



Established in 1998

**CHRISTIAN COLLEGE OF ENGINEERING & TECHNOLOGY**

Managed By St. Thomas Mission, Bhilai

Approved by AICTE and Affiliated to CSVTU, Bhilai

If You Aim High, We Provide The Means



## QLM 2.6.1

**PROGRAMME OUTCOMES (POs) AND COURSE  
OUTCOMES (COs) FOR ALL PROGRAMMES  
OFFERED BY THE INSTITUTION ARE STATED  
AND DISPLAYED ON WEBSITE**

**Criterion 2**

**QIM 2.6.1 POs.PEOs**



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# PROGRAM OUTCOMES

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### PROGRAM OUTCOMES

**Engineering Graduates will be able to:-**

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

**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.

**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.

**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.

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

**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.

**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.

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

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

**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.

**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.

**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.

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**PROGRAM OUTCOMES (POs)**

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
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5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations
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.
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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.

 **GPS Map Camera**

  
Jawahar Nagar, Chhattisgarh, India  
Administrative block, Jawahar Nagar, Chhattisgarh 490026, India  
Lat 21.229267°  
Long 81.359488°  
08/04/23 09:52 AM GMT +05:30

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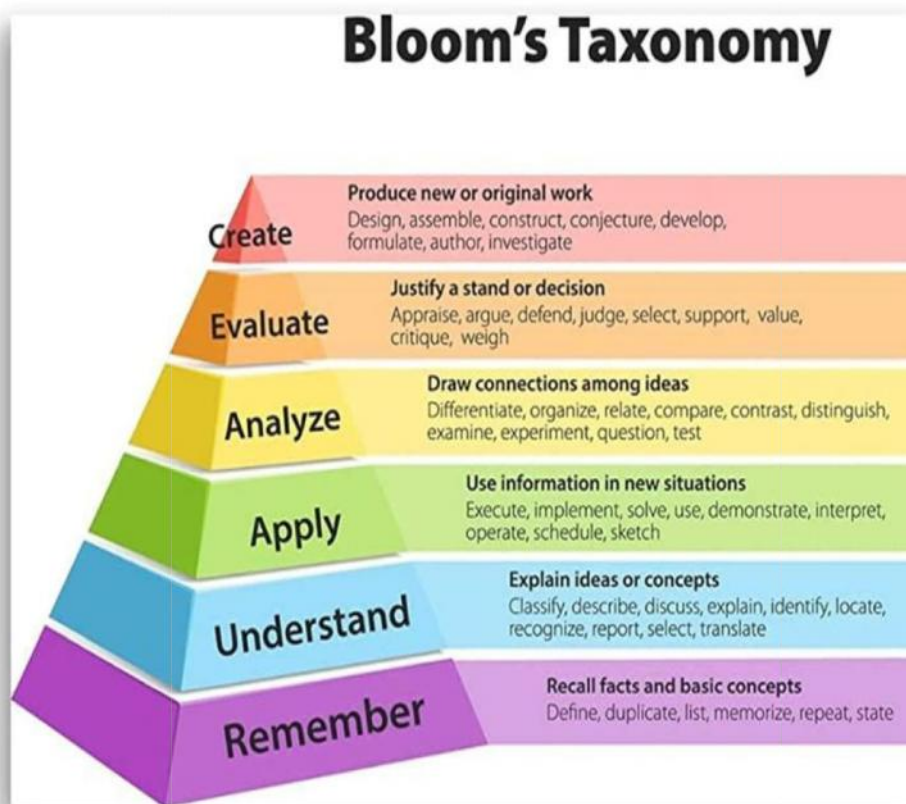


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## Applying Bloom's Taxonomy in Your Classroom

### 1. REMEMBER

Students are expected to retrieve information from memory, but aren't expected to change it in any way.



#### In-Class Instruction

Students memorize a definition of an associative property.

#### Assessment

Students are given a multiple choice question and asked to recognize the answer, or are asked to recall the answer and fill in a blank.

### 2. UNDERSTAND

Students are building new connections in their minds.



#### In-Class Instruction

Students identify the key characteristics needed for an organism to survive in a particular ecosystem.

#### Assessment

When given the description of a fictitious animal, students explain whether the animal will survive in a given ecosystem.

### 3. APPLY

Certain procedures or steps are expected to be followed in order to answer new problems.



#### In-Class Instruction

Students learn about Newton's three laws.

#### Assessment

Students are asked to examine the information about a car crash and determine which if any of Newton's laws apply to the situation.

### 4. ANALYZE

Students utilize lower-level thinking skills to identify key elements and examine each part.



#### In-Class Instruction

Students read a student lab report and identify the evidence to support the finding.

#### Assessment

Read the results of the scientific study and find supporting statements for each conclusion or finding.

### 5. EVALUATE

Informational sources are examined to assess their quality and decisions are made based on identified criteria.



#### In-Class Instruction

Students read about the physical effects of exercise on humans.

#### Assessment

Read an article about a famous athlete. Identify one piece of information in the article that fails to support the author's case that hard work was the main reason for the athlete's exceptional athletic skills.

### 6. CREATE

Learners organize information in a new or different way.



#### In-Class Instruction

Students research the role of economics in business.

#### Assessment

Students brainstorm reasons for a problem and generate suggested solutions, and design and implement a campaign designed to solve the identified problem.

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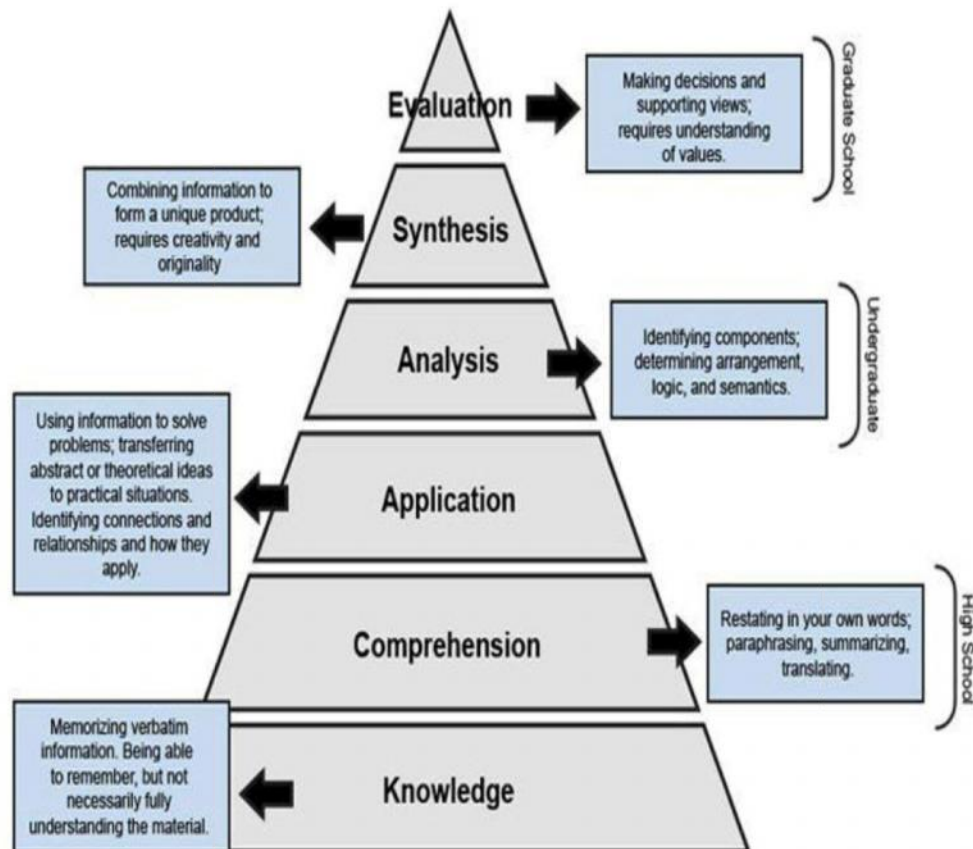
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## Bloom's Taxonomy



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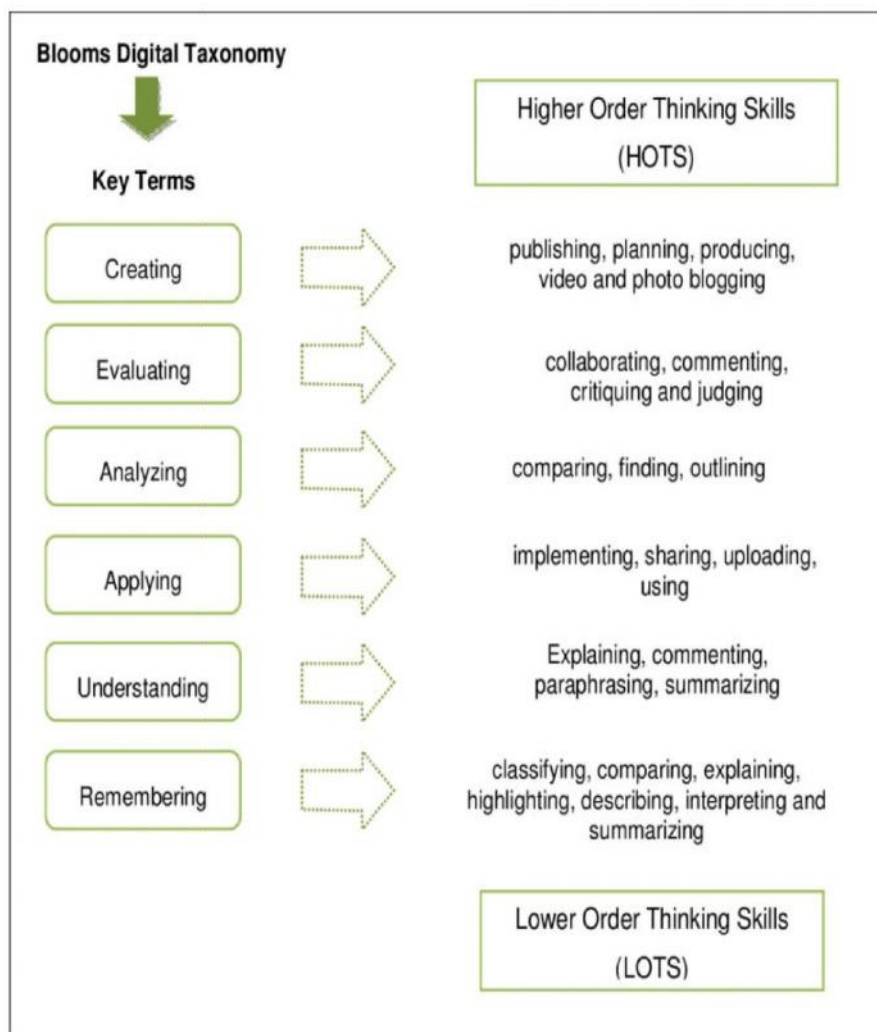


