Seoul National University of
Science & Technology
232 Gongneung-ro,Nowon-gu,
Seoul 01811 Korea

MSDE Module Descriptor

Module Title	**Module Code**	**Semester (Sem 1 / Sem 2)**
CAD 1	MSDE 220	Sem 1
Credits 10	**Level** 4	**Professor and email** Anthony Johnson a.d.johnson@seoultech.ac.kr
Delivery Method Lecture / Project	**Delivery Location** SeoulTech, Mugung Hall	

Pre-requisite
Pass English Language test (writing and Speaking/listening) at level 3 with a minimum of 40% (Grade D)

Module Synopsis
This module provides students with the basic knowledge of computer graphics for engineers. Students will learn basic theories of computer graphics such as 2D and 3D representations coupled with basic drawing practice including tolerancing and surface finish. Basic engineering machining processes are also introduced. Assessment is through, a mid-term project, and a final CAD assembly and engineering project. The final project assembly should also be presented as a 3D print as part of the assessment.

Outline Syllabus

CAD Studio
Coordinate system. Scaling, translation, and rotation.
Viewing pipeline, window & viewport, clipping, and projection.

Curves, surfaces and solid modeling
2D & 3D realization of CAD model
Conversion of 3D models into 2D drawings

Lecture Theory
CAD Safety, CAD system selection
An introduction to FEA, CNC, MRP,(Materials Requirements Planning) and Additive Manufacture
Drawing Practice: Orthographic projection, centre lines, title blocks, tolerancing and surface finish, Drawings hierarchy, eg. GA, Sub-assembly, detail drgs. Construct 2D drawings to an appropriate standard, such as ISO BS 8888 or equivalent ASME Standard

Indicative Reading

1) Toogood, Roger and Zecher, Jack, Pro/Engineer wildfire tutorial, Schroff Development Corporation, ISBN -10 : 1585035351
2) Engineering Drawing: O Ostrowski 2010
3) Sustainability in Engineering Design: Johnson and Gibson: 2014

NOTIONAL STUDENT WORKLOAD (Hours)	Hours
MODE OF DELIVERY (FT / PT / DL	FT
Lectures	30
Seminars	5
Tutorials	10
Laboratories/studios/practical	20
Directed learning	20
Independent Learning	10
Work experience/fieldwork	
Other: eg formal presentation	5
Total Workload 100 hours for a 10 credit module 200 hours for a 20 credit module	100

Module Learning Outcomes	
KU1,2,3	Demonstrate basic knowledge of the scientific and mathematical foundations of engineering to solve basic problems. Perform simple analysis of familiar engineering systems. Identify and utilise basic methodologies to create solutions to specific engineering problems.
IPSA 1,2,4	Demonstrate the use of fundamental approaches to solving readily defined engineering problems. Communicate established engineering concepts to expert and non-expert audiences using standard formats and media. Illustrate solutions to basic engineering problems.
PVA 2	Demonstrate creativity in discussing solutions to standard problems

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Assessments	Assessment Type	Weighting %	Mid-Term/interim/final
Coursework			
Project	Final Report/ Presentation	80	Final
Quiz			
Test	Computer exercise	20%	Mid term
Laboratory			
Exam			
Presentation			