



كلية الهندسة
College of Engineering
QATAR UNIVERSITY جامعة قطر



PBL

Project-Based Learning

STUDENT GUIDE

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Introduction

The booklet is to provide basic information and guidelines for PBL beginners

At the College of Engineering, Qatar University, PBL refers to problem or project based learning in which teamwork is an essential component.

What is PBL

– Components and principles

Problem based

- Working on a defined problem, which can be both theoretical and practical, and to real-life issues. The problem shall be analyzed and solved;
- Empowering learners to conduct research through integrating theory and practice and applying knowledge and skills to provide (a) viable solution(s);
- “A problem(s)” initiated at the beginning of the course to guide the process;
- “A problem(s)” may be suggested/guided by the instructor but are ideally formulated and analyzed by the students using prior knowledge;
- Solutions to the problem are aligned with the course intended learning outcomes.

Project organized emphasized the solution finding process is

- Within a set timeline with progressions of problem formulation and analysis, developing methodology, application, testing and evaluating the product and providing solutions
- Resulting in an end product (e.g. reports, designs)
- Project structures are in line with the course intended learning outcomes

Teamwork

- Self-formed teams including 3-6 students

Supports

- The PBL process is supported by lectures with a wide range of theories and methods
- The PBL process is supported by online materials, access to technology, industry contact if needed, and other needed facilities



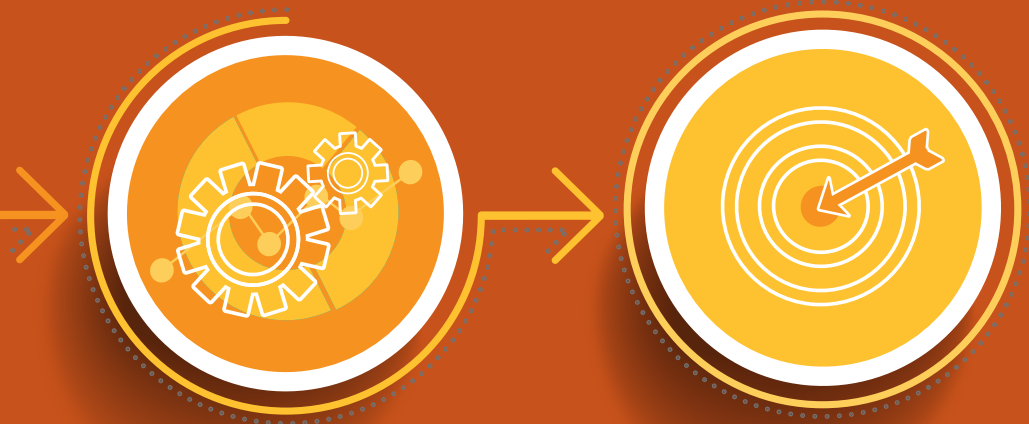
Why PBL?



Enhancing learner
interest, motivation,
and engagement



Working on
engineering
profession
related tasks



Developing profession related skills and competencies – problem-solving, analytical, application, communication, teamwork, time management, self-reflection and self-evaluation

Supporting the achievement of curriculum objectives and accreditation requirements

How

– Role of the instructor

- Design the course intended learning outcomes, aligned assessments and PBL activities
- Provide frame of the projects with themes and guidelines
- Propose topics for “problems” to be narrowed down and rephrased by students
- Scaffold the project process with milestones, progressive formative evaluations, suggest on team dynamics and other sources for
- Meet students project teams regularly to provide status feedbacks
- Assess course learning outcomes at the end

How

– Role of the student

- Form the group based on common interests and goals
- Take full responsibility of the projects – developing strategies and actions of project organization, management and finalization
- Work on the team dynamics – tasks, meetings, communication, seeking for help, constructive feedback, conflict handling, peer evaluation/assessment, report writing, etc.



Self-directed learning in project team

- Setting up shared goals, activating prior knowledge and experiences, and establishing forethought in team
- Making plans in team – short-term, long-term, individual and subteam



- Monitoring the process through organization, controlling, adaptation, assimilation, and accommodation
- Critical self-reflection and self-evaluation

Assessment

Assessment criteria and methods will be:

- Aligned with the intended learning outcomes
- Designed in balance between individual contribution and teamwork
- Provided at the start of the semester/PBL work
- Supported by rubrics to guide the PBL learning process
- In line with the grading policy



Critical reflection

- It is an important learning activity to improve critical thinking and self-directed learning skills.
- Critical reflection through regular project team meetings
- Critical reflection in writing (as a section of your project reports), with the following guideline:
 1. How did you form your project team and formulate the problems to work on?
 2. What were your goals and expectations of learning through the project?
 3. How did you organize the project with plans? Monitoring?
 4. How did you manage your project teamwork?

5. How did you develop team dynamics?

6. How do you think of the assessment of this project?

7. What are the major challenges you have encountered and how did you cope with them?

8. What are the benefits of working in PBL for the future prospect?

9. How do you evaluate your own learning through this project process?



Tips

- Making the best of your time in PBL sessions with the instructor around for feedbacks
- Writing from the beginning instead of waiting until the last minute
- Organizing project team meetings regularly (e.g. weekly or biweekly)
- Learning from “mistakes” and “pitfalls” in the process of progression



Useful links

- <https://www.youtube.com/watch?v=geey3BMmE0>
- <https://www.youtube.com/watch?v=OSqv7Gv0yxk>
- <https://www.youtube.com/watch?v=aqUqykhg5WQ>
- <https://www.youtube.com/watch?v=7uU8o05--XE>
- <https://www.youtube.com/watch?v=LrKiQ18T9-I>



