none"> 1. Maintain files 2. Appoint CAO 3. Tie-up with hospital 	<p>Evaluation by management.</p> <ol style="list-style-type: none"> 1-Unsatisfactory 2- Satisfactory 	<ol style="list-style-type: none"> 1. Medical OPD First aid Box 2. CAO is responsible

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			3- Excellent	
7	Mess and Canteen	1. Quality of food 2. Discipline 3. Cleaning and maintenance	Evaluation by students and faculty. 1- Unsatisfactory 2- Satisfactory 3- Excellent	1. Food quality checked by faculty and management 2. Monitoring of students 3. Feedback on maintenance and cleaning
8	Security Service	1. Meetings 2. Monitoring and controlling	Evaluation by management. 1- Unsatisfactory 2- Satisfactory 3- Excellent	Correct identified security deficiencies and action taken.

9.4 Self Learning (5)

Self-learning is encouraged in the department by implementing self-learning facilities and environments for students. Students are encouraged for self-learning by personal counselling and mentoring.

A. Scope for self learning

The following methods are used for self learning:

- Web based learning (teaching-learning course online NPTEL, SWAYAM, Webinars etc.)
- Central Library, Departmental library and Digital Library
- Learning through projects, internships, summer trainings etc.
- Assignments
- Professional bodies
- Virtual labs
- e-books and journals
- Open access software's
- Special assembly

Table 9.4: Following are the various modes of self-learning and facilities created in the department.

S.No	Self Learning Sources	Tools / Support
1	e-Books & digital books	Central and departmental Library, Internet
2	Books, magazines, journals, newspaper clippings	Central and departmental Library

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3	Online Courses	NPTEL/ SWAYAM etc./uploaded lectures material 1. Swayam- https://swayam.gov.in/ 2. NPTEL- List of Websites which offers online certification courses. https://onlinecourses.nptel.ac.in/
4	Lectures, instructional materials by faculties	Online through links on websites and Google classrooms
5	Activities through professional bodies	Students are encouraged to become members of professional bodies like ISTE, IEEE, CSI etc. for the career enhancement and self learning.
6	Club Activities	Various students club activities are organized to enhance team work and inter-personal skills like sports, cultural, literary, tech-fest etc.
7	Assignments	It enables students to go through the topics in a more elaborate manner in order to explore the academic topic and enhances higher order thinking.
8	Internship, summer trainings, webinar and projects	Internships, summer trainings Project Based Learning offered to the students to enhance the real-time knowledge and exposure of the students.

1. Internship, summer trainings, webinar and projects

Webinars are designed as a flexible framework within which talent, innovation and growth would be nurtured rather than constrained by a rigid one-size-fits-all solution. Opportunities are provided to keep promising engineering interns on track academically, such as “curriculum adjustment” which increases their general employability upon graduation. To ensure a successful internship experience, a small team supports its multiple aspects. This provides checks, balances, and a rich complex of relevant experiences to benefit the intern.

2. NPTEL materials

National Programme on Technology Enhanced Learning (NPTEL) is created to provide quality education at campus to anyone interested in learning from the IITs. Students are encouraged to register for various NPTEL courses and clear exams. In the month of every January and July, courses are offered online, free of cost for the students and faculties.

3. Virtual Labs are intended to augment the learning of subjects and labs through performing experiments virtually. Virtual labs are included in various courses in the department for better understanding of topics.

4. Open source software is software in which the source code used to create the program is freely available for the students to view, edit, and redistribute. They are easily accessible in labs for the students.

[SELF ASSESSMENT REPORT]

Table 9.5: Students completed NPTEL Certification

S.No	Students Name	Course Name
01	ROHAN RAJ	1. Analog Communication 2. Control System
02	SARIKA KUMARI	Control System
03	VINAY KUMAR	Python
04	ASHISH KUMAR	Introduction to IOT

B. Institutional level facilities for improvement of learning skills of the students

1. Newspaper Distribution: The newspaper clippings are provided to the students for improving communication skill and general awareness.

2. 'Book bank' in library: Apart from central library department has its own library. Institute provide Book Bank facility for the students, which is very helpful in fulfilling student requirements for prescribed books on semester basis. Book Bank functions as one section of the library.

Distribution of books and magazines:

- Book bank facilities are available for students
- E-book facility is also available in the departmental library.
- Technical magazines are also available in the library.

3. E-notes for all subjects: e-notes are provided regularly by faculties to supplement teaching-learning process.

4. Access to Journals: Students can also access the online free journals and get beneficial for publication of research papers and projects. They can access the IEEE digital library in the departmental computer Lab.

9.5 Carrier Guidance, Training and Placement (10)

Institute has Placement & Training Cell for career counseling and higher learning in Engineering & Technology fields. It has been set up for conducting value added training programs and enhances employability of students. The cell has been set up in the institute to give training and guidance to students on career related matters and assist them in exploring new opportunities. The student's abilities are evaluated individually and are advised the way forward accordingly. The cell organises training sessions that prepares the students to compete with the challenges in the industry. Career counselling programs

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are undertaken periodically by the placement cell to guide the students. Interactive sessions by the eminent persons with rich industry experience in respective fields are conducted regularly.

A. Availability of career guidance facilities

1. Prepare the students for placement and organize pre-placement training for them as well as guide for higher education.
2. Organize seminar for students to provide information about Career/Education related opportunities (current trends of industries, emerging areas, scholarship for higher studies India or abroad).
3. Help in building the self confidence of students and develop aptitude solving ability.
4. Help to the students in career selection.
5. Conduct motivational address time to time for students and faculty those who are involved with students for the purpose of guiding.
6. Online tests of students and on the basis of their results guide them for corrective measure.
7. The necessary infrastructure provided is given below:

Table 9.6: Infrastructure facilities

S.No	Facilities
1	Training and placement cell office
2	Auditorium
3	Seminar hall
4	Rooms for Group discussions
5	Interview rooms
6	Computer labs for online tests

[SELF ASSESSMENT REPORT]

Table 9.7: Events for Career Guidance of students:

S. N	Date	Name of Activity	Event detail/speaker	No. of students	Mapping
1	23/01/2021	Effective ways of writing Research Articles Live National Webinar	Dr. Mukta Martolia Assistant Professor School of Media, Film & Entertainment	80	PO8, PO10, PO12, PSO1, PSO2
2	23/1/2021 (1 Day)	Virtual Visit of fablab AIC RNTU Bhopal	Dr. Deepak Motwani DGM- Corporate Relations & Entrepreneurship, Vice president IIC RNTU	75	PO1, PO2, PO7, PO8, PO11, PO12
3	08/11/2020	Organization Readiness to Reskills and Upskills Campus Talent	Shri Pranab Jyoti Chetia, Director, HR, Asia Pacific Region, Volvo Group Trucks Operations, Service Market Logistics	82	PO8, PO11, PO12, PSO1, PSO2, PSO3
4	03/7/2020	Scenario of Education Sector in Post Covid Era - Challenges and Opportunities	Mr. Ashish Gakrey (Founder, HR Shapers)	75	PO8, PO10, PO11, PO12, PSO1, PSO2, PSO3
5	20/06/2020	Job Opportunities in Post COVID-19 Scenario and Challenges thereafter	Mr. Venka Reddy (Global HR Partner Infosys Ltd.)	80	PO1, PO2, PO10, PO12
6	17/06/2020	Global Business and Career Opportunities for Students Arising Post COVID-19	Dr. Malay Nayak (Fellow Royal Society of Art UK)	80	PO1, PO2, PO7, PO8, PO11, PO12
7	31/05/2020	Career Opportunities and Challenges in hiring post Covid Era	Ms. Anuradha Singh Head-HR & Admin NICHROME, Pune	75	PO8, PSO1, PSO2, PSO3

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8	4/5/2019	Motivational Program	Mr. Rajeev Agrawal	65	PO7, PO12
9	25-02-2019	Monday Special Assembly	Surgical Strike	43	PO6, PO11
10	18-02-2019	Monday Special Assembly	Incredible India	46	PO12
11	16-02-2019	Expert Lecture on Start-ups	Prof. Thillai Ranjan, IIT Madras	78	PO7, PO12
12	11/2/2019	Monday Special Assembly	Youth Parliament	52	PO7, PO11
13	12/3/2018	Special Assembly	About mobile addiction, Student-speak	45	PO7, PO12
14	27-02-2018	BMA Student Chapter	Shree Pradeep Karambelkar, MD, Vision Advisory Services Pvt. Ltd, Bhopal	40	PO6, PO7, PO12
15	10/1/2018	Open Invitation Motivational	Mr. Tanmay Bakshi, E-cell, RGPV, Bhopal	35	PO1, PO6

B. Counselling for the higher studies

The training and placement cell also does counselling of the students for the professional goals, selection of career and higher education. It also provides guidance for various competitions. The cell motivates and guides the students for the higher studies as per their area of interest, and also arranges the in house training classes on aptitude, and general knowledge.

C. Pre-placement Training: Training and placement cell organises in-house training classes, conduct various contest and interactive sessions on pre-placement training from outside trainers. The cell conducts the training classes on communication skill, aptitude and reasoning, technical subjects, programming languages and others. It include following activities:

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Table 9.8: Activity list of T&P Cell

Activity list of T&P Cell 2020-2021							
S.no	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
1	08-07-2020	“Emerging Trends in Automotive Industry - Digital Age”	DG STPI new Delhi	Dr. Omkar Rai,	2020	1	PO1,PO2, PO5,PSO 1,PSO2,PSO3
2	07-11-2020	Preparation For Service Selection Board Interview And Tips	Shri Krishna Agnihotri	Shri Krishna Agnihotri, Senior HR Manager, TCS, UK	2020	1	PO5,PO12
3	8-07-2020	Organization Readiness to Reskills and Up skills Campus Talent	Shri Pranab Jyoti Chetia	Director, HR, Asia Pacific Region, Volvo Group Trucks Operations, Service Market Logistics	2020	1	PO10, PO12, ,PSO1,PSO2,PSO3
4	23-01-2021	Effective ways of writing Research Articles Live National Webinar	Dr. Mukta Martolia	Assistant Professor School of Media, Film & Entertainment Sharda University Agra	2021	1	PO5,PO10

Table 9.9: Activity list of T&P Cell

Activity list of T&P Cell 2019-2020							
S.no	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
1	22-07 to 29-07-2019	AWS Training	Mr. Ajeet Pal	IndEyes Infotech Pvt Ltd.	2019	8 Days	PO1, PO2, P03, PO10, PO12
2	01-10-2019	Apache Pig and Hive	Dr. Akhtar Rasool	Assistant Professor, MANIT Bhopal	2019	1 Day	PO1, PO2, PO3, PO11
3	15-01-2020	KPIT SPARKLE-2020	NA	IIT Bombay	2020	NA	PO1, PO2, PO7, PO12

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4	21-01 to 22-01-2020	Industry 4.0 future skills	Mr. Rajeev Kumar, Member secretary, AICTE India	TEQIP-3 RGPV	2020	2 Day	PO2, PO6, PO11, PO12
5	31-05-2020	Career Opportunities and Challenges in hiring post Covid Era	Ms. Anuradha Singh	Head-HR & Admin NICHROME, Pune	2020	1 Day	PO5,PO11 ,PSO1,PSO2,PSO3
6	17-06-2020	Global Business and Career Opportunities for Students Arising Post COVID-19	Dr. Malay Nayak	(Fellow Royal Society of Art UK)	2020	1 Day	PO5,PO11 ,PSO1,PSO2,PSO3
7	20-06-2020	Job Opportunities in Post COVID-19 Scenario and Challenges thereafter	Mr. Venka Reddy	(Global HR Partner Infosys Ltd.)	2020	1 Day	PO5,PO11 ,PSO1,PSO2,PSO3

Table 9.10: Activity list of T&P Cell

Activity list of T&P Cell 2018-2019							
S.N	Date	Name of Activity	Resource Person	Company/Designation	Year	Duration	Mapping
1	15-12-2018	Atos IT Challenge	NA	Atos IT	2018	1 Day	PO1, PO2, PO9
2	21-12-2018 to 03-01-2019	C Language training	Mr. Ajeet Pal	Trainer IndEyes Infotech Pvt Ltd	2019	13 Days	PO2, PO4, PO7, PO12
3	30-03-2019	TCS-Enginx: Digital Eminence: Making things smart	NA	NA	2019	1 Day	PO2, PO3, PO10
4	01-04 to 02-04-2019	Infosys Tech fest	NA	NA	2019	2 Days	PO1, PO2, PO10, PO12

[SELF ASSESSMENT REPORT]

Table 9.11: Activity list of T&P Cell

Activity list of T&P Cell 2017-2018							
S.N	Date	Name of Activity	Resource Person	Designation	Company/Designation	Remarks	Mapping
1	2017	Testimony Contest	NA	TCS Company	TCS Company	1 Day	PO1, PO2, PO7, PO12
2	30-08-2017	KPIT Sparkle	NA	KPIT Technologies		1 Day	PO2, PO7, PO12
1	03-10 to 04-10-2017	Capgemini Tech-Challenge	NA	Manager, Capgemini	Capgemini	2 Days	PO1, PO7, PO9
2	03-10 to 06-10-2017	Accenture Innovation Challenge	NA	Manager, Accenture	Accenture	4 Days	PO1, PO2, PO7
3	12-01-2018	Capgemini Tech-Challenge	NA	Manager, Capgemini	Capgemini	1 Day	PO2, PO6, PO12
4	12-01-2018	Capgemini Tech-Challenge: Coding contest and Technical aptitude	NA	Capgemini	2018	1 Day	PO7, PO9
5	12-01-2018	Capgemini Tech-Challenge: Coding contest and Technical aptitude	NA	Capgemini	2018	1 Day	PO7, PO9
6	23-01 to 18-02-2018	College to Corporate Program	Dr. Deepak B. Phatak	Professor, IIT Bombay	2018	27 Days	PO3, PO5, PO7
7	26-03-2018	Google crowd-source campaign	NA	Google	2018	1 Day	PO1, PO2, PO11
8	27-01 to 28-01-2018	E-Summit: Azenith of Innovation	NA	NSTEDB, DST India	2018	2 Days	PO2, PO7, PO11
9	28-04-2018	TCS-Enginx	NA	TCS	2018	1 Day	PO2, PO3, PO12

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D. Placement Process and support

The training and placement cell is established, it is responsible for campus placement (including off campus). This cell provides various training of students which can improve technical, aptitude, communication, and personality development skills. It also provides the infra-structural facility to conduct group discussion, mock test, online/offline tests, and interviews besides catering to other logistics.

