MEC2103: Computer Aided Design for Mechanical Engineers

Hours per semester				Weighted total mark	Weighted exam mark	Weighted continuous assessment mark	Credit unit
LH	PH	TH	CH				CU
30	60	90	60	100	60	40	4

Course Description

This course is mainly a computer applications course. It builds on the concepts learnt by the student from the Engineering Drawing course offered at Level 1. It involves a lot of hands-on work by the students using a standard Computer Aided Design (CAD) and modelling software package.

Course Objectives

At the end of this course the student should be able to:

- Demonstrate capacity to utilize various features of a CAD solid modelling package.
- Generate various mechanical engineering parts/components and assemblies using a computer.
- Produce working drawings from existing models. **Course outcomes**

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Course Content

- Introduction to the solid modelling environment(2 Hours)
- Swept protrusion (2 Hours)
- Lofted protrusion, patterns and thin wall command (2 Hours)
- Helical protrusion (4 Hours)
- Key Point curves, Curve by Table and Swept protrusion (4 Hours)
- Boolean feature commands (4 Hours)
- Assembly (4 Hours)

Sheet metal

• Production drawings (4 Hours)

(Practicals)Hands-on student activity (90 Hours)

Mode of Delivery

The course will be delivered through illustration of the basic concepts by the instructor in the computer laboratory followed by students' hands-on activity and tutorials. Computer Aided Design using 3-D modelling software such as Solid Edge or Solid Works is a requirement in this course.

Assessment Methods:

Course work (assignments and tests) and final examination and their relative contributions to final grade are shown as follows:

Requirement Percentage contribution

Course work 40%

Final examination 60%

Reference Books

[1] F.E Giesecke, A Mitchell, H.C Spencer, I.L Hill, R.O Loving and J.T Dygdon, 1980.

Engineering Graphics with Computer Graphics, Macmillan Publishing Co., Inc Third edition.

[2] N Sidheswar, P. Kannaiah, V.V.S Sastry, 1980. Machine drawing, Tata McGraw-Hill Publishing Co Ltd New Delhi.

[3] Thomas E French, Charles J Vierck, 1970. A Manual of Engineering Drawing for Students and Draftsmen McGraw-Hill Book Co 1970 Tenth Edition.

[4] Design Modeling Using Solid edge by Morgan, Horner and Biney.

[5] Jensen Helsel, 1995. Engineering Drawing and Design Publisher: McGraw-Hill Science/Engineering/Math. Fifth Edition