



MSDE Module Descriptor

Module Title Mechanics of Materials	Module Code MSDE 218	Semester (Sem 1 / Sem 2) Sem 1
Credits 10	Level 4	Professor and email Hyuk-Dong KWON atom@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 Analysis and design of structural members subjected to tension, compression, torsion, and bending are main topics of this unit. Specialized topics such as thermal effects, dynamic loading, non-prismatic members, beams of two materials, shear centers, pressure vessels and statically indeterminate beams are investigated.		
Outline Syllabus Introduction of Mechanics of Deformable Bodies Elasticity, Plasticity, Methodology of analysis Stress and Strain Definition of stress and strain, Free body diagram, relationship between them Mohr's Circle of Plane Stress Principle axis, angle, equations and plotting of Mohr's circle Shear Forces and Bending Moments Calculation of SF, BM in various cases, Draw diagrams Torsion Derive torsional equations, application to various problems Deformation of Beams Governing equations for beam deflection Stresses in Beams Stress analysis in beam elements		



Indicative Reading

- 1) Mechanics of Materials, 7th edition, Gere JM, Brooks/Cole, 2009
- 2) Mechanics of Materials, 2nd edition, Philpot TA, Wiley, 201

NOTIONAL STUDENT WORKLOAD	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	50
Seminars	
Tutorials	20
Laboratories/studios/practical	20
Directed learning	
Independent Learning	10
Work experience/fieldwork	
Other: eg formal presentation	
Total Workload 100 hours for a 10 credit module 200 hours for a 20 credit module	100

Module Learning Outcomes

KU2,3,4	KU2. Perform simple analysis of familiar engineering systems. KU3. Identify and utilise basic methodologies to create solutions to specific engineering problems. KU4. Define and investigate simple problems and familiar constraints that occur in engineering design with the aid of basic tools.
PVA1,2	PVA1. Describe standard solutions to benefit society by applying sound engineering practise with an awareness of ethical considerations. PVA2. Demonstrate creativity in discussing solutions to standard problems.



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

MSDE Module Descriptor

Assessments	Assessment Type	Weighting %	Midterm/interim/final
Coursework			
Project	Individual Assignment	30	Midterm
Quiz			
Test			
Laboratory	Report	10	
Exam	Written	60	Final exam
Presentation			