1. The institute interacts with beneficiaries through Career guidance cell, Academic council and Industry- Institute Partnership Cell.
2. The Training and Placement Cell maintains professional relations with the representatives of industry.
3. It assists development of graduates with balanced set of communication, technical and interpersonal skills with positive attitude towards life.
4. HR managers of various companies are invited to the college campus to interact with the students.
5. The cells invites companies for campus interviews and provides them necessary facilities for conducting written test, Group discussion, Technical and HR interview etc. as well as arrange industrial visit and training for final year and pre-final year students.

9.6 Entrepreneurship Cell

This cell is launched with a view to encourage students to consider self employment as a career option, provide training in Entrepreneurship through modular courses and increase the relevance of Management particularly in the non-corporate and under managed sectors.

A. Entrepreneurship initiatives

Institute has a cell which improves entrepreneurship development skills in the students by doing activities as seminar, workshops and awareness camps.

The entrepreneurship cell has following roles & responsibilities:

- To nurture the student ideas and to develop innovative products.
- To support the student projects with funding.
- To establish & maintain incubation centre.
- To create entrepreneurs echo system for students.
- To maintain data relevant to entrepreneurship program.

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The ED cell include the training modules are developed to describe employer requirements, behaviour and environment of different industries. This module covers the following skills:

1. Leadership Skills
2. Business Development skills
3. Marketing skills
4. Managerial skills
5. Communication /Soft skills
6. Team- building skills.

Table 9.12: Events organized under Entrepreneurship Development Cell

S. No.	Day/Date	Programme	Sponsored by	Mapping
1	23/1/2021 (1 Day)	Orientation session For Students and Faculty members by Innovation	Ankit Chourasia Workshop/Studio Assistant School of Planning & Architecture, Bhopal	PO6,PO7,PO8,P O11,PO12
2	20/01/2021 (1 Day)	Live National Expert talk on: "Things should know by innovators about IPR"	Mr. Parag M More, IPR Consultant and advisor	PO1,PO2,PO8, PO11,PO12
3	8/1/2021 (1 Day)	Entrepreneurship Activity: fund Supports Available for Incubates	Shri Kishor Kumar Tolani Financial Literacy Counsellor, Bank of India, Bhopal	PO6,PO7,PO8, PO11,PO12
4	31/12/2020 (1 Day)	Green Communication	Dr. Abhishek Bhatt COEP Pune	PO1,PO2,PO6,P O7,PO12
5	09.08.2020 (1 Day)	Intellectual Property Right	Dr. Ajay Thakur, Assisstant Controller Patents and Designs, Mumbai ,Ms. B. Ritika Reddy, IPR Attorney, Legal Issues and Act, Chennai	PO1,PO2, PO12, PSO2,PSO3

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6	25/06/2020 (1 Day)	Startup and Entrepreneurial Opportunities Post COVID	Mr. Praveen Kamath K.	PO1,PO2,PO3,P O6,PO7PO12,P SO1,PSO2,PSO 3
7	3 Days (02-03 to 04-03- 2020)	EAC Program on Innovative Business Model	NSTEDB	PO1, PO6, PO12
8	3 Days (29-01 to 31-01-	EAC Program	DST-NIMAT	PO6, PO7, PO12
	2 Weeks (18-11 to 30-11-	FDP on Entrepreneurship	NSTEDB	PO1, PO6, PO8, PO12
	3 Days (11-03 to 13-03-	Entrepreneurship Awareness Camp	NSTEDB, DST GOI	PO6, PO7, PO9, PO11
9	16-02-2019 (1 day)	Session on Entrepreneurship and startups By	Self	PO1, PO8, PO12
10	3 Days (27-09 to 29- 09-2018)	EAC Program	NSTEDB	PO6, PO12
11	3 Days (13-03 to 15- 03-2018)	EAC Program	NSTEDB	PO7, PO11
12	3 Days (26-01 to 28- 01-2018)	E-summit IIT Bombay	e-Cell IIT Bombay	PO8, PO 12
13	3 Days (11-01 to 13- 01-2018)	EAC Program	NSTEDB	PO1, PO6, PO8, PO12
14	3 Days (11-01 to 13- 01-2018)	EAC Program	NSTEDB	PO1, PO6, PO8, PO12
15	20-06-2017 (1 day)	National convention on Entrepreneurship	Bhopal smart city corporation	PO1, PO5, PO7, PO9

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Figure 9.6: Entrepreneurship Awareness Camp @ IES College of Technology, Bhopal

B. Data on students benefitted

Table 9.13 Star-Up Details

S.No.	Name of Student	Branch	Start up Project
01	Mr. Shantanu Bose	EC	ARG Technocrats, Noida, New Dehli
02	Mr. Manish Sharma	EC	Discount4sure.com
03	Mr. Sanat Shrivastava	EC	Discount4sure.com
04	Mr. Anumesh Kumar	EC	Former founder chairman Info Tech Solution & Currently business consultant and wellness coach @ Herbalife Nutrition

9.7 Co-Curricular and Extra-Curricular Activities (10)

Institute has always been playing a leading role in co-curricular and extra-curricular activities in multiple directions, such as social services including rural development and up-liftment, extension of literacy and issues related to national and international importance, games and sports, blood donations, promotion of cultural activities, arts and science, welfare and promotional activities related to different classes of society.

A. Availability of sports and cultural facilities

Extracurricular activities form a vital part of experience in institute, creating unique opportunities for students. They get plenty of platforms for representing the college and to develop sporting skills. As an integral part of the curriculum there is a balanced Scheme of Physical Education which teaches skills, develops overall fitness and complements the games programme. College aims to help students to understand benefits and enjoy regular Yoga,

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Kho-kho, and exercise to get confidence in team and individual sport. The playing fields for basketball, football, cricket or athletics are used according to the season.



Figure 9.7: Sports Facility @IES College of Technology, Bhopal

Sports Facility:

To ensure Physical fitness of students sports facilities have been created within the campus which comprises of indoor and outdoor games as detailed below in tabular form, as an integral part of the curriculum there is a balanced Scheme of Physical Education that teaches skills, develops overall fitness and complements the games programme. College aims to help students to understand the benefits and enjoyment of regular exercise and feel confident in team and individual sport.

Every year the RGPV University nominates our Institute as a nodal centre for various games like.

- Cricket
- Basket Ball
- Volley Ball

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Figure 9.8: Indoor Sports Facility @ IES College of Technology, Bhopal

Indoor sports: Students can choose from Table tennis, Carom, chess, Badminton, etc. among indoor activities to engage themselves to remain physically and mentally fit.

Table 9.14: Sports Facilities

S. No.	Category	Game	Dimension
01	Outdoor	Cricket	As per Standard Games Norm
02		Volley Ball	
03		Basket Ball	
04		Kho-Kho	
05		Kabaddi	
06		Foot Ball	
08		Hand-Ball	
10		Table tennis	
11	Indoor	Badminton	
12		Chess	
13		Carom	
14		Judo	
15		Gymnasium	

Table 9.15: Detail of Sport Events by Students

S.No.	Name of Students	Tournament	Year	Organized By	Result
1.	Raksh Pal Singh	Football	2019-2020	R.G.P.V Bhopal	Select for nodal team
2.	Nishant Kumar	Volleyball	2018-19	Oriental Group of Institute, Bhopal	Certificate
3.	Nishant Kumar	Volleyball	2018-19	Corporate Group of Institutes, Bhopal	Certificate

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S.No.	Name of Students	Tournament	Year	Organized By	Result
4.	Sidharth Anand	Cricket	2017-2018	Nodal	Participated
5.	Ayush Kumar	Net ball	2019-2020	State	Participated
6.	Chaitanya Kumar Jha	Cricket	2017-2018	West Zone	Participated

Cultural:

College has been organising large number of cultural activities throughout the year to provide a platform to the college students to exhibit their talents.



Figure 9.9: cultural activities@IES College of Technology, Bhopal

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IES Mega Decade Celebration 2K17
Open Band Stage Program @ IES Campus on 21st April 2K17

Figure 9.10: cultural activities@IES College of Technology, Bhopal

Detail of Technical Events by Students

Table 9.16: Detail of Students

S.No.	Name of Students	Event	Date	Organized by	Event outcomes
1.	Sonu Kumar	Robo Tech Labs	8-02 to 09-02-2020	IIT Indore	Certificates
2.	Raju Kumar	Robo Tech Labs	13-10 to 16-10-2018	IIT Delhi	Certificates
3.	Raju Kumar	NOESIS 5.0		MANIT	Certificates

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B. NCC, NSS and other clubs

NCC/NSS Committee basically focus on extra-curricular activities and holistic personality development of students & also include rural outreach programs.

Roles & Responsibilities:

- Develop a sense of social and civic responsibility amongst students.
- Utilize student's knowledge in finding practical solution to individual and community problems.
- Train students to acquire leadership qualities and democratic attitude.
- Develop community service attitude for handling emergencies and natural disasters.
- Develop character, comradeship, discipline, secular outlook, the spirit of adventure and ideals of selfless service amongst young citizens.

Following activities are organized with deep and active participation of the students.

1. National Cadet Corps Scheme (NCC)
2. National Service Scheme (NSS)
3. Corporate Social Responsibility (CSR)
4. Blood Donation
5. Village adoption for over all awareness development.
6. Tobacco free campus awareness program

Institute conducts Orientation Programmes through Program Officers and committee every year and through it new students register as volunteers and present message to others. NSS Coordinator and District level officer like the Collector and Commissioner are invited to grace the occasion. They provide information related to CSR activities and motivate them.

Table 9.17: The various Co-Curricular activities include:

S. No.	Particular of Event	Detail of Event
01	NCC	Training in NCC instils qualities like nationalism, patriotism, discipline, team spirit, esprit-de-corps, leadership and self confidence and promotes overall personality development. Some Industries give preference to NCC Certificate holders for various jobs.
02	NSS	Students are motivated through personality development and encouraged to participate in activities for social and community

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		service. In our institute NSS implements the issues in society such as tree-plantation, eradication of child labour and other issues in rural areas
03	Blood donation	The college is regularly organizing bloods donation camp under the patronage of RED CROSS in the campus in which large number of students donates blood voluntarily & play their part in lending helping hand to people in the region.
04	Village adoption for over- all awareness development.	A village, BERKHEDI, near the college has been adopted by the Institute; Support for the growth of villagers is being given by providing various facilities.
05	Tobacco free campus awareness program	Regular Programmes are organized on issues of National and International importance such as National Security, Cancer eradication, effect of smoking and relief from smoking and relief from chewing tobacco etc by explaining to students its harmful effect. Drug addiction eradication programmes also organised.