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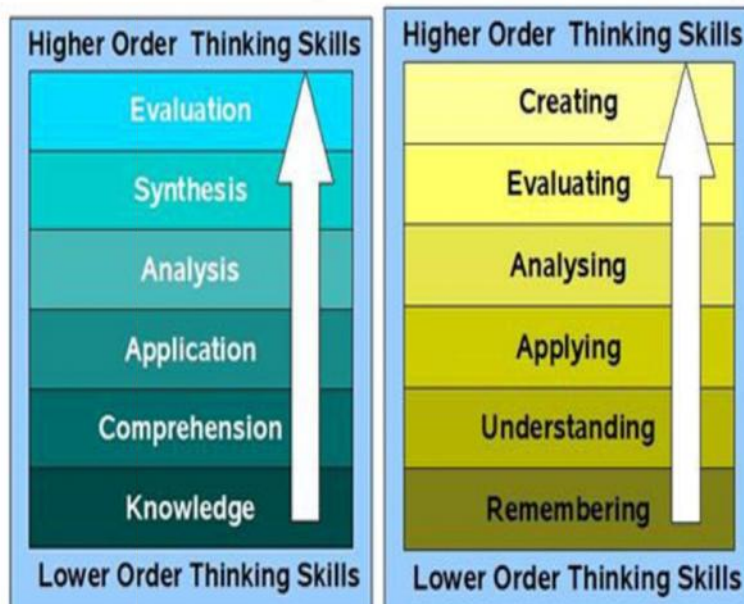
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### Bloom's Taxonomy

### Bloom's Revised Taxonomy



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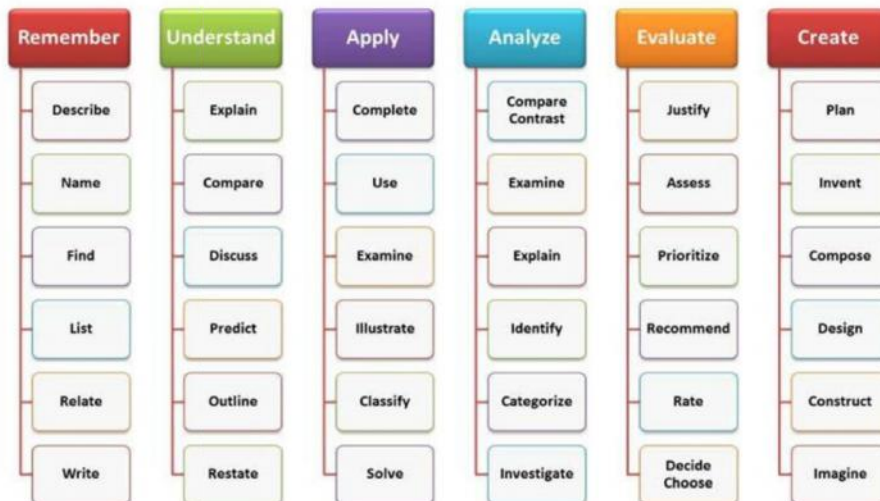


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## BLOOM'S TAXONOMY

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# DEPARTMENT WISE

# PEOs AND PSOs

**Criterion 2**

**OIM 2.6.1 POs.PEOs**



 <b>CCET BHILAI</b>		<b>Christian College of Engineering &amp; Technology</b> <b>Department of Computer Science and Engineering</b>		RECORD NO	CCET/CS/MR/01
				SESSION	Jan-June 2014
DATE	07/05/2014				

CSE department's Vision and Mission is re defined by after taking inputs from Program Assessment Committee (PAC), Departmental Advisory Committee (DAC) and SWOT analysis. Views taken from all internal and external stockholders. We are happily communicating the final Vision and Missions of Computer Science and Engineering departments:

**Vision**

To create a strong research based teaching - learning environment that will cater to the needs of modern computer science and engineering with the aim to improve intellectual capital of the society and the nation.

**Mission**

1. To produce recognized industry-ready professionals in computer science and engineering, through educational program incorporating laboratory and internet based teaching-learning process.
2. To enhance knowledge in computer science and engineering, through knowledge enhance programmes and research for sustainable development of the society and the nation as a whole.
3. To promote social and technological awareness related to the application and utilization of computer through the dissemination of knowledge for the less fortunate section of the society.
4. To initiate Post Graduate courses in the field of Computer Science and Engineering with a view to establish an important research centre.

(Mr. Pramod Sekharan Nair)

HOD

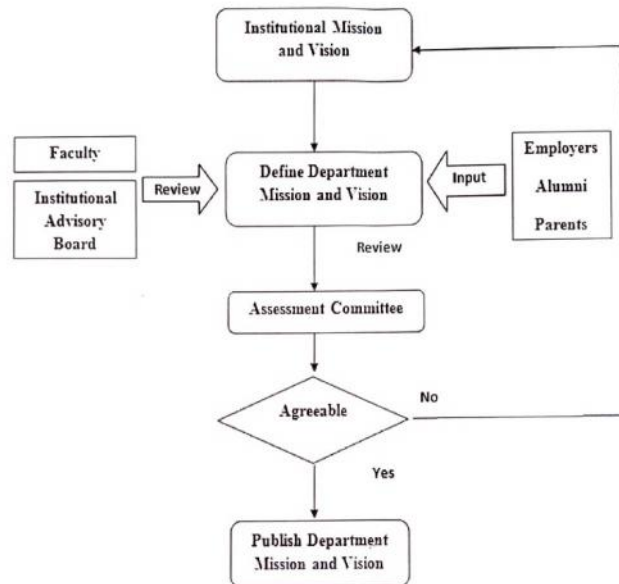
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- Principal
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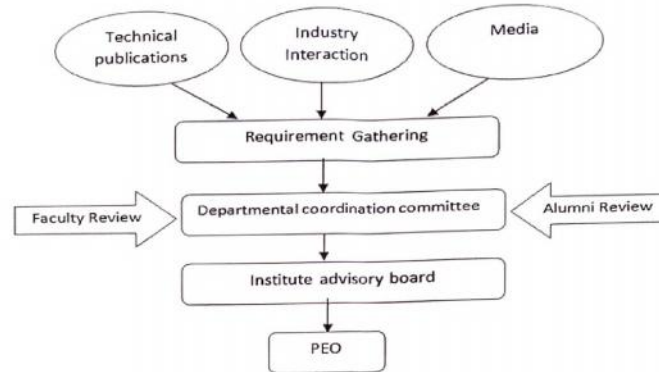
## Process for defining the Mission and Vision of the department and PEOs of the program



- Head of the department forms a core team of faculty members for developing the vision and mission statement of the department in alignment with vision and mission of the institute.
- These statements are then conveyed among faculty members and revised.
- Finally, the new vision and mission statements are finalized and sent to advisory board of the institute for approval.



## Process for defining the PEOs



- The requirements of the country and society are recognized through technical publications, industry interaction and media.
- Taking the above into consideration, the PEOs are set up by the coordination committee of the department.
- The PEOs are communicated to the alumni and their suggestions are obtained.
- The PEOs are communicated to all the faculty members of the department and their feedback is obtained.
- The PEOs are then put to the advisory board of the institute for final approval.



## CHRISTIAN COLLEGE OF ENGINEERING & TECHNOLOGY, Bhilai

### Department of Computer Science & Engineering

#### Vision of the Department

To create a strong research-based teaching - learning environment that will cater to the needs of modern computer science and engineering with the aim to improve intellectual capital of the society and the nation.

#### Mission of the Department

1. To produce recognized industry-ready professionals in computer science and engineering, through educational program incorporating laboratory and internet based teaching-learning process.
2. To enhance knowledge in computer science and engineering, through knowledge enhance programmes and research for sustainable development of the society and the nation as a whole.
3. To promote social and technological awareness related to the application and utilization of computer through the dissemination of knowledge for the less fortunate section of the society.
4. To initiate Post Graduate courses in the field of Computer Science and Engineering with a view to establish an important research centre.



