

**Project Based Learning**  
(Guidelines and Work Book)  
**Course Code: 110013**  
(2019 Course)

**First Year Engineering**

Year 2019 - 2020

Group ID:

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Team Members: 1.

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2.

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4.

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6.

Project Title :

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Name of Mentor:

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Institute Logo

Institute Name and Address

**Savitribai Phule Pune University**

## **Preamble**

For better learning experience, along with traditional classroom teaching and laboratory learning; project based learning has been introduced with an objective to motivate students to learn by working in group cooperatively to solve a problem, Project-based Learning(PBL) is a student centric pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real world challenges and problems. Students learn about a subject by working for an extended period of time to investigate and respond to a complex question, challenge or a problem. It is a style of active learning and inquiry-based learning.(Reference: Wikipedia). Problem based learning will also redefine the role of teacher as mentor in learning process. Along with communicating knowledge to students, often in a lecture setting, the teacher will also to act as an initiator and facilitator in the collaborative process of knowledge transfer and development.

This is a recommended workbook for PBL that will serve the purpose and facilitate the job of students, mentor and coordinator. This workbook will reflect accountability, punctuality, technical writing ability and work flow of the work undertaken.

Dr. Dattatraya S. Bormane  
Chairman, BoS E&TC Engineering  
SPPU, Pune

**(For circulation at BoS Computer Engineering, Savitribai Phule Pune University only)**

Institute Logo

First Year Engineering

-----College of Engineering

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## CERTIFICATE

This is to certify that Mr./ Ms. \_\_\_\_\_

Group No. \_\_\_\_\_ Division \_\_\_\_\_ Branch \_\_\_\_\_ has successfully completed the work associated with **Project Based Learning(110013)** titled as \_\_\_\_\_

and has submitted the work book associated under my supervision, in the partial fulfillment of First Year Bachelor of Engineering(Choice Based Credit System) (2019 course) of Savitribai Phule Pune University.

Date:

Place:

Guide  
(Name & Sign)

Head  
(Name & Sign)

Principal  
(Name & Sign)

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Matoshri Education Society's



**Matoshri Education Society's**  
**Matoshri College of Engineering and Research Centre, Nashik**

**Savitribai Phule Pune University**

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Dr. Varsha H. Patil  
Chairman, BoS Computer Engineering  
SPPU, Pune

**(For circulation at BoS Computer Engineering, Savitribai Phule Pune University only)**



# First Year Engineering

## Matoshri College of Engineering and Research Centre, Nashik

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## **1. Project Based Learning Syllabus:**

### **Course Objectives:**

1. To emphasize learning activities that is long-term, interdisciplinary and student-centric.
2. To inculcate independent learning by problem solving with social context.
3. To engages students in rich and authentic learning experiences.
4. To provide every student the opportunity to get involved either individually or as a group so as to develop team skills and learn professionalism

### **Course Outcomes:**

CO1: Project based learning will increase their capacity and learning through shared cognition.

CO2: Students able to draw on lessons from several disciplines and apply them in practical way.

CO3: Learning by doing approach in PBL will promote long-term retention of material and replicable skill, as well as improve teachers' and students' attitudes towards learning

### **Group Structure:**

Working in supervisor/mentor – monitored groups. The students plan, manage and complete a task/project/activity which addresses the stated problem.

- There should be team/group of 5 -6students
- A supervisor/mentor teacher assigned to individual groups

### **Selection of Project/Problem:**

The problem-based project oriented model for learning is recommended. The model begins with the identifying of a problem, often growing out of a question or “wondering”. This formulated problem then stands as the starting point for learning. Students design and analyze the problem within an articulated interdisciplinary or subject frame. A problem can be theoretical, practical, social, technical, symbolic, cultural and/or scientific and grows out of students’ wondering within different disciplines and professional environments. A chosen problem has to be exemplary. The problem may involve an interdisciplinary approach in both the analysis and solving phases .By exemplarity, a problem needs to refer back to a particular practical, scientific, social and/or technical domain. The problem should stand as one specific example or manifestation of more general learning outcomes related to knowledge and/or modes of inquiry. There are no commonly shared criteria for what constitutes an acceptable project. Projects vary greatly in the depth of the questions explored, the clarity of the learning goals, the content and structure of the activity.

- A few hands-on activities that may or may not be multidisciplinary
- Use of technology in meaningful ways to help them investigate, collaborate, analyze, synthesize and present their learning.
- Activities may include-Solving real life problem, investigation /study and Writing reports of in depth study, field work.

### **Assessment:**

The institution/head/mentor is committed to assessing and evaluating both student performance and program effectiveness. Progress of PBL is monitored regularly on weekly basis. Weekly review of the work is necessary. During process of monitoring and continuous assessment AND evaluation the individual and team performance is to be measured. PBL is monitored and continuous assessment is done by supervisor/mentor and authorities. Students must maintain an institutional culture of

authentic collaboration, self-motivation, peer-learning and personal responsibility. The institution/department should support students in this regard through guidance/orientation programs and the provision of appropriate resources and services. Supervisor/mentor and Students must actively participate in assessment and evaluation processes.