Table 9.18: The various NCC activities include during assessment year

Detail of NCC activities (ECE Department)					
Sn.	Activity	Details	Date	Person	No. of Students participated
1	Army Attachement Camp Gwalior	Attachement of NCC Cadets with regular Army Unit	4 Sept to 20 Sept 2017	Gwalior military Station	1
2	NCC 'B' Certificate Examination 2017-18	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	20,21 Feb 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	3
3	NCC 'C' Certificate Examination 2017-18	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	27,28 Feb 2018	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	2
4	International yoga day	10 Cadets of IES College Participated in Yoga Day program of Chief minister at Lal Parade ground	21-Jun-18	Akhilesh Dwivedi (NCC Caretaker), R S Dhumketi (PI Staff)	2
5	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	10 - 19 June 2018	under 2 MP Air Squadren	0
6	Enrollment of NCC 2018 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	14-Aug-18	Akhilesh Dwivedi (NCC Caretaker), Sub S D Pandey, JCO, Sub R P Chavan NCO	2

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7	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15 Sept -02 Oct 2018	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	4
8	NCC 'B' Certificate Examination 2018-19	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	23-24 Feb 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	1
9	NCC 'C' Certificate Examination 2018-19	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	19-20 Feb 2019	Under Supervision of Col. O P Mishra (Commanding Officer) 1 MP CTR	1
10	Enrollment of NCC 2019 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	12-Aug-19	Akshay Varkale (NCC Incharge) & PI Staff	4
11	No Plastic Awareness Campaign	Under Unnat Bharat Abhiyaan the NCC & NSS Volunteers team of IES College of Technology organized No Plastic Awareness Campaign at adopted village Berkhedi Vzyaft	16-Sep-19	Akhilesh Dwivedi (NCC Caretaker), Prof. R C Maheshwari	5
12	Swachhta Pakhwada	Under Swachhta Bharat Mission NCC Celebrated Swachhta Pakhwada 15 days Program in which daywise activities are scheduled like Cleanliness drive, Awareness Rally etc.	15 Sept -02 Oct 2019	Akhilesh Dwivedi (NCC Caretaker), Sarthak NGO representative.	7
13	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23 June 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	2
14	Firing Practice	Firing by .22 Rifle at firing range Sukhi Sevaniya Bhopal	13-14 Dec 2019	Akhilesh Dwivedi (Associate NCC Officer) & NCC Unit - 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	5

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15	Combined Annual Training Camp at BIST Bhopal	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	20 Dec to 29 Dec 2019	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	1
16	Army Attachement Camp	Attachement of NCC Cadets with regular Army (68 Engineers regiments, Bairagarh)	14-29 jan 2020	68 Engineers Regiment Bhopal	
17	Combined Annual Training Camp	Combined Annual Training Camp is Compulsory activity of NCC. Each cadet attend at least 1 NCC Camp	14 - 23 Jan 2020	2 MP AIR SQN NCC Bhopal	2
18	NCC 'B' Certificate Examination 2019-20	NCC 'B' Certificate Examination at NCC Unit 1 MP CTR Bhopal	18 - 19 Feb 2020	Under Supervision of Col. N P semalti (Commanding Officer) 1 MP CTR	5
19	NCC 'C' Certificate Examination 2019-20	NCC 'C' Certificate Examination at NCC Unit 1 MP CTR Bhopal	25 - 26 Feb 2020	Under Supervision of Col. N P Semalti (Commanding Officer) 1 MP CTR	1
20	Enrollment of NCC 2020 (Selection Process)	Enrollment of Students done once in year under the supervision of NCC Unit 1MP-CTR Bhopal (To maintain the enrolled strength 50)	13-Aug-20	Akhilesh Dwivedi (Associate NCC Officer) & 1MPCTR Bhopal (Col. N P Semalti, Commanding Officer)	5
21	Online Inaugration Ceremony of National Constitution Day	Organized by Ministry of Defence & Youth and sports ministry at Directorate NCC (MP&CG) Chief Guest : Rajnath Singh (Defence Minister) & Guest of Honour : Kiran Rijju (Youth & Sports Minister)	18-Nov-20	Akhilesh Dwivedi (Associate NCC Officer) & ADG NCC Directorate Bhopal (MP&CG)	1
22	Online Webinar on National Constitution Day	Online Webinar on National Constitution Day, Expert ; Justice Alok Verma (Judge High Court	26-Nov 20	Akhilesh Dwivedi (Associate NCC Officer) & Senior Faculty Member of IES College of Technology	7

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Blood Donation Camp: IES College of Technology, Bhopal has been participating regularly in blood donation camps conducted by our group of Institutes. Various Blood Donation activities include:

Table 9.19: Detail of Blood donation camp

S.No.	Date	Activity	Contribution	Mapping
1	06-02-2020	Blood Donation Camp by Gandhi Medical College Bhopal	10 students are participated from EC Branch	PO6, PO7
2	01-10-2018	National Blood Donation Day Camp	36 Students of IES College of Technology Participated and donated blood	PO6,PO7, PO12
3	16-01-2015	Blood Donation	Students participated in blood donation organized by Dainik Bhaskar Group	PO6, PO9
4	28-02-2015	Donor Motivation & Recruitment for Voluntary Blood Donation	Our Faculty motivated students for Blood donation program	PO7, PO12

Table 9.20: Detail of Students

S.No.	Name of Students	Name of Students	Date	Name of program & Organizer
1	0177EC161015	ANAND PRAKASH MISHRA	06/02/20	Gandhi Medical College
2	0177EC161017	ANIMESH KUMAR		
3	0177EC161019	ANUP SHARMA		
4	0177EC161020	ASHISH KUMAR PATHAK		
5	0177EC161022	ASIF HODA		
6	0177EC161023	ASIM DARSHAN		

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Figure 9.11: Blood donation camp Organize by GMC Bhopal@IES College of Technology, Bhopal



MODEL STATE OF ART BLOOD BANK



Gandhi Medical College & Hamidia Hospital, Bhopal

Tel.: 0755 - 4050148

Fax : 0755 - 2540051

No. 326 BB/HH/BPL/2020

Dated 13/06/2020

Certificate of Appreciation

This is to certify that Ninety Four (94) Students and Staff of IES College of Technology Voluntarily Donated Blood at a Voluntary Blood Donation Camp held at IES Campus Ratibad, Bhopal on 06th February 2020.

We look forward to the continuous engagement and partnership in future as well with IES College of Technology, Bhopal in this noble cause.


Dr. U. M. Sharma
Blood Bank Officer I/C
GMC & Hamidia Hospital, Bhopal

To,
Prof. Sonu Lal
IES College of Technology
Bhopal

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C. Annual student activities

Table 9.21 Detail of sport activities

S.no	Activity	Date	Year	Mapping
1	Judo Nodal level Tournament	23-06-2019	2019	PO6, PO9
2	West Zone inter University Cricket Tournament	15-05-2019	2019	PO9, PO12
3	Basketball State level Tournament Male/Female	24-11-2018	2018	PO6, PO9, PO12
4	Basketball Nodal level Male/Female Tournament	11-02-2018	2018	PO9, PO12
5	Cricket State level Tournament	03-01-2018	2018	PO6, PO9
6	Nodal level Football Tournament	14-09-2017	2017	PO6, PO12
7	Cricket Nodal level Tournament	04-08-2017	2017	PO6, PO12
8	Nodal Level Yoga	05-03-2017	2017	PO9, PO12
9	Sports Day (Three leg Race, Frog Race, Skipping Race, Push-ups, Relay Race)	01-11-2017	2017	PO7, PO9, PO12

Table 9.22: Detail of Cultural activities

S. No.	Particular of Event	Detail of Event
01	IES Inter School Singing and Dancing Competition	Inter school singing and dancing competition were organized to promote young boys and girls since last 3 years
02	AGAZ	Dedicated for fresher's Students
03	UTKARSH	Annual function
04	UDAAN	Farewell to final year students
05	SPIC MACAY (Society for the Promotion of Indian Classical Music And Culture Amongst Youth)	Student chapter in association with MANIT has been organizing minimum 4/5 functions each year with a contribution of National/ Padmashri level artists.
06	INFOREA	Inter college Technical festival organized by students independently.
07	Diwali Carnival	Celebration of Diwali prior to the holidays.
08	Rangoli	Institute organizes rangoli event to environmental awareness and carry out poverty eradication generate programme in the civil society through youth awareness all levels of the society.

[SELF ASSESSMENT REPORT]

09	Mehendi	It is organized to offer a chance for participants to gain substantial experience, showcase skills, dissect and appraise outcomes and unearth personal aptitude. It also encourages students to adopt innovative techniques and develop their ideas and creative skills.
10	Painting	The aim of the drawing competition is to engage students in a creative exercise to identify their hopes and dreams for the future. It allows complete self expression and supports their creativity and innovative expression through art.

[SELF ASSESSMENT REPORT]

CRITERION 10	Governance, Institutional Support and Financial Resources	120
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10. GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES

10.1. Organization, Governance and Transparency

10.1.1. State the Vision and Mission of the Institute

Vision of the Institute

“To develop as a reputed technical institution by imparting quality education coupled with human values for ensuring the overall personality development of engineering students”.

Mission of the Institute:

- M-1:** To provide the best facilities, environment, and infrastructure for the achievement of objectives.
- M-2:** To ensure the availability of intellectual assets in terms of qualified faculty committed to the cause of developing competent engineers and managers.
- M-3:** To put in dedicated efforts for inculcating human values in the students coupled with overall personality development.
- M-4:** To provide value-added courses and projects through Industry-Institute interactions for effective learning and better career opportunities.
- M-5:** To tie-up with Industries and Institutions for developing innovative and entrepreneurial skills of students.

[SELF ASSESSMENT REPORT]

10.1.2. Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies

Governing Body

The members of Governing Body for the session 2020-21

S. No.	Name	Designation	Designation in the Governing body
1	Er.B.S.Yadav	Chairman, Infotech Education Society, Bhopal	Chairman
2	Dr. Sunita Singh	Secretary, Infotech Education Society, Bhopal	Member
3	Mr. Devansh Singh	Treasurer, Infotech Education Society, Bhopal	Member
4	Dr R K Singhai	AICTE Representative	Member
5	Dr. Y K Agrawal	DTE Representative	Member
6	Dr.S S Kushwaha	RGPV Representative	Member
7	Prof. Kalika Yadav	Educationist	Member
8	Mr. R C Maheshwari	Assistant Professor, IES College of Technology, Bhopal	Member
9	Dr. D K Gupta	Professor, IES College of Technology, Bhopal	Member
10	Mr. Manoj Modi	Industrialist, Founder and Managing Director, Nexcity Solutions Pvt. Ltd, Bhopal.	Member
11	Dr. G K Pandey	Principal, IES College of Technology, Bhopal	Member Secretary

Functions of the Governing Body:

- The Governing Body has been constituted as per AICTE norms and is the supreme administrative body of the institution.
- To participate and approve the vision and strategic mission statements of the Institute.
- To formulate the policies of the institution with regard to academics and other activities.
- To discuss and approve the annual budgetary allocations of Institute.

[SELF ASSESSMENT REPORT]

- To review the progress of academic and other related activities of the Institute.
- To approve the important decisions and amendments as required by the Institute.
- To review the implementation of the policies of the Institution.

Frequency of meet: Biannually

Minutes of the last meeting is annexed as below

S. No.	Academic Year	No. of meetings conducted
1	2020-21	2
2	2019-20	3
3	2018-19	2
4	2017-18	3

[SELF ASSESSMENT REPORT]

MINUTES OF THE MEETING OF GOVERNING BODY OF IES COLLEGE OF TECHNOLOGY HELD ONLINE ON 21/09/2020 AT 4.00 PM

Dr. G K Pandey, Member Secretary-Governing Body, extended a warm welcome to all the members present online.

The following members attended the online meeting of Governing Body:

Sr. no.	Name	Designation	Designation in the Governing Body
1	Er.B.S.Yadav	Chairman, Infotech Education Society, Bhopal	Chairman
2	Dr. Sunita Singh	Secretary, Infotech Education Society, Bhopal	Member
3	Mr. Devansh Singh	Treasurer, Infotech Education Society, Bhopal	Member
4	Dr R. K. Singhai	AICTE Representative	Member
5	Dr. Y.K. Agrawal	DTE Representative	Member
6	Prof S. S. Kushwaha	RGPV Representative	Member
7	Prof. Kalika Yadav	Educationist	Member
8	Mr. R.C.Maheshwari	Asst. Prof. IES College of Technology, Bhopal	Member
9	Dr. D.K. Gupta	Prof. IES College of Technology, Bhopal	Member
10	Mr. Manoj Modi	Industrialist, Founder and Managing Director, Nexcity Solutions Pvt. Ltd, Bhopal.	Member
11	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	Member Secretary

Member Secretary, Governing Body further took up following agenda items for discussion and deliberation:



[SELF ASSESSMENT REPORT]

Agenda Item 1: To confirm the minutes of the previous meeting held on 14/03/2020

Resolution: Governing Body confirmed the minutes of the previous meeting and approved the action taken on the minutes of the last meeting held on 14/03/2020.

Agenda Item 2: Regarding submission of pre-qualifier for Engineering and Technology discipline

Resolution: Dr G. K. Pandey, Principal, presented the filled-up proforma of pre-qualifier for Engineering and Technology disciplines of Mechanical Engineering, Computer Science and Engineering, Electrical and Electronics Engineering, and Electronics and Communication Engineering before the Governing Body members for their information and further direction. All members of the committee unanimously decided to submit the pre-qualifier for these programs.

Agenda Item 3: To present the result of B. Tech 8th semester

Resolution: Dr G.K. Pandey, Principal presented the results of B.Tech. 8th semester, which was 100 % for all branches. Committee members congratulated the principal, teaching and non-teaching staff for their contribution in excellent results by our students in RGPV examinations, and further motivated to perform even better in next exams.

