

PYP021: Course Syllabus

Course Introduction:

Computer-aided design (CAD) involves using computers to help with engineering and design for a wide range of projects in various industries like the Manufacturing industry, Dental industry, Mapping, Fashion, Architecture, Building furniture, Automotive sector, and Interior design. One of the most common and versatile software used in CAD environment is AutoCAD, a huge tool that is easy to understand and friendly to use. This course is designed for beginners and provides an overview of all the essential skills needed for general sketching, and layouts.

Course Description:

The proposed short course of graphics is designed to provide students with a firm foundation in 3D Isometric drawings which will help them in climbing up their professional ladder. It provides an overview of all the essential drawing skills needed for general model descriptions, layout, and architecture. Also, the students will be provided with hands-on experience with various application tools that will help enhance their understanding and use of the AutoCAD software.

Course Level: Beginner

Teaching Hours: 1 contact hour for each lab class

Course Description:

- Introduce the basic concepts of 2D drawings.
- Explain to the students the features of AutoCAD.
- Familiarize students with the workspace and its tools for drawing, editing, and dimensioning.
- Provide the students with the key skills required to learn 2D drawings, design, and drafting.
- Show the students how to use the functions and commands to create 3D modeling .

Course Learning Outcomes:

After completing this course, students will be able to:

- 1) Discuss the fundamentals of orthographic projections.
- 2) Apply basic AutoCAD concepts to develop and construct accurate 2D drawings
- 3) Create 2D and 3D drawings of objects.
- 4) Create an isometric drawing
- 5) Develop basic 3D models

Final Exam: (Individual) Final Project & Presentation

Course Requirements:

- 1) **Web Hardware Requirements:** 4GB RAM, 700MB of available hard-disk space, Intel HD integrated graphics card with at least 512MB video memory.
- 2) **Software license Requirements: AutoCAD -2023-** Existing university licenses are available
- 3) **Course Material:** LAB Manual, Practice Questions, Presentations, Demonstrations, Practical lab exercises.
- 4) **Batch Size:** 17-20 students per section

Assessment Methods: Assignments, Homework, Quizzes, Project.

Assessment Plans:

No.	Criteria	Weight
1	Homework and Assignments	30
2	Quizzes	20
3	Individual Project and Individual Presentation	45
4	Attendance	05
Total		100

Course Outline:

Week	Lab Topic
1	Introduction to basic manual engineering drawing, sketching, 2-dimensional drawing, concept of Orthographic views using 3rd angle of projection method and Isometric views.
2	Introduction to the AutoCAD software, setting up the drawing environment. Drawing a line using Direct Distance Entry Method
3	Properties and Annotation Panels, Command window, Status Bar Exercise in manual. Assignment 1
4	Use of Draw Panel. Commands include: line, polyline, circle (center-radius method), rectangle and Arc (three points method). Quiz 1
5	Use of Modify Panel. Commands include: erase, copy, mirror, offset, move, rotate, trim, extend, chamfer and fillet. Exercises in manual. Assignment 2
6	Introduction to the 3D Modeling Workspace, Basic 3D Viewing Tools, 3D Navigation Tools Assignment 3
7	3D viewing techniques, working with simple and composite solids, Creating drawings from 3D models Assignment 3
8	Quiz 2 Final Project & Presentation