Group may demonstrate their knowledge and skills by developing a public product and/or report and/or presentation.

- Individual assessment for each student (Understanding individual capacity, role and involvement in the project)
- Group assessment (roles defined, distribution of work, intra-team communication and togetherness)
- Documentation and presentation

### **Evaluation and Continuous Assessment:**

It is recommended that the all activities are to be record and regularly, regular assessment of work to be done and proper documents are to be maintained at college end by both students as well as mentor (you may call it PBL work book).

Continuous Assessment Sheet (CAS) is to be maintained by all mentors/department and institutes. Recommended parameters for assessment, evaluation and weightage:

- Idea Inception (5%)
- Outcomes of PBL/ Problem Solving Skills/ Solution provided/ Final product (50%)(Individual assessment and team assessment)
- Documentation (Gathering requirements, design & modeling, implementation/execution, use of technology and final report, other documents) (25%)
- Demonstration (Presentation, User Interface, Usability etc) (10%)
- Contest Participation/ publication (5%)
- Awareness /Consideration of -Environment/ Social /Ethics/ Safety measures/Legal aspects (5%)

PBL workbook will serve the purpose and facilitate the job of students, mentor and project coordinator. This workbook will reflect accountability, punctuality, technical writing ability and work flow of the work undertaken.

### **References:**

- Project-Based Learning, Edutopia, March 14, 2016.
- What is PBL? Buck Institutes for Education
- [www.schoolology.com](http://www.schoolology.com)
- [www.wikipedia.org](http://www.wikipedia.org)
- [www.howstuffworks.com](http://www.howstuffworks.com)

## **2. Recommended Guidelines and Phases:**

PBL is learning through activity. One of the teachers can be appointed as coordinator for PBL. Following are the recommended guidelines that will work as an initiator and facilitator in process of completion of PBL.

1. In first week of commencement of 2<sup>nd</sup> semester or preferably at the end of first semester let the coordinator create awareness about PBL(what, why, and how) among the students. Convey students expected outcomes, assessment process and evaluation criteria.
2. Get groups of students registered preferably 4-6 students per group.
3. Assign mentor to each group.
4. Provide guidelines for title identification (Problem can be some real life situation that needs technology solutions. This situation can be identified by meeting people around, visiting various industries, society, and institutes. The solution can be prototype, model, convertible solutions, survey and analysis, simulation, and similar).
5. Let students submit the problem identified in prescribed format(Title, Problem statement, details of a problem undertaken, and what is need of solution to the problem)
6. Coordinator and mentor can approve the problem statements based on feasibility and learning outcomes expected for first year engineering students
7. Mentor is to monitor progress of the task during phases of project work. Broadly phases may include- requirements gathering, preparing a solution, technology design for the solution. (optional phases- implementation and testing)
8. Weekly monitoring and continuous assessment record is to be maintained by mentor.
9. Get the report submitted at the end of semester.

### 3. Evaluation and Assessment Sheet (To be filled in my mentor)

Sr. No.	Details	Maximum Marks	Marks Obtained
1.	Problem Identification (Idea Inception)	10	
2.	Problem Analysis (Requirement Gathering)	15	
3.	Proposed Solution Model/Design/ Process / prototype	20	
4.	Technology Solution Model	15	
5.	Expected Outcomes	05	
6.	Implementation and Testing	10	
7.	Regularity (Attendance + Weekly Progress Reporting)	10	
8.	Awareness /Consideration of - Environment/ Social /Ethics/ Safety measures/Legal aspects	05	
9.	Contest Participation/ publication	05	
10.	Report	05	
<b>Total Marks</b>		<b>100</b>	

**Date:**

**Name & Sign of Mentor**

## 4. Project Information Sheet

Project ID					
Title					
Problem Statement					
Name of Mentor					
Group Members	Division	Roll No.	Name	Mobile Number	Email ID

## 5. Continuous Assessment and Remarks Sheet (To be filled in by mentor)

Problem Identification (Idea Inception) –

Problem Analysis (Requirement Gathering) –

Proposed Solution Model/Design/ Process / prototype –

Technology Solution Model-

Expected Outcomes-

Implementation and Testing-

Regularity (Attendance + Weekly Progress Reporting) –

Awareness /Consideration of -Environment/ Social /Ethics/ Safety measures/Legal aspects-

Contest Participation/ publication-

Report –

## **6. Project Monitoring/ Progress Information Sheets** (one sheet per week)

**Week 1**

**Date**

**Current Work phase of project-**

**Discussions Held**

**Progress till Date**

**Remark**

**Sign of Mentor**