Attached as per Annexure-I

Agenda 4: To present the academic and other important activities and events of the college from 01-01-2020 till date

Resolution: Dr. G. K. Pandey, Principal, presented various academic and other important activities and events of the college from 01-01-2020 to 20-08-2020.

Students' achievements in Job oriented Training Programs organized by different departments were also highlighted. Committee members acknowledged that conducting various academic, co-curricular, and placement activities in such testing circumstances demanded extraordinary focus and determination. Expressing their satisfaction over the response of College authorities in the current situation, the members appreciated the Principal, HODs & faculty for their efforts.

Agenda 5: To present the information regarding the grant of Extension of Approval by AICTE for the year 2020-2021



[SELF ASSESSMENT REPORT]

Resolution: Dr. G.K. Pandey, Principal, shared with committee members that Extension of Approval of AICTE has been obtained without any issues for all the existing courses for the year 2020-2021. All members congratulated Dr. Pandey for the above achievement.

Agenda 6: Approval of teaching staff recommended by Selection Committee

Resolution: Dr G K Pandey presented the information regarding recommendation of Selection Committee for staff appointments and the Governing Body approved the same.

Attached as per Annexure-II

Agenda 7: To present the plan of action for campus working w.e.f. August/ September 2020

Resolution: Dr G K Pandey presented the following plan of action for conduct of class work w.e.f. August/ September 2020 in view of COVID-19.

- All employees and visitors must follow the Home Ministry SOPs and directions regarding Covid.
- Wearing mask in the campus to be made mandatory.
- Maintaining social distance
- Every student and employee entering the premises to be subjected to thermal screening and sanitization at the main entrance.
- All important spaces to be sanitized by sodium hypo-chloride.
- Observing *COVID Appropriate Behaviour* in the Campus premises.

Agenda 8: Online classes for all years in the current semester of 2020-2021:

Resolution: Dr. G.K. Pandey apprised the members that for running online classes as per Government guidelines, requisite facilities were available in the campus such as high speed broadband internet facility with 100 MBPS speed, Microsoft Teams and related support infrastructure for online learning. Expressing satisfaction over the available resources, all members unanimously agreed to the conduction of online classes in view of COVID-19 pandemic.

The Chairman thanked all the members for their active participation and wished all good health.



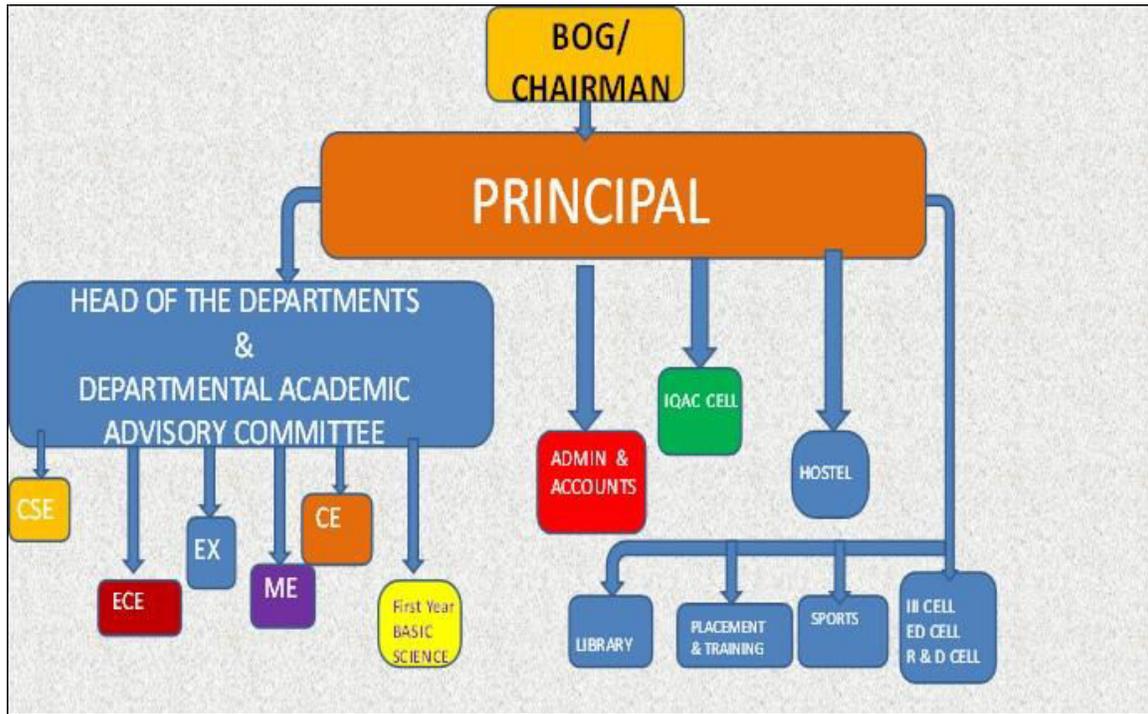
Member Secretary

IES College of Technology, Bhopal

Member Secretary
Governing Body
IES College of Technology, Bhopal

[SELF ASSESSMENT REPORT]

Administrative Set up



Roles and Responsibilities:

Position	Functions
Chairman, Governing Body	<ul style="list-style-type: none"> Chairman is the Chief Mentor of the Institution, and heads the Governing Body (GB). He is the final authority to approve all policy matters on expansions, collaborations, financial outlays, budgetary allocations and admin related decision. He approves the recruitment of senior management staff.
Principal	<p>The Principal is the head of the Institution and responsible for:</p> <ul style="list-style-type: none"> Planning of the establishment of various departments and the various administrative units of the college. Coordination of various activities connected with admissions, teaching, conduct of examinations, collection of fees, publishing course files and manuals. Identification and recruitment of suitable persons to man the various departments and administrative units.

[SELF ASSESSMENT REPORT]

	<ul style="list-style-type: none"> • Development of various laboratories, Computer centre and library of an educational Institution. • Maintaining cordial relationship with the university authorities, Directorate of technical education, AICTE and such other policy making bodies who matter. • Preparation of the minutes of meetings <ul style="list-style-type: none"> ○ Preparation of the budget for approval of management ○ Regularly apprising the management about the various activities. • Planning of functions like Annual Day, Fresher’s Day • Steering organization of seminars, symposia, short-term training programme and Faculty Developments Programmes.
<p>Head of Departments</p>	<p>The Head of departments is responsible for:</p> <ul style="list-style-type: none"> • Administration of the department in respect of regularity, punctuality, distribution of teaching work and laboratory work among the staff. • The HOD should be well informed about the activities and programs of other professional colleges and institutions. HOD should keep good contacts with the faculty of IITs, other Universities and colleges in the country and to the extent possible, Universities abroad. • Preparation of class-wise timetables. • Maintain laboratory-wise stock registers • Organizing special lectures by experts, technical staff, seminars & conferences and refresher courses. • Encourage the faculty and staff to improve their academic qualifications without effecting normal curriculum. • Encourage students to develop communication skills, report writing, debating and group discussions etc. • Maintaining cordial relations with local industries and also develop contacts in general with industry. • Extend all possible help to students of the department for

[SELF ASSESSMENT REPORT]

	<p>training/project work/professional employment.</p> <ul style="list-style-type: none">• Efforts are to be put in to enhance the computing skills of the students of the department.
Account & Admin	<ul style="list-style-type: none">• Recording and reporting the cash flows.• Accounts receivable &Accounts payable• Payroll & Financial controls
Industry Institute Interaction Cell	<ul style="list-style-type: none">• To create a platform for industry institute interaction.• To establish inter-relationship between Institute &Industry through know-how and MOU's.• To facilitate student/faculty internships at industries.• To organize industrial visits for the students.• To organize technical talks for the students from the industry experts.
Entrepreneurship Development Cell	<ul style="list-style-type: none">• To nurture the student ideas and to develop innovative products.• To support the student projects with funding.• To establish & maintain incubation centre.• To create entrepreneurs echo system for students.• To maintain data relevant to entrepreneurship programmes.• To encourage & establish start-up companies.

INTERNAL QUALITY ASSURANCE CELL

The Internal Quality Assurance Cell (IQAC) ensures the effective implementation of quality initiatives through continuous reviews and periodic meetings. The IQAC works towards attaining excellence in all academic and administrative endeavors of the institution. The IQAC is meant for planning, guiding and monitoring Quality Assurance (QA) and Quality Enhancement (QE) activities of the college.

[SELF ASSESSMENT REPORT]

The members of Internal Quality Assurance Cell for the session 2020-21

S.No.	Name	Designation	Designation in IQAC
1	Dr. G. K. Pandey	Principal, IES College of Technology Bhopal	Chairman
2	Dr. Sunita Singh	Secretary Promoting Society (Management Representative)	Member
3	Dr. Meera Bansal	Principal, IES College of Education (Local Society Representative)	Member
4	Ms. Monika Singh	Society Representative	Member
5	Mr. Surendra Raghuvanshi	Administrative officer	Member
6	Dr. Rajesh Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
7	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
8	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology Bhopal	Member
9	Prof. R C Maheshwari	Assistant Professor & Head, Department of Civil Engineering, IES College of Technology Bhopal	Member
10	Mr. Neeraj Agrawal	Associate Professor & Head, Department of Mechanical	Member

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		Engineering, IES College of Technology Bhopal	
11	Dr. Rashmi Shrivastava	Associate Professor & First Year I/C Department of Basic Science, IES College of Technology Bhopal	Member
12	Mr. Niket Chandrawanshi (Senior Cloud Automation Engineer-FIS Global)	Entrepreneur, IBS Bhopal	Member
13	Mr. Roshan Chourasia (CSE)	Student Representative	Member
14	Mr. C P Sharma CEO-Daulatram Industries	Industry Representative	Member
15	Mr. Veerapajee Shivanna	(Head-Campus Hiring Hexaware Technologies) Industrial Representative	Member
16	Mr. Siddharth Prakash	(Principal Research Program Manager at Microsoft Research) Industrial Representative	Member
17	Mr. Subhag Singh Rajput F/O Ms. Lalnee Rajput (Students CSE)	Parents Representative	Member

Functions and Responsibilities:

- Development and implementation of quality benchmarks parameters for various academic research and administrative activities of the institution.
- To take decision about the academic plan, implementation of academic strategies, quality improvement decision, etc.

[SELF ASSESSMENT REPORT]

- Provide guidance and advice to the college in maintaining a high academic standard.
- Review of feedback response from students, parents and other stakeholders on quality-related institutional processes.
- Dissemination of information on various quality parameters to all stakeholders
- Approval of inter and intra-institutional workshops, seminars on quality related themes and promotion of quality circles.
- Documentation of the various programs /activities leading to quality improvement
- Annually conduct of Academic and Administrative Audit and its follow-up.

Departmental Academic Advisory Committee

The Departmental Academic Advisory Committee has been framed with the objective of remaining up to date with the latest requirements of the industry and incorporating necessary components in the curriculum as much as possible.

The members of Departmental Academic Advisory Committee for the session 2020-21

S.N.	Name	Designation	Role in Departmental Academic Advisory Committee
1	Dr. Rajesh Kumar Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Chairman
2	Dr. Pramod Patel	Associate Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
3	Mrs. Shweta Singh	Associate Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
4	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
5	Dr. Rakesh Singhai	Professor UIT RGPV - Bhopal	External Academic Advisor

[SELF ASSESSMENT REPORT]

Roles and responsibilities:

- Aligning of CO's to the mission statements and defining program specific outcomes.
- Suggest improvement in academic plans for attainment of POs & PSOs.
- To identify and suggest thrust areas to conduct various activities (final year projects, training courses and additional experiments to meet PSOs.
- Encourage for industry-institute interactions to bridge up curriculum/industry gap and suggest quality improvement initiatives to enhance employability.
- To propose necessary action plan for skill development of students, required for entrepreneurship development and quality improvement.

Institute Innovation Cell

Institutions Innovation Cell (IIC) at institute is a unique model based on Hub-Spoke and coherence approach to align with the innovation and entrepreneurship promotion and support programs to ensures round the year activities in campus for effective engagement, learning and practicing innovation and entrepreneurship among student and faculty community. IIC is approved by AICTE & granted 4 Star rating during 2019-20.

