



CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY ISLAMABAD

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PhD Comprehensive Examination – Spring 2022 Faculty of Engineering

Following is the department wise list of the subjects from which the comprehensive examination question papers will be prepared. All engineering students are required to select three (3) courses from the respective list for preparation of the question papers. The selected list is to be sent/ handed over to Graduate Studies Office at the time of registration for comprehensive examination.

Electrical Engineering

<u>Control Systems</u>		
1	EE5813	Linear System Theory
2	EE5823	Nonlinear Control Systems
3	EE5843	Control Systems Design
4	EE6893	Sliding Mode Control
5	EE6843	Robust Control Systems
6	EE6853	Adaptive Control Systems
<u>Signal Processing</u>		
1	EE5613	Advanced Digital Signal Processing
2	EE5623	Advanced Digital Image Processing
3	EE6633	Adaptive Signal Processing
4	EE6643	Pattern Recognition
5	EE6673	Radar Signal Processing
6	EE6653	Computer Vision
7	EE6683	Machine Learning
8	EE6363	Advanced Artificial Intelligence
<u>Telecommunications</u>		
1	EE6703	Advanced Digital Communications
2	EE6733	Cellular and Mobile Communications
3	EE5703	Principles of Digital Communications
4	EE6763	Mobile and Wireless Networks
<u>Electronics and Microwaves</u>		
1	EE6213	Analog Integrated Electronic Circuits
2	EE6523	Advanced Antenna Theory & Design
3	EE6533	Advanced Microwave Engineering
4	EE6343	Embedded Systems Design
5	EE6313	Advanced Computer Architecture
<u>Power Systems</u>		
1	EE6153	Smart Grid
2	EE6163	Renewable Energy Systems
3	EE6263	Advanced Power Electronics

Civil Engineering

(a) Specialization Courses			
(i)	Water Resources Engineering & Management	CE 5103	Advanced Open Channel Hydraulics
		CE 5113	Advanced Hydrology
		CE 6123	River Engineering
		CE 6133	Design of Hydraulic Structures
(ii)	Structural Engineering	CE 5303	Dynamics of Structures
		CE 5313	Fiber Reinforced Structures
		CE 6323	Computer Aided Analysis & Design of Structures
		CE 6333	Earthquake Engineering
(b) Elective Courses			
(iii)	Elective Courses	CE 5023	Research Methods in Civil Engineering
		CE 5803	Advanced Construction Management
		CE 5903	Advanced Geo-informatics
		CE 5913	Disaster Risk Assessment & Evaluation
		CE 5813	Project Planning and Control
		CE 5903	Advanced Geo-informatics
		CE 5913	Disaster Risk Assessment & Evaluation
		CE 5153	Drainage & Irrigation Engineering

Mechanical Engineering

<u>Core Courses</u>		
1	ME5703	Research Methodologies
2	ME5713	Optimization Methods
3	ME5723	Experimental Methods
<u>Thermal Sciences</u>		
1	ME5113	Internal Combustion Engines
2	ME5123	Thermal Power Generation
3	ME5133	Gas Dynamics
4	ME5153	Combustion
5	ME5513	Computational Fluid Dynamics
6	ME5533	Transport Phenomena
<u>Manufacturing</u>		
1	ME5643	Digital Manufacture and Rapid Manufacture
2	ME5653	Manufacturing System Design & Analysis
3	ME5673	Production Planning and Control
4	ME5683	Operation Research
5	ME6643	Nano Fabrication and Manufacturing
<u>Mechanical Design</u>		
1	ME5053	Finite Element Method of Composites
2	ME5623	Mechanism Design
3	ME6043	Design of Machine Tools