## CHRISTIAN COLLEGE OF ENGINEERING & TECHNOLOGY, Bhilai

### Department of Computer Science & Engineering

#### Programme Educational Objectives of the Department (PEOs)

**PEO1.** To provide the graduates of Computer Science and Engineering programme with required knowledge to solve critical engineering problems and to train them for research and advanced learning.

**PEO2.** To instill ability in Computer Science and Engineering graduates for examining the requirements of system, software, and technical specifications with a view to provide accurate solutions.

**PEO3.** To train the graduates for successful careers who will work in a team with adequate training, effective communication skill, values, social concern and management qualities while meeting the requirements of the industry.





### List of Programme Outcomes (POs)

1. **Engineering knowledge:** Ability to apply knowledge of mathematics, science and engineering for the solution of computer science & engineering problems.
2. **Problem analysis:** Ability to formulate and analyze complex computer science & engineering problems.
3. **Design/development of solutions:** Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, and public health.
4. **Conduct investigations of complex problems:** An ability to analyze a problem, and identify, formulate and use the appropriate computing and engineering requirements for obtaining its solution
5. **Modern tool usage:** Ability to use the techniques, skills, and modern engineering tools necessary for computer science and engineering practice.
6. **The engineer and society:** Ability to include social, cultural, ethical issues with engineering solutions.
7. **Environment and sustainability:** Ability to consider the impact of engineering solutions on environment and the need for sustainable development.
8. **Ethics:** Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of the computer science & engineering practice.
9. **Individual and team work:** Ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Ability to communicate effectively. on complex engineering activities with the engineering community and with the 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.
11. **Project management and finance:** Ability to demonstrate knowledge and understanding of principles of management and finance in relation to engineering projects.
12. **Life-long learning:** Appreciation of technological change and the need for independent life-long learning.



## Consistency of department mission with institute's mission statements

*Departmental Mission Consistency with Institute Mission*

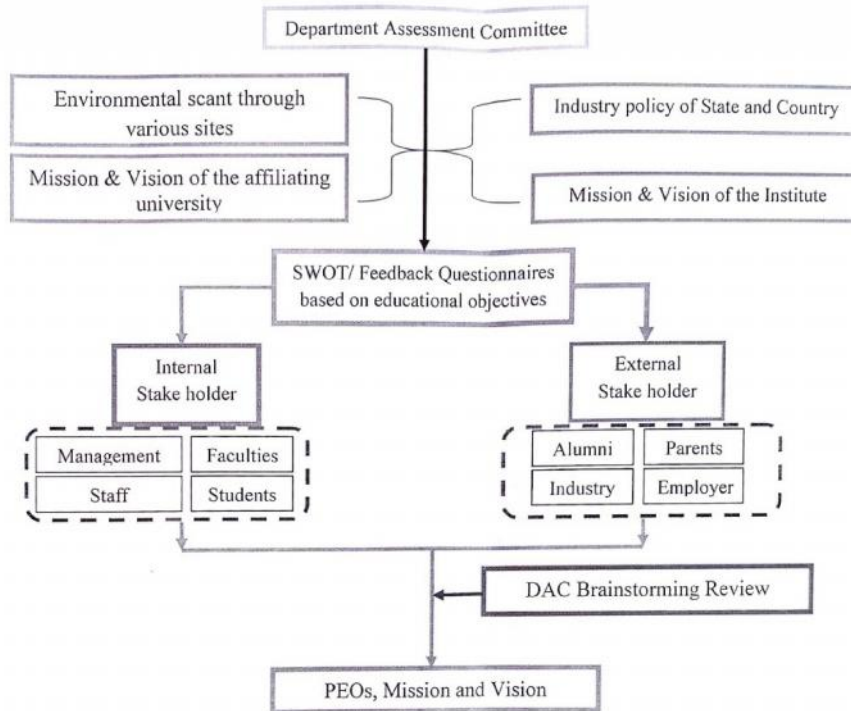
	IM1	IM2	IM3	IM4	IM5	IM6	IM7	IM8	IM9	IM10
DM1		√	√		√					
DM2				√			√			
DM3				√						
DM4						√		√		√

DM- Department's Mission

IM- Institute's Mission



### Process for defining the Mission and Vision:



The following steps are sequentially undertaken for arriving at the vision and mission statements.

#### Step 1: Gathering the group

The stakeholders are divided into two groups: Internal (Major) group consists of Faculty, Management Staff and students and the external (minor) group consisting of employer, alumni, parents and Industry. Sometimes views of professional bodies are collected.

#### Step 2: Sharing examples of other vision and mission statements



The existing mission and vision statements of the institute and those of other institute of the country and abroad are shared with faculty and program assessment committee, keeping in mind that the two statements serve different purposes.

**Step 3: Brainstorming**

- Vision Statement: Indicate the purpose of modification with respect to the department.
- Mission Statement: Emphasize on the distinctive competence of the department. For this purpose conduct the SWOT analysis of the department. While drafting mission statement emphasize on the achievable graduate attributes. The students and the alumni is induced at this stage.

**Step 3: Synthesizing**

Collect the major and minor stakeholders' ideas and thoughts, by avoiding wordsmith and focusing on the achievable content.

**Step 4: Reflecting**

- Is the vision or mission statement is realistic? Take advice of program assessment committee who in turn may approach professional bodies or align itself on the reports of the professional bodies.
- Circulate the drafts of vision and mission statements to all faculty and departmental advisory committee.
- Gather feedback from major stakeholders.
- Forward the draft to Institutional advisory committee.

**Step 5: Repeating**

Repeat the process few times till comprehensive and achievable statements are arrived.

**Step 6: Publishing**

Publish the statements in the website and other promotional materials





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DEPARTMENT OF ELECTRICAL ENGINEERING

CRITERION 1	Vision, Mission and Program Educational Objectives	120
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1.1 State the Vision & Mission of department & Institute

Departmental Vision

- To grow as a Centre of Excellence in Electrical Engineering education at CCET, Bhilai preparing technical manpower & global standards for progress of society and excel them in high moral & social values.

Institutional Vision

CCET will be the center of excellence by providing quality technical education inculcating high moral & social values with a human face and thereby producing world-class competent engineers for the progress and transformation of the society.



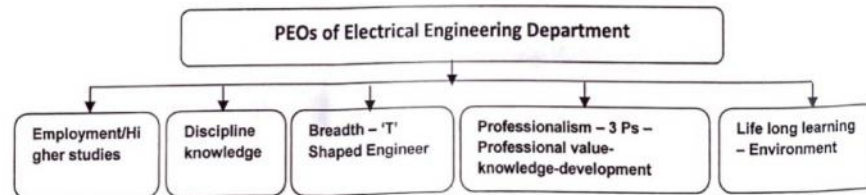
### Departmental Mission

- M1. To impart quality and value based education with the help of state of art infrastructure facility.
- M2. To promote students for professional career and higher studies in reputed institutes in India & abroad & to transfer appropriate technology to the society.
- M3. To inculcate social & ethical values in students & make them socially responsible & develop projects in relevance with industrial needs, test cell and consultancy services.

### Institute Mission

1. Run accredited graduate and postgraduate programme.
2. Have state- of- the art infrastructure facilities.
3. Develop effective partnership with industries.
4. Transfer appropriate technology to the society.
5. Ensure placement of all students through campus interviews.
6. Offer quality teaching, learning environment.
7. Help in the upliftment of the society by offering need based technical education facilities.
8. Ensure quality services for all aspects of the campus.
9. Create an ambience for the total development of staff and students.
10. Become a deemed university.

### 1.2 PROGRAM EDUCATION OBJECTIVE (PEO)





PEO 1. To prepare students for successful placements in

- Government sector
- Public sector
- Private sector
- Self employment
- Global markets

Also to update practical & professional competency as expected.

PEO 2. To provide solid technical background so that they find themselves suitable for all sector including higher studies.

PEO 3. To provide a sound foundation in mathematical, scientific & engineering Fundamental to formulate, solve and analyze engineering problems & prepare them for Electrical Engineering graduate course.

PEO 4. To prepare student's awareness to professional ethics & leaderships.

PEO 5. To create design ability, laboratory skill, computational ability to meet the challenge of multidimensional problems of various sector.

1.3 The Vision Mission and PEOs are published and disseminated among the stakeholders.

Following method use to published The Vision Mission and PEOs

1. College website- Departmental home page- <http://www.ccetbhilai.ac.in/electrical-engineering>
2. Department HOD room, Staff room, department library and laboratories.
3. Disseminated during student orientation programme.
4. Mouth publicity among students and staff
5. Meeting with students & staff
6. Social Media like (Facebook, WhatsApp)
7. Poster Published.
8. Power point Presentation in front of students
9. Letters, Email & Departmental Newsletter.





