



Module Title	Module Code	Semester (Sem 1 / Sem 2)
Mechanical Engineering Systems Laboratory	MSDE 328	Sem 2
Credits	Level	Professor and email
10	6	Dong Young Jang dyjang@seoultech.ac.kr
Delivery Method	Delivery Location	
Tutorial, Laboratory	SeoulTech, Mugung Hall	
Module Synopsis		
<p>This module provides mechanical experimental laboratories. Knowledge and characteristics are investigated on mechanical behaviour such as stress/strain and bending, thermal system behaviour such as heat transfer and heat pump, fluid flows, and mechanical vibrations are delivered.</p>		
Outline Syllabus		
<p>Overview on the mechanical experiment Introduction of laboratory, Safety education, General experimental procedures, Calibration, Uncertainty analysis by using probability and statistics. Practice on strain gage usage</p> <p>Advanced material test laboratory Tensile/Compression, Stress/strain measurement, Poisson ratio test, Principal stress/strain measurements, Bending test</p> <p>Mechanical vibration test Cantilever impact test, balancing test, mode shape/natural frequency measurement</p> <p>Fluid flow test Bernoulli's equation test, Fluid pressure measurement, Wind tunnel test, Reynold's number measurement</p> <p>Thermal property test Heat exchanger test, Temperature measurement,</p>		
Indicative Reading:		
<ol style="list-style-type: none"> 1) Theory and Design for Mechanical Measurements, R. S. Figliola, 3rd ed., John Wiley & Sons, 2000 2) Applied Measurement Engineering, C. P. Wright, Prentice Hall, 1994 3) Introduction to Mechatronics and Measurement Systems 2nd edition, D. Alciatore, McGraw-Hill, 2002 		



MSDE Module Descriptor

NOTIONAL STUDENT WORKLOAD (Hours)	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	20
Seminars	
Tutorials	
Laboratories/studios/practical	50
Directed learning	5
Independent Learning	25
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 Outcomes	
KU1,2,3	Evaluate and apply complex knowledge of the scientific and mathematical principles of engineering to solve Real-World problems. Perform advanced analysis of unfamiliar engineering systems. Introduce and utilise complex methodologies to create solutions to a variety of Real-World engineering problems.
IPSA 1	Apply advanced approaches to solving unfamiliar real world engineering problems.
PVA1,2	Describe, with justification, solutions to benefit society by applying structured engineering practise with a deep awareness of ethical considerations. Critically analyse advanced solutions to complex engineering problems.

Assessments	Assessment Type	Weighting %	Mid-Term/interim/final
Course Work	Laboratory (continuous Assessment)	70	
Course Work	Final Report/Presentation	30	Final



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

MSDE Module Descriptor

Quiz			
Test			
Laboratory			
Exam			
Presentation			