



**Key Indicator – 1.1 Curriculum Design and Development**  
**(50)**

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs, which is reflected in the Programme outcomes (POs), and Course Outcomes(COs) of the Programmes offered by the University  
**(20)**

**Criterion 1 – Curricular Aspects**  
**(150)**



## **KEY INDICATOR – 1.1.1**

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**PSO,PSO,PO's Development Process**

## **PROCESS FOR DEFINING PEO, PO, PSO, AND CO**

### **SCHOOL OF ENGINEERING & TECHNOLOGY**

#### **SUSHANT UNIVERSITY, GURUGRAM**

The process of defining Program Educational Objectives (PEOs), Program Outcomes (POs), Program Specific Outcomes (PSOs), and Course Outcomes (COs) is a systematic, collaborative, and structured approach tailored for Computer Science Engineering (CSE) and Civil Engineering (CE) programs. It aligns with the university's mission and industry requirements, ensuring that graduates are well-prepared for professional and personal success.

#### **1. Program Educational Objectives (PEOs)**

##### **Objective:**

Define long-term objectives reflecting the career and professional achievements expected of graduates within 3-5 years of completing the program.

##### **Process:**

- **Stakeholder Engagement:**
  - Consult with faculty, alumni, industry experts, and academic peers.
  - Gather feedback through surveys and focus groups.
- **Alignment with Vision and Mission:**
  - Ensure that PEOs align with the institution's vision, mission, and societal needs.
  - Incorporate global trends and industry demands.
- **Drafting and Validation:**
  - Develop draft PEOs based on collected data.
  - Validate through discussions in the Board of Studies (BoS) and Academic Council.

##### **Examples for Specific Programs:**

- **CSE:** Graduates will excel in advanced computing technologies and contribute to innovative solutions in the IT industry.
- **CE:** Graduates will lead and manage civil engineering projects addressing sustainable development challenges.



## **2. Program Outcomes (POs)**

### **Objective:**

Specify competencies and skills students should acquire by the time of graduation, as defined by accreditation bodies like NBA and ABET.

### **Process:**

- **Adoption of Graduate Attributes:**
  - Use NBA's 12 graduate attributes as the baseline for POs.
  - Customize attributes to the context of CSE and CE programs.
- **Input from Accreditation and Industry:**
  - Review regulatory guidelines and industry needs.
  - Integrate skills related to ethics, communication, and lifelong learning.
- **Finalization:**
  - POs are vetted and approved by the department's faculty and BoS.

### **Common POs (Examples):**

1. Engineering knowledge
2. Problem analysis
3. Design and development of solutions
4. Modern tool usage
5. Environment and sustainability

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## **3. Program Specific Outcomes (PSOs)**

### **Objective:**

Define specialized outcomes unique to the CSE and CE programs, based on their domains.

### **Process:**

- **Consultation and Benchmarking:**



- Benchmark PSOs against leading institutions and industry standards.
- Engage faculty members with domain expertise.
- **Domain-Specific Focus:**
  - Identify unique competencies for each program.
  - Ensure alignment with industry demands and future trends.
- **Validation and Approval:**
  - PSOs are reviewed by internal committees and validated by external experts.

**Examples:**

- **CSE:**
  1. Apply computational knowledge to design algorithms and systems.
  2. Develop solutions leveraging emerging technologies such as AI, ML, and IoT.
- **CE:**
  1. Analyze, design, and manage infrastructure projects with a focus on sustainability.
  2. Apply geotechnical and structural engineering principles to real-world challenges.

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**4. Course Outcomes (COs)**

**Objective:**

Define measurable outcomes for each course, specifying what students will know and be able to do after completing the course.

**Process:**

- **Course Design and Mapping:**
  - Define COs for each course based on its objectives and relevance.
  - Align COs with POs and PSOs to ensure consistency.
- **SMART Approach:**
  - Ensure COs are Specific, Measurable, Achievable, Relevant, and Time-bound.
- **Validation:**
  - COs are reviewed by the Course Coordinator and approved by the departmental committee.



**Examples:**

- **CSE (Data Structures):**
    1. Analyze the complexity of algorithms.
    2. Implement and optimize data structures for problem-solving.
  - **CE (Structural Analysis):**
    1. Apply principles of mechanics to analyze structures.
    2. Design structural elements considering safety and durability.
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**5. Mapping and Correlation**

**Objective:**

Establish and document the relationship between COs, POs, and PSOs to ensure coherence across the curriculum.

**Process:**

- **Matrix Mapping:**
    - Use a matrix to map COs to POs and PSOs, indicating the level of correlation (low, medium, high).
  - **Validation and Review:**
    - Ensure mapping reflects the intended competencies.
    - Periodically update mapping to reflect curriculum revisions.
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**6. Assessment and Feedback**

**Objective:**

Continuously monitor and improve the effectiveness of PEOs, POs, PSOs, and COs.

**Process:**

- **Assessment Tools:**



- Use direct methods (exams, projects) and indirect methods (surveys, alumni feedback).
  - Evaluate attainment levels of COs, POs, and PSOs.
  - **Review Mechanism:**
    - Conduct annual reviews involving stakeholders.
    - Revise outcomes based on feedback and emerging trends.
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### Conclusion

The systematic approach to defining and implementing PEOs, POs, PSOs, and COs ensures that the programs at the School of Engineering, Sushant University, remain relevant, comprehensive, and effective. By aligning academic objectives with industry and societal needs, the institution prepares graduates to excel in their respective fields.



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