#### 1.4 State the Process for defining the Vision & Mission of department and PEOs of the program

The Vision, mission and PEOs are defined through the stakeholders of the programme. List of the stakeholders of Electrical Engineering Department are as follows:

##### Internal Stakeholder

Stakeholder	Purpose
Promoter/Management Governing Board members	- Defining growth plan and road map - Providing physical, human and financial resources - Formulation of policies
Human Resources (Faculty and Support Staff)	- Implementer (Contributor) of Policies - Key contributor in developing/implementing growth plan - Responsible for producing competent graduates/product from the Institution.
Students	- Product of the Institution and responsible for creating institute image

##### External Stakeholder

Stakeholder	Purpose
Employer	- Employing graduates and making an assessment on competence and industry readiness
Industry	- Employer as well as participant in curriculum development and industry - institute activities
Alumni	- Able to co-relate learning and practice - Provides appropriate to the department/program committee
Funding Agencies	- Provides financial assistance to the Institution and interacts with the Principal Investigator/Faculty of the department/program
Regulatory/Accrediting Authorities	- Prescribes norms and standards to ensure quality assurance and enhancement.
Society	- Provides intangible outcome from the Institution perspective



## Criterion 2

### OIM 2.6.1 POs.PEOs



## PROCESS FOR ESTABLISHING VISION AND MISSION

The department establishes vision and mission through a consultative process involving the stakeholders of the department, by considering the future scope of the department and societal requirements as shown in figure 1.4.1. In establishing the vision and mission of the department, following steps were followed:

Step I – Institute Vision & Mission as input

Step II - Brainstorming:

1st level - Administrators, Faculty

2nd level – Current Students

3rd level – Employers, Alumni, Industry Experts

Step II – Benchmarking with the similar category Institutions:

Understanding Vision and Mission

Step III – Validation by the experts from academia and industry (SWOT analysis)

Step IV – Wide publicity in the Institution

Step V – Review in closed loop every 5-7 years (Revised in 2007, then in 2014)

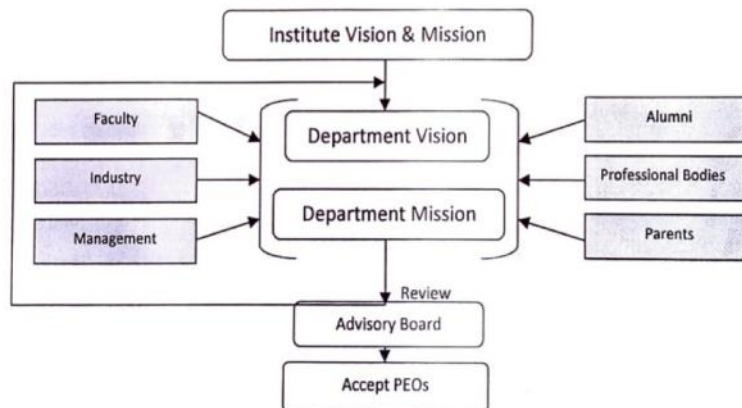


Fig. 1.4.1: Process for defining Vision and Mission of the Department





#### CCET Quality Policy

To continuously improve and attain the dynamic global standards of excellence in all aspects of technical education namely teaching, research, consultancy and continuing education by having a process oriented approach.

#### CCET Quality Principle

A well designed Process with efficient ownership giving the anticipated results is considered excellent. Scope for further improvement is analyzed and implemented. Process that attain output lesser than expected standards, should be reviewed for necessary process corrections.

#### Definition of CCET Stakeholder Satisfaction:

- 1) Students - Attain globally acceptable Specification
  - a) Academic standards to easily qualify all selection/ examinations norms.
  - b) Application Oriented learning of technology.
  - c) Exposure in either Industry or Research Oriented Projects.
  - d) Involvement in Activities, which enhance abilities to excel in chosen profession namely Entrepreneurship or job or higher studies in Technical/Non-technical field.
  - e) Become responsible citizens imbued with Professional Ethics.
- 2) Parents - Regular interaction for updating performance and involvement as a partner in the development of their ward.
- 3) Employees- Self Growth and Career advancement by utilizing the potential of each individual in the institutional growth. Recognition and motivation of contributors with appropriate rewards, benefits & welfare measures.
- 4) Employers of Students - Availability of substantial pool of aspirant students with appropriate competency for recruitment and the placed students exceed the expectations of their employers.
- 5) Industries, R & D Organizations - Establish Symbiotic Collaboration
- 6) Alumni - Intimate Interaction for utilizing them in the growth of the institution.
- 7) University & AICTE - Always remain ahead in fulfilling all guidelines and norms.
- 8) Society - Explore and utilize all opportunities of service.



## 1.5 Establish Consistency of PEOs with mission of Department.

	1) To impart quality and value based education with the help of state of art infrastructure facility.	2) To promote students for professional career and higher studies in reputed institutes in India & abroad & to transfer appropriate technology to the society.	3) To inculcate social & ethical values in students & make them socially responsible & develop projects in relevance with industrial needs, test cell and consultancy services.
	M1 (Quality Education, Research)	M2 (Professional career)	M3 (society welfare, continuous learning)
PEO 1. To prepare students for successful placements in Government sector, Public sector, Private sector, Self employment, Global markets. Also to update practical & professional competency as expected.	3	3	2
PEO 2. To provide solid technical background so that they find themselves suitable for all sector including higher studies.	3	2	1
PEO 3. To provide a sound foundation in mathematical, scientific & engineering fundamental to formulate, solve and analyze engineering problems & prepare them for Electrical Engineering graduate course.	3	3	1
PEO 4. To prepare student's awareness to professional ethics & leaderships.	2	3	3
PEO 5. To create design ability, laboratory skill, computational ability to meet the challenge of multidimensional problems of various sector.	1	1	3



### PROCESS FOR ESTABLISHING PEOs

The Program Educational Objectives are established through a consultation process involving the core constituents such as: Students, Alumni, Industry, Faculty and Employer. The PEOs are established through the following process steps:

Step1: Vision and Mission of the Department is taken as a basis to interact with various stakeholders considering the graduate attributes defined by NBA.

Step2: Program Assessment Committee consults the key constituents and collects their views and submits the views to Program Coordinator (HOD).

Step3: Program Coordinator (HOD) summarizes the collected views and expresses its opinion on the views and forwards the same to Department Advisory Board.

Step4: Department Advisory Board deliberates on the views expressed by the program Assessment Committee and formulates the accepted views, based on which the PEOs are established.

Figure 1.4.2. illustrates the process for establishing PEOs.

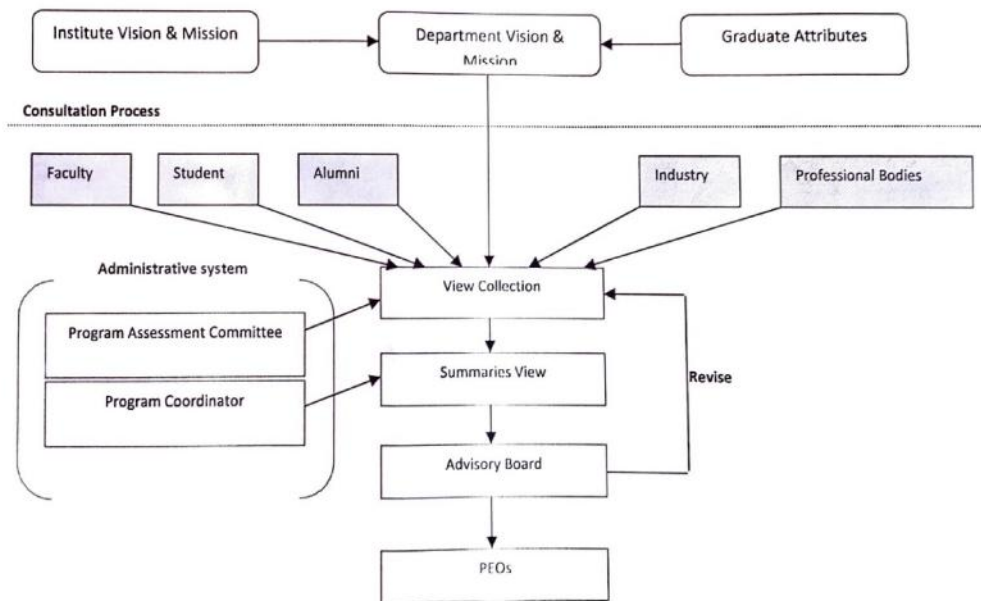


Fig. 1.4.2: Process for establishing PEOs





## Justification &amp; Correlation of PEOs with Mission Statements:

Mapping	Justification	Correlation
PEO 1. To prepare students for successful placements in Government sector, Public sector, Private sector, Self employment, Global markets. Also to update practical & professional competency as expected.	1) To impart quality and value based education with the help of state of art infrastructure facility.  e.g. Seminar & workshops has been made to provide better facility towards Electrical engineering students. We have established and running some of the advance equipment's/software's in our laboratories to support research activity in a whole.	Substantial
	2) To promote students for professional career and higher studies in reputed institutes in India & abroad & to transfer appropriate technology to the society.	Substantial
	3) To inculcate social & ethical values in students & make them socially responsible & develop projects in relevance with industrial needs, test cell and consultancy services.	Moderate
PEO 2. To provide solid technical background so that they find themselves suitable for all sector including higher studies.	1) - PEO relates with mission by imparting quality education on latest trends in Electrical engineering through various activities like guest/expert lectures, industrial visits, workshops, seminars, laboratories etc. We always believe that hands on knowledge are more appropriate than theoretical one. For this we provide the various activities to promote research by real life projects.	Substantial
	2) The Electrical engineering deals with real life problems which develops the quality knowledge needed by the industries. With the help of various training and placement activities we try to develop the needs of the career.	Moderate
	3) PEO relates with the mission by making the students to confidently show the skills and knowledge in their discipline.	low
PEO 3. To provide a sound foundation in mathematical, scientific & engineering fundamental to formulate, solve and analyze engineering problems & prepare them for Electrical Engineering graduate course.	1) The Goal is to create skilled students, which will be achieved by providing the quality education and basic knowledge of their field.	Substantial
	2) Here the objective is to create the skilled personals through various events; this skill development is a requirement of any industry and higher education. So through those events skill and career development is possible.	Substantial
	3) Again the objective is to create the social and professional personals, which is only possible by continuous learning and knowledge up-gradation.	Low



