

Semester-wise Breakup for Ph.D. Electrical Engineering

Sr. No.	Courses	Credit Hours
Semester-I		
1.	Core Course I; (Research Methodology, EE-8100)	3
2.	Core Course II	3
3.	Core Course III	3
Semester-II		
4.	Core Course IV	3
5.	Elective I	3
6.	Elective II	3
Semester-III to XVI		
7.	Thesis (EE-9001)	30
8.	Seminars	S/U basis
Total Credit Hours		48

Course Code	LIST OF CORE COURSES
EE-8100	Research Methodology
EE-8101	Random Variables and Stochastic Processing
EE-8102	Computational Method for Engineers
EE-8103	Nanophotonic and Metamaterials
EE-8104	Advanced Electromagnetic Field Theory
EE-8105	Advanced Linear Systems
EE-8106	Advanced Digital Signal Processing
EE-8107	Advanced Digital Design
EE-8108	Advanced Control System
EE-8109	Digital Control Systems
EE-8201	Advanced Smart Grid
EE-8202	Advanced Power System Protection
EE-8203	Advanced Renewable Energy Systems
EE-8204	Advanced Power Electronics
EE-8205	Power System Planning
EE-8206	Modeling and Simulation of Power System Components
EE-8301	Advanced Digital Communications
EE-8302	Advanced Communication Systems
EE-8303	Mobile and Sensor Networks
EE-8304	Wireless Sensor Networks

EE-8305	Advanced Microwave Engineering
LIST OF ELECTIVE COURSES	
EE-8110	Advanced Electronic System Design
EE-8111	Electromagnetic Field Analysis
EE-8112	Computational Electromagnetic
EE-8113	Advanced Topics in Electronics
EE-8114	Electronic Design Automation
EE-8115	Advanced Digital System Design
EE-8116	Quantum Cryptography
EE-8117	Advanced Embedded Systems
EE-8118	Advanced VLSI Design
EE-8119	Digital Signal Processing Using FPGA
EE-8120	RF Electronics
EE-8121	Electromagnetic Compatibility
EE-8122	Simulation Modeling and Analysis
EE-8123	Advanced Microsystems Technology
EE-8124	MEMS and Micromachining
EE-8125	FPGA-Based System Design
EE-8126	Control System with Embedded Implementation
EE-8127	Linear Programming and Optimization
EE-8128	Multimedia Systems
EE-8129	HDL and High-Level Synthesis
EE-8130	Advanced Topics in Control Systems
EE-8131	Nonlinear System Analysis
EE-8132	Nonlinear Control Systems
EE-8133	System Identification
EE-8134	Multivariable Feedback Control
EE-8135	Robust Control Systems
EE-8136	Distributed Control Systems
EE-8137	Guidance Navigation and Control
EE-8138	Optimal Control Systems
EE-8139	Control of Electric Machine Drives
EE-8140	Adaptive Control Systems
EE-8141	Stochastic Control Systems
EE-8142	Approximation of Dynamical Systems
EE-8143	Adaptive Filter Theory
EE-8144	Nanotechnology
EE-8145	Filter Designing Techniques
EE-8207	Switched Mode Power Converters
EE-8208	Advanced Power System Analysis
EE-8209	Advanced Power System Operation and Control
EE-8210	Advanced Power System Transmission
EE-8211	Flexible AC Transmission System
EE-8212	High voltage DC Transmission System
EE-8213	Distribution System Modeling and Analysis

