

## **Project-Based Learning (PBL)**

Project-Based Learning (PBL) is an innovative teaching methodology in which students learn theoretical concepts by working on real-world projects and practical problems. Instead of only listening to lectures, students actively participate in designing, building, researching, and solving engineering problems.

In this approach, students are usually divided into teams and assigned a project related to their subject or industry needs. They plan the project, collect information, design solutions, implement the model or software, and finally present their results. The teacher acts as a guide or facilitator, helping students when needed rather than delivering only traditional lectures.

Project-Based Learning helps students connect theory with practical applications. It encourages critical thinking, creativity, teamwork, communication skills, and problem-solving ability. It also improves students' technical knowledge and confidence because they gain hands-on experience while completing the project.

Example:

- Designing an IoT smart irrigation system
- Developing a mobile application
- Building a robotic prototype