PEO 4. To prepare student's awareness to professional ethics & leaderships.	1) Objective is mapped with first mission because only through quality education command on that field can be achieved.	Moderate
	2) PEO works on student's professional career by educating them professional ethics of work environment with good academics, and opportunities to engage in team work through specialized aptitude trainings, placement trainings etc.	Substantial
	3) PEO emphasizes socially and ethically with various events and exhibits the leadership qualities. Students are given ample opportunities to participate in technical events conferences and encouraged to become active members of professional bodies like Institution of Engineers, ISTE, IEEE etc.	Substantial
PEO 5. To create design ability, laboratory skill, computational ability to meet the challenge of multidimensional problems of various sector.	1) Quality education is required for Lifelong learning capability, so mission is related to the continuous learning for social values generation.	Low
	2) PEO mapped with the mission by transferring a skilled personal to serve the society.	Low
	3) PEO strongly addresses the mission component of positive contribution to the society. The graduates of the program are expected to provide solutions which are economically feasible to real world problems to carter the needs of society. In this context students are encouraged to select topics that have relevance to real life problems in their final year seminar and project works.	Substantial





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## Department of Mechanical Engineering

### Vision and Mission of the Department

#### *VISION*

To produce proficient engineers, through innovative-teaching-learning environment that will cater to the needs of rapidly changing technical diversity of Mechanical Engineering

#### *MISSION*

The mission of the Mechanical Engineering Department is

- M1. To produce proficient industry-ready professionals through educational programs incorporating outcome based teaching-learning process.
- M2. To encourage the students towards higher education through research and development activities.
- M3. To educate students about professional & ethical responsibilities by imparting leadership and entrepreneurship qualities for their career development and placement.
- M4. To impart knowledge in the areas of engineering technological development that may leads to welfare of society.

### Programme Outcomes (POs)

For all these areas the desired qualities which the Mechanical Engineering graduates should have are listed below:-

- a. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
- b. Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- c. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs

**DEPARTMENT OF MECHANICAL ENGINEERING**

## Criterion 2

**OIM 2.6.1 POs.PEOs**



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with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.

**d. Conduct investigations of complex problems:** User research based knowledge and research methods including design of experiments, analysis and Interpretation of data, and synthesis of the information to provide valid conclusions.

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

**f. 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.

**g. 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.

**h. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

**j. Communication:** Communicate effectively on complex engineering activities with the engineering community and with the 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.

**k. 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.

**l. 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

## **Programme Education Objectives (PEOs)**

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- PEO1.** To pursue technical education, research and development, and other creative and innovative efforts in science, engineering as well as other professional careers.(Employment/Higher studies)
- PEO2.** To analyze engineering problems with industrial visits, vocational trainings and guest lectures covering different practical aspects of mechanical engineering. (Discipline knowledge)
- PEO3.** To organize various technical events and exhibitions to provide the students to get expertise in designing and analyzing various mechanical engineering systems.(Breadth – ‘T’ Shaped Engineer)
- PEO4.** To enhance capability to function ethically in professional mechanical engineering roles and exhibit good competency in their work culture.(Professionalism – 3 Ps – Professional value-knowledge-development)
- PEO5.** To motivate students for continuous adoption of various methods of engineering to carry out real life problems, which will uplift the society in large.(Lifelong learning/Social)

### **Program Specific Outcome (PSOs)**

- PSO1.** The student will be able to apply the knowledge of Mathematics, Sciences and engineering fundamentals to formulate, analyze and provide solutions to the problems related to Mechanical engineering and communicate them effectively to the concerned.
- PSO2.** Design mechanical systems in various fields such as machine elements, thermal, manufacturing, industrial and interdisciplinary fields by using various engineering/technological tools to meet the volatile needs of the industry and society at large.

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## Process for Establishing Vision and Mission

The department established the vision and mission through a consultative process involving the stakeholders (students, alumni, faculty, employers, professional societies and management) considering the scope for growth the department and the future societal requirements. However, different weights are applied on the views of stakeholders while finalising vision, mission, PEOs and PSOs. The process is guided by two committees over and above the faculty committee.

### 1. Program Assessment Committee

Program Assessment Committee consists of (i) two senior faculty members, (ii) convener of internal quality assessment cell, (iii) an external expert and (iv) Program Coordinator (convener). PAC will meet at least once in a semester to assess and review the program and to submit report to Department advisory committee.

The duties of the committee are:

1. To evaluate the effectiveness of program in achieving the mission and vision of the department and to propose necessary strategic changes.
2. To assess the performance of the students in examinations and to propose remedial measures
3. To review the readiness of the students to fit in the employment scenario and to recommend to the management probable remedial measures.
4. To assess the likely outcome of the program (POs) and its mapping with the mission of the department and also to apprise the Advisory Committee of its views.

### 2. Departmental Advisory Committee (DAC)

DAC is chaired by the head of the department, and constituted with (i) Program Coordinator, (ii) senior faculty members (iii) external experts from academic institution, and representatives of key stakeholders (such as professional bodies, alumni, and the employers).

The duties of DAC are:

1. To evaluate the report of the program assessment committee and suggest effective practice.

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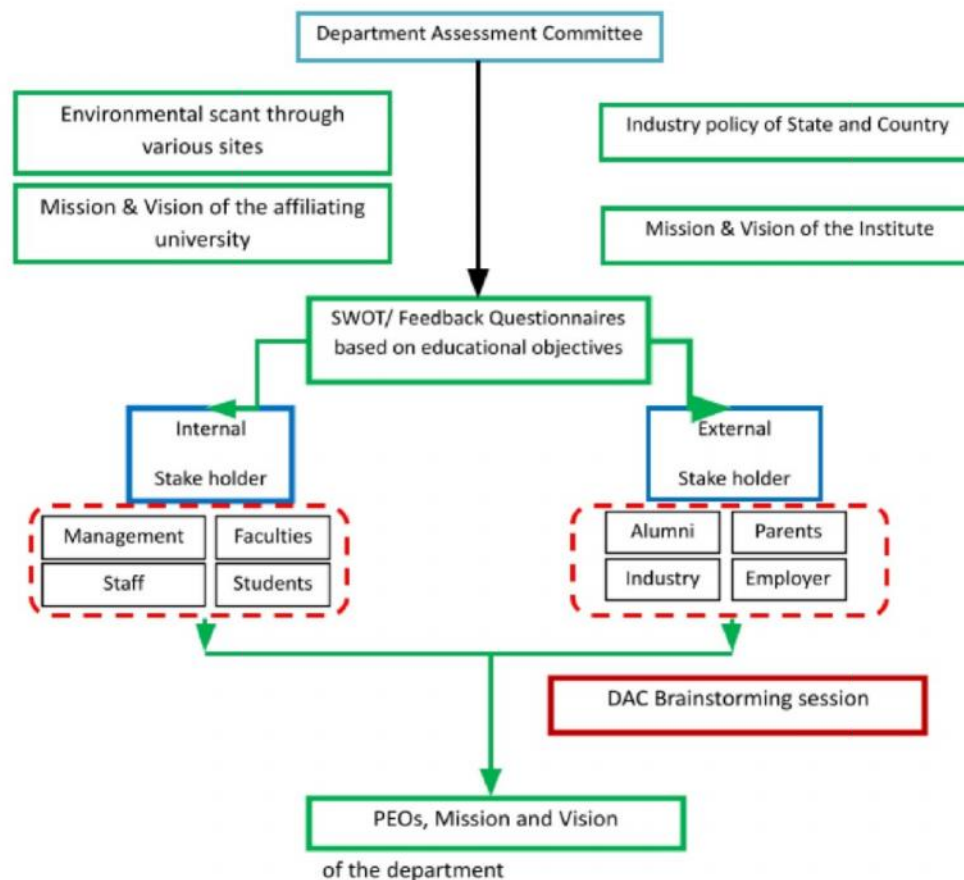
**Criterion 2**

**OIM 2.6.1 POs.PEOs**



2. To identify the research thrust and suggest innovative practices in teaching-learning process.
3. To develop and recommends new or revised program goals and objectives (PEOs) and assess the performance
4. To give direction on the adoption of current and future issues related to progress of the subject into the programs.

The process to arrive at the Mission and Vision of the department is indicated in block diagram given below.



*Fig. 1 Process for the Mission and Vision categorization*

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The following steps are sequentially undertaken for arriving at the vision and mission statements.

### **Step 1: Gathering the group**

The stakeholders are divided into two groups: Internal (Major) group consists of Faculty, Management Staff and students and the external (minor) group consisting of employer, alumni, parents and Industry. Sometimes views of professional bodies are collected.

### **Step 2: Sharing examples of other vision and mission statements**

The existing mission and vision statements of the institute and those of other institutes of the country and abroad are shared with faculty and program assessment committee, keeping in mind that the two statements serve different purposes.

### **Step 3: Brainstorming**

- Vision Statement: Indicate the purpose of modification with respect to the department.
- Mission Statement: Emphasize on the distinctive competence of the department. For this purpose conduct the SWOT analysis of the department. While drafting mission statement emphasize on the achievable graduate attributes. The students and the alumni are induced at this stage.

### **Step 3: Synthesizing**

Collect the major and minor stakeholders' ideas and thoughts, by avoiding wordsmith and focusing on the achievable content.