The members of Institute Innovation Cell for the session 2020-21

S.No.	Name	Designation	Designation in IIC Cell
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	President
2	Mr. Sonu Lal	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Vice-president
3	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Convener
4	Ms. Khushbu Kriplani	Assistant Professor,	Innovation activity Coordinator

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		Department of Computer Science & Engineering, IES College of Technology, Bhopal	
5	Mr. Jagdish Prasad	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Startup activity Coordinator
6	Mr. Anshul Sarawagi	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Internship Coordinator
7	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	IPR Activity Coordinator
8	Mr. Surendra Raghuwanshi	Administrative Officer	Social Media Coordinator
9.	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	ARII Coordinator
10.	Mr. Nitin Chourasia	Assistant Professor, Department of Management, IES College of Technology, Bhopal	NIRF Coordinator
11.	Mr. Vijay Dhote	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
12.	Mr. Deepan Banoriya	Assistant Professor, Department of Mechanical	Member

[SELF ASSESSMENT REPORT]

		Engineering, IES College of Technology, Bhopal	
13.	Mr. Rakesh Yadav	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
14.	Mr. Ashish Raghuwanshi	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
15.	Mr. Anwar Ahmed	Student Coordinator	IPR Coordinator
16.	Mr. Anshul Suman	Student Coordinator	Social Media Coordinator
17.	Ms. Shweta Singh	Student Coordinator	Start-up Coordinator
18.	Mr. Aditya Shankar	Student Coordinator	Innovation Coordinator

Roles and responsibilities:

- To ensure the activities circulated by AICTE IIC Council and MIC and identify the activity at institution level related to innovation, incubation and entrepreneurship.

Research & Development Committee

The Quality Mandate of institution policy to emphasize importance of promoting quality research by the faculty and creating new knowledge. Number of research articles published in reputed journals is one of globally accepted indicators considered for various academic purpose. High quality publications in reputed journal help in achieving ranks and overall improvements of quality of education. It reviews DAAC recommendation in respect of research and project activities.

[SELF ASSESSMENT REPORT]

The members of Research & Development Committee for the session 2020-21

S.No.	Name	Designation	Designation in Research & Development Committee
1	Dr. G. K. Pandey	Principal, IES College of Technology Bhopal	Chairman
2	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology Bhopal	Convenor
3	Dr. Rajesh Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
4	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
5	Mr. Neeraj Agrawal	Associate Professor & Head, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
6	Mr. R.C. Maheshwari	Assistant Professor & Head, Department of Civil Engineering, IES College of Technology Bhopal	Member
7	Dr. Anil Kumar Yadav	Associate Professor, Department of Computer Science & Engineering, IES College of Technology Bhopal	Member

Roles & Responsibilities:

- To review research project proposals for grants / sponsorship.
- To support and encourage the faculties for research publication and consultancy.
- To approve facilities for research through collaboration / inter-disciplinary modes.
- To monitor student projects evaluation and review.

[SELF ASSESSMENT REPORT]

Training & Placement Committee

Training & Placement Committee provides career guidance about avenue open after graduation (Higher education, placements or entrepreneurship). It provides opportunity of recruitment to students and maintains good relations with recruiters & organizing Pre placement trainings.

The members of Training & Placement Committee for the session 2019-20

S.No.	Name	Designation	Designation in Training & Placement Committee
1	Er. Kishore Purswani	Sr. Assistant Professor & Director (Training & Placement), IES College of Technology, Bhopal	Chairman
2	Ms. Khushbu Kriplani	Assistant Professor & Training & Placement Officer , Department of Computer Science & Engineering, IES College of Technology Bhopal	Convenor
3	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology, Bhopal	Member
4	Mr. Anshul Sarawagi	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
5	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
6	Mr. Deepan Banoriya	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
7	Mr. Pulkit Kumar	Student coordinator, IES College of Technology, Bhopal	Member
8	Mr. Shivam Kumar	Student coordinator, IES College of Technology, Bhopal	Member
9	Mr. Dev Maheshwari	Student coordinator, IES College of Technology, Bhopal	Member

Roles & Responsibilities:

- To organize& ensure imparting proper training skills to the students by the trainers.
- To organize placements drives.

[SELF ASSESSMENT REPORT]

- To organize skill development programs for students through internal & external experts.
- To maintain data of students placement & entrepreneurship.
- To organize periodical meets of alumni association.
- To publish placement data in institute website time to time.
- To arrange for carrier guidance.
- To enhance employability of students by empowering them with technical competencies, Domain Skills, leadership, techno-managerial qualities and communicative abilities to ensure they are industry ready.

Entrepreneurship Development Cell

This cell is launched with a view to encourage students to consider self-employment as a career option, provide training in Entrepreneurship through modular courses and increase the relevance of Management particularly in the non-corporate and under managed sectors.

The members of Entrepreneurship Development Cell for the session 2019-20

S.No.	Name	Designation	Designation in Entrepreneurship Development Cell
1	Er. Kishor Purswani	Sr. Assistant Professor, Department of Mechanical Engineering, IES College of Technology Bhopal	Chairman
2	Mr. Anubhav Sharma	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Convenor
3	Mr Divyansh Singh	CEO, Innovative Business Solution, Bhopal	Member (Industry Expert)
5	Mr Shantanu Boss	CEO, ARG Technocrats, Noida, New Delhi	Member (Alumni)
6	Mr. Padmakar Pachorkar	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
7	Mr. Dhanesh Khalotia	Assistant Professor, Department of Civil Engineering, IES College of Technology Bhopal	Member

[SELF ASSESSMENT REPORT]

Roles & Responsibilities:

- To nurture the student ideas and to develop innovative products.
- To support the student projects with funding.
- To establish & maintain incubation centre.
- To create entrepreneurs echo system for students.
- To maintain data relevant to entrepreneurship program.

NCC/NSS Committee

NCC/NSS Committee basically focus on extra-curricular activities at institute level. It aims at holistic personality development of students & also includes rural outreach programs.

The members of NCC/NSS Committee for the session 2020-21

S.No.	Name	Designation	Designation in NCC/NSS Committee
1	Dr. G.K.Pandey	Principal, IES College of Technology, Bhopal	Chairman
2	Mr. Akhilesh Dwivedi	Assistant Professor & Associate NCC Officer, Department of Electrical & Electronics Engineering, IES College of Technology, Bhopal	Convenor
3	Dr. Pramod Patel	Assistant Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
4	Mr. Akshay Varkale	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
5	Mr. Deepan Banoriya	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
6	Mr. Amit Pandey	Student Representative, IES College of Technology, Bhopal	Member
7	Mr. Abhishek Kumar	Student Representative, IES College of Technology, Bhopal	Member

[SELF ASSESSMENT REPORT]

Roles & Responsibilities:

- To develop a sense of social and civic responsibility amongst students.
- To utilize student's knowledge in finding practical solution to individual and community problems.
- To Train students to acquire leadership qualities and democratic attitude.
- To develop community service attitude for handling emergencies and natural disasters.
- To develop character, comradeship, discipline, secular outlook, the spirit of adventure and ideals of selfless service amongst young citizens.

Service rules, Procedures, Recruitment and Promotional Policies Recruitment Procedure

Based on statutory requirement as per All India Council for Technical Education Pay Scales, Service Conditions and Qualifications for the Teachers and other Academic Staff in Technical Institutions (Diploma) Regulations, 2010 and subsequent amendments/ new Regulations issued by AICTE from time to time, mentioned below, a document is prepared for publication with a view to recruit best possible talent available.

PARAGRAPH-I:

For Faculty members:- Faculty members are recruited on the basis of qualification prescribed by AICTE for various cadres as for G.R. No. F-37-3/legal 2010 dt. 22/01/10.

S.N.	Cadres	Qualification & Experience	Remark
1	Principal	As per AICTE Norms in force from time to time.	Qualifications as presented in paragraph I and as applicable for the post of Principal. Post PhD publications and guiding PhD students is highly desirable. Minimum of 10 years teaching and/or research and/or industrial experience of which at least 3 years should be at the level of Professor. Or Minimum of 13 years experience in teaching

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			and/ or Research and/or Industry. In case of research experience, good academic record and books/research paper publications/ IPR/patents record shall be required as deemed fit by the expert members in Selection committee. If the experience in industry is considered, the same shall be at managerial level equivalent to Professor with active participation record in devising/designing, developing, planning, executing, analyzing, quality control, innovating, training, technical books/research paper publications/IPR/patents, etc. as deemed fit by the expert members in Selection committee. Flair for Management and Leadership is essential.
2	Professor	do	<p>Qualifications as prescribed in paragraph I and as applicable for the post of Professor. Post PhD publications and guiding PhD students is highly desirable.</p> <p>Minimum of 10 years teaching and/or research and/or industrial experience of which at least 5 years should be at the level of Associate Professor.</p> <p>Or</p> <p>Minimum of 13 years experience in teaching and/ or Research and/or Industry. In case of research experience , good academic record and books /research paper publications /IPR / patents record shall be required as deemed fit by the expert members in Selection committee. If the experience in industry is considered, the same shall be at managerial level equivalent to Associate Professor with active participation record in devising/ designing, planning, executing, analyzing, quality control, innovating, training, technical books/research paper publications/IPR/patents, etc. as deemed fit by the expert members in Selection committee.</p>
3	Associate Professor	do	Qualification as prescribed in paragraph I

[SELF ASSESSMENT REPORT]

			and as applicable for the post of Associate Professor and PhD or equivalent in appropriate discipline. Post Ph.D publications and guiding PhD students is highly desirable Minimum of 5 years experience in teaching and/or research and/or industry of which at least 2 years post PhD is desirable.
4	Assistant Professor	do	BE/BTech and ME/M.T.ech in relevant subject with First Class or equivalent either in BE/B.Tech or ME/M.Tech.

Service Rule

Service Rules

IES College of Technology has a firm belief that the contribution of its intellectual assets i.e. faculty members is the back bone of Organization's progress and prosperity.

The service rules have been designed keeping in view not only the organization objectives but also for ensuring empowerment of its employees in tandem with facility, authority and responsibility.

1. Pay scale will be as per AICTE norms and allowances shall be, as decided by the Society/College management from time to time.
2. Employee will have the freedom to work within Organization rules and regulations.
3. An employee will be on probation for a period of 1 year, which may be extended by the appointment authority if required. The regularization of the probation would depend upon the suitability of work performance during the period of probation. The decision of the appointing authority about the suitability of the confirmation/probation shall be final and binding.
4. Continuous unauthorized absence from the duty will be treated as an act of indiscipline and will lead to the termination of the services from the date of absence.
5. An Employee will not be allowed for teaching in any tuition/coaching class or running educational institute/coaching centre.

[SELF ASSESSMENT REPORT]

6. An employee intending to resign will have to give a notice of minimum 45 days in advance & will have to discharge his duties this period at work place compulsory failing which he /she will have to deposit salary equivalent to one month.
7. Exemplary behaviour is desirable.
8. .Keeping the fast rate of knowledge explosion, faculty is supposed to keep their knowledge up to the Mark.
9. Faculty is given adequate opportunity for professional growth.
10. Knowledge Up gradation: IES College of Technology strongly believes that learning is a lifelong process. Hence ICOT encourages Faculty members to present papers in National / International Conferences / Seminars and get their research papers published in prestigious technical magazines. Facilities extended for accomplishment of this objective are enumerated below:

S.No.	Particular	Facility
1	National Seminars/Workshop/FDP	1. 100 % Registration fee. 2. 3rd AC fare for Asst. Professors & by 2nd AC for Associate Professors & above. 3. Special Leave
2	International Seminars	R & D Committee decides as per the merit of the case
3	Seminars at Bhopal	Special Leave
4	Publication fee for SCI/Scopus/WoS Journals	1. All in house guidance & help for preparation 2. 50 % of amount payable for publication

11. Membership of Professional Bodies: Faculty is encouraged to get themselves enrolled in professional Bodies. Subsidy to the extent possible is considered by R & D Cell on the recommendations of Principal.
 - Higher Studies: Application of faculty members desirous of seeking higher studies are considered for Study Leave on case to case basis.

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- **Assessment and Increment:** Annual increment is considered after completion of one year from the date of joining and shall be effective from the month of April, August, December- which ever month comes first after completion of one year. Increment is subject to satisfactory performance.

Note: Over and above this if a paper is also presented in any prestigious event enumerated above then R & D Cell shall consider special cash award also on case to case basis based on the recommendation of Principal.

- **Leave Entitlement**

Leave entitlement is as below for Faculty & staff.

S.No.	Type of Leave	Entitlement	Remark
1	Casual leave	08 CL / year	Faculty
		08 CL / year	Other Staffs
2	Short leave	06 / year	Faculty/ Staffs
3	Medical leave	05 / year	Faculty/ Staffs
4	Semester Break leave	05 / semester break	For faculty after completion of one year
5	Study Leave	After Completion of Minimum 02 years	Case to case basis
6	Maternity Leave	90 days	Only for female
7	Marriage leave	07 days	Faculty/ Staffs
	Tragedy in blood relation	13 days	

An employee should apply for the leave in advance and get it sanctioned from the authority. In Case of any emergency faculty can inform the authorized person through message/call.

[SELF ASSESSMENT REPORT]

Authority for sanction of Leave: (CL/EL/SL/ML):

S.N.	Levels	Sanctioning Authority
1	Principal	Secretary, Infotech Education Society
2	HODs	Principal
3	Faculty/Lab I/C	HOD

Responsibilities of Employees

Responsibilities of the Principal:

The Principal shall be the head of the Institution and shall be responsible for:

- i. Planning of the establishment of various departments and the various administrative units of the college.
- ii. Coordination of various activities connected with admissions, teaching, conduct of examinations, and collection of fees, publishing course files, and manuals.
- iii. Identification and recruitment of suitable persons to man the various departments and administrative units.
- iv. Development of various laboratories, Computer centre, library and all other facilities required.
- v. Maintaining cordial relationship with the university authorities, Directorate of technical education, AICTE and such other policy making bodies.
- vi.
 - a. Preparation of the minutes of meetings
 - b. Preparation of the budget for approval of management
 - c. Regularly apprising the management about the various activities.
- vii. Planning of functions of Sports, Cultural & Technical events. Steering organization of seminars, symposia, short-term training programme and Faculty developments Programmes.