EE-8214	Power Generation Economics
EE-8215	Power System Restructuring
EE-8216	Power System Modelling and Analysis
EE-8217	Advanced High Voltage Engineering
EE-8218	Power System Stability and Control
EE-8219	Computational Methods in Power System Analysis
EE-8220	Power System Reliability
EE-8221	Power Quality
EE-8222	Artificial Intelligence Techniques in Power System
EE-8223	Power System Transients
EE-8224	Digital Signal Processing in Power System
EE-8225	Insulation Coordination in Power Systems
EE-8226	Energy Management
EE-8227	Energy Audit
EE-8228	Distributed Generation
EE-8229	Condition Monitoring Techniques
EE-8230	Advanced Electrical Machines and Drives
EE-8231	Modeling and Simulation of Electrical Machines
EE-8232	Special Purpose Electrical Machines
EE-8233	Advanced Electrical Machine Design
EE-8234	Maintenance and Troubleshooting of Electrical Machines
EE-8235	Photovoltaic Systems
EE-8236	Integration of Green Energy sources with power system
EE-8237	Optimization Techniques in Power Systems
EE-8238	Advanced Topics in Power System
EE-8239	Power Electronic Converters
EE-8240	Control of Power Electronic Converters
EE-8241	Distributed Systems
EE-8242	Smart Grid
EE-8306	Analysis and Design of Microwave Linear Circuits
EE-8307	Antenna Theory and Design
EE-8308	Array Signal Processing
EE-8309	Adaptive Array Processing
EE-8310	Nonlinear Microwave and RF Circuits
EE-8311	Advanced Topics in Communication Systems
EE-8312	Cellular and Mobile Communications
EE-8313	Principles of Digital Communications
EE-8314	Wireless and Mobile Communication
EE-8315	Optimization Theory
EE-8316	Advanced Communication Networks
EE-8317	Radar Signal Processing
EE-8318	Advanced Concepts in Radar Systems
EE-8319	Global Positioning and Navigation Systems
EE-8320	Advanced Mobile Communication
EE-8321	Signal Detection and Estimation

EE-8322	Advanced optical communication
EE-8323	Advanced Wireless Communications
EE-8324	Broadband Communication
EE-8325	Multimedia Communication
EE-8326	Cognitive Radio Networks
EE-8327	Software Defined Radios
EE-8328	Signal Processing Applications in Reconfigurable Architecture
EE-8329	Modeling and Simulation
EE-8330	Telecommunication Network Operations
EE-8331	Optical Communications
EE-8332	Quality of Service in Telecom Networks
EE-8333	Network Planning and Optimization
EE-8334	Data Communication and Security
EE-8335	Digital Communication
EE-8336	Wireless Communication Systems
EE-8337	Telecom Policies and Standards
EE-8338	Microwave Networks & Passive Components
EE-8339	Microwave and RFIC Design
EE-8340	Filtering and Tracking
EE-8341	Next Generation Networks
EE-8342	Quantum Communication
EE-8343	Telecommunication Networks Management
EE-8344	Speech Communication
EE-8345	SS7 and Intelligent Networks
EE-8346	Telecommunication Economics
EE-8347	Visible light Communications
EE-8348	Free Space Optical Communications
EE-8349	Digital Broadcasting
EE-8350	Smart Antenna
EE-8351	Radiating Systems & Antennas
EE-8352	RF-Circuit Design
EE-8353	Microwave Devices and Circuits
EE-8401	Advanced Computer Networks
EE-8402	Machine Learning
EE-8403	Computer Vision
EE-8404	Embedded Operating System
EE-8405	Digital Image Processing
EE-8406	Neural Networks
EE-8407	Data Mining Concepts and Algorithms
EE-8408	Operating Systems Design
EE-8409	Advanced Microcomputer System
EE-8410	Image and Video Processing
EE-8411	Design and Analysis of Algorithms
EE-8412	Network Security
EE-8413	Cryptography and Network Security

EE-8414	Cyber Security
EE-8415	Information and Coding Theory
EE-8416	Mobile and Pervasive Computing
EE-8417	Statistical Signal Processing
EE-8418	Computer Architecture & Organization
EE-8419	Artificial Intelligence
EE-8420	Pattern Recognition
EE-8421	Medical Image Processing
EE-8422	Hardware Security
EE-8423	Data Mining
EE-8424	Data security
EE-8425	Internet of Things
EE-8426	Human Computer Interaction
EE-8427	Big Data
EE-8428	Computer Sensing
EE-8429	Cloud Computing
EE-8430	Scientific writing and Research Methodology

Thesis

Course Code	Thesis
EE-9001	Thesis with 30 credit hours