



Chandigarh Engineering College Jhanjeri, Mohali

2.6 Student Performance and Learning Outcomes

2.6.1 Programme outcome (PO) and course outcomes (CO) for all Programmes offered by the institution are stated and displayed on website and attainment of POs and Cos are Evaluated.

Answer:

Framing / Stating of Outcomes

Curriculum, of a programme offered in CEC, Jhanjeri, is designed and developed based on Program Educational Objectives, Program Outcomes/Program Specific Outcomes and Course Outcomes. Assessment and attainment of these outcomes are carried-out using bottom-up approach.

Process for Ensuring Compliance of Curriculum with PEO, PO/PSO and CO

The initial process of designing curriculum and syllabi, which involves framing Educational Objectives of the programme, an essential step in defining Outcomes. Considering Vision and Mission of the Department, DAB recommends the PEOs, which is then reviewed, analysed by Board of Studies (HOD's) – for approval. after it will go for approval by Director –Academic. Then the Objectives are published to relevant stakeholders.

Process of Framing PO and PSO

On acceptance of PEOs, Programme Outcomes recommended by the National Board of Accreditation and Programme Specific Outcomes in line with recommendations of Professional Bodies (comprising expertise and experience) are framed. Every outcome is then divided into smaller categories to form Course Outcomes, which are then converted into content of suitable courses, i.e. syllabi. Course Outcomes defines the expectation from each student, who register a course, capable of being able to comprehend the facts, concepts, procedures (knowledge) with adequate skill set. This process ensures stating/mapping of Course Outcomes with POs, PSO and PEOs completely. Extent of compliance of curriculum for mapping and attaining the POs/PSOs is verified and finally with approval of Academic Council, curriculum is implemented.

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Once the PEO, POs, PSOs and COs are approved, then they are disseminated to create awareness among the stakeholders, to understand by students and faculty so that they respond to expectations and develop their capabilities (Knowledge, Skills and Attitude). These outcomes are disseminated in multiple ways – discussions, information, and publication - to different stakeholders,

Dissemination of COs

Course Outcomes of each course are given as a pre-reading material in the curriculum, placed before the syllabus to enable the students and others to understand and appreciate the expectations from them at the end of the course – the capabilities the students will be able to perform / demonstrate. While framing Assessment and evaluation questions, course outcomes are considered to allocate the proportion of marks, to justify their mapping strength POs and PSOs.

Attainment of programme outcomes and course outcomes are evaluated by the institution.

Answer:

, Assessment/attainment of PO/PSO are carried out following bottom-up approach, i.e .calculating the attainment of different course outcomes, mapping them with relevant PO/PSO and then calculating the outcomes of PO and PSO, compared with target values.

Every course is prescribed with course outcomes, course plan with Cognitive Processes (based on Bloom's Taxonomy) and assessment pattern (given in curriculum).Data are collected from tests, assignments and other academic evaluations carried out based on the nature of courses offered .Assessment and attainment of COs are calculated at the end of every semester.

Steps Involved:

1. CO assessment matrix is prepared for every course based on assessment

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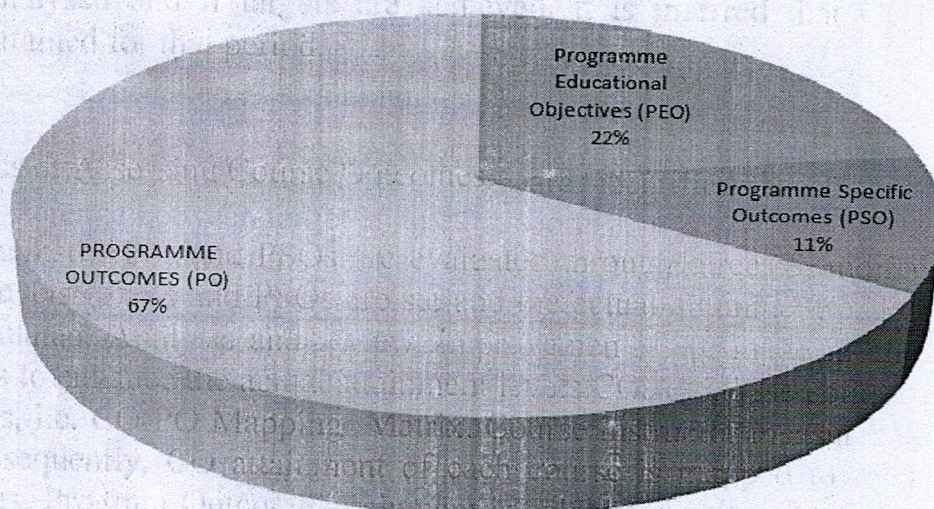


