Project based Learning Methodology

Project-based learning (PBL) is an active learning approach where students learn by investigating and responding to complex, real-world questions or challenges. Instead of passively receiving information, students actively construct their knowledge through in-depth investigation, collaboration, and the creation of a final product or presentation. This method fosters deeper understanding, critical thinking, and problem-solving skills. Projects are assigned to students with faculty guide. The results are verified and reports are submitted to Head of the Department after investigation.

Procedural Implementation of Project-Based Learning (PBL)

1. Purpose

Project-Based Learning is implemented to promote experiential, student-centered learning by enabling students to apply theoretical knowledge to real-world problems, thereby supporting Outcome Based Education (OBE) and enhancing attainment of Course Outcomes (COs), Program Outcomes (POs), and Program Specific Outcomes (PSOs).

2. Scope

This procedure is applicable to:

- Undergraduate and postgraduate programs
- Mini projects and major projects

3. Responsibilities

- **Head of the Department (HoD):** Approval, monitoring, and review
- **Course Coordinator:** Planning, CO–PO mapping, documentation

- **Faculty Mentor:** Project guidance, evaluation, and assessment
- **Students:** Project execution, teamwork, and reporting

4. Procedural Steps

Step 1: Identification of Project-Based Courses

- Identify courses suitable for PBL implementation
- Select project components aligned with Course Outcomes (COs)
- Define project objectives and expected learning outcomes

Step 2: Project Topic Identification

- Students identify project topics based on:
    - Real-world problems
    - Industry relevance
    - Societal needs
- Topics are reviewed and approved by faculty mentor

Step 3: Formation of Student Groups

- Form student groups of 3–5 members
- Ensure heterogeneous grouping to promote peer learning
- Assign a faculty mentor to each group

Step 4: Project Planning

- Students prepare:
    - Problem statement
    - Objectives
    - Methodology
    - Tools and resources
    - Timeline
- Faculty approves the project plan

Step 5: Project Execution

- Students execute the project in phases:
    - Literature survey
    - Design and development
    - Implementation
    - Testing and validation
- Faculty mentor monitors progress through periodic reviews

Step 6: Review and Monitoring

- Conduct periodic project reviews (Phase I, Phase II, Final)
- Assess progress using predefined rubrics

- Provide feedback and guidance

Step 7: Documentation and Reporting

- Students maintain:
    - Project logbook
    - Progress reports
    - Final project report
- Documentation is submitted for evaluation

Step 8: Assessment and Evaluation

- Evaluate students based on:
    - Project execution
    - Innovation and problem-solving
    - Teamwork and communication
    - Documentation and presentation
- Map assessment to Course Outcomes

Step 9: CO Attainment Analysis

- Analyze assessment data and Calculate CO attainment levels.