### **Step 4: Reflecting**

- Is the vision or mission statement realistic? Take advice of program assessment committee who in turn may approach professional bodies or align itself on the reports of the professional bodies.
- Circulate the drafts of vision and mission statements to all faculty and departmental advisory committee.
- Gather feedback from major stakeholders.
- Forward the draft to Institutional advisory committee.

### **Step 5: Reviewing**

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Repeat the process few times till comprehensive and achievable statements are arrived.

### **Step 6: Publishing**

Publish the statements in the website and other promotional materials

### **3. SWOT analysis of the department**

- SWOT analysis was conducted by considering internal stakeholders including management and faculty.
- Head of the department forms a core team of faculty members for developing the vision and mission statement of the department in alignment with vision and mission of the institute.
- These statements are then conveyed among faculty members and revised.
- Finally, the new vision and mission statements are finalized and sent to advisory board of the institute for approval.

#### **Procedure adopted for conducting the SWOT analysis:**

SWOT analysis was carried out by involving all stakeholders such as management, faculty, supporting staff, students, parents, alumni and representatives of employers. For this we have conducted online survey.

1. Meetings and consultation were conducted with the HODs and senior faculty. Each functional head from department submitted data on strengthening the departmental infrastructure, laboratories, library and connectivity. Inputs were also received to start new PG programs and additional software that could be procured.
2. Assessment was made on the additional academic inputs to be provided to the weak students.
3. At the departmental level, departmental faculty, technical staff and students discussed their respective SWOT analysis.

#### **While carrying out the SWOT analysis the following factors were considered:**

- a) Existing Infrastructure of the departmental facilities which includes, laboratories, equipment, library, connectivity, space etc.

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- b) Outcome based Curriculum Development and teaching & learning processes.
- c) Additional academic support for weaker students to improve their performance in the examination.
- d) Employability rate.
- e) Training Needs of Faculty/Technical Staff/Supporting Staff.
- f) Research, consultancy.
- g) Industry Institute Interaction

**The strengths, weaknesses, opportunities and threats were identified as:**

#### **Strengths**

1. Faculties are highly educated from renowned Institutes.
2. Students are highly motivated to develop projects for industrial/social needs and publications for the same.
3. Goals/objectives are well defined.
4. Attendance report is properly maintained
5. Question banks are maintained and provided to students.
6. Laboratories are good & well equipped.
7. Good & qualified supporting staff.
8. Fee concession / scholarship and motivation are given to poor & needy students.
9. Good departmental library with adequate number of books.

#### **Weaknesses**

1. Less admission due to CG Govt. policies (50% Christian minority) as well as Institutional norms.
2. Less placement due to inadequate number of vacancies in industries
3. Less Research & Development funds available in the department.

#### **Opportunities:**

1. Improve quality of research by increasing interactions with industry and R&D organizations.
2. Increasing interaction with reputed institutions by sharing resources and undertaking joint research projects.

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3. Strengthening contact with Alumni's to facilitate more contact with the industry for placement.
4. Facilities are being sent for FDP, Short term courses in NITs & IITs to improve teaching capabilities.
5. Extending more academic assistance to weaker /slow learner students.
6. Starting new Research Programs in Mechanical Engineering
7. Accreditation of our UG Programs.

#### **Threats:**

1. Lack of interest among bright Engineers to pursue research/teaching as career.
2. Incensement in the no. of mechanical degree awarding private universities.
3. Growing internet facilities may affect offline teaching program.

#### **Process for Establishing PEOs**

The Program Educational Objectives are established through consultation process involving the core constituents such as: **Students, Alumni, Parents, Faculty and Employer**. The PEOs are established through the following process steps:

The PEOs are established through the following steps:

##### **Step 1: Initialising:**

Vision and Mission of the Institute / Department is taken as the basis for drawing up and to interact with all the major stake holders.

##### **Step 2: Reflecting**

All documents relating to the Program and the department are reviewed. These include instructional materials which are collected and reviewed for all the courses. The Outcomes in terms of courses are listed for the program and the Graduate attributes are taken into account apart from the information collected from Alumni in terms of career achievements, and other intellectual contributions.

##### **Step 3: Brainstorming:**

Program Coordinator consults the key stakeholders in the light of the current status of the institutes teaching learning environment, student and faculty quality and

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infrastructure. Feedback from prospective employers and current employers of the alumni are collected. All information's are placed to the programme assessment committee.

#### **Step 4: Synthesizing:**

Programme Assessment Committee consults the present curricula and the model curricula and defines a draft, keeping in view of the program outcome. At this stage consistence of the draft PEOS are checked with the mission of the department.

#### **Step 5: Reviewing:**

The draft PEOs are suggested to the departmental advisory committee and feedback are collected.

#### **Step 6: Publishing:**

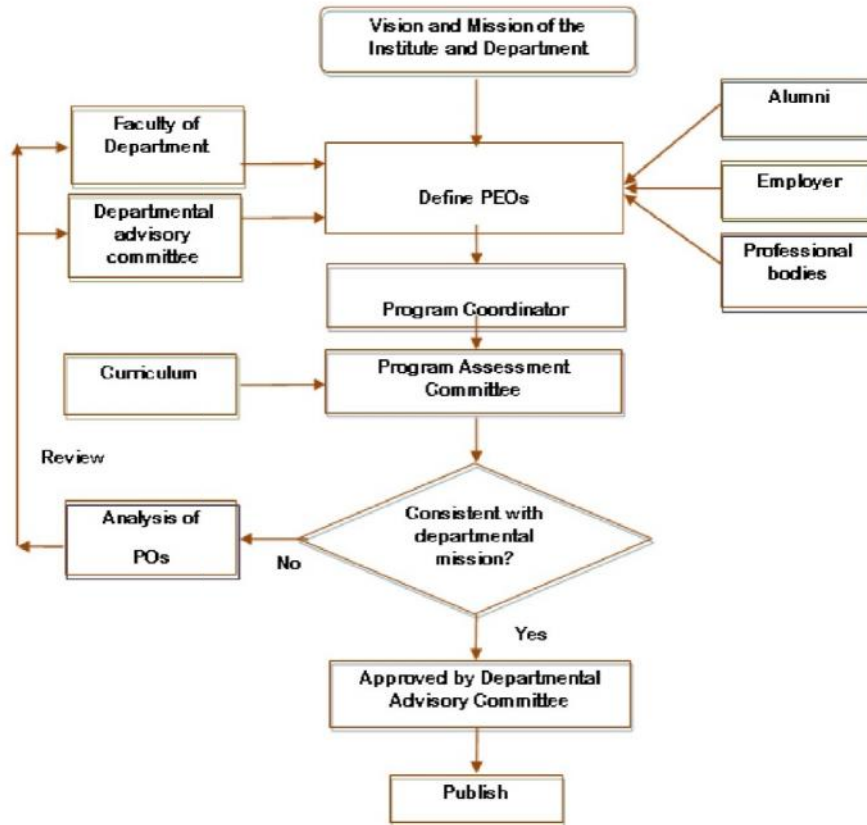
The process is repeated and then finalised and published in the webpage of the department.

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*Fig. 2 Process for the PEOs categorization*

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#### OIM 2.6.1 POs.PEOs



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## Department of Electronics & Telecommunication Engineering

### Vision and Mission of the Department

#### *VISION*

The Department endeavors to facilitate state of the art technical education in the field of Electronics and Tele-communication Engineering by infusing scientific temper in the students leading towards research and to grow as centre of excellence in the field. The vision of the department is to provide education to students that is directly applicable to problems and situations encountered in real life and thus foster a successful career. The department aims to provide the best platform to students and staff for their growth.

#### *MISSION*

The mission of the Elex & Telecom Engineering Department is

- M1.** Establish a unique learning environment to enable the students to face the challenges of the Electronics and Communication Engineering field.
- M2.** Promote the establishment of centres of excellence in niche technology areas to nurture the spirit of innovation and creativity among faculty and students.
- M3.** Provide ethical and value based education by promoting activities addressing the societal needs.
- M4.** Enable students to develop skills to solve complex technological problems of current times and also provide a framework for promoting collaborative and multidisciplinary activities.

### Programme Outcomes (POs)

On completion of the B.E (ETCE) degree the Electronics and Tele-communication graduates will be able to

- **PO1:** Utilize the basic knowledge in mathematics, science and engineering in Electronics and Communication Engineering field.
- **PO2:** Identify, formulate and solve complex problems to achieve demonstrated conclusions using mathematical principles and engineering sciences.
- **PO3:** Design system components that meet the requirement of public safety and offer solutions to the societal and environmental concerns.

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- **PO4:**Apply research based knowledge to design and conduct experiments, analyze, synthesize and interpret the data pertaining to Electronics and Communication Engineering problems and arrive at valid conclusions.
- **PO5:**Construct, choose and apply the techniques, resources and modern engineering tools required for Electronics and Communication Engineering applications.
- **PO6:**Apply the contextual knowledge to assess societal, health, safety and cultural issues and endure the consequent responsibilities relevant to the professional engineering practice.
- **PO7:**Examine the impact of engineering solutions in global and environmental contexts and utilize the knowledge for sustained development.
- **PO8:**Develop consciousness of professional, ethical and social responsibilities as experts in the field of Electronics and Communication Engineering.
- **PO9:**Perform effectively as a member/leader in multidisciplinary teams.
- **PO10:**Communicate the engineering activities to engineering society for documentation and presentation.
- **PO11:**Demonstrate knowledge and understanding of the engineering and management principles to manage projects in multidisciplinary environment.
- **PO12:**Demonstrate resourcefulness for contemporary issues and lifelong learning.