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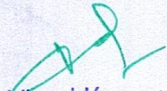
- categories. Average marks obtained in assessments against items for each CO is taken as attainment .
2. Target is set by Course Coordinator, in consultation with Head of the Department. Attainment gaps are identified based on the difference between target and actual score.
 3. From this result, attainment of each CO of the course is reviewed, analysed and if targets are achieved, it is inferred that CO is attained for that period.

Process of Assessing Course Outcomes

Attainments of Pos and PSOs are evaluated through direct & indirect measures. Target levels of Pos and PSOs are set and the actual attainment of POs and PSOs are calculated. Analysis and review, improvements are made in all the relevant activities to enhance the actual attainment levels. COs of all the courses are mapped with POs, i.e. CO-PO Mapping Matrix. Course instructor measures attainment of CO, subsequently, CO attainment of each course is mapped to related Program Outcomes. Program Outcome attainment is calculated using the average values of the relevant CO attainment values



- Programme Educational Objectives (PEO)
- Programme Specific Outcomes (PSO)
- PROGRAMME OUTCOMES (PO)


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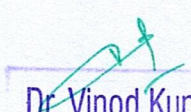
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Vision of the Institute

To emerge as Institution of Technical excellence imparting professional education for sustainable development of society

Mission of the Institute

1. To provide quality technical education through state-of-the- art infrastructure and well qualified and experienced faculty.
2. Having academic flexibility through strong industry academia interactions.
3. Focus on students' employability, entrepreneurship, higher education and competitive examination.
4. Inculcate ethical and moral values in students.


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PROGRAMME OUTCOMES (PO)

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: 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.

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.

PO5: 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.

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.

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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.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

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.

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.

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Vision of the Department

To provide imperative skills to students for meeting industry needs, and to become responsible engineers, entrepreneurs and citizens.

Mission of the Department

1. To educate the students in the field of Computer-Science with ever-changing technologies and skills.
2. To enable the students in solving real-time problems and make use of new technologies.
3. To have industry collaboration and interaction with professional societies for continuous development.
4. To help students in becoming successful entrepreneurs.

Programme Educational Objectives (PEO)

Graduates of Computer Science & Engineering shall

PEO1: Become competent Computer Professionals.

PEO2: Have abilities to analyze the requirements of software and provide solutions through efficient product designs.

PEO3: Have successful career and meet the requirements of Indian and other Multi-National Companies.

PEO4: Have exposure to advanced technologies, technical skills and opportunities to work as team members on multidisciplinary projects

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Programme Specific Outcomes (PSO)

Students of the Computer Science & Engineering will be able to do:

PSO1: To use principles of Computer Science & Engineering (such as software engineering, computer networks, data structures & computer programming high level languages) for developing software solutions.

PSO2: To clearly understand the concept of programming languages, computer architecture and their applications in different field of technologies to develop cost-effective solutions in the area of computer science by the use of various methodological algorithms and different tools.


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Vision of the Department

To produce competent electronics and communication engineers and socially sensitive leaders by quality engineering education.