Responsibilities of Heads of Departments (HOD's):

- i. Administration of the department in respect of regularity, punctuality, distribution of teaching work and laboratory work among the staff and ensure completion of syllabus in time as per academic calendar.
- ii. Maintain the relevant topic-wise files and ensure “place for everything and everything in its place”.
- iii. The HOD should be well informed about the activities and programs of other professional colleges and institutions. HOD should maintain good professional contacts with the faculty of IITs, NITs and other reputed Universities and colleges in the country.
- iv. Preparation of class-wise timetables.
- v. Ensure compilation of student's attendance and sessional marks and maintain the relevant files and records for future reference.

[SELF ASSESSMENT REPORT]

- vi. Coordinate the work in connection with the preparation of course files, laboratory manuals and such other documents and updation from time to time. Development of various laboratories and arrangements for regular maintenance, updation of the laboratories by procuring the equipment required to perform experiments listed in the syllabus.
- vii. Maintain laboratory-wise stock registers one for capital equipments and the other for components & spares.
- viii. Procure spares and components and stock them and maintain inventory laboratory-wise.
- ix. Coordinate the activities of technical associates, ISTE, IETE, IEEE and such other professional associations.
- x. Organize special lectures by experts, technical staff, seminars & conferences and refresher courses.
- xi. Encourage the faculty and staff to improve their academic qualifications without effecting normal curriculum.
- xii. Encourage students to develop communication skills, report writing, debating and group discussions etc.
- xiii. Maintaining cordial relations with local industries and also develop contacts in general with industry and R & D organizations in the country.
- xiv. Extend all possible help to students of the department for training/project work/professional employment.
- xv. Enhance the computing skills of the students of the department and organize refresher courses to make up deficiencies.

Responsibilities of Teaching Staff:

Academic Responsibilities:

- i. Classroom Instruction & Laboratory Instruction of high quality in line with the syllabus prescribed by RGPV and relevant advanced topics beyond syllabus.
- ii. To develop curriculum, learning resource materials and laboratories.
- iii. To actively participate in co-curricular and extra-curricular activities of the college and those organized by other institutions.
- iv. Guidance and counseling to promote personal, ethical, moral and overall character of students.
- v. To keep abreast of new knowledge and skills and dissemination of such knowledge through publication of papers, books and seminars etc.
- vi. Self development through up-gradation of qualification and participation in professional activities.

Administration:

- i. To participate actively in academic and administrative management of the institution and also in policy making.

[SELF ASSESSMENT REPORT]

- ii. Planning, monitoring, evaluation and promotional activities at department and institutional level.
- iii. To prepare project proposals for funding in vital areas of R & D.
- iv. Laboratory development and modernization.
- v. To monitor and evaluate academic and research activities.
- vi. To participate in policy planning at the Regional/National level for development of technical education.
- vii. To help mobilization of resources for the institution.
- viii. To plan and implement staff developmental activities.
- ix. To maintain accountancy and to conduct performance appraisal.
- x. To provide non-formal modes of education for benefit of community.
- xi. Any other relevant work assigned by the head of the Institution.

Research & Consultancy:

- i. To actively involve in Research and Development activities, Research guidance and industries sponsored research.
- ii. To provide consultancy and testing services by providing extension services and participating in community services.
- iii. To promote the spirit of entrepreneurship with an aim of creation of jobs.

Ethical Standards for Teachers :

- i. Shall live and lead by example in every sphere of conduct particularly to inculcate a noble culture in students.
- ii. Respect parents, teachers and elders.
- iii. Express the love of brotherhood to fellow students.
- iv. Accept and extend due respect to every religion.
- v. Respect and love the nation.
- vi. Have a sense of belongingness to the institution.
- vii. Total dedication to the teaching profession.
- viii. An urge to excel in professional expertise.

A Teacher- Do's & Don't

- i. Shall wear respectable attire, befitting the society's expectations and shall keep up immaculate personal hygiene at all times.
- ii. Shall always listen to students with concern, whether it be in respect of doubts or it be relating to any personal help.
- iii. Shall always motivate the students, giving them a feeling of comfort and encouraging them.
- iv. Shall attend to parents as a true representative of the institution, clarify their doubts with concern and help understanding the system in a better manner. Assist them in solving the problem and guiding them properly on how and who to approach for further help.
- v. Shall always give the parents authentic and correct information.

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- vi. Shall always accept the entire fellow teachers, honor their sentiments and respect their value system.
- vii. Shall always endeavor to assist fellow teachers, either in their teaching practice or in any form of adjustment required for discharging their responsibilities.
- viii. Shall never chew, smoke or consume alcoholic drinks.
- ix. Shall never gossip or discuss unauthentic information with peers or other members of public which might provoke a sensation of ill feeling of any sort.

10.1.3. Decentralization in working and grievance redressal mechanism

List of faculty members who are administrators/decision makers for various assigned responsibilities:

S. No.	Name	Designation	Administrative powers delegated
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	<ul style="list-style-type: none">• Academic operations.• Resource requirements.• Responsible for meeting Statutory and Regulatory requirements of the Government, AICTE and university(RGPV)
2	Dr. Nikhat Raza	Associate Professor & Head, Department of Computer Science & Engineering, IES College of Technology, Bhopal	<ul style="list-style-type: none">• Assigning duties and monitor faculty performance.• Decide on departmental needs, propose yearly budget and arrange for compliance.• Planning academic activities and training programs.• Monitoring R&D and project activities of the department.
3	Mr. Neeraj Agrawal	Associate Professor & Head, Department of Mechanical Engineering, IES College of Technology Bhopal	
4	Mr. R.C. Maheshwari	Assistant Professor & Head, Department of Civil Engineering, IES College of Technology Bhopal	

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5	Dr. Pallavee Bhatnagar	Professor & Head, Department of Electrical & Electronics Engineering, IES College of Technology Bhopal	
6	Dr. Rajesh Nema	Professor & Head, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	
7	Er. Kishor Purswani	Director, Training & Placement, IES College of Technology, Bhopal	<ul style="list-style-type: none">Organizing Training and Placement activities for students.
8	Dr. G.K. Pandey	Chairman – Industry Institute Interaction cell, IES College of Technology, Bhopal	<ul style="list-style-type: none">Explore and identify common avenues of interaction with industry as per the requirements
9	Dr. G. K. Pandey	Head –Entrepreneurship Development cell, IES College of Technology, Bhopal	<ul style="list-style-type: none">To nurture the student ideas and to develop innovative products.
10	Ms. Preeti Pandey	Student welfare officer, IES College of Technology, Bhopal	<ul style="list-style-type: none">To address student welfare issues.

Women Grievance Cell headed by Ms. Preeti Pandey shall meet Bi-annually and depending on the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.

[SELF ASSESSMENT REPORT]

Women Grievance Cell

Women Empowerment is one of the multidimensional social processes addressing human rights and development, which helps women to gain control over their own lives and gives the ability to make strategic choices of life. This cell is constituted to create a harmonious environment and enable women to discharge their responsibilities at workplace with dignity.

The members of Women Grievance Cell for the session 2020-21

S.No.	Name	Designation	Designation in Women Grievance Cell
1	Dr. Preeti Pandey	Assistant Professor, Department of Basic Science, IES College of Technology, Bhopal	Chairman
2	Dr. Sonali Saha	Associate Professor, Department of Basic Science, IES College of Technology, Bhopal	Convener
3	Dr. Vineeta Jain	Professor, Department of Basic Science, IES College of Technology, Bhopal	Member
4	Mrs. Shweta Singh	Associate Professor, Department of Electronics & Communication Engineering, IES College of Technology, Bhopal	Member
5	Dr. D.K. Gupta	Professor, Department of Basic Science, IES College of Technology, Bhopal	Member
6	Mr. R. C. Maheshwari	Assistant Professor & Head, Department of Civil Department, IES College of Technology, Bhopal	Member
7	Ms. Lalnee Rajpoot	Student (B.tech-4th Yr)	Member
8	Ms. Jahida Khanam	Student (B.tech-3rd Yr)	Member
9	Ms. Megha Pal	Student (B.tech-3rd Yr)	Member

Roles & Responsibilities:

[SELF ASSESSMENT REPORT]

- Create social awareness about gender discrimination.
- Motivate and improve confidence level amongst women staff members
- Organize workshops and seminars for women development.
- To promote personality development, leadership quality and role of women in the society.
- To reach and educate women in rural areas about social and legal rights.
- To handle all grievances related to gender discrimination or women harassment.

Internal Complaint Committee Prevention Sexual Harassment of Women at Workplace

The ICC committee under the provision of Section 4 of Sexual Harassment of Women at Workplace Prevention, Prohibition and Redressal Act, 2013.

S.No	Name	Designation	Position in Internal Complaint committee
1	Dr. Rashmi Shrivastav	Associate Professor, IES College of Technology, Bhopal	Presiding Officer
2	Ms. Preeti Pandey	Assistant Professor, IES College of Technology, Bhopal	Internal Member
3	Ms. Khushbu Kriplani	Assistant Professor, IES College of Technology, Bhopal	Internal Member
4	Mr. Brijesh Soni	Sr. Accountant, IES College of Technology, Bhopal	Internal Member
5	Mr. Pramod Dhakad	Admin coordinator, IES College of Technology, Bhopal	Internal Member
6	Ms. Shweta Singh	Student Representative, IES College of Technology, Bhopal	Student Member
7	Ms. Divya Vishwakarma	Student Representative, IES College of Technology, Bhopal	Student Member
8	Mr. Rajweer Raghuvanshi	Student Representative	Internal Member
9	Mr. Dipesh Singh Parmar	Secretary, Shri Ram Janki Rudra Shiksha Samiti, Bilkishganj, District, Sehore	Outside member

[SELF ASSESSMENT REPORT]

IES College of Technology, Bhopal

Minutes of the Meeting of 'Internal Complaint Committee for Prevention of Sexual harassment of Women at Workplace' held on 28/08/2020 in the Board Room of IES College of Technology at 3:00 pm

Meeting of 'Internal Complaints Committee for Prevention of Sexual harassment of Women at Workplace' of IES College of Technology was held on 28/08/2020 in the Board Room at 3:00 pm.

Members Present:

1. Dr. Rashmi Shrivastav, Presiding Officer
2. Ms. Khushbu Kriplani, Member
3. Mr. Brijesh Soni, Member
4. Mr. Pramod Dhakad, Member
5. Ms. Preeti Pandey, Member Secretary
6. Mr. Dipesh Singh Parmar, NGO External Member
7. Ms. Shweta Singh, Student Member-Connected Online
8. Ms. Divya Vishwakarma, Student Member-Connected Online
9. Mr. Rajweer Raghuwanshi, Student Member-Connected Online

Dr. Rashmi Shrivastava, Presiding Officer, welcomed the members present and requested Member Secretary Ms. Preeti Pandey to give her opening remarks and start discussions about the agenda items.



[SELF ASSESSMENT REPORT]

Agenda 1: Confirmation of the minutes of meeting of Internal Complaint Committee held on 30/08/2019

Resolution: Minutes of the Meeting of 'Internal Complaint Committee for Prevention of Sexual harassment of Women at Workplace' held on August 30, 2019 were read and unanimously passed by the committee.

Agenda 2: Presentation by Ms. Khushbu Kriplani on sexual harassment and their consequences.

Discussion: Ms. Khushbu Kriplani presented various issues regarding sexual harassment of women at workplace. Following were the highlights of the presentation:

1. Details of Indian Law on sexual harassment
2. Objectives of the committee
3. Duties of the employer
4. Details of constitution of Internal Complaints Committee
5. Responsibilities of Internal Complaint Committee
6. Definition of sexual harassment and its types
7. Response to sexual harassment
8. Awareness about 'How to prepare a report on sexual harassment'
9. Do's and Don'ts of sexual harassment at workplace
10. Redressal against sexual harassment at workplace

Committee members appreciated Ms. Khushbu for her efforts in gathering useful information about sexual harassment and practical means to prevent such incidents at workplace.

Agenda 3: To discuss any issue of sexual harassment at the work place.

Resolution: Ms. Preeti Pandey, Member Secretary, informed the committee that no incidence of sexual harassment was reported in the campus in last academic session. Dr. Rashmi Shrivastava expressed her satisfaction over the amicable and safe working conditions for women employees and students in IES Campus.



