Course Title : Signals Theories

Code	Course Type	Regular Semester	Lecture (hours/week)	Seminar (hours/week)	Lab (hours/week)	Credits	ECTS
CMP 311	A	-1	2	0	2	3.00	6

Lecturer and Office Hours	Xhilda Dhamo, Msc
Teaching Assistant and Office Hours	Fezi Shaholli, Msc
Language	
Course Level	
Description	General knowledge. The main properties of signals. Fourie analysis of signals. Properties of Furie transform. Modulated signals. Knowledge of systems. Laplace transform and Z transform. Properties of systems. Analog and digital filters. Digital signals. Noises Random signals.
Objectives	

Course Outline

Week	Topics
1	Signals and systems. Their classification. Exercises and problems
2	Continuous and linear time invariant systems. Exercises and problems
3	Discrete and linear time invariant systems. Exercises and problems
4	Application of Laplace transform to continuous systems. Exercises and problems
5	Fourie analysis in continuous time systems. Exercises and problems
6	Classification of filters and construction of analog filters. Exercises and problems
7	Application of Z transform in discrete systems. Exercises and problems
8	Midterm exam
9	Furie analysis in discrete time systems. Exercises and problems
10	Implementation and construction of digital filters. Exercises and problems
11	Amplitude modulation of signals. Exercises and problems
12	Frequency and phase modulation of signals. Exercises and problems
13	Digital transmissions of analog signals and noises in analog communications. Exercises and problems
14	Random signals. Power spectral density and random signals in linear time invariant (LTI) systems. Exercises and problems
15	State space analysis of systems. Exercises and problems
16	Final Exam

Prerequisites	
Textbook	• H.Muçostepa, Teoria e sinjaleve; 2009, shblu, STASH:2204-84 • Leksionet e dhëna nga lektori
Other References	• Alan.V. Oppenheim; Alan.S. Willsky; " Signal and Systems" 2-nd Edition; 1997, Prentice Hall, ISBN:7-302-03058-8. • Sanjit.K .Mitra, " Digital Signal Processing" Laboratory using Matlab, 2000, McGraw-Hill, ISBN: 0-07-116592-4
Laboratory Work	
Computer Usage	
Other	

Learning Outcomes and Competences

1	Njohja me konceptet themelore të sinjaleve dhe sistemeve të përcaktuara dhe të papërcaktuara të vazhdueshme e diskrete në kohë.
2	Njohja me transformimin e Laplasit dhe zbatimit të tij në sistemet e vazhduara lineare të pandryshueshme në kohë.
3	Njohja me transformimin Furie në sistemet e vazhdueshme dhe diskrete në kohë. Njohja me implementimin dhe ndërtimin e filtrave analogë
4	Njohja me transformimin Z në sistemet diskrete në kohë. Njohja me implementimin dhe ndërtimin e filtrave numerikë(digjital)
5	Njohja me modulimet e sinjalit(në amplitude,frekuencë,faze). Njohja me transmetimet numerike të sinjaleve analoge
6	Njohja me sinjalet e rastit dhe densitetin spectral të fuqisë. Njohuri bazë nga analiza e sistemeve në hapësirë dhe gjendje

Course Evaluation Methods

In-term studies	Quantity	Percentage
Midterms	1	50
Quizzes	0	0
Projects	0	0
Term Projects	0	0
Laboratory	0	0
Attendance	0	0
Contribution of in-term studies to overall grade		**50**
Contribution of final examination to overall grade		**50**
Total		100

ECTS (Allocated Based on Student) Workload

Activities	Quantity	Duration (hours)	Total Workload (hours)
Course Duration (Including the exam week : 16 x Total course hours)	16	4	64
Hours for off-the-classroom study (Pre-study, practice)	14	5	70
Assignments	0	0	0
Midterms	1	3	3
Final examination	1	3	3
Other	0	0	0
Total Work Load			**140**
Total Work Load / 25 (hours)			**5,6**
ECTS			**6**