

Curriculum

MS Systems Engineering

DEPARTMENT OF ELECTRICAL ENGINEERING

PAKISTAN INSTITUTE OF ENGINEERING AND APPLIED SCIENCES (PIEAS)

NILORE, ISLAMABAD

SEMESTER-WISE COURSE PLAN

SUMMARY

Spring Semester	EE-501: Control Systems Design-I	EE-502: Applied Electronics	NE-534: Introduction to Nuclear Engineering (Institutional Requirement)	Optional-1
Summer	EE-510: Process Instrumentation	Optional-2		
Fall semester	EE-511: Digital Control Systems Analysis & Design	EE-601: Control Systems design-II	EE-529: Power Converter Design	Optional-3
Spring Semester	EE-697: Thesis Research	Optional-4	Optional-5	Optional-6
Research Semester	EE-697: Thesis Research			

SEMESTER-WISE COURSE PLAN

	SR.NO	CODE	COURSE TITLE	CrHrs	STATUS	CrHrs
Spring Semester (Year 1)	1	EE-501	Control Systems Design-I	3	C	13
	2	EE-502	Applied Electronics	3+1	C	
	3	NE-534	Introduction to Nuclear Engineering	3	IR	
	4	XX-XXX	Optional 1	3	O	
Summer Session	1	EE-510	Process Instrumentation	3+1	C	7
	2	XX-XXX	Optional 2	3	O	
Fall Semester	1	EE-511	Digital Control Systems Analysis & Design	3+1	C	13
	2	EE-529	Power Converter Design	3	C	
	3	EE-601	Control Systems design-II	3	C	
	4	XX-XXX	Optional 3	3	O	
Spring Semester (Year 2)	1	CMS-501	Communication Skills	1	IR	13
	2	XX-XXX	Optional 4	3	O	
	3	XX-XXX	Optional 5	3	O	
	4	XX-XXX	Optional 6	3	O	
	5	EE-697	Thesis Research	3	C	
Research Semester	1	EE-697	Thesis Research	12	C	12
Total CrHrs						58

DETAILED SEMESTER-WISE COURSE PLAN

	SR.NO	CODE	COURSE TITLE	CR	STATUS	PRE REQ
Spring Semester Year 1		EE-501	Control Systems Design-I	3	C	A basic course on Control Systems
		EE-502	Applied Electronics	3+1	C	Basic circuit theory and electronics
		NE-534	Introduction to Nuclear Engineering	3	IR	NONE
		EE-507	Stochastic Processes	3	O	Basic course in probability and Signals and Systems
		PAM-509	Numerical Optimization	3	O	NONE
		PAM-524	Linear Algebra	3	O	NONE
Summer Session		EE-425	Fundamentals of Robotics	3	O	NONE
		EE-426	PLCs and Industrial Automation	2+1	O	NONE
		EE-506	Embedded System Design	3	O	NONE
		EE-508	Computational Intelligence	3	O	NONE
		EE-510	Process Instrumentation	3+1	C	EE-502
		EE-526	Digital Design with Verilog HDL		O	NONE
		NE-555	Nuclear Reactor Analysis	3	O	NE-534
Fall Semester		NE-510	Nuclear Power Plant Systems	3	O	EE-534
		EE-511	Digital Control Systems Analysis & Design	3+1	C	EE-501
		EE-515	Advanced Digital Signal Processing	3	O	A basic course on Digital signal Processing and Stochastic processes
		EE-522	Pattern Recognition	3	O	NONE
		CMS-528	Project Management	3	O	NONE

		EE-529	Power Converter Design	3	C	NONE
		EE-530	Special Topics in Systems Engineering-I	3	O	To be defined by the instructor
		EE-554	Digital Image Processing	3	O	NONE
		EE-601	Control Systems design-II	3	C	EE-501
		EE-616	Industrial Drives	3	O	EE-529
		EE-618	Robot Structures, Sensing and Perception	3	O	EE-425
Spring Semester Year 2		CMS-501	Communication Skills		IR	NONE
		EE-544	Nuclear Reactor Instrumentation and Control	3	O	NE-510
		EE-602	Non-linear Control Systems	3	O	EE-601
		EE-603	Optimal Control Theory	3	O	EE-601
		EE-605	Robust Control	3	O	EE-601
		EE-606	Adaptive Control Systems	3	O	EE-601
		EE-607	System Identification	3	O	EE-511, EE-601
		EE-612	Fault Diagnosis and Tolerant Control	3	O	EE-511, EE-601
		EE-614	Computer Vision	3	O	EE-554 or Equivalent
		EE-615	Adaptive Signal Processing		O	Signals & Systems / Digital Signal Proc., A course in Probability
		EE-620	Mobile Robot Task Planning	3	O	EE-618
		EE-625	Special Topics in Systems Engineering-II	3	O	To be defined by the concerned instructor
			EE-697	Thesis Research	3	C
Research Semester		EE-697	M.Sc. Thesis Research	12	C	NONE