Mission of the Department

1. To provide quality education through effective teaching learning process and laboratory facilities.
2. To inculcate the habit of lifelong learning so that students can continuously enhance their performance.
3. To endeavor towards productive industry-academia cooperation.
4. To transform the students into responsible citizens with ethical, social, environmental and economic values in the society.

Programme Educational Objectives (PEO)

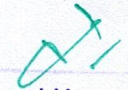
Graduates of Electronics & Communication Engineering shall

PEO1: Have Ability to generalize fundamental and domain knowledge while working with electronic equipment/systems to handle engineering problems in professional career Become competent Computer Professionals.

PEO2: Have Ability to get profound knowledge of modern techniques, Electronic Design Automation (EDA) tools and to acquire technical skills to innovate/improve new/existing solutions to engineering problems.

PEO3: Be leaders in Electronics & Communication Engineering and allied engineering with the ability to solve real-world inter-disciplinary problems.

PEO4: Have professional and ethical responsibility.


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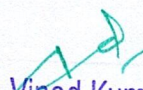
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Programme Specific Outcomes (PSO)

Students of the Electronics & Communication Engineering will be able to do:

PSO1: Domain Knowledge: Ability to provide practical solutions to various problems in the field of Electronics & Communication Engineering through comprehensive knowledge of electronic devices and circuits, VLSI design, embedded system, IOT and communication systems.

PSO2: Design and Innovation: Innovative thinking and design ability to improve the products and systems for the benefit of society and industry.


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Vision of the Department

To be a center of excellence in the field of Civil Engineering by producing civil engineers of outstanding quality, technical capabilities and ethical principles.

Mission of the Department

- To empower students as skilled engineers with fundamental and advanced knowledge in Civil Engineering and its applications.
- To make the students capable of facing the technical and social challenges related to Civil Engineering.
- To put emphasis on practical training to the students to make them industryready.
- To inculcate moral and ethical values among the students.
- To provide cutting-edge resources that support a pleasant learning environment.
- To motivate students to pursue further education and participate in competitive tests and other career-enhancing courses.

Programme Educational Objectives (PEO)

The graduates of Civil Engineering Program shall

PEO1: Have skills that will prepare them for successful career in Civil Engineering Industry.

PEO2: Achieve competency in analysis and design of various civil engineering structures.

PEO3: Solve various field problems using technical and practical knowledge.

PEO4: Work and serve the community ethically as responsible professionals.

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Programme Specific Outcomes (PSO)

Students of the Civil Engineering will be able to do:

PSO1: Graduates will be able to handle practical problems related design, construction and maintenance of Civil Engineering structures.

PSO2: Graduates will be able to attain professional skills in various core areas of Concrete, Structural, Environmental and Transportation Engineering etc.


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Vision of the Department

To emerge as a department of excellence, offering skill-based engineering education leading to skilled mechanical engineers, ready to serve the society.

Mission of the Department

1. To impart skills embedded engineering education to the students, making them industry ready.
2. To develop alliances with industries and organizations for attaining excellence in academic, laboratory practices, live projects and research.
3. To provide a collaborative environment for students to advance in various mechanical and allied engineering domains.

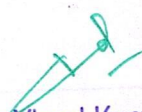
Programme Educational Objectives (PEO)

The graduates of Mechanical Engineering Program shall

PEO1: Prepare students to work in core and applied areas of mechanical engineering.

PEO2: Improve students' practical knowledge and software skills that are necessary for a successful career.

PEO3: Develop team working and leadership qualities in students so that they work in a professional and ethical manner.


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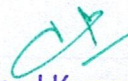
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Programme Specific Outcomes (PSO)

Students of the Mechanical Engineering will be able to do:

PSO1: Graduates will be able to work in the fields of design & development, production, quality control, operation and maintenance of industrial units.

PSO2: Graduates will be able to work in various sectors of mechanical engineering particularly in the automotive industry, refrigeration & amp; air conditioning and manufacturing units.


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