[SELF ASSESSMENT REPORT]

Agenda 4: Sensitization of non-teaching and other staff of the College

Discussion: Dr. Rashmi Shrivastava highlighted the need of sensitizing non-teaching and other staff of the College like housekeeping, gardening, and security services etc. about sexual harassment issues. After detailed discussion, committee members decided that a poster presentation or power point presentation in their mother tongue should be arranged to create awareness among such staff members. Members also opined that sensitization session for such employees should also create awareness about how to prevent sexual harassment/ how to file a complaint/ submit a report etc.

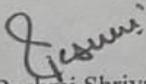
Agenda 5. Discussion on the proceedings of program on "Power of Women"

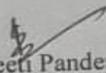
Resolution: Ms. Preeti Pandey informed that a two days' program on "Power of Women" was conducted on 4th & 5th March 2020 at IES Seminar Hall. The invitees for the programme were: Prof. Reeni Malik, Head Dept. of Pathology, Gandhi Medical College; Prof. S B Geeta Nahari, Academician and Psychologist; Dr. Amita Chand, President Bhopal Organ Donor Society; Ms. Richa Choubey, AIG Welfare, MP Police; and Ms. Mayanglambam Inaocha Devi, player from noted Canoeing International. Committee members desired that similar programs should be regularly conducted in campus to enhance confidence in our women employees and female students.

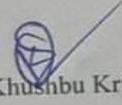
Agenda 6: Any other matter with the permission of the chair.

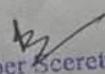
Resolution: Member Secretary Ms. Preeti Pandey further shared that discipline committee of the college had conducted surprise visits in the college bus, class rooms, and canteen time to time to keep vigil on any unwanted incident and ensure smooth functioning in campus.

All members expressed their satisfaction over the active functioning of the committee. The meeting ended with vote of thanks by Member Secretary to all the members.


Dr. Rashmi Shrivastav
Presiding Officer

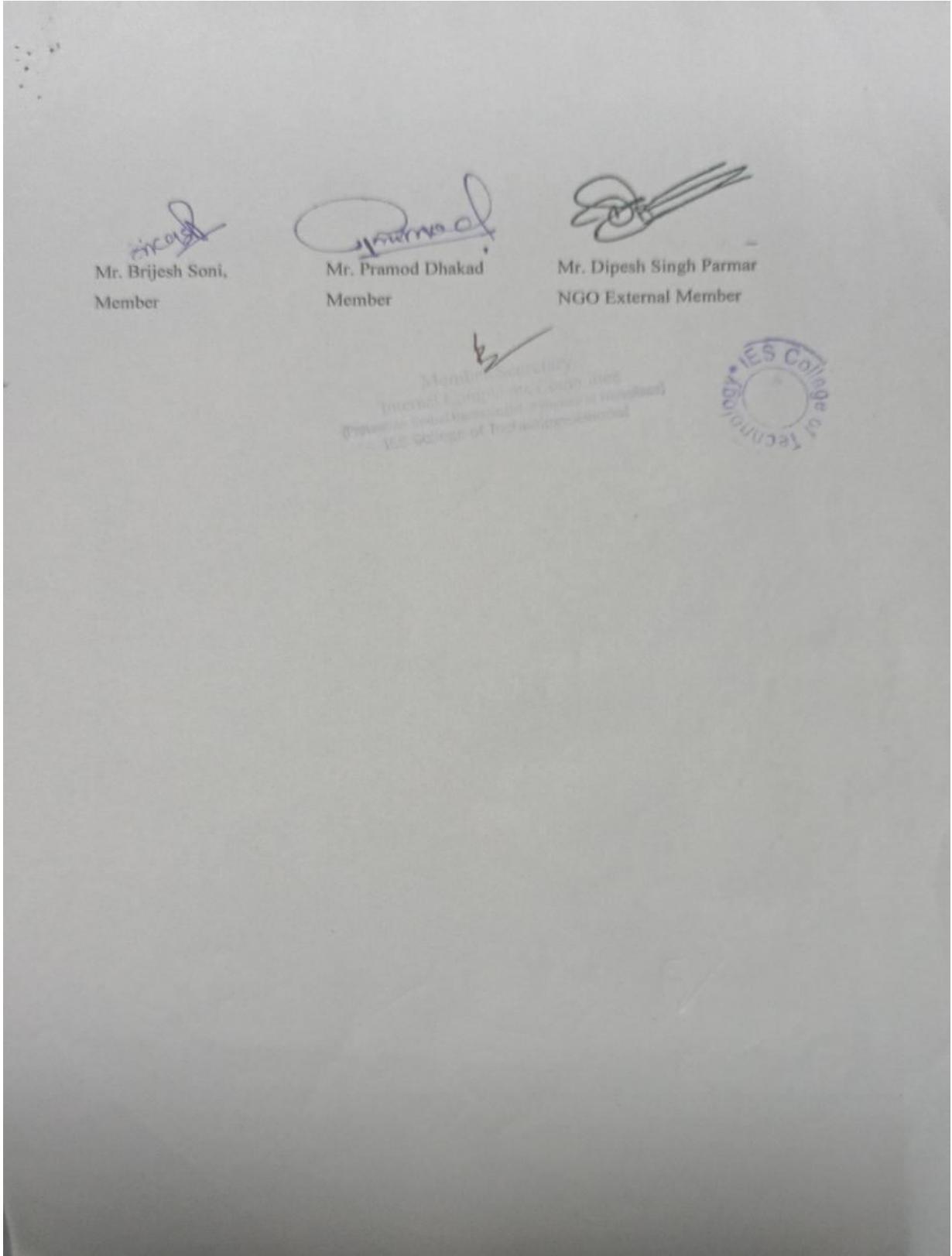

Ms. Preeti Pandey
Member Secretary


Ms. Khushbu Kriplani
Member


Member Secretary
Internal Complaints Committee
(Prevention Sexual Harassment of Women at Workplace)
IES College of Technology, Bhopal



[SELF ASSESSMENT REPORT]



[SELF ASSESSMENT REPORT]

Grievance Redressal Committee headed by Ms. Preeti Pandey shall meet within a month and depending on the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.

Grievance Redressal Committee

Grievance Redressal Committee has been constituted with an aim to address all the grievances of faculty members and students.

The members of Grievance Redressal Committee for the session 2020-21

S.No.	Name	Designation	Designation in Grievance Redressal Committee
1	Dr. Preeti Pandey	Assistant Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Chairperson
2	Dr. D. K. Gupta	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Convenor
3	Ms. Poonam Khatarkar	Assistant Professor, Department of Electrical and Electronics Engineering, IES College of Technology, Bhopal	Member
4	Ms. Shweta Singh	Associate Professor, Department of Electronics & Communication, IES College of Technology, Bhopal	Member
5	Mr. Anshul Sarawagi	Assistant Professor, Department of Computer & Science Engineering, IES College of Technology, Bhopal	Member

Roles & Responsibilities:

- To review, investigate and address complaints or grievances of faculty and students.
- To ensure proper redressal of all complaints and grievances.

[SELF ASSESSMENT REPORT]

Anti-Ragging Committee headed by Dr. G. K. Pandey shall meet Bi-annually and depending on the date of receipt of any petition/complaint from anybody and take necessary action as deem fit and initiate necessary action for solving problem.

Anti-Ragging Committee

According to All India Council Technical Education (AICTE) notified regulation for prevention and prohibition of ragging in AICTE approved technical institutions vide No. 37-3/Legal/AICTE/2009 dated 01/07/2009, the Principal constituted the Anti-Ragging committee.

S. No.	Name	Designation	Designation in Anti-Ragging Committee
1	Dr. G. K. Pandey	Principal, IES College of Technology, Bhopal	Chairman
2	Dr. Dharendra Kumar Gupta	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member Secretary
3	Mr. Deepak Mishra	Assistant Professor, Department of Electronics & Communication, IES College of Technology, Bhopal	Member
4	Mr. Ravindra Mohan	Assistant Professor, Department of Mechanical Engineering, IES College of Technology, Bhopal	Member
5	Ms. Aishwarya Mishra	Associate Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
6	Dr. Vineeta Jain	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member
7	Mr. Deepan Adhikari	Assistant Professor, Department of Management, IES College of Technology, Bhopal	Member
8	Mrs. Pooja Mehta	NGO Abeer Life skills	Member
9	Mr. Rakesh Singh Gurjar	SHO Thana Ratibad, Bhopal	Member

[SELF ASSESSMENT REPORT]

Roles & Responsibilities:

- To create the awareness about Anti Ragging act and punishments among the students and the appropriate law in force.
- To create the awareness about Ragging constitutes (AICTE/UGC Regulation as per the directive of the Supreme Court Ragging CLAUSE 3).
- To prohibit, prevent and eliminate the source of ragging including any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student.
- To prohibit undisciplined activities by any student or students this causes or is likely to cause hardship or psychological harm or to raise fear in any fresher.

Anti-ragging squad:

S. No.	Name	Designation	Designation in Anti-ragging squad
1	Dr. Dharendra Kumar Gupta	Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member
2	Mr. Akhilesh Dwivedi	Assistant Professor, Department of Electrical & Electronics Engineering, IES College of Technology, Bhopal	Member
3	Mr. Vijay Dhote	Assistant Professor, Department of Computer Science & Engineering, IES College of Technology, Bhopal	Member
4	Mrs. Preeti Pandey	Assistant Professor, Department of Basic Sciences, IES College of Technology, Bhopal	Member
5	Mr. Dhanesh Khalotia	Assistant Professor, Department of Civil Engineering, IES College of Technology, Bhopal	Member

[SELF ASSESSMENT REPORT]

Roles & Responsibilities:

- To conduct surprise checks in campus, classrooms, laboratories, canteen, hostel, play ground and buses etc.
- To ensure that no one indulges in ragging of junior students.
- To report any ragging related issues found during surprise checks to the anti-ragging committee.

10.1.4. Delegation of financial powers

IES has a firm belief in participative style of management and this is achieved by decentralizing & delegating its functions with empowerment at various levels in all spheres.

Delegation of Powers:

The empowerment up to the last level in the organization not only helps in effective & efficient functioning of the organization, but also generates self confidence and sense of responsibilities in the individual.

Academics & Administration:

S.N.	Levels	Authority
1	Principal	Ensure implementation of MOM of Governing Body meetings & execute day to day academic activities.
2	HOD's	To follow Principal's Instructions & ensure progress on advisory board meeting objectives.
3	Faculty	Compliance of all work delegated by HOD/Principal in respect of day to day activities, daily lab performance etc.

Expenditure (Annually) &Recurring:

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Full but not exceeding budget limit as approved by executive Committee. It is the responsibility of principal to take sanction of secretary for the expenses.
2	Principal	3,00,000/ For expenses more than 3,00,000/ approval of the society will be required after approval of executive committee.
3	HOD's	25,000/-
4	Coordinators/ Committee Heads	25,000/-

Infrastructure development & maintenance (Recurring):

[SELF ASSESSMENT REPORT]

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Full but not exceeding budget limit as approved by executive Committee.

Laboratory Instruments/Library / Computer Peripherals/ Infrastructure/ equipment:

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Full but not exceeding budget limit as approved by executive Committee.
2	Principal	3,00,000/ Decision of purchase committee and final purchase action to be informed to secretary by the Principal.
3	HOD's	25,000/

Power for sanction of Leave: (CL/EL/SL/ML):

S.N.	Levels	Authority
1	Secretary, Infotech Education Society	Sanctioning authority of Leave for Principal
2	Principal	Full for HOD/ Faculty/ Staff(For more than 3 days leave)
3	HOD's	To sanction Leave upto 3 days for Faculty/ Lab I/C. Beyond this application & will be submitted to the Principal.

Utilization of financial powers for each of the assessment years

Designation	Decision Amount	2020-21	2019-20	2018-2019
Principal	3,00,000/ Decision of purchase committee and final purchase action to be informed to secretary by the Principal.	To promote the growth of Academic activities. (like repairing of instruments, college level cultural, sports, technical events etc)	To promote the growth of Academic activities. (like repairing of instruments, college level cultural, sports, technical events etc)	To promote the growth of Academic activities. (like repairing of instruments, college level cultural, sports, technical events etc)
HODs	25,000/	To Spend for different departmental activities (like stationary, industrial visits	To Spend for different departmental activities (like stationary, industrial visits	To Spend for different departmental activities (like stationary, industrial visits

[SELF ASSESSMENT REPORT]

		expenditures, cultural events, models, projects, sports, lab manuals, charts etc.)	expenditures, cultural events, models, projects, sports, lab manuals, charts etc.)	expenditures, cultural events, models, projects, sports, lab manuals, charts etc.)
Coordinators/ Committee	25,000/	To Spend for their committee activities (assembly activity gifts, T&P activities, scholarship tests gifts, Grievances etc.)	To Spend for their committee activities (assembly activity gifts, T&P activities, scholarship tests gifts, Grievances etc.)	To Spend for their committee activities (assembly activity gifts, T&P activities, scholarship tests gifts, Grievances etc.)
Heads				

10.1.5. Transparency and availability of correct/unambiguous information in public domain

Information about the institute, infrastructure and facilities are being hosted on the institute Website: <http://www.icot.co.in/> along with information of procedure related to admission, academic, & placement.

