



MSDE Module Descriptor

Module Title Signals and Systems	Module Code MSDE 312	Semester (Sem 1 / Sem 2) Sem 1
Credits 10	Level 5	Professor and email Kwanlae KIM klkim@seoultech.ac.kr
Delivery Method Lecture / Tutorial	Delivery Location SeoulTech, Mugung Hall	
Module Synopsis <p>Signals convey information. Systems transform signals. This course introduces the mathematical models used to design and understand both. It is intended for students interested in developing a deep understanding of how to digitally create and manipulate signals to measure and control the physical world and to enhance human experience and communication.</p> <p>Assessment of the module is made through a final exam and 3 problem solving assignments spread over the semester, which are designed to support the lecture material.</p>		
Outline Syllabus <p>Signals and Systems Structure including: Elements of computing and communications Systems,</p> <p>Basic mathematical principles of signals and systems including: equation sets, functions, modelling, mappings, and representations,</p> <p>State machines and linear time-invariant systems: linear state transition and output functions and zero initial state,</p> <p>Frequency decomposition of signals: frequency response of linear time invariant systems,</p> <p>Frequency domain concepts: as a complementary toolset: foundation of digital, embedded systems, computing, communications systems and control.</p>		



Indicative Reading

1) Recommendations for purchase by students

N/A

2) Books

Structure and Interpretation of Signals and Systems, 1st edition, Lee and Varaiya, Addison Wesley, 2003

3) Journal Articles

N/A

4) Journals and Newspaper Titles

N/A

5) Databases and Websites

IEEE Xplore digital electronic library, accessed 3-2012, (online access granted though university campus systems only)

6) Any Other Resources

N/A

NOTIONAL STUDENT WORKLOAD	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	35
Seminars	
Tutorials	20
Laboratories/studios/practical	5
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
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Module Learning Outcomes	
KU1,2,3	KU1. Apply advanced knowledge of the scientific and mathematical foundations of engineering to solve problems. KU2. Perform comprehensive analysis of engineering systems. KU3. Identify and utilise advanced methodologies to create solutions to a variety of engineering problems.
IPSA1,4	IPSA1. Apply a range of appropriate approaches to solving defined real world engineering problems. IPSA4. Illustrate a range of solutions to advanced engineering problems.
PVA2	PVA2. Apply creativity in the development of solutions to standard engineering problems.

Assessments	Assessment Type	Weighting %	Midterm/interim/final
Coursework	Assignment	30	Interim
Project			
Quiz			
Test			
Laboratory			
Exam	Exam	70	Final Exam
Presentation			