**Project Based Learning**

**-**

**II**

**Course Code: 210258**

**( 2019**

**Course**

**)**

**Second Year Engineering**

Year 2022–23

**Group ID :**

11

**Team Members :**

1. Machpalle Balaji SC0B51
2. Ritesh Patil SCOB62
3. Sanket Pawar SCOB65
4. Tanmay kadam SCOB78

**Project Title :**

Water Delivery Website

**Name of Mentor :**

**:**

Prof. Pradnya Tapkir

**DEPARTMENT OF**

**COMPUTER**

**ENGINEERING**



**. D. Y. PATIL INSTITUTE OF TECHNOLOGY, PIMPRI, PUNE**

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**SAVITRIBAI PHULE PUNE UNIVERSITY**

**2022 - 2023**

# 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 to investigate and respond to a complex question, challenge, or a problem. It is a style of active learning and inquiry-based learning. 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.

# CERTIFICATE

This is to certify that **Machapalle Balaji , Ritesh Patil , Sanket Pawar , Pranav Patil and Tanmay Kadam of** Group No. **11** Division **B** Branch **COMPUTER** has successfully completed the work associated with **Project Based Learning II (217533**) titled as **Water Delivery Website** and has submitted the work book associated under my supervision, in the partial fulfillment of Second Year Bachelor of Engineering (2019 course) of Savitribai Phule Pune University.

Date: 27/05/2023

**Guide Head Principal**

(Name & Sign) (Name & Sign) (Name & Sign)

**Prof. Pradnya Tapkir Dr. Vinod Kimbahune Dr. Lalit Wadhwa**

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**Project Based Learning Syllabus**

**Course Objectives:**

* To develop critical thinking and problem-solving ability by exploring and proposing solutions to realistic/social problem.
* To evaluate alternative approaches, and justify the use of selected tools and methods.
* To emphasizes learning activities that are long-term, inter-disciplinary and student-centric.
* To engages students in rich and authentic learning experiences.
* To provide every student the opportunity to get involved either individually or as a group to develop team skills and learn professionalism.
* To develop an ecosystem that promotes entrepreneurship and research culture among the students.

**Course Outcomes :**

**CO1:** Identify the real-life problem from societal need point of view

**CO2:** Choose and compare alternative approaches to select most feasible one

**CO3:** Analyze and synthesize the identified problem from technological perspective

**CO4:** Design the reliable and scalable solution to meet challenges

**CO5:** Evaluate the solution based on the criteria specified

**CO6:** Inculcate long life learning attitude towards the societal problems

**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 must be exemplary. The problem may involve an interdisciplinary approach in both the analysis and solving phases. By exemplarity, a problem needs to refer 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 indepth 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.schoology.com](http://www.schoology.com/)
* [www.wikipedia.org](http://www.wikipedia.org/)
* [www.howstuffworks.com](http://www.howstuffworks.com/)

**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 2nd 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.

**Evaluation and Assessment Sheet**

|  |  |  |  |
| --- | --- | --- | --- |
| **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** |  |
| **Total Marks** | | **100** |  |
| **Date:**      **Name & Sign of Mentor**  **(Prof. Pradnya Tapkir)** | |  |  |

**Project Information Sheet**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Project ID | 11 | | | | |
| Title | Water Delivery Website | | | | |
| Problem Statement | Access to clean and reliable drinking water is of paramount importance in every local area. Our local water delivery website aims to cater to the specific needs of communities by offering a convenient and efficient solution for acquiring high-quality water. | | | | |
| Name of Mentor | Prof. Pradnya Tapkir | | | | |
| Group  Members | Division | Roll No. | Name | Mobile Number | Email ID |
| SCOB | 51 | **Machpalle Balaji** | 8421119810 | yashankush20@gmail.com |
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|  | SCOB | 78 | **Tanmay Kadam** | 7558241602 | Yashrajkanake2002@gmail.com |

**Continuous Assessment and Remarks Sheet**

|  |
| --- |
| **Problem Identification (Idea Inception)** –  In many parts of our community, accessing high-quality drinking water can be a challenge. Whether  it's due to unreliable infrastructure, limited resources, or simply a lack of time, we believe that no one  should have to compromise on the basic necessity of clean water. That's why we have launched the  Local Aqua project, with the aim of revolutionizing the way water is delivered to our community. |
| **Problem Analysis (Requirement Gathering)** –  Our project is built on the foundation of convenience, efficiency, and sustainability. By leveraging  advanced technology and innovative delivery systems, we have created a platform that simplifies the  process of ordering water and ensures timely deliveries right to your doorstep. With just a few  taps on your smartphone or a few clicks on your computer, you can have access to fresh, clean water  without any hassle.  At Local Aqua, we prioritize the quality and safety of our water. We have partnered with trusted local water  sources that adhere to strict quality standards and employ state-of-the-art purification processes. Our  commitment to providing you with the purest water possible ensures that every sip you take is refreshing  and free from contaminants. |
| **Proposed Solution Model/Design/ Process / prototype –** |
| **Technology Solution Model-** |

|  |
| --- |
| **Expected Outcomes**-  Ordering water through our website is designed to be seamless and hassle-free. Users can easily navigate  through the website, select their desired products, and customize their delivery preferences. Whether it's a  one-time order or a recurring subscription, our platform accommodates different delivery frequencies,  ensuring a consistent and reliable supply of water. |
| **Implementation and Testing**-    Coding is a step in which design is translated into machine-readable form. If design is done in sufficient detail,  then coding can be done effectively. Programs are created in this phase. In this phase all software divided into  small module then after doing coding for that small module rather than do coding whole software. In this  stage, both individual components and the integrated whole are methodically verified to ensure that  they are error-free and fully meet the requirements outlined in the first step. In this phase testing whole  software into two parts HARDWARE & SOFTWARE.  Type of testing is:  White box testing.  Black box testing. |
| **Regularity (Attendance + Weekly Progress Reporting) –(To be filled by Teacher)** |
| **Awareness /Consideration of -Environment/ Social /Ethics/ Safety measures/Legal aspects-(To be filled by teacher)** |
| **Contest Participation/ publication- (To be filled by teacher)** |
|  |
| **Report – (To be filled by Teacher)** |