



Module Title Digital Signal Processing	Module Code MSDE 447	Semester (Sem 1 / Sem 2) Sem 1
Credits 10	Level 4	Professor and email Yeun Cheul JEUNG francis@seoultech.ac.kr
Delivery Method Lecture / Exam / Lab	Delivery Location SeoulTech, Mugung Hall	
Module Synopsis <p>This module provides the student with the basic ability to design an electronics circuit through the application of digital devices. Digital switching, digital controllers, and digital signal processing are all covered from both a SW and HW perspective. Students practice solving engineering problems, by applying the theory taught during lectures, in hands-on labs which enhance their understanding of the topics covered.</p> <p>The module will be delivered via a combination of lectures, labs, and directed/independent learning. Assessment consists of labs, assignments, and an examination. The student will receive formative feedback throughout the lectures and labs.</p>		
Outline Syllabus Introduction to Digital Systems Digital vs. Analogue, digital system architecture, specific digital devices including PLC, PLD, DSP Introduction to PLC/PLD's Applications of: programming and implementation Digital Signal Processing Theory Z-transforms, Digital transfer functions, ADC-DAC Digital Signal Processing Applications Programming in MATLAB, Implementation of various digital processing applications including filtering.		
Indicative Reading <ol style="list-style-type: none">1) Course notes on Electronics, Seoul Tech.2) Course notes on Digital Signal Processing, Seoul Tech3) Digital Signal Processing: A practical approach, 2nd Ed., Emmanuel C. Ifeakor, Prentice Hall, 20014) Programmable Logic Controllers, 5th Ed., W. Bolton, Newnes, 2009.		



NOTIONAL STUDENT WORKLOAD	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	40
Seminars	
Tutorials	
Laboratories/studios/practical	20
Directed learning	
Independent Learning	40
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,	KU1. Evaluate and apply complex knowledge of the scientific and mathematical principles of engineering to solve Real-World problems. KU2. Perform advanced analysis of unfamiliar engineering systems.
IPSA 1,2,3	IPSA1. Apply advanced approaches to solving unfamiliar real world engineering problems. IPSA2. Professionally communicate a broad range of engineering concepts to expert and non-expert audiences using a variety of advanced formats and media. IPSA3. Derive solutions to complex health and safety, sustainability and environmental issues in the engineering sector.
PVA 2	PVA2. Critically analyse advanced solutions to complex engineering problems.

Assessments	Assessment Type	Weighting %	Midterm/interim/final
Coursework			



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MSDE Module Descriptor

Project			
Quiz			
Test			
Laboratory	3 Short Assignments (around 3 pages each)	30	Interim
Exam	Final formal examination /3hours	70	Final
Presentation			