

Information Systems Engineering Department Erbil Technical Engineering Erbil Polytechnic University Subject: AutoCAD Course Book - (SECOND Semester) Lecturer's name: Hawkar Jabbar H.Ali Academic Year: 2024/2025

1. Course name	Engineering drawing with AutoCAD
2. Lecturer in charge	Hawkar Jabbar H.Ali & Ashna Abdulrhaman Kareem
2 Deventment/College	Information Systems Engineering Department
3. Department/ College	Erbil Technical Engineering
<u>4. Contact</u>	<u>e-mail: hawkar.jabar@epu.edu.iq &</u> <u>ashna.kareem@epu.edu.iq</u>
5. Time (in hours) per week	Practical: 2

6. Course overview:

This course introduces the fundamental principles and applications of computer aided design (CAD). It introduces the student to procedures and techniques that enable the production of CAD drawings. It begins with basic commands and proceeds to the production of more complex drawings of solid components using Isometric, surface and solid model methods. It also used to design curves and figures in two dimensional (2D) and three dimensional (3D).

7. Course objective:

Identify in two or three paragraphs the important objectives of the course and show those points that students should learn at the end of the course.

8. Student's obligation

The students will be able to

1. Open, Close and save CAD Drawing files.

2. Adjust Drafting settings and control Cursor movement on the AutoCAD drawing screen using Absolute and Incremental co-ordinate commands.

3. Use basic 2 Dimensional drawing commands in order to draw simple shapes.

4. Modify 2 Dimensional drawings using standard AutoCAD modification commands.

5. Add Dimensions and Text to Drawings.

6. Edit Text and dimensions on Drawings.

7. Set up layers for the purpose of managing Line-types, Line-weights, Color and Text.

8. Use Polylines and Splines to draw 2 dimensional objects.

9. Create 'Blocks' and apply them to drawings.

1. Homework assignments. The objective of these homework assignments are to assist in the learning of course material, so discussion of homework among students is encouraged, but remember that it will be in best interest to understand all of the assigned problems. However, every student is responsible for turning in an individual assignment. The main goal of the homework to learn the concepts of the course, so that you can prove it on the quizzes and exams.

2. Class illustrative problems. These are comprehensive problems covering the major topics of each chapter. These will be worked on in class, with the assistance of the lecturer.

3. Quizzes. These quizzes will be closed-book, consisting of qualitative questions addressing major concepts of the chapter.

4. Mid term exams. These exams will be closed book. The exams will consist of comprehensive quantitative problems that relate to any of the material covered during the days.

5. final exam. This exam will be closed-book. The exam will consist of comprehensive quantitative problems that relate to any of the material covered during the academic year.

9. Forms of teaching

No two teachers are alike, and any teacher with classroom teaching experience will agree that style of teaching is uniquely own. An effective teaching style engages students in the learning process and helps them develop critical thinking skills. Traditional teaching styles have evolved with the advent of differentiated instruction; prompting teachers to adjust their styles toward students' learning needs. There are many different types of teaching and learning materials that can be used by lecturer. Like traditional methods: pens, whiteboard, Eraser and Methods illustrative: Maps, Charts, diagrams, Books, Videos and Overhead projectors, Slide PowerPoint.

Although it is not the teacher's job to entertain students, it is vital to engage them in the learning process. Selecting a style that addresses the needs of diverse students at different learning levels begins with a personal inventory — a self-evaluation — of the teacher's strengths and weaknesses.

I will include short lectures, hands-on training (bringing my laptop to the class), homework, quizzes, class project, and a final exam. My objective is to present programming in a friendly way using a variety of methods.

10. Assessment scheme

Breakdown of overall assessment and examination

Examination

Mark (%)

Quiz

Midterm

Practical test

Final examination

Total mark

It is the same for the second semester

11. Student learning outcome:

By the end of the course, student should be able to:

Student learning outcome:

(AUTOCAD 2D)

- Introduction to AutoCAD
- Drafting settings
- Adding Annotation
- Setting and modifying object properties
- Selecting entities
- Creating Hatch Patterns
- Editing with Grips
- Creating dimension style
- Creating Blocks
- Dynamic blocks
- Parameters
- Measuring tools
- Design house
- Tool palettes
- Explode the drawing
- Plotting the drawings

(AUTOCAD 3D)

- 3D Modeling concepts in AutoCAD
- Understand and use Viewpoint
- Wireframe Modeling
- Solid Modeling & Editing
- Create & Manage 2D Views from 3D Models
- Materials
- Lights
- Rendering

Import and Export

12. Course Reading List and References:

1. Auto desk, Inc. 2011 "Getting Started".

- 2. Auto desk, Inc. 2016 "Auto desk Getting Started".
- 3. Auto desk, Inc. 1999 "Auto cad land development desktop".
- 4. Auto desk, Inc. 2011 "tutorials Auto desk".
- 5. Auto desk, AutoCad Basic Tutorial

13. The Topics:

Scientific content of the subject:

- 1. Introduction to Auto CAD program .
- 2. Elements of program window, basic files , operating the system ;saving the drawings.
- 3. Screen boundaries, Limits, Units.
- 4. Snap, Grid, Ortho, Zoom.
- 5. Introduction to draw menu, entering data for drawing (relative, poler, absolute) coordinates.
- 6. Draw menu (Multilane, Construction line, Circle), examples.
- 7. Draw menu (Rectangle ,Ellipse ,Ray) examples. Draw menu (Arc, polygon, Daunt) examples.
- 8. Draw menu (Hatch ,Spline ,point) examples
- 9. Resolution tools to drawing (Osnap).
- 10. Introduction to modify menu, (Erase, copy) examples.
- 11. Modify menu (mirror, move, scale) examples.
- 12. Modify menu (rotate, offset, Multiline) examples.
- 13. Modify menu (trim, extend, explode, break) examples.
- 14. Modify menu (chamfer, fillet) examples.
- 15. Regular distribution of drawing (Array).
- 16. Writing in Auto CAD program. Dimensions.
- 17. Insert Blocks . Selection of line type , line weight ,color .
- 18. Layers and its properties.
- 19. 3D commands (Solids)
- 20. 3D commands (Surface, Thickness, 3d Views, viewport, Elevation)

21. 3D commands (Modify) examples

22. 3D commands (Modify) examples

23. 3D commands (Render, printing) examples

24. Example & Training

25. Example & Training

14. Examinations:

Practical Example



1. Compositional: In this type of exam the questions usually starts with Explain how

Auto land civil 3D based on the Triangulation Irregular Network (TIN) and interpolation between points created contour line. In the follow shape points (875, 876, 923, and 922) are four points in the program, based on the aforementioned concept, find the contour lines with contour interval (1m), and then find distances from the points to the contour lines, if the scale of the map is 1:100.

Answer: Autoland program based on the interpolation between the points were created TIN it means that the gradient between points on the surface lines are uniform, so, w=you can created contour lines on the slope lines based on the vertical interval between two successive contour lines.

15. Extra notes:

پيداچوونهوه ی هاوه ٽ 16. Peer review

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).

ئەم كۆرسبووكە دەبنىت لەلايەن ھاومڭىكى ئەكادىميەوە سەير بكرنىت و ناوەرۆكى بابەتەكانى كۆرسەكە پەسەند بكات و جەند ووشەيەك بنووسنىت لەسەر شياوى ناوەرۆكى كۆرسەكە و واژووى لەسەر بكات.

هاوهڵ ئمو كەسەيە كە زانيارى ھەبنىت لەسەر كۆرسەكە و دەبيت پلەي زانستى لە مامۆستا كەمتر نەبنىت.

Course Book