### Programme Education Objectives (PEOs)

**PEO1:** To develop the ability among students to understand the concept of Mathematics, Physics and core electronics subjects which will facilitate understanding of new technology.

**PEO2:** To provide student with a strong foundation in the engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for graduate studies, R&D, consultancy and higher learning.

**PEO3:** To build up skills to analyze the requirements of electronics, understand the technical specifications, design and provide novel engineering solutions and efficient product design.

**PEO4:** To prepare graduates who possess the necessary foundation required to take up gainful employment in core sector and allied sector or prepare them for a successful career and work professionally to meet the technical requirement of Indian and multinational companies.

**PEO5:** To give exposure to emerging edge technologies, adequate training and opportunities to work as team on multi disciplinary projects with effective communication skills and leadership qualities.

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### **Program Specific Outcome (PSOs)**

On completion of the B.E (ETCE) degree the Electronics and Tele-communication graduates will be able to

- **PSO1:** Apply the fundamental concepts of electronics and communication engineering to design a variety of components and systems for applications including signal processing, image processing, communication, networking, embedded systems, VLSI and control system
- **PSO2:** Select and apply cutting-edge engineering hardware and software tools to solve complex Electronics and Communication Engineering problems.

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## **SCREENSHOTS OF COLLEGE WEBSITE**

**Criterion 2**

**OIM 2.6.1 POs.PEOs**





10/10/23, 12:02 PM

Computer Science 2018 – Christian College of Engineering &amp; Technology


**CHRISTIAN COLLEGE OF ENGINEERING & TECHNOLOGY**

## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

The Department of Computer Science & Engineering is an integral part of Christian College of Engineering and Technology, Bhilai which aims at bringing out the technical and inherent talents of the young and budding Engineers. The department has modern facilities for teaching, learning and research. The Department was established in the academic year 1998 and started B.E. Computer Science & Engineering programme with the aim to develop core skills in Computer Science and prepare the students to carry out development work, as well as take up challenges in research. The Undergraduate programmes – B.E. CSE are offered by the Christagarh Swami Vivekananda Technical University. With rapidly evolving technology and the continuous need for innovation, the department has produced quality professionals holding important positions in the IT industry in India and abroad.

### Vision of the Department

To create a strong, research-based teaching – learning environment that will cater to the needs of modern computer science and engineering with the aim to improve intellectual capital of the society and the nation.

### Mission of the Department

1. To produce recognized industry-ready professionals in computer science and engineering, through educational program incorporating laboratory and internet based teaching-learning process.
2. To enhance knowledge in computer science and engineering, through knowledge-embase programmes and research for sustainable development of the society and the nation as a whole.
3. To promote social and technological awareness related to the application and utilization of computer through the dissemination of knowledge for the less fortunate section of the society.
4. To initiate Post Graduate courses in the field of Computer Science and Engineering with a view to establish an important research centre.

### Programme Educational Objectives (PEOs)

PEO1. To provide the graduates of Computer Science and Engineering programme with required knowledge to solve critical engineering problems and to train them for research and advanced learning.  
 PEO2. To instill ability in Computer Science and Engineering graduates for assessing the requirements of system, software, and technical specifications with a view to provide accurate solutions.  
 PEO3. To train the graduates for successful careers who will work in a team with adequate training, effective communication skill, values, social concern and management qualities while meeting the requirements.



**Dr. Archana Chowdhury**  
PROFESSOR & H.O.D.

Greetings! On behalf of the faculty members, staff, and students of the Department of Computer Science and Engineering of Christian College of Engineering & Technology (CCET) at BHAI, I welcome you all to the creative world of Computer Science. The aim of the CSE Department is to motivate young professionals in building intellectual characteristics and improve the rising engineers with latest trends in technology. The programme is designed to provide students both theoretical knowledge and practical skills in the field of latest technology. The department is committed to continuously improve the quality of education by enhancing the knowledge of students and staff members. The department of Computer Science & Engineering is well equipped with computerized laboratories having the latest configurations and software tools. I wish all the students and faculty a great academic career.

## FACULTY PROFILE

<https://ccetbhilai.ac.in/computer-science-2018/>

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10/10/21, 12:04 PM meech-PEO & PSO - Christian College of Engineering & Technology



**Programme Educational Objectives (PEO)**

PEOs are created under the following five broad categories, (\*shown in blue color)

1. To pursue advanced education, research and development, and other creative and innovative efforts in science, engineering as well as other professional careers. **(Employment/Higher studies)**
2. To analyze the real life problems with industrial visits, vocational trainings and guest lectures covering different practical aspects of mechanical engineering. **(Discipline knowledge)**
3. To organize various technical events and exhibitions to provide the students to get expertise in designing and analyzing various mechanical engineering systems. **(Breadth - T Shaped Engineer)**
4. To Capability to function ethically in professional mechanical engineering roles and exhibit good competency in their work culture. **(Professionalism - 3 Ps - Professional value-knowledge-development)**

<https://ccetbhilai.ac.in/meech-peo-psy> 10

10/10/21, 12:04 PM meech-PEO & PSO - Christian College of Engineering & Technology

5. To motivate students for continuous adoption of various methods of engineering to carry out real life problems, which will uplift the society in large. **(Life long learning /Sodal)**

*\*The concept of the T-shaped professional refers to individuals with both depth and breadth of knowledge.*

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<https://ccetbhilai.ac.in/meech-peo-psy> 20

## Criterion 2

### OIM 2.6.1 POs,PEOs



10/10/23, 12:06 PM		elec-PEO & PSO – Christian College of Engineering & Technology	
			
PROGRAM EDUCATION OBJECTIVE (PEO)		PROGRAM SPECIFIC OUTCOMES (PSO)	
<p>PEO1. To develop skills and proficiency in core areas of Electrical and related multidisciplinary engineering fundamentals.</p> <p>PEO2. To educate students to have in-depth knowledge through laboratory-based teaching-learning process in professional areas of Electrical Engineering.</p> <p>PEO3. To motivate the students to become successful practitioners in Electrical industries and/or to be ready for entrepreneurship keeping in view of the global and national status of technology.</p> <p>PEO4. To promote professionals with quality of leadership, values, and social commitment towards environment friendly utilization of electrical energy.</p>		<p>The PSO developed for the Electrical Engineering Department are as follows:</p> <p>PSO-1: Fundamental knowledge of mathematics, basic sciences and computation in problems related to electrical engineering.</p> <p>PSO-2: Knowledge of electrical machines, power electronics and control systems in real-life situations in industries.</p> <p>PSO3: Knowledge of generation, efficient transmission and distribution of electric power with special reference to non-conventional and renewable energy resources.</p>	
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## Criterion 2

### OIM 2.6.1 POs.PEOs



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## **PEOs AND PSOs DISPLAY IN CAMPUS**

**Criterion 2**

**OIM 2.6.1 POs.PEOs**





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**DEPARTMENT OF ELECTRICAL ENGINEERING CCEET**

**PROGRAM OUTCOMES (POs)**

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
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.
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 public health and safety, and cultural, societal, and environmental considerations.
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
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations
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.
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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with the 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.
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

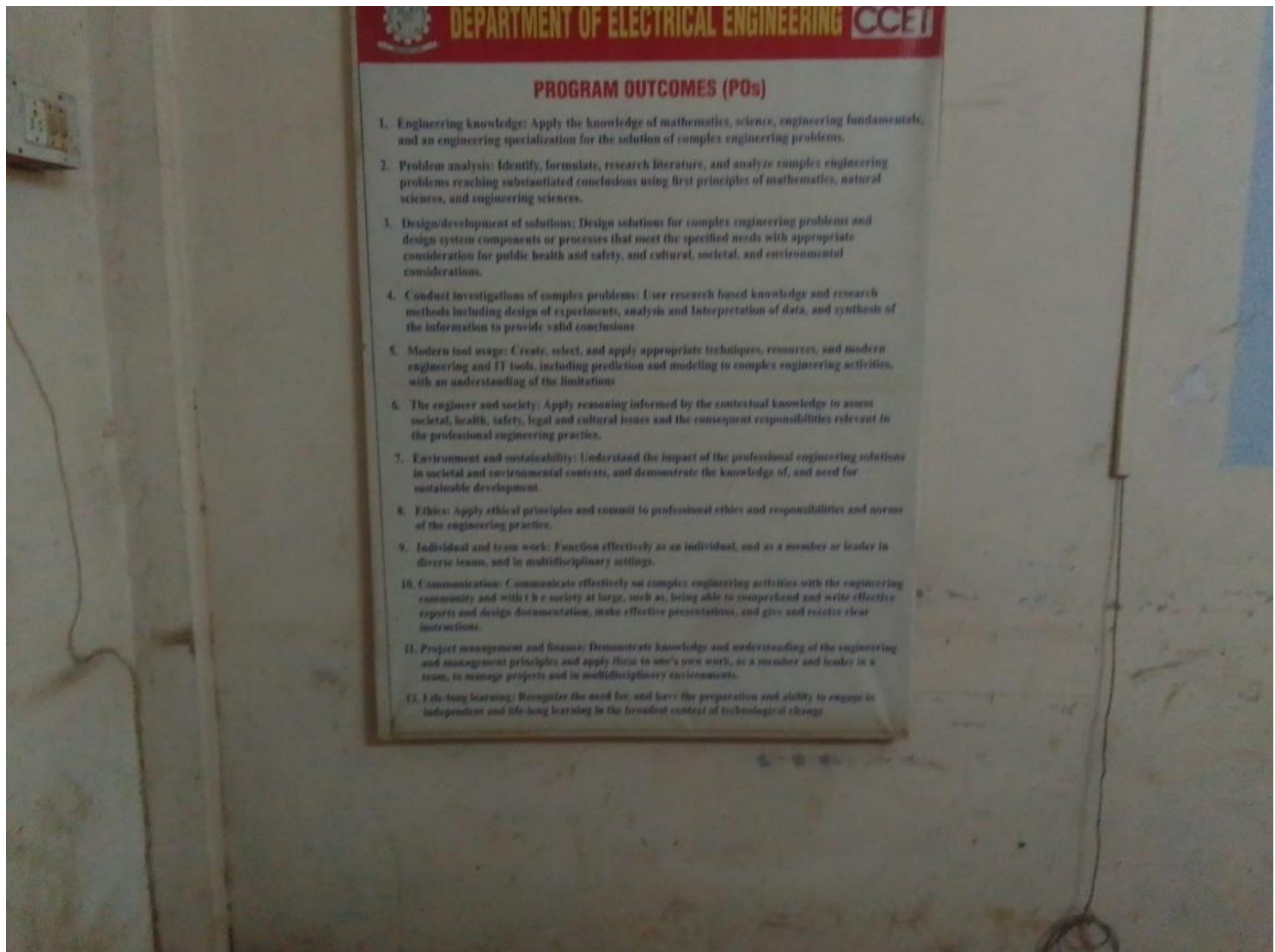
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## DEPARTMENT OF ELECTRICAL ENGINEERING CCET

