Curriculum for direct PhD in Communications and Signal Processing

Department of Electrical Engineering

Draft curricula of direct PhD (for students joining without an MTech degree) for both August and January sessions. The course content is based on the new approved curriculum for 2-year MTech in CSP.

Summary

Course type	Credits
Department core	10
Department electives	10
Labs	3
Free electives	1
Total	24

August batch

Course number	**Semester 1**	Credits	Course type
EE5817	Random variables and stochastic processes	3	Department core
EE5837	Principles of digital communication	3	Department core
EE5807	Advanced digital signal processing	2	Department core
EExxxx	Department elective	3	elective
EE5801	Communications lab	1	Labs
	Total	12	
	Semester 2		

EE5803	FPGA lab	1	Labs
EE5802	DSP lab	1	labs
EExxxx	Department electives	8	elective
EExxxx	Department softcore (basket of courses below)	1	Department core
FExxxx	Free elective	1	Elective
	Total	12	

January batch

Course number	**Semester 1**	Credits	Course type
EE5803	FPGA lab	1	Labs
EE5802	DSP lab	1	labs
EExxxx	Department electives	8	elective
EExxxx	Department softcore (basket of courses below)	1	Department core
FExxxx	Free elective	1	Elective
	Total	12	

Course number	**Semester 2**	Credits	Course type
EE5817	Random variables and stochastic processes	3	Department core
EE5837	Principles of digital communication	3	Department core
EE5807	Advanced digital signal processing	2	Department core

EExxxx	Department elective	3	elective
EE5801	Communications lab	1	Labs
	Total	12	

Softcore basket

Course number	**Course name**	Credits
EE5609	Matrix theory	3
EE5610 OR EE5601+ EE5602+ EE5603	Pattern recognition and machine learning	3 OR 1+1+1
EE5847	Information theory	1
EE5390	Source coding	1
EE6317	Channel coding	1
EE5606	Convex optimization	3
EExxxx	Communication networks	3
EE5342	Detection theory	1
EE5357	Estimation theory	1
EE6340	Wireless communication	3
EE6350	Multiple antenna systems	3