

SYLLABUS

Date/ Revision 18 July 2016/00

Faculty Engineering

Approval

SUBJECT : COMPUTER AIDED DESIGN (CAD)

1. Identification of Subject:

Name of Subject : Computer Aided Design
Code of Subject : CADD 3100
SKS : 3
Semester : 3
Study Program : AVE, ELE, INE, MEE
Prerequisite : Technical Drawing (TDRW-1100)
Lecturer : Dipl.-Ing. Wahjoe Goeritno M.Si

2. Competency

After having the course:

- Students will understand the role of CAD in mechanical component and system design by creating geometric models and engineering drawings.
- Students will understand the basic mathematics fundamental to CAD software
- Students will able to draw a product in 2D and 3D
- Student will able to make 3 D modeling using parametric and synchronous method.
- Students will able to draw assembly drawing
- Students will work in teams to design a mechanical system

3. Description of Subject:

This course is intended to equip the student with capabilities to represent the drawing using CAD software where it is used by many manufacturing Industries.

The CAD subject is the continuation of the technical drawing where they had already in previous semester. They will be approached with how to make a 3D solid modelling and represent it in 2D drawing.

The 3D solid modelling using method of parametric design and synchronous design with process of sketching, extrude, cut, revolved, hole making, chamfer and fillet, thin wall, sweep, lofted, add and subtraction, mirroring, array etc.

4. Learning Approach

Approach : Combination of Expository - inquiry and collaborative
Method : Discussion, question answer, sample problem, group work
Student Task : Home work, drawing practical using CAD software
Media : LCD projector, film.

5. Evaluation

- a) Absence maximum : 25%
- b) Participation in discussion : 5 points
- c) Homework, Classwork : 5 points
- d) Presentation, Simulation : 10 points
- e) Daily Quiz : 20 points
- f) Final Examination : 60 points

Total : 100 points

6. Contents/ Topics of Lecturing:

Week	Topics	Content	Remark
1	Introduction to CAD	CAD in manufacturing process, CAD 3D modelling and 2D drawing. Process of manufacturing a product using CAD software. What is CAD – CAM – CAE and their relation	Slide presentation, Video film from: Solid Edge, Solid Work, Sharp3D
2	Sketching	Line, Arc, Circle, Rectangular, Polygon, Curve, Tangent, Mirror, Move, Offset, Trim, Fillet, Chamfer	Slide presentation, Group discussion Practical drawing, using CAD software
3	Sketching	Connect, Parallel, Coaxial, Horizontal, Vertical, Perpendicular, Symmetric, Collinear	Slide presentation, Group discussion Practical drawing using CAD software, Quiz
4	Solid Modelling	Extrude, Cut, Revolved cut, Hole making, Fillet, Chamfer	Slide presentation, Group discussion Practical drawing using CAD software,
5	Solid Modelling	Draft, Thin wall, Sweep, Lofted, Helix, Add and Subtraction of body.	Slide presentation, Group discussion Practical drawing using CAD software, Quiz
6	Engineering Drawing	Transfer from 3D to 2D drawing. Drawing template Views and projection: 1 st angle and 3 rd angle projection. Special views, Isometric views.	Slide presentation, Group discussion Practical drawing using CAD software,

7	Engineering Drawing	Section, Detailing, Dimensioning	Slide presentation, Group discussion Practical drawing using CAD software, Quiz
8	Assembly Drawing	Aligning, moving, point, part numbering. Bill of Material.	Practical using the drawing already made before.
9	Assembly Drawing	Explode drawing, part numbering,	Practical using the drawing already made before. Quiz
10	Parametric to Synchronous	Sketch in Synchronous method. Select Planes, Develop free sketch.	Slide presentation, Group discussion Practical drawing using CAD software,
11	Parametric to Synchronous	3D Modelling in Synchronous method. Develop 3D solid from sketch. The function of Steering wheel	Slide presentation, Group discussion Practical drawing using CAD software, Quiz
12	Parametric to Synchronous	3D to 2D drawing, views, section, Auxiliary views, Assembly drawing	Practical using the 3D model already made before. Quiz
13	Material Selection	Select the material for the part model, Inspect the technical data of the part model, change the material.	Practical using the 3D model already made before. Quiz
14	Sheet metal drawing	The thickness of sheet metal, radius, Bending <90°, 90°, >90° Development, Dimensioning.	Slide presentation, Group discussion Practical drawing using CAD software
15	Final Examination		

7. Book Reference:

a) Text Book:

CAD/CAM Principle and Application

PN Rao, Mc. Graw Hill, ISBN 13: 9780070681934.

b) Software:

Solid Edge ST9