### VISION

To create a strong research-based teaching-learning environment that will cater to the needs of modern Electrical Engineering.

### MISSION

To produce recognized industry-ready professionals in Electrical Engineering, through educational program incorporating laboratory based teaching-learning process.

To enhance knowledge in Electrical Engineering, through research for sustainable Development of the society and the nation as a whole.

To promote social, environmental and technological responsiveness related to electric power through dissemination of knowledge.

## DEPARTMENT OF ELECTRICAL ENGINEERING CCET

### PROGRAM EDUCATION OBJECTIVE (PEO)

PEO1: To develop skills and proficiency in core areas of Electrical and related multidisciplinary engineering fundamentals.

PEO2: To educate students to have in-depth knowledge through laboratory-based teaching-learning process in professional areas of Electrical Engineering.

PEO3: To motivate the students to become successful practitioners in Electrical industries and/or to be ready for entrepreneurship keeping in view of the global and national status of technology.

PEO4: To promote professionals with quality of leadership, values, and social commitment towards environment friendly utilization of electrical energy.

### PROGRAM SPECIFIC OUTCOMES (PSO)

PSO1: Fundamental knowledge of mathematics, basic sciences and computation in problems related to electrical engineering.

PSO2: Knowledge of electrical machines, power electronics and control systems in real-life situations in industries.

PSO3: Knowledge of generation, efficient transmission and distribution of electric power with special reference to non-conventional and renewable energy resources.



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## Criterion 2

OIM 2.6.1 POs.PEOs





## CHRISTIAN COLLEGE OF ENGINEERING & TECHNOLOGY DEPARTMENT OF MECHANICAL ENGINEERING



### Program Educational Objectives (PEOs)

PEOs are created under the following five broad categories (shown in blue color):

1. To pursue technical education, research and development, and other creative and innovative efforts in science, engineering as well as other professional careers. (Employment/Higher studies)
2. To analyze engineering problems with industrial visits, vocational trainings and guest lectures covering different practical aspects of mechanical engineering. (Discipline/knowledge)
3. To organize various technical events and exhibitions to provide the students to get expertise in designing and analyzing various mechanical engineering systems. (Breadth - 'T' Shaped Engineer\*)
4. To enhance capability to function ethically in professional mechanical engineering roles and exhibit good competency in their work culture. (Professionalism - 3 Ps - Professional value-knowledge-development)
5. To motivate students for continuous adoption of various methods of engineering to carry out real life problems, which will uplift the society in large. (Lifelong learning /Social)

\*The concept of the T-shaped professional refers to individuals with both depth and breadth of knowledge.

### PROGRAM SPECIFIC OUTCOMES (PSOs)

1. The student will be able to apply the knowledge of Mathematics, Sciences and Engineering fundamentals to formulate, analyze and provide solutions to the problems related to Mechanical Engineering and communicate them effectively to the concerned.
2. The student will be able to design mechanical systems in various fields such as machine elements, thermal, manufacturing, industrial and inter-disciplinary fields by using various engineering/ technological tools to meet the relative needs of the industry and society at large.

## CHRISTIAN COLLEGE OF ENGINEERING & TECHNOLOGY DEPARTMENT OF MECHANICAL ENGINEERING



### VISION

To produce proficient engineers, through innovative teaching-learning environment that will cater to the needs of rapidly changing technical diversity of Mechanical Engineering

### MISSION

- To produce proficient industry-ready professionals through educational programs incorporating outcome based teaching-learning process.
- To encourage the students towards higher education through research and development activities.
- To educate students about professional & ethical responsibilities by imparting leadership and entrepreneurship qualities for their career development and placement.
- To impart knowledge in the areas of e-technological development that may leads to welfare of society



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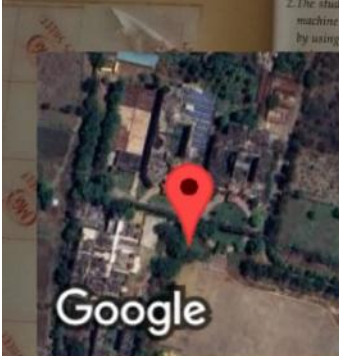
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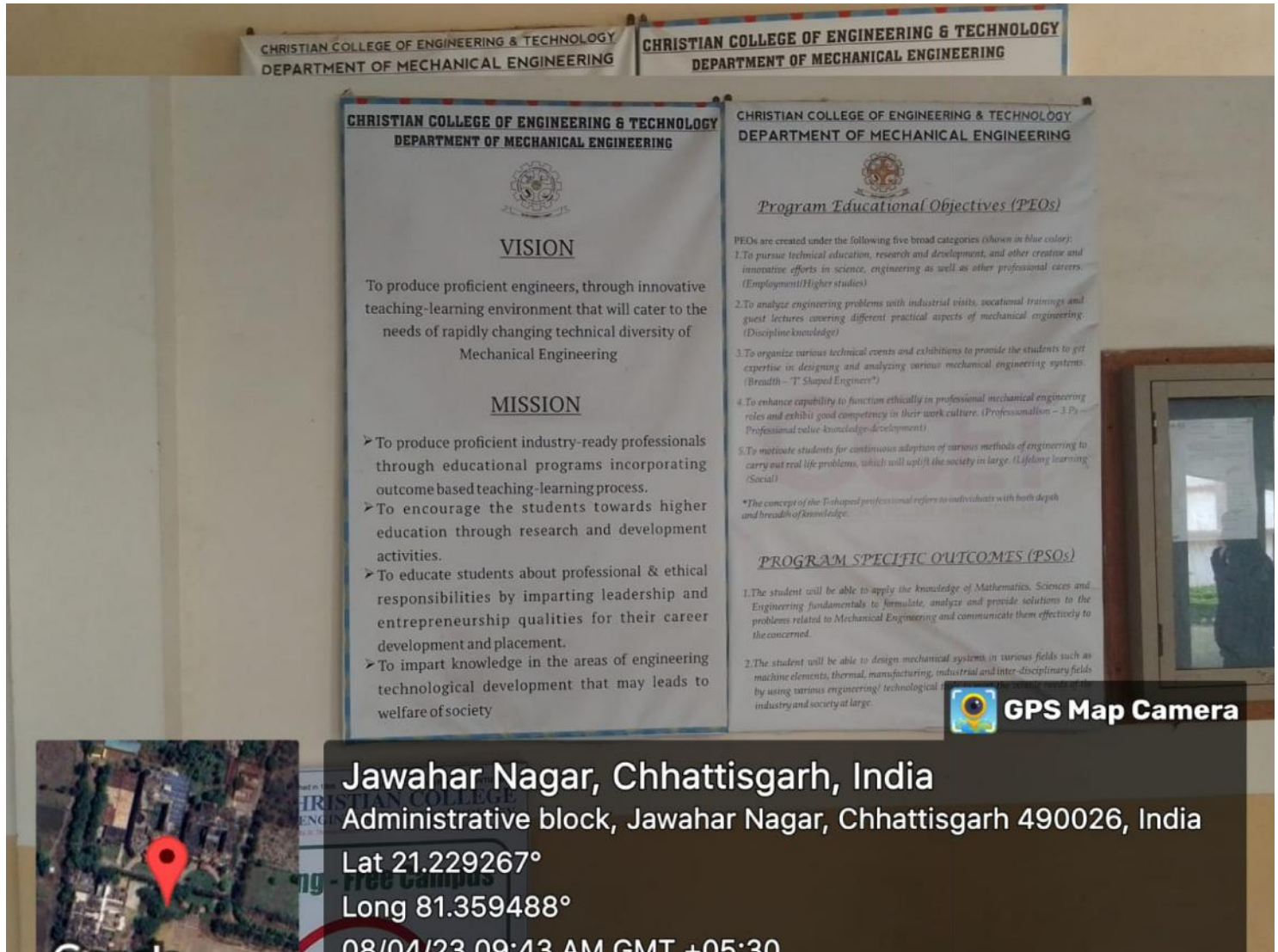
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