

COURSE PLAN

FIRST: AUTOMOTIVE ENGINEERING

College

College Faculty of Engineering Technology

Department Mechanical Engineering

Course

Course Title Mechanical Drafting

Course Code 020200112

Credit Hours 2 (0 Theoretical, 2 Practical)

Prerequisite 020000171

Instructor

Name Dr. Waleed Momani

Office No. 199

Tel (Ext) 199

E-mail Momani.w@bau.edu.jo

Office Hours

Class Times

| Building | Day | Start Time | End Time | Room |
|----------|-----|------------|----------|------|
| | | | | |
| | | | | |

Text Book

Title : K.L. Naryana, P Kanniah, K. Venkata Reddy, Machine Drawings

References

1. Franklin D. Jones, Mechanical Drawings, 4th edition
2. Engineering Design Graphics by James H. Earle
3. David A. Madsen, Introduction to Engineering Drawing and Design, 5th Ed.

SECOND: PROFESSIONAL INFORMATION

COURSE DESCRIPTION

This course covers a knowledge of design specifications by identifying standard parts from assembly drawings and parts drawings, analyze the shape of the assembly part by realizing the three-dimensional shape from the projection method, Identify the optimal shape, dimensions and major tolerances for the function of element parts. And it also provided the knowledge of the design method, material, work equipment, method from assembly drawings and parts drawings.

COURSE OBJECTIVES

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

- Explain the basic of design, Assembly drawings, sectional views, sectioning in machine parts drawing.
- Explain the Bolted joints, Studded, screw fastening, cotter; key, splined joints, gears and bearing.
- Explain the shape of the assembly part by realizing the three-dimensional shape from the projection method
- Explain the optimal shape, dimensions and major tolerances for the function of element parts,

- tolerances, fittings and surface roughness
- Explain how to determine the design method, material, work equipment and method from assembly drawings and Parts drawings
- Develop a working competence of mechanical drafting using AutoCAD program.

COURSE LEARNING OUTCOMES

By the end of the course, the students will be able to:

- CLO1. Prepare for design work.
- CLO2. Explain and **perform** assembly drawings.
- CLO3. Explain and apply sectional views **and** sectioning in machine parts drawing.
- CLO4. **Explain standard machine parts: bolt, screw, cotter; key, gears and bearing.**
- CLO5. Analyze the shape of the assembly part by realizing the three-dimensional shape from the projection method.
- CLO6. Identify the optimal shape, dimensions and major tolerances for the function of element parts.
- CLO7. **Develop detailed and complex assembly drawings.**
- CLO8. **Interpret and draw** tolerances, fittings and surface roughness.
- CLO9. Determine the design method.
- CLO10. Determine material, work equipment and method from assembly drawings and Parts drawings.
- CLO11. Apply AutoCAD program **to assembly drawings.**

COURSE SYLLABUS

| Week | Unit | Content | Related LO and Reference (Chapter) | Proposed Assignments |
|------|-------------------|---|------------------------------------|----------------------|
| 1 | Prepare design | <ul style="list-style-type: none"> • Important Drawing Equipment's • Lettering and Lines • Guide Lines and Spacing of Letters • Prepare design specifications by identifying standard parts <ul style="list-style-type: none"> (a) drawing terminology (b) drawing species (c) size and style of drawing | CLO1 | |
| 2 | Parts drawings. | <ul style="list-style-type: none"> • Geometric Nomenclature • Techniques of Geometric Constructions • Projection • Isometric Drawing • Orthographic or Multi View Projection • Parts drawings <ul style="list-style-type: none"> (a) Projection (b) Pictorial projection drawing (c) Angle projection | CLO1 | |
| 3 | Assembly drawings | <ul style="list-style-type: none"> • Assembly drawings | CLO2 | Practice report |