10.2. Budget Allocation, Utilization, and Public Accounting at Institute level (30)

10.2.1 Adequacy of Budget allocation (10)

S.No.	Financial Year	Request Budget	Approved Budget	Adequate/Not Adequate
1	2020-21	89875000	89875000	Adequate
2	2019-20	89650000	89650000	Adequate
3	2018-19	106967700	106967700	Adequate
4	2017-18	101015600	101015600	Adequate

[SELF ASSESSMENT REPORT]

10.2.2 Utilization of allocated funds (15)

S.No.	Financial Year	Approved Budget	Actual Expenditure	Percentage Utilization
1	2020-21	89875000	92154598	102.53%
2	2019-20	89650000	87260501	97.33%
3	2018-19	106967700	104935274	98.10%
4	2017-18	101015600	102025628	101.0%

Summary of Current financial years budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years

Financial Year	Total Income				Actual expenditure			Total no. of students
	Fee	Govt.	Grant	Other sources	Recurring including salaries	Non Recurring	Special Projects/ Any other, specify	Expenditure per student
2020-21	91128491	0	0	2273160	83093663	9060935	0	31865
2019-20	90105084	0	0	2558440	79288776	7971725	0	29302
2018-19	119916312	0	0	0	86310289	18624985	0	37733
2017-18	112430933	0	0	0	85355871	16669757	0	39560

Item	Budgeted 2020-21	Actual Expenses 2020-21	Budgeted 2019-20	Actual Expenses 2019-20	Budgeted 2018-19	Actual Expenses 2018-19	Budgeted 2017-18	Actual Expenses 2017-18
Infrastructure Built up	7000000	6680950	5000000	4500000	16000000	15999000	15000000	14549361
Library	750000	757640	1200000	1150000	700000	675329	600000	575711
Laboratory equipment	2700000	1622345	2400000	2321725	2000000	1950656	1600000	1544685
Laboratory Consumables	850000	762600	1000000	950525	850000	825000	800000	729050
Teaching	41000000	40430630	38000000	37261930	28500000	28438628	26500000	26098142

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and non teaching staff salary								
Maintenance and spares	425000	359961	400000	313010	650000	600391	1050000	1025055
R & D	1150000	1023275	1000000	930250	800000	770250	600000	570260
Training & Travel	1000000	776945	2500000	2134619	3600000	3500191	3700000	3662105
Miscellaneous	1400000	1308333	2400000	2291762	7700000	7481494	2300000	1210302
Others	33600000	38431919	35750000	35406680	46167700	44694335	48865600	52060957
Total	89875000	92154599	89650000	87260501	106967700	104935274	101015600	102025628

10.2.3 Availability of the audited statements on the institutes website (5)

Audited statements for the financial years 2020-21, 2019-20, 2018-19 and 2017-18 are available on College website [www. http://www.icot.co.in/](http://www.icot.co.in/)

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10.3 Program Specific Budget Allocation, Utilization (30)

10.3.1 Adequacy of Budget allocation (10)

S.No.	Financial Year	Request Budget	Approved Budget	Adequate/Not Adequate
1	2020-21	12819000	12819000	Adequate
2	2019-20	16137000	16137000	Adequate
3	2018-19	16414000	16414000	Adequate
4	2017-18	14535000	14535000	Adequate

10.3.2 Utilization of allocated funds(20)

S.No.	Financial Year	Approved Budget	Actual Expenditure	Percentage Utilization
1	2020-21	12819000	13074024	101.99%
2	2019-20	16137000	15706891	97.33%
3	2018-19	16414000	16014845	97.57%
4	2017-18	14535000	15303844	105.29%

Summary of Current financial year's budget and actual expenditure incurred (for the institution exclusively)in the three previous financial years

Financial Year	Total Budget		Actual expenditure		Total no. of students	Expenditure per student
	Non Recurring	Recurring	Non Recurring	Recurring		
2020-21	1567500	11251500	1359140	11714884	296	44169
2019-20	1548000	14589000	1434911	14271980	333	47168
2018-19	2992000	13422000	2979998	13034847	312	51330
2017-18	2580000	11955000	2500464	12803381	274	55853

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Item	Budgeted 2020-21	Actual Expenses 2020-21	Budgeted 2019-20	Actual Expenses 2019-20	Budgeted 2018-19	Actual Expenses 2018-19	Budgeted 2017-18	Actual Expenses 2017-18
Laboratory equipment	300000	243352	432000	417911	320000	312105	230000	231703
Software	100000	88050	125000	111735	150000	108641	57000	47490
Laboratory Consumables	127500	114390	180000	171095	136000	132000	100000	109358
Maintenance and spares	64000	53994	72000	56342	104000	96063	150000	153758
R & D	172500	153491	180000	167445	128000	123240	80000	85539
Training & Travel	150000	116542	450000	384231	576000	560031	500000	549316
Miscellaneous expenses	11905000	12304205	14698000	14398133	15000000	14682766	13400000	14126681
Total	12819000	13074024	16137000	15706891	16414000	16014845	14535000	15303844

10.4. Library and Internet

10.4.1. Quality of learning resources (hard/soft)

Institutes has library which is well stocked with books, journals, e-book, e journals. Students are allowed to go to the library in library hour as mentioned in time table and thus encourage reading habit. Beside this library is also open after college hour to facilitate its optimum use. The following process is used to meet the criteria.

1. A wide range of reading materials, learning resources and information helps to support the Development of successful learners and confident individuals.
2. Promoting independent learning skills supports lifelong learning and encourages students to grow as responsible citizens.

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3. Every year books, magazines, journals are added as per the needs of staff and students. for research. Introduction of e-journals for faculty and students.
4. Library hours are mentioned in the time table.
5. Wi-Fi enabled campus.

Library details:

Zero deficiency report was received by the Institution for all the assessment years.

Digital Library

Availability of Digital Library Contents: Yes	
Following digital contents are made available	
Content	Accessibility
NPTEL Video Lecture	Access Provided to NPTEL Video Lecture Content
National Digital Library of India (NDL) IIT Kharagpur	Membership to NDL Digital Library of India
Departmental Library	Available
Access to RGPV Library	Access provided to open source Journals & e-Books.
Institutional Repository	Access provided to open source e-Books, e-Journals , previous year question papers, faculty publications etc.

Note: Library books issued at a time to faculty – 2 and for students – 5.

DELNET: By using DELNET software, students and faculty will get HOD and concerned subject faculty recommends the books to be purchased for the college before commencement of each semester.

Computer & internet facility:

Institution has total 492 computer nodes with 100 Mbps BSNL Leased line facilities. The Central computer Lab is on ground floor in which all the facilities are maintained. This central computer lab has different labs according to the programs and need of students. The total nodes of this central computer lab are 492.

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Another Computer lab is on First Floor which has with dual core 50 nodes. The Specification of nodes is:

60 Computers with 3.2 GHz Processor dual core

- HDD: 320GB
- RAM: 2 GB
- Monitor: 15''TFT
- Keyboard: Multimedia
- Mouse: Optical

100 Computers with 2.4 GHz Processor dual core

- HDD: 160GB
- RAM: 2 GB
- Monitor:18.5''TFT
- Keyboard: Multimedia
- Mouse: Optical

70 Computers with 3.2 GHz Processor Dual Core

- HDD: 500 GB
- RAM: 4 GB
- Monitor:18.5''TFT
- Keyboard: Multimedia
- Mouse: Optical

60 Computers with 3.2 GHz Processor Core I3

- HDD: 500 GB
- RAM: 4 GB
- Monitor:18.5''TFT
- Keyboard: Multimedia
- Mouse: Optical

60 Computers with 2.8 GHz Processor Dual Core

- HDD:250 GB
- RAM : 2 GB
- Monitor: 18.5'' TFT
- Keyboard: Multimedia
- Mouse: Optical

100 Computers with 2.8 GHz Processor Dual Core

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- HDD:250 GB
- RAM : 2 GB
- Monitor: 18.5" TFT
- Keyboard: Multimedia
- Mouse: Optical

50 Computers 2.2 GHz Dual Core Processor

- HDD: 80GB
- RAM: 1 GB
- Monitor: 15" TFT
- Keyboard: Multimedia
- Mouse: Optical

Institution has servers for facilitating the service to different labs.

2 Servers with

- Prolient G7 HP
- HDD: 500GB
- RAM: 8 GB
- Monitor:17" TFT
- Keyboard: Multimedia
- Mouse: Optical
- LAN Port -2

1-Server -Intel Xeon 2.0 GHz (2700 SO)

- HDD: 250GB
- RAM: 4 GB
- Monitor:15" LCD
- Keyboard: Multimedia
- Mouse: Optical
- LAN Port -2

1-Server -Intel Xeon 2.0 GHz (1000 AH)

- HDD: 250GB
- RAM: 4 GB
- Monitor:15" LCD
- Keyboard: Multimedia
- Mouse: Optical
- LAN Port -2

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Computer-student ratio:

Institution has provided a facility of labs for practical knowledge development in computer science department as well as other departments. As per the schedule for the academics, we have ratio of 1:4 for UG students & 1:2 for PG students.

Stand alone facility

- Institution has standalone facilities like FAX & Photocopy Machine for immediately facilitating the work.
- All the labs are Air conditioned.
- Center having UPS and DG (Diesel Generator) for Power backup

LAN facility

- LAN facility is available in college on class A & B with range of IP address.
- 172.16.0.1 onwards with 500 users
- 10.0.0.1 onwards with 500(Required if one link fails)*Wi-Fi facility
- Institution has Wi-Fi facilities specific area of the campus.

Licensed software

System Software:

- Microsoft Visual Studio 2016
- Windows Server (2008, 2012 R2 - Standard)
- Windows 10 (Professional)
- Windows 7
- Windows Vista (Business and Enterprise)
- Microsoft SQL Server (2008,2012)

Application Software:

- Dev C/ C++
- Borland C/C++
- Oracle 11g
- Quick Heal Total Security
- Communicative English Language (KVAN Software)

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Open Source:

- Ubuntu 14.0.4
- JDK 7.4.1
- Eclipse
- Code-block
- Windows SDK
- Sun java wireless toolkit 2.5.2_01 for cldc
- Mozilla fire fox
- Winrar
- Acrobat reader
- Python software

Number of nodes/ computers with Internet facility

All 492 Computers have internet facility.

Institution has facilities for power backup comprising of UPS & power generator. All computers are attached with power backup system. All Labs have individual Air Conditioners. Moreover, some of the labs are certified & assigned to the work for:

- Centre of Excellence (COE) of IBM (India)
- Microsoft Innovation Centre (MIC) by Microsoft (India)
- I IT Bombay Remote Centre

Support to students for self-learning activities

- College is conducting Subject Expert webinars.
- Special E- Board Lectures to the students.
- Teachers liberally take help of the ICT resources to enrich their prescribed curriculum.
- College is providing on line NPTEL video material.
- Faculty members are provided with computers with internet browsing facility for preparation of teaching/learning materials in their respective departments.
- Multimedia projectors, OHPs are available within the college for the use of faculty.

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- College has seminar halls equipped with projectors and are available as and when requested by a particular teacher.
- For completion of assignment, students browse the information from internet and self learning facilities are also available at the library.
- Given online quizzes on internet and assessments.
- Lab like IBM (Centre of Excellence), MIC(Microsoft Innovation Centre), Remote centre(IIT Bombay & Kharagpur) have been established and on the basis of these various certifications programs and Seminars are organized on regular basis.

Internet service is available in the college for faculty and students. Institution has two internet lines for availing the facility:

- BSNL Leased Line (100 Mbps)
- Jio (10 Mbps)

The campus is Wi-Fi enabled & internet is secured with firewall for all the connections. These connections are used alternatively & in case any link goes down, then another link is used to resume the facilities of Internet. For off campus students, the internet facility with password is provided. For any type of information / updates Group has its own website www.icot.co.in

There are separate lab facilities available for all departments with Vodafone & BSNL line Internet connectivity. Also all department HODs, staff rooms, Examination Room and different cells have the facility of high speed internet connectivity.

Library is equipped with 12 nos. of PCs with high internet & Del-net facility systems and the area is fully Wi-Fi zone.

For the security purpose the firewall have been installed in all the PCs and some where main points the quick heal antivirus have also installed for the security purpose.

10.4.2. Internet

- Name of the Internet provider: **BSNL & Jio**
- Available bandwidth: **100 Mbps & 10 Mbps**
- Wi-Fi availability: **Yes**

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- Internet access in labs, classrooms, library and offices of all Departments: **Yes**
 - Security arrangements: **Yes**
-

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Declaration

The head of the institution needs to make a declaration as per the format given below: I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institute shall fully abide by them. It is submitted that information provided in this Self-Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post visit and subsequent to grant of accreditation.

Date: 23/09/2021

Signature & Name



(Dr. Gyanendra Kumar Pandey)

PRINCIPAL
IES College of Technology
BHOPAL

Place: Bhopal

Head of the Institution with seal