

COMSATS University Islamabad

Registrar Secretariate, Academic Unit (PS)

No: CUI-Reg/Notif- 2146/24/ 2221

August 23, 2024

NOTIFICATION

The Academic Council in its 39th meeting held on August 01, 2024 based on the recommendations of the Board of Advanced Studies and Research in its 35th meeting held on June 25, 2024, approved the revised Scheme of Studies of Doctor of Philosophy in Electrical Engineering, effective from Fall 2024.

Nomenclature of the Program: Doctor of Philosophy in Electrical Engineering

1. Duration:

- | | | | |
|-----|----------------------------|-----|------------------------------|
| 1.1 | Minimum Duration: 03 Years | 1.2 | Minimum No. of Semesters: 06 |
| 1.3 | Maximum Duration: 08 Years | 1.4 | Maximum No. of Semesters: 16 |

2. No. of Courses and Credit Hours:

S. No.	Category	SAME DISCIPLINE		INTRADISCIPLINARY	
		No. of Courses	No. of Credit Hours	No. of Courses*	No. of Credit Hours
1.	Deficiency Courses of level 7	-	-	02-03	06-09
2.	Courses	06	18	06	18
3.	Research Thesis	01	09	01	09
4.	Total	07	27	09-10	33-36
5.	Prerequisite	The zero semester of PhD candidate shall not count towards the time limit of comprehensive exams etc. or the maximum study duration.			

6. PhD students can take courses numbered 700-800, except the PhD dissertation 900.
7. If a PhD program has more than 1 core course, elective course numbers will decrease accordingly. For instance, with 2 core courses, there would be 4 electives to meet the 18-credit hour requirement.
8. Furthermore, courses completed during the MS program will not count towards the PhD program's requirements, preventing any duplication or repetition of coursework.
9. Core courses for one MS program, may be considered as Elective Courses for all other programs.

This issues with approval of the competent authority (Rector CUI).


Dr. Muhammad Hanif (Ph.D)
Deputy Registrar

Distribution:

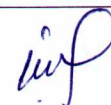
1. All Campus Directors / Incharge CUI, Islamabad Campus
2. All Principal Officers of CUI/All Deans of Faculties
3. All Chairpersons of the Academic Departments / All Head of Departments
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8. SO, to the Rector
9. PS to the Registrar

List of Elective Courses:

Sr. #	Course Code	Course Title	Credit Hours
1.	EEE611	Stochastic Processes	3(3, 0)
2.	ECI610	Advanced Digital Design	3(3, 0)
3.	ECI611	Logic Design and Switching Theory	3(3, 0)
4.	ECI612	Advanced Microprocessor Systems	3(3, 0)
5.	ECI613	Advanced Operating Systems	3(3, 0)
6.	ECI614	Advanced Computer Architecture	3(3, 0)
7.	ECI620	ASIC and FPGA Design	3(3, 0)
8.	ECI621	DSP Hardware Systems Design	3(3, 0)
9.	ECI622	DSP Software Systems Design	3(3, 0)
10.	ECI623	VLSI System Design	3(3, 0)
11.	ECI624	Microprocessor/Microcontroller Based Systems	3(3, 0)
12.	ECI637	Data Structures for Computer Graphics	3(3, 0)
13.	ECI640	Advanced Digital Signal Processing	3(3, 0)
14.	ECI641	Digital Image Processing	3(3, 0)
15.	ECI642	Digital Filters	3(3, 0)
16.	ECI650	Image, Video, and Multimedia	3(3, 0)
17.	ECI653	Fundamentals of Computer Graphics	3(3, 0)
18.	ECI670	Neural and Fuzzy Systems	3(3, 0)
19.	ECI672	Natural Language Processing	3(3, 0)
20.	ECI673	Automata Theory	3(3, 0)
21.	ECI674	Pattern Recognition	3(3, 0)
22.	ECI710	Computer-Aided Design of Digital Systems I	3(3, 0)
23.	ECI711	Performance of Computer Systems	3(3, 0)
24.	ECI712	Multithreaded Architectures	3(3, 0)
25.	ECI713	Parallel Processing	3(3, 0)



26.	ECI714	Diagnosis and Design of Reliable Digital Systems	3(3, 0)
27.	ECI715	Real Time Computer Systems	3(3, 0)
28.	ECI716	Probabilistic Methods in Computer Systems Modeling	3(3, 0)
29.	ECI717	Compiler Design	3(3, 0)
30.	ECI718	Analysis of Algorithms	3(3, 0)
31.	ECI720	Hardware/Software Co-Design Techniques	3(3, 0)
32.	ECI721	Embedded Software and RTOS	3(3, 0)
33.	ECI731	Data Warehousing	3(3, 0)
34.	ECI732	Data Mining	3(3, 0)
35.	ECI734	Software Project Management	3(3, 0)
36.	ECI737	Object Oriented Software Engineering	3(3, 0)
37.	ECI738	Geometric Modeling	3(3, 0)
38.	ECI739	Computer Animation	3(3, 0)
39.	ECI743	Computer Vision	3(3, 0)
40.	ECI744	Advanced Pattern Recognition	3(3, 0)
41.	ECI745	3-D and Virtual Imaging	3(3, 0)
42.	ECI747	Advanced Filter Design	3(3, 0)
43.	ECI748	Machine Learning	3(3, 0)
44.	ECI753	Advanced Computer Graphics	3(3, 0)
45.	ECI811	Special Topics in Computer Systems Architectures	3(3, 0)
46.	ECI813	Advanced Topics in Operating Systems	3(3, 0)
47.	ECI814	Advanced Microprocessor/Microcontroller Systems	3(3, 0)
48.	ECI833	Security Applications: Watermarking and Biometrics	3(3, 0)
49.	ECI834	Data Authentication Techniques	3(3, 0)
50.	ECI835	Digital Watermarking	3(3, 0)
51.	ECI839	Advanced Computer Animation	3(3, 0)
52.	ECI840	Special Topics in Signal Processing	3(3, 0)
53.	ECI841	Advanced Topics in Image Processing	3(3, 0)

54.	ECI842	Advanced Topics in Computer Vision	3(3, 0)
55.	ECI847	Advanced Topics in Filter Design	3(3, 0)
56.	ECI850	Advanced Topics in Multimedia Technologies	3(3, 0)
57.	ECI853	Advanced Topics in Computer Graphics	3(3, 0)
58.	ECI860	Advanced Topics in Control Systems	3(3, 0)
59.	ECI870	Advanced Topics in AI and Neural Computing	3(3, 0)
60.	ECI874	Advanced Topics in Machine Learning	3(3, 0)
61.	EEP610	Fundamentals of Semiconductor Devices	3(3, 0)
62.	EEP611	Circuit Modeling of Solid-State Devices	3(3, 0)
63.	EEP612	Active Semiconductor Devices	3(3, 0)
64.	EEP613	Solid State Electronic Devices	3(3, 0)
65.	EEP620	Integrated Circuit Analysis and Design	3(3, 0)
66.	EEP630	Theory of Optical Fibers	3(3, 0)
67.	EEP631	Optical Fiber Devices and Components	3(3, 0)
68.	EEP632	Semiconductor Optoelectronic Devices	3(3, 0)
69.	EEP641	Optical Communications	3(3, 0)
70.	EEP642	Optical Signal Processing	3(3, 0)
71.	EEP650	Introduction to MEMS	3(3, 0)
72.	EEP651	Nanosystems	3(3, 0)
73.	EEP652	Introduction to Nanoscience and Technology	3(3, 0)
74.	EEP710	MOS VLSI Circuit Design	3(3, 0)
75.	EEP711	Quantum Physical Electronics	3(3, 0)
76.	EEP712	Electronic Materials	3(3, 0)
77.	EEP713	Semiconductor Processing Technology	3(3, 0)
78.	EEP714	Advanced Semiconductor Materials	3(3, 0)
79.	EEP715	Semiconductor Power Devices	3(3, 0)
80.	EEP730	Principles of Fiber and Integrated Optics	3(3, 0)
81.	EEP731	Integrated Optical Circuits and Devices	3(3, 0)



82.	EEP732	Optical Sensors	3(3, 0)
83.	EEP740	Optical Fiber Components and Transmission Systems	3(3, 0)
84.	EEP742	High Speed Photonic Components	3(3, 0)
85.	EEP810	Low Power Analog and Mixed Signal ICs	3(3, 0)
86.	EEP811	Advanced Topics in Integrated Circuit Design	3(3, 0)
87.	EEP812	Special Topics in Microelectronics	3(3, 0)
88.	EEP813	Advanced Topics in Solid State Devices	3(3, 0)
89.	EEP830	Advanced Optoelectronic and Photonic Devices	3(3, 0)
90.	EEP831	Advanced Topics in Optical System and Devices	3(3, 0)
91.	EEP840	Optical Networks - Transport and Switching	3(3, 0)
92.	EEP841	Next Generation Optical Networks	3(3, 0)
93.	EEP850	Advanced Topics in Micro Systems Fabrication	3(3, 0)
94.	ETN610	Electromagnetic Field Theory	3(3, 0)
95.	ETN611	Microwave Passive Devices and Circuits	3(3, 0)
96.	ETN612	Microwave Active Devices and Circuits	3(3, 0)
97.	ETN613	Introduction to RF Front-End Design	3(3, 0)
98.	ETN614	RF System Engineering and Design	3(3, 0)
99.	ETN620	Antennas Theory, Design and Applications	3(3, 0)
100.	ETN621	Radio Wave Propagation	3(3, 0)
101.	ETN622	RF Propagation and Planning for Wireless Communications	3(3, 0)
102.	ETN630	Radar Systems	3(3, 0)
103.	ETN631	Satellite Communications	3(3, 0)
104.	ETN640	Communication Systems Engineering	3(3, 0)
105.	ETN641	Digital Communications	3(3, 0)
106.	ETN642	Information Theory and Coding	3(3, 0)
107.	ETN643	Communication Signal Processing	3(3, 0)
108.	ETN644	Wireless Communication Techniques	3(3, 0)
109.	ETN650	Communication Electronics Design	3(3, 0)

110.	ETN651	Embedded System Design for Telecommunications	3(3, 0)
111.	ETN661	Telecommunication Switching Systems	3(3, 0)
112.	ETN662	Performance Analysis of Communication Systems	3(3, 0)
113.	ETN663	Telecommunication Network Management	3(3, 0)
114.	ETN664	Optical Fiber Networks	3(3, 0)
115.	ETN665	Communication System Design	3(3, 0)
116.	ETN670	Communication Networks-Architectures and Protocols	3(3, 0)
117.	ETN641	Digital Communications	3(3, 0)
118.	ETN671	Advanced Computer Networks	3(3, 0)
119.	ETN672	Queuing Theory for Performance Modeling	3(3, 0)
120.	ETN673	Graph Theory and Network Optimization	3(3, 0)
121.	ETN675	Internet Architectures and Protocols	3(3, 0)
122.	ETN676	Internetworking: Architectures, Protocols and Applications	3(3, 0)
123.	ETN677	Internet Applications and Services	3(3, 0)
124.	ETN678	Design of Computer Communication Networks	3(3, 0)
125.	ETN680	Wireless Networks	3(3, 0)
126.	ETN681	Mobile Cellular Systems and Standards	3(3, 0)
127.	ETN682	Mobile and Broadband Networks	3(3, 0)
128.	ETN685	Mobile Communication Systems	3(3, 0)
129.	ETN686	Wireless Sensor Networks	3(3, 0)
130.	ETN711	Numerical and Computational Techniques in Electromagnetics	3(3, 0)
131.	ETN712	Microwave Integrated Circuits	3(3, 0)
132.	ETN713	RF and Microwave Measurement Techniques	3(3, 0)
133.	ETN720	Smart Antennas for Mobile Communications	3(3, 0)
134.	ETN730	Radar Signal Processing	3(3, 0)
135.	ETN740	Advanced Communication Systems Engineering	3(3, 0)
136.	ETN741	Advanced Digital Communications	3(3, 0)
137.	ETN742	Advanced Information Theory and Coding	3(3, 0)

138.	ETN743	Adaptive Techniques for Wireless Communications	3(3, 0)
139.	ETN744	Advanced Wireless Communications	3(3, 0)
140.	ETN745	Advanced Channel Coding Techniques	3(3, 0)
141.	ETN746	Channel Estimation and Characterization	3(3, 0)
142.	ETN747	Communication Channel Modeling	3(3, 0)
143.	ETN748	Wireless Channel Modeling	3(3, 0)
144.	ETN750	Advanced Integrated Circuits for Communication	3(3, 0)
145.	ETN761	Broadband Network Architectures	3(3, 0)
146.	ETN764	Modeling and Analysis of Telecommunication Networks	3(3, 0)
147.	ETN765	Transport and Switching Technologies	3(3, 0)
148.	ETN766	Short-Range Communication Systems	3(3, 0)
149.	ETN767	Mobile Computing	3(3, 0)
150.	ETN770	IP Routing Protocols and Internetwork Design	3(3, 0)
151.	ETN771	Advanced Network Programming	3(3, 0)
152.	ETN772	Networks and Computer Security	3(3, 0)
153.	ETN773	Performance Evaluation of Computer Networks	3(3, 0)
154.	ETN774	Cryptography and Secure Communication	3(3, 0)
155.	ETN778	Network Programming Techniques	3(3, 0)
156.	ETN780	RF Network Planning and Design	3(3, 0)
157.	ETN784	Mobile Networking	3(3, 0)
158.	ETN789	Advanced Internet of Things (IoT)	3(3, 0)
159.	ETN810	Advanced Topics in RF System Design	3(3, 0)
160.	ETN811	Advanced Topics in RF/Microwave Engineering	3(3, 0)
161.	ETN820	Advanced Topics in Antenna Design	3(3, 0)
162.	ETN821	Advanced Topics in Radio Wave Propagation	3(3, 0)
163.	ETN822	Advanced Topics in RF Planning and Optimization	3(3, 0)
164.	ETN841	Advanced Topics in Communications Theory	3(3, 0)
165.	ETN842	Advanced Topics in Communication Signal Processing	3(3, 0)

166.	ETN846	Advanced Topics in Information Security	3(3, 0)
167.	ETN870	Network Forensics	3(3, 0)
168.	ETN873	Advanced Topics in Network Security	3(3, 0)
169.	ETN874	Advanced Network Security	3(3, 0)
170.	ETN881	Advanced Topics in Wireless Networks	3(3, 0)
171.	ETN882	Selected Topics in Wireless Network Security	3(3, 0)
172.	ETN885	Advanced Mobile Networking	3(3, 0)
173.	EPE625	Advanced Power System Analysis	3(3, 0)
174.	EPE618	Microgrid Modeling and Control	3(3, 0)
175.	EPE624	Smart Grid System Operation	3(3, 0)
176.	EPE638	Smart Grid: Economics, Policy & Engineering Aspects	3(3, 0)
177.	EPE645	Design and Analysis of Smart Grids	3(3, 0)
178.	EPE655	Energy Storage System for Smart Grids	3(3, 0)
179.	EPE730	Advanced Topics in Smart Grids	3(3, 0)
180.	EPE637	Advanced Power Electronic Converters for Smart Grids	3(3, 0)
181.	EPE662	Renewable Energy Integration in Smart Grids	3(3, 0)
182.	EPE628	HVDC systems applications in Smart Grids	3(3, 0)
183.	EPE670	Big Data Systems and Analytics for Smart Grids	3(3, 0)
184.	EPE647	Operation and Planning of Distribution Networks	3(3, 0)
185.	EPE627	Smart Grid Infrastructure and Planning	3(3, 0)
186.	EPE646	Machine Learning and Deep Learning Applications in Smart Grids	3(3, 0)
187.	EPE635	Smart Grid Energy Technologies	3(3, 0)
188.	EPE 672	Data acquisition and Analytics in Electric Utilities	3(3, 0)
189.	EPE634	Information and Communication Technologies for Smart Grids	3(3, 0)
190.	EPE795	Energy Management in Buildings	3(3, 0)
191.	EPE611	Power Transmission and Distribution	3(3, 0)
192.	EPE612	DC and Flexible AC Transmission	3(3, 0)



193.	EPE620	Advanced Power System Planning	3(3, 0)
194.	EPE621	Advanced Power System Protection	3(3, 0)
195.	EPE623	High Voltage Engineering Design	3(3, 0)
196.	EPE626	Advanced Power System Operation and Control	3(3, 0)
197.	EPE630	Advanced Power Electronics	3(3, 0)
198.	EPE631	Power Electronics Design	3(3, 0)
199.	EPE632	Electronics For Energy Control	3(3, 0)
200.	EPE640	Design of Electrical Machines	3(3, 0)
201.	EPE641	Square Wave AC Machine Design	3(3, 0)
202.	EPE663	Renewable Energy Technologies	3(3, 0)
203.	EPE664	Photovoltaic System Design	3(3, 0)
204.	EPE665	Solar Power Generation	3(3, 0)
205.	EPE666	Wind Power Generation	3(3, 0)
206.	EPE711	Flexible AC transmission	3(3, 0)
207.	EPE712	Integration of Distributed Generation	3(3, 0)
208.	EPE720	Power System Dynamics	3(3, 0)
209.	EPE721	High Voltage Engineering Design	3(3, 0)
210.	EPE722	Power System Reliability	3(3, 0)
211.	EPE723	Power System Stability and Control	3(3, 0)
212.	EPE724	Power System Transients	3(3, 0)
213.	EPE725	Electric Power Quality	3(3, 0)
214.	EPE726	Computer Methods in Power System Analysis	3(3, 0)
215.	EPE727	Advance Digital Relaying	3(3, 0)
216.	EPE728	Power and Energy Management	3(3, 0)
217.	EPE729	Dynamics and Control of Integrated Power System	3(3, 0)
218.	EPE740	AC/DC Drives	3(3, 0)
219.	EPE741	Dynamic Modeling of Electric Machines and Controls	3(3, 0)
220.	EPE754	Hybrid Power Systems	3(3, 0)

221.	EPE762	Energy and Storage System	3(3, 0)
222.	EPE820	Advanced Topics in Power Systems Engineering	3(3, 0)
223.	EPE821	Optimization and Economics of Integrated Power Systems	3(3, 0)
224.	EPE860	Advanced Topics in Renewable Energy	3(3, 0)
225.	ECI624	Microprocessor/Microcontroller Based Systems	3(3, 0)
226.	ECI640	Advanced Digital Signal Processing	3(3, 0)
227.	ECI660	Linear Control Systems	3(3, 0)
228.	ECI661	Digital Control Systems	3(3, 0)
229.	ECI662	Optimization Control Theory	3(3, 0)
230.	ECI663	Robotics	3(3, 0)
231.	ECI664	Industrial Automation and Control	3(3, 0)
232.	ECI665	Linear Systems Theory	3(3, 0)
233.	ECI671	Artificial Intelligence	3(3, 0)
234.	ECI718	Analysis of Algorithms	3(3, 0)
235.	ECI740	Estimation of Signals and Systems	3(3, 0)
236.	ECI746	Detection and Estimation Theory	3(3, 0)
237.	ECI747	Advanced Filter Design	3(3, 0)
238.	ECI748	Machine Learning	3(3, 0)
239.	ECI760	Non-Linear Systems & Control	3(3, 0)
240.	ECI761	Intelligent Control Systems	3(3, 0)
241.	ECI762	Advanced Linear Systems	3(3, 0)
242.	ECI763	Multivariable Control	3(3, 0)
243.	ECI764	Adaptive Control	3(3, 0)
244.	ECI765	Robust Control	3(3, 0)
245.	ECI770	Intelligent Systems	3(3, 0)
246.	ECI814	Advanced Microprocessor/Microcontroller Systems	3(3, 0)
247.	ECI820	Advanced Topics in Embedded System Design	3(3, 0)
248.	ECI822	Advanced Topics in Real-Time Embedded System Design	3(3, 0)

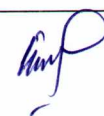
249.	ECI840	Special Topics in Signal Processing	3(3, 0)
250.	ECI860	Advanced Topics in Control Systems	3(3, 0)
251.	ECI624	Microprocessor/Microcontroller Based Systems	3(3, 0)
252.	ECI640	Advanced Digital Signal Processing	3(3, 0)
253.	ECI660	Linear Control Systems	3(3, 0)
254.	ECI661	Digital Control Systems	3(3, 0)
255.	ECI662	Optimization Control Theory	3(3, 0)
256.	ECI664	Industrial Automation and Control	3(3, 0)
257.	ECI665	Linear Systems Theory	3(3, 0)
258.	ECI814	Advanced Microprocessor/Microcontroller Systems	3(3, 0)
259.	ECI820	Advanced Topics in Embedded System Design	3(3, 0)
260.	ECI822	Advanced Topics in Real-Time Embedded System Design	3(3, 0)
261.	ECI840	Special Topics in Signal Processing	3(3, 0)
262.	ECI860	Advanced Topics in Control Systems	3(3, 0)
263.	UAC610	Elements of Acoustics and Vibration	3(3, 0)
264.	UAC611	Underwater Acoustics: Principles and Applications	3(3, 0)
265.	UAC612	Marine Acoustics	3(3, 0)
266.	UAC613	Underwater Target Localization and Tracking	3(3, 0)
267.	UAC614	Acoustic Transducers	3(3, 0)
268.	UAC710	Underwater Acoustic Signal Processing	3(3, 0)
269.	UAC711	Underwater Acoustic Signal and Noise Modeling	3(3, 0)
270.	UAC712	Modern Sonar Technology	3(3, 0)
271.	UAC713	Acoustical Measurements	3(3, 0)
272.	UAC810	Advanced Topics in Underwater Acoustic Networks	3(3, 0)
273.	UAC811	Advanced Topics in Sonar Technology	3(3, 0)
274.	UAC812	Advanced Topics in Underwater Acoustic Signal Processing	3(3, 0)
275.	EEE610	Engineering Mathematics	3(3, 0)
276.	EEE612	Discrete Mathematics	3(3, 0)

277.	EEE613	Graph Theory	3(3, 0)
278.	EEE615	Probabilistic Learning: Theory and Algorithms	3(3, 0)
279.	EEE616	Optimization Theory	3(3, 0)
280.	EEE621	Modeling and Simulation	3(3, 0)
281.	EEE630	Professional Development	3(3, 0)
282.	EEE631	Professional and Technical Communication	3(3, 0)
283.	EEE632	Research Methods	3(3, 0)
284.	EEE640	Innovation and Technology Development	3(3, 0)
285.	EEE641	Sociological Impact of Technology	3(3, 0)
286.	EEE642	Science, Politics and Ethics	3(3, 0)
287.	EEE650	Project Management	3(3, 0)
288.	EEE651	Engineering Project Management	3(3, 0)
289.	EEE690	Industrial Project-I	3(0, 3)
290.	EEE691	Independent Studies-I	3(0, 3)
291.	EEE692	Directed Study-I	3(0, 3)
292.	EEE710	Advanced Engineering Mathematics	3(3, 0)
293.	EEE711	Advanced Stochastic Processes	3(3, 0)
294.	EEE712	Optimization Techniques	3(3, 0)
295.	EEE714	Advanced Numerical Analysis	3(3, 0)
296.	EEE715	Numerical Linear Algebra	3(3, 0)
297.	EEE720	Modern Data Analysis Methods	3(3, 0)
298.	EEE721	Formal Specification and Modeling	3(3, 0)
299.	EEE722	Computational Biology	3(3, 0)
300.	EEE723	Biologically Inspired Computing	3(3, 0)
301.	EEE730	Advanced Professional Development	3(3, 0)
302.	EEE740	Advanced Electrochemistry	3(3, 0)
303.	EEE741	Advanced Thermal Chemistry	3(3, 0)
304.	EEE750	Power Sector Deregulation	3(3, 0)



305.	EEE751	Project Feasibility Study	3(3, 0)
306.	EEE790	Industrial Project-II	3(0, 3)
307.	EEE791	Independent Studies-II	3(0, 3)
308.	EEE792	Directed Study-II	3(0, 3)
309.	ETN785	Wireless Medium Access Techniques	3(3, 0)
310.	ETN786	Wireless Wide Area Networks (WWANs)	3(3, 0)
311.	ETN787	Wireless Metropolitan Area Networks (WMANs)	3(3, 0)
312.	ETN788	Wireless Personal and Body Area Networks (WPANs/WBANs)	3(3, 0)
313.	ETN775	IP Telephony	3(3, 0)
314.	ETN776	Design and Analysis of Computer Communication Networks	3(3, 0)
315.	ETN777	Multimedia Networking	3(3, 0)
316.	ETN781	Emerging Wireless Networks	3(3, 0)
317.	ETN782	QoS Architectures for Multimedia Wireless Networks	3(3, 0)
318.	ETN783	Mobile Devices Applications Development	3(3, 0)
319.	ETN889	Selected Topics in Internet of Things (IoT)	3(3, 0)
320.	ETN679	Interconnection Networks	3(3, 0)
321.	ETN660	Digital Telephony	3(3, 0)
322.	ETN683	Wireless LANs	3(3, 0)
323.	ETN684	Mobile Applications and Services	3(3, 0)
324.	ETN710	Electromagnetic Interference and Compatibility	3(3, 0)
325.	ETN711	Numerical and Computational Techniques in Electromagnetics	3(3, 0)
326.	ETN731	Modern Radar Systems	3(3, 0)
327.	ETN760	Teletraffic Engineering	3(3, 0)
328.	ETN762	Broadband Access Networks	3(3, 0)
329.	ETN763	Telecommunication Software Design	3(3, 0)
330.	ETN779	High-Speed Switched Local Area Networks (LANs)	3(3, 0)
331.	ETN871	Traffic Engineering and QoS in TCP/IP Networks	3(3, 0)

332.	ETN872	Special Topics in Computer Networks	3(3, 0)
333.	ETN883	Selected Topics in Wireless Networks Design and Planning	3(3, 0)
334.	ETN884	Advanced Mobile Applications	3(3, 0)
335.	ETN875	Advanced Internetworking (TCP/IP) Protocols	3(3, 0)
336.	ETN880	Advanced Multi-user Systems for Wireless Communications	3(3, 0)
337.	ETN850	Advanced Topics in Telecommunication Electronics	3(3, 0)
338.	ETN845	Advanced Error Control Coding	3(3, 0)
339.	ETN840	Special Topics in Communication Systems	3(3, 0)
340.	ETN844	Advanced Topics in Information Theory and Coding	3(3, 0)
341.	ETN843	Advanced Topics in Wireless Communications	3(3, 0)
342.	ETN677	Internet Applications and Services	3(3, 0)
343.	ETN882	Selected Topics in Wireless Network Security	3(3, 0)
344.	ETN744	Advanced Wireless Communications	3(3, 0)
345.	ETN674	Network Management and Operational Network Security	3(3, 0)
346.	ETN622	RF Propagation and Planning for Wireless Communications	3(3, 0)
347.	ETN615	RF Filter Design	3(3, 0)
348.	ETN616	Radio Engineering	3(3, 0)
349.	ETN632	GPS and Navigation Systems	3(3, 0)
350.	ECI630	Mobile Devices Programming	3(3, 0)
351.	ECI631	Web Technologies	3(3, 0)
352.	ECI632	Advanced Programming Techniques	3(3, 0)
353.	ECI633	Software Development Methodologies	3(3, 0)
354.	ECI634	Distributed Databases	3(3, 0)
355.	ECI635	Object Oriented Databases	3(3, 0)
356.	ECI636	Web Based Databases	3(3, 0)
357.	ECI651	Multimedia Indexing and Retrieval	3(3, 0)
358.	ECI652	Multimedia Technologies	3(3, 0)
359.	ECI730	Protocol Software Design and Development	3(3, 0)



360.	ECI733	Requirements Engineering	3(3, 0)
361.	ECI735	Software Quality Assurance	3(3, 0)
362.	ECI736	Software Engineering Technologies	3(3, 0)
363.	ECI750	Multimedia Data Compression	3(3, 0)
364.	ECI871	Advanced Topics in Pattern Recognition	3(3, 0)
365.	ECI872	Advanced Topics in Knowledge Based Systems	3(3, 0)
366.	ECI873	Advanced Topics in Decision Support Systems	3(3, 0)
367.	EEP634	Laser and Modern Optics	3(3, 0)
368.	EEP640	Lasers and Optical Communication	3(3, 0)
369.	EEP741	Optical Fiber Communication Systems	3(3, 0)
370.	EEP842	Advanced Topics in Optical Networks	3(3, 0)
371.	EEP843	Advanced Topics in Optical Communications	3(3, 0)
372.	BME610	Anatomy and Physiology	3(3, 0)
373.	BME620	Nuclear Physics, Radiation and Safety	3(3, 0)
374.	BME630	Physiological Monitoring and Data Analysis	3(3, 0)
375.	BME731	Advanced Medical Imaging	3(3, 0)
376.	BME740	Bio-Materials	3(3, 0)
377.	BME750	Health Economics	3(3, 0)
378.	BME760	Bio-Mechanics in Medicine	3(3, 0)
379.	BME721	Radiotherapy and Radiobiology	3(3, 0)
380.	BME722	Nuclear Medicine	3(3, 0)
381.	BME770	Computational Neuroscience	3(3, 0)
382.	BME780	Special Topics in Bio-Medical Engineering	3(3, 0)
383.	BME840	Special Topics in Medical Imaging	3(3, 0)
384.	BME841	Special Topics in Bio-Medical Data Processing	3(3, 0)
385.	BME650	Bio-Medical Instrumentation	3(3, 0)

PhD Thesis:

Sr. #	Course Code	Course Title	Credit Hours
1.	EEE900	PhD Dissertation	9(0, 9)