| | | | | |
|----|--|--|-------|-----------------|
| 4 | Sectional views | <ul style="list-style-type: none"> • Sectional views • Sectioning in machine parts drawing | CLO3 | |
| 5 | Bolted joints, Studded, screw fastening, cotter, keyed, splined joints, gears and bearing. | <ul style="list-style-type: none"> • bolted joints • Studded; screw fastening, cotter • Keyed; splined joints, gears and bearing | CLO4 | Practice report |
| 6 | Analyze the shape of the assembly part 1 | <ul style="list-style-type: none"> • Analyze the shape of the assembly part by realizing • the three-dimensional • shape from the projection method | CLO5 | Practice report |
| 7 | Analyze the shape of the assembly part 2 | <ul style="list-style-type: none"> • The assembly part by realizing the three-dimensional • Shape from the projection method | CLO5 | |
| 8 | Midterm Exam | | | |
| 9 | dimensions and tolerances | <ul style="list-style-type: none"> • Dimensions • Letter Styles and Technique of Lettering • Guide Lines and Spacing of Letters • Tolerances | CLO6 | |
| 10 | Drawing Detailing; assembly drawing | <ul style="list-style-type: none"> • Drawing Detailing • Assembly drawing | CLO7 | |
| 11 | tolerances | <ul style="list-style-type: none"> • Reading and drawing tolerances • Fittings and surface roughness | CLO8 | Practice report |
| 12 | Design method | <ul style="list-style-type: none"> • Determine the design method | CLO9 | |
| 13 | Material, work equipment and method from assembly drawings and Parts drawings | <ul style="list-style-type: none"> • Editing 3D solid models • Solid Editing tools • 3d Assembly drawing • Align • 3d Dimensioning | CLO10 | Practice report |
| 14 | AutoCAD Applications1 | <ul style="list-style-type: none"> • Constructing 2d objects • Surfaces tools, Surface meshes, • Edge surf tool, • Rule surf tool • Tab surf tool | CLO11 | |
| 15 | AutoCAD Applications2 | <ul style="list-style-type: none"> • Other 3d modeling • Raster images in AutoCAD drawings • Polygonal viewports • Printing/Plotting | CLO11 | Practice report |
| 16 | Final Exam | | | |

COURSE LEARNING RESOURCES

The effectiveness of teaching in this course depends on making students familiar with identifying standard parts from assembly drawings and parts drawings, analyze the shape of the assembly part by realizing the

three-dimensional shape from the projection method, Identify the optimal shape, dimensions and major tolerances for the function of element parts, determine the design method, material, work equipment and method from assembly drawings and parts drawings

Teaching methods:

- Lectures and Home Works: using PowerPoint for, example, by the teacher to provide the students with the all information that they need, and to give them a home work as a **research and reports**.
 - Online research skills, watching related videos such as you tube, on topics related to course objectives and recent developments in the field of specific work.
- Learning skills and adaptability: Developed by transferring students and reconfiguring work teams to enable them to adapt to other individuals from time to time.
- Life lectures, application on the program, animations and related videos

ONLINE RESOURCES

www.autodesk.com

ASSESSMANT TOOLS

(Write assessment tools that will be used to test students ability to understand the course material and gain the skills and competencies stated in learning outcomes

| ASSESSMENT TOOLS | % |
|-------------------------------|-----|
| Quizzes | 12 |
| Researches and Reports | 8 |
| Mid Exam | 30 |
| Final Exam | 50 |
| TOTAL MARKS | 100 |

THIRD: COURSE RULES

ATTENDANCE RULES

Attendance and participation are extremely important, and the usual University rules will apply. Attendance will be recorded for each lab. Absence of 10% will result in a first written warning. Absence more than 15% of the course with or without medical reasons will result in forfeiting the course and the student will not be permitted to attend the final examination

GRADING SYSTEM

Example:

0 – 49 Fail
50 – 100 Pass

REMARKS

{ The instructor can add any comments and directives such as the attendance policy and topics related to ethics }

COURSE COORDINATOR



Course Coordinator: Dr. Waleed Momani
Signature:
Date:

Department Head:
Signature:
Date: