Programme Code: **EEA**

Master of Technology in *Control and Automation*

Department of Electrical Engineering

The overall credits structure

Category	PC	PE	OE	Total
Credits	24	18	6	48

Program Core

ELD801	Major Project Part-I	0	0	12	6
ELL700	Linear Systems Theory	3	0	0	3
ELL701	Mathematical Methods in Control	3	0	0	3
ELL702	Nonlinear Systems	3	0	0	3
ELL703	Optimal Control Theory	3	0	0	3
ELL705	Stochastic Filtering and Identification	3	0	0	3
ELP800	Control Systems Laboratory	0	0	2	1
ELP801	Advanced Control Laboratory	0	0	4	2
	Total Credits				***24***

Program Electives

ELD800	Minor Project (EEA)	0	0	6	3
ELD802	Major Project Part-II	0	0	24	12
ELL704	Advanced Robotics	3	0	0	3
MTL704	Numerical Optimization	3	0	0	3
ELL707	Systems Biology	3	0	0	3
ELL708	Selected Topics in Systems and Control	3	0	0	3
ELL709	Design Aspects in Control	3	0	0	3
DSL711	Sensors & Tranducers	3	0	0	3
ELL714	Basic Information Theory	3	0	0	3
ELL720	Advanced Digital Signal Processing	3	0	0	3
MTL731	Introduction to Chaotic Dynamical System	3	0	0	3
ELL762	Intelligent Motor Controllers	3	0	0	3
ELL765	Smart Grid Technology	3	0	0	3
ELL767	Mechatronics	3	0	0	3
ELL775	Power System Dynamics	3	0	0	3
ELL778	Dynamic Modelling And Control of Sustainable Energy Systems	3	0	0	3
MCL783	Automation Manufacturing	2	0	2	4
ELL784	Introduction to Machine Learning	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL789	Intelligent Systems	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL793	Computer Vision	3	0	0	3
ELL795	Swarm Intelligence	3	0	0	3
ELL796	Signals and Systems in Biology	3	0	0	3
ELL800	Numerical Linear Algebra and Optimization in Engineering	3	0	0	3
ELL801	Nonlinear Control	3	0	0	3
ELL802	Adaptive and Learning Control	3	0	0	3
ELL803	Model Reduction in Control	3	0	0	3
ELL804	Robust Control	3	0	0	3
ELL805	Networked and Multi-Agent Control Systems	3	0	0	3
ELL806	Modeling and Control of Distributed Parameter Systems	3	0	0	3
ELL807	Stochastic Control	3	0	0	3
ELL808	Advanced Topics in Systems and Control	3	0	0	3
MCL845	Advanced Robotics	2	0	2	3
ELL850	Digital Control of Power Electronics and Drive Systems	3	0	0	3
ELL883	Embedded Intelligence	3	0	0	3
ELL888	Advanced Machine Learning	3	0	0	3
ELL890	Computational Neuroscience	3	0	0	3
ELL893	Cyber-Physical Systems	3	0	0	3
ELV700	Special Module in Systems and Control	1	0	0	1

Sem.	Courses (Number, Abbreviated Title, L-T-P, Credits)					Lecture courses	Contact h/week				Credits
							L	T	P	Total	
I	ELL700 Linear Systems Theory (3-0-0)	ELL701 Mathematical Methods in Control (3-0-0)	ELL702 Nonlinear Systems (3-0-0)	ELP800 Control Systems Lab (0-0-2)	OE (3-0-0)	4	12	0	2	14	13
II	ELL703 Optimal Control Theory (3-0-0)	ELL705 Stochastic Filtering and Identification (3-0-0)	ELP801 Advanced Control Lab (0-0-4)	PE (3-0-0)		3	9	0	4	13	11
Summer											
III (Project based) OR	ELD801 Major Project Part-I (0-0-12)		PE (3-0-0)	OE (3-0-0)		2	6	0	12	18	12
III (Course based)	PE (3-0-0)	PE (3-0-0)	PE (3-0-0)	OE (3-0-0)		4	12	0	0	12	12
IV (Project based) OR	ELD802 Major Project Part-II (0-0-24)					0	0	0	24	24	12
IV (Course based)	ELD801 Major Project Part-I (0-0-12)		PE (3-0-0)	PE (3-0-0)		2	6	0	12	18	12

Total = 48

Master of Technology in Communication Engineering

Department of Electrical Engineering

The overall credits structure

Category	PC	PE	OE	Total
Credits	24	18	6	48

Program Core

ELD811	Major Project Part-I (Communication Engineering)	0	0	12	6
ELL711	Signal Theory	3	0	0	3
ELL712	Digital Communications	3	0	0	3
ELL713	Microwave Theory and Techniques	3	0	0	3
ELL719	Detection and Estimation Theory	3	0	0	3
ELP719	Microwave Laboratory	0	1	4	3
ELP725	Wireless Communication Laboratory	0	1	4	3
	Total Credits				***24***

Streamed Electives (EEE) in (Communication Systems)

ELD810	Minor Project (Communication Engineering)	0	0	6	3
ELD812	Major Project Part-II	0	0	24	12
ELL701	Mathematical Methods in Control	3	0	0	3
ELL710	Coding Theory	3	0	0	3
ELL714	Basic Information Theory	3	0	0	3
ELL716	Telecommunication Switching and Transmission	3	0	0	3
ELL717	Optical Communication Systems	3	0	0	3
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL722	Antenna Theory and Techniques	3	0	0	3
ELL723	Broadband Communication Systems	3	0	0	3
ELL724	Computational Electromagnetics	3	0	0	3
ELL725	Wireless Communications	3	0	0	3
ELL730	I.C. Technology	3	0	0	3
ELL732	Micro and Nanoelectronics	3	0	0	3
ELL734	MOS VLSI design	3	0	0	3
ELL735	Analog Integrated Circuits	3	0	0	3
ELL785	Computer Communication Networks	3	0	0	3
ELL810	Cyber Security and Information Assurance	3	0	0	3
ELL812	Microwave Propagation and Systems	3	0	0	3
ELL813	Advanced Information Theory	3	0	0	3
ELL814	Wireless Optical Communications	3	0	0	3
ELL815	MIMO Wireless Communications	3	0	0	3
ELL816	Satellite Communication	3	0	0	3
ELL818	Telecommunication Technologies	3	0	0	3
ELL821	Selected Topics in Communication Systems and Networking-I	3	0	0	3
ELL822	Selected Topics in Communication Systems and Networking-II	3	0	0	3
ELL833	CMOS RF IC Design	3	0	0	3
ELL894	Network Performance Modeling and Analysis	3	0	0	3
ELP718	Telecommunication Software Laboratory	0	1	4	3
ELP721	Embedded Telecommunication Systems Laboratory	0	1	4	3
ELV710	Special Module in Cyber Security	1	0	0	1
ELV720	Special Module in Communication Systems and Networking-I	1	0	0	1
ELV821	Special Module in Communication Systems and Networking-II	1	0	0	1
CRL708	Sonar Systems Engineering	3	0	0	3
CRL709	Underwater Electronic Systems	3	0	0	3
CRL712	RF and Microwave Active Circuits	3	0	0	3
CRL715	Radiating Systems for RF Communication	3	0	0	3

Streamed Electives (EEE) in (Information Processing)

ELD810	Minor Project (Communication Engineering)	0	0	6	3
ELD812	Major Project Part-II	0	0	24	12
ELL701	Mathematical Methods in Control	3	0	0	3
ELL714	Basic Information Theory	3	0	0	3
ELL715	Digital Image Processing	3	0	2	4
ELL718	Statistical Signal Processing	3	0	0	3
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL784	Introduction to Machine Learning	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3
ELL792	Computer Graphics	3	0	0	3
ELL793	Computer Vision	3	0	0	3
ELL794	Human-Computer Interface	3	0	0	3
ELL823	Selected Topics in Information Processing-I	3	0	0	3
ELL824	Selected Topics in Information Processing-II	3	0	0	3
ELV781	Special Modules in Information Processing-I	1	0	0	1
ELV823	Special Modules in Information Processing-II	1	0	0	1
CRL704	Sensor Array Signal Processing	3	0	0	3
CRL707	Human & Machine Speech Communication	3	0	0	3

Sem.	Courses (Number, Abbreviated Title, L-T-P, credits)					Lecture courses	Contact h/week				Credits
							L	T	P	Total	
I	ELL 711 Signal theory (3-0-0)	ELL712 Digital Comm. (3-0-0)	ELL 713 Microwave Theory and Techniques (3-0-0)	ELP 719 Microwave Lab. (0-1-4)		3	9	1	4	14	12
II	ELL719 Detection and Estimation Theory (3-0-0)	ELP725 Wireless Comm. Lab. (0-1-4)	PE-1 (3-0-0)	PE-2 (3-0-0)		3	9	1	4	14	12
Summer											
III	ELD811 Major Project Part-I (0-0-12) 6		OE-1 (3-0-0)	OE-2 (3-0-0)		2	6	0	12	18	12
IV (Project based) OR	ELD812 Major Project Part-II (0-0-24) 12					0	0	0	24	24	12
IV (Course based)	PE-3 (3-0-0)	PE-4 (3-0-0)	PE-5 (3-0-0)	PE-6 (3-0-0)		4	12	0	0	12	12

Total = 48

Programme Code: **EEN**

Master of Technology in Integrated Electronics and Circuits

Department of Electrical Engineering

The overall credits structure

Category	PC	PE	OC	Total
Credits	24	18	6	48

Program Core

ELD831	Major Project Part-I (Integrated Electronic Circuits)	0	0	12	6
ELL730	I.C. Technology	3	0	0	3
ELL732	Micro and Nanoelectronics	3	0	0	3
ELL734	MOS VLSI design	3	0	0	3
ELL735	Analog Integrated Circuits	3	0	0	3
ELP831	IEC Laboratory-I	0	0	6	3
ELP832	IEC Laboratory-II	0	0	6	3
	Total Credits				***24***

Streamed Electives (EEN) in (VLSI Design)

COL719	Synthesis of Digital Systems	3	0	2	4
ELD830	Minor Project	0	0	6	3
ELD832	Major Project Part-II	0	0	24	12
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL731	Mixed Signal Circuit Design	3	0	0	3
ELL733	Digital ASIC Design	3	0	2	4
ELL736	Solid State Imaging Sensors	3	0	0	3
ELL737	Flexible Electronics	3	0	0	3
ELL740	Compact Modeling of Semiconductor Devices	3	0	0	3
ELL741	Neuromorphic Engineering	3	0	0	3
ELL747	Active and Passive Filter Design	3	0	0	3
ELL748	System-on-Chip Design and Test	3	0	0	3
ELL749	Semiconductor Memory Design	3	0	0	3
ELL782	Computer Architecture	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL830	Issues in Deep Submicron VLSI Design	3	0	0	3
ELL831	CAD for VLSI, MEMS, and Nanoassembly	3	0	0	3
ELL832	Selected Topics in IEC-I	3	0	0	3
ELL833	CMOS RF IC Design	3	0	0	3
ELL834	Selected Topics in IEC-II	3	0	0	3
ELP830	Semiconductor Processing Laboratory	0	0	6	3
ELV734	Special Module in Scientific Writing for Research	1	0	0	1
ELV830	Special Module in Low Power IC Design	1	0	0	1
ELV831	Special Module in VLSI Testing	1	0	0	1
ELV832	Special Module in Machine Learning	1	0	0	1

Streamed Electives (EEN) in (Nanoelectronics and Photonics)

ELD830	Minor Project	0	0	6	3
ELD832	Major Project Part-II	0	0	24	12
ELL737	Flexible Electronics	3	0	0	3
ELL738	Micro and Nano Photonics	3	0	0	3
ELL739	Advanced Semiconductor Devices	3	0	0	3
ELL740	Compact Modeling of Semiconductor Devices	3	0	0	3
ELL741	Neuromorphic Engineering	3	0	0	3
ELL742	Introduction to MEMS Design	3	0	0	3
ELL743	Photovoltaics	3	0	0	3
ELL744	Electronic and Photonic Nanomaterials	3	0	0	3
ELL745	Quantum Electronics	3	0	0	3
ELL746	Biomedical Electronics	3	0	0	3
ELL749	Semiconductor Memory Design	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL830	Issues in Deep Submicron VLSI Design	3	0	0	3
ELL832	Selected Topics in IEC-I	3	0	0	3
ELL834	Selected Topics in IEC-II	3	0	0	3
ELP830	Semiconductor Processing Laboratory	0	0	6	3
ELP833	Device and Materials Characterization Lab.	0	0	6	3
ELV734	Special Module in Scientific Writing for Research	1	0	0	1
ELV833	Special Module in Semiconductor Business Management	1	0	0	1
ELV834	Special Module in Nanoelectronics	1	0	0	1

Streamed Electives (EEN) in (Embedded Intelligent Systems)

COL719	Synthesis of Digital Systems	3	0	2	4
COL788	Advanced Topics in Embedded Computing	3	0	0	3
ELD830	Minor Project	0	0	6	3
ELD832	Major Project Part-II	0	0	24	12
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL731	Mixed Signal Circuit Design	3	0	0	3
ELL733	Digital ASIC Design	3	0	2	4
ELL736	Solid State Imaging Sensors	3	0	0	3
ELL748	System-on-Chip Design and Test	3	0	0	3
ELL782	Computer Architecture	3	0	0	3
ELL784	Introduction to Machine Learning	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL789	Intelligent Systems	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL830	Issues in Deep Submicron VLSI Design	3	0	0	3
ELL831	CAD for VLSI, MEMS, and Nanoassembly	3	0	0	3
ELL832	Selected Topics in IEC-I	3	0	0	3
ELL834	Selected Topics in IEC-II	3	0	0	3
ELL883	Embedded Intelligence	3	0	0	3
ELV734	Special Module in Scientific Writing for Research	1	0	0	1
ELV831	Special Module in VLSI Testing	1	0	0	1
ELV832	Special Module in Machine Learning	1	0	0	1

Sem.	Courses (Number, Abbreviated Title, L-T-P, Credits)					Lecture courses	Contact h/week				Credits
							L	T	P	Total	
I	ELL732 Micro and Nanoelectronics (3-0-0)	ELL735 Analog Integrated Circuits (3-0-0)	ELL734 MOS VLSI Design (3-0-0)	ELP831 IEC Lab-I (0-0-6)		3	9	0	6	15	12
II	PE (3-0-0)	ELP832 IEC Lab-II (0-0-6)	ELL730 I.C. Technology (3-0-0)	PE/OE (3-0-0)		3	9	0	6	15	12
Summer											
III	ELD831 Major Project Part-I (0-0-12)		PE/OE (3-0-0)	PE/OE (3-0-0)		2	6	0	12	18	12
IV (Project based) OR	ELD832 Major Project Part-II (0-0-24)					0	0	0	24	24	12
IV (Course based)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)		4	12	0	0	12	12

Total = 48

Programme Code: **EEP**

Master of Technology in Power Electronics, Electrical Machines and Drives

Department of Electrical Engineering

The overall credits structure

Category	PC	PE	OC	Total
Credits	24	18	6	48

Program Core

ELD851	Major Project Part-I	0	0	12	6
ELL750	Modelling of Electrical Machines	3	0	0	3
ELL751	Power Electronic Converters	3	0	0	3
ELL752	Electric Drive System	3	0	0	3
ELL850	Digital Control of Power Electronics and Drive Systems	3	0	0	3
ELP850	Electrical Machines Laboratory	0	0	3	1.5
ELP851	Power Electronics Laboratory	0	0	3	1.5
ELP852	Electrical Drives Laboratory	0	0	3	1.5
ELP853	DSP Based Control of Power Electronics and Drives Laboratory	0	0	3	1.5
	Total Credits				***24***

Program Electives

ELD850	Minor Project	0	0	6	3
ELD852	Major Project Part-II	0	0	24	12
ELL700	Linear Systems Theory	3	0	0	3
ELL703	Optimal Control Theory	3	0	0	3
ELL704	Advanced Robotics	3	0	0	3
ELL706	Digital Control	3	0	0	3
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL753	Physical Phenomena in Electrical Machines	3	0	0	3
ELL754	Permanent Magnet Machines	3	0	0	3
ELL755	Variable Reluctance Machines	3	0	0	3
ELL756	Special Electrical Machines	3	0	0	3
ELL757	Energy Efficient Motors	3	0	0	3
ELL758	Power Quality	3	0	0	3
ELL759	Power Electronic Converters for Renewable Energy Systems	3	0	0	3
ELL760	Switched Mode Power Conversion	3	0	0	3
ELL761	Power Electronics for Utility Interface	3	0	0	3
ELL762	Intelligent Motor Controllers	3	0	0	3
ELL763	Advanced Electric Drives	3	0	0	3
ELL764	Electric Vehicles	3	0	0	3
ELL765	Smart Grid Technology	3	0	0	3
ELL766	Appliance Systems	3	0	0	3
ELL767	Mechatronics	3	0	0	3
ELL768	Computer Aided Design of Power Electronic Systems	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL851	Computer Aided Design of Electrical Machines	3	0	0	3
ELL852	Condition Monitoring of Electrical Machines	3	0	0	3
ELL853	Advanced Topics in Electrical Machines	3	0	0	3
ELL854	Selected Topics in Electrical Machines	3	0	0	3
ELL855	High Power Converters	3	0	0	3
ELL856	Advanced Topics in Power Electronics	3	0	0	3
ELL857	Selected Topics in Power Electronics	3	0	0	3
ELL858	Advanced Topics in Electric Drives	3	0	0	3
ELL859	Selected Topics in Electric Drives	3	0	0	3
ELP854	Electrical Machines CAD Laboratory	0	1	4	3
ELP855	Smart Grids Laboratory	0	1	4	3
ELT850	Industrial Training and Seminar	0	0	6	3

Sem.	Courses (Number, Abbreviated Title, L-T-P, Credits)					Lecture courses	Contact h/week				Credits
							L	T	P	Total	
I	ELL750 Modelling of Electrical Machines (3-0-0)	ELL751 Power Electronic Converters (3-0-0)	ELP850 Electrical Machines Laboratory (0-0-3)	ELP851 Power Electronics Laboratory (0-0-3)	PE/OE (3-0-0)*	3	9	0	6	15	12
II	ELL752 Electric Drive System (3-0-0)	ELL850 Digital Control of Power Electronics and Drive Systems (3-0-0)	ELP852 Electrical Drives Laboratory (0-0-3)	ELP853 DSP Based Control of Power Electronics and Drives Laboratory (0-0-3)	PE/OE (3-0-0)*	3	9	0	6	15	12
Project Based											
III	ELD851 Major Project Part-I (0-0-12)	PE/OE (3-0-0)*	PE/OE (3-0-0)*			2	6	0	12	18	12
IV	ELD852 Major Project Part-II (0-0-24)					0	0	0	24	24	12
(OR) Course Based											
III	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)		4	12	0	0	12	12
IV	ELD851 Major Project Part-I (0-0-12)	PE/OE (3-0-0)	PE/OE (3-0-0)			2	6	0	12	18	12

Total = 48

Programme Code: **EES**

Master of Technology in Power Systems

Department of Electrical Engineering

The overall credits structure

Category	PC	PE	OC	Total
Credits	24	18	6	48

Program Core

ELD871	Major Project Part-I	0	0	12	6
ELL770	Power System Analysis	3	0	0	3
ELL771	Advanced Power System Protection	3	0	0	3
ELL775	Power System Dynamics	3	0	0	3
ELL776	Advanced Power System Optimization	3	0	0	3
ELP870	Power System Lab-I	0	1	4	3
ELP871	Power System Lab-II	0	1	4	3
	Total Credits				***24***

Program Electives

ELD870	Minor Project-I	0	0	6	3
ELD872	Major Project Part-II	0	0	24	12
ELL700	Linear Systems Theory	3	0	0	3
ELL712	Digital Communications	3	0	0	3
ELL758	Power Quality	3	0	0	3
ELL759	Power Electronic Converters for Renewable Energy Systems	3	0	0	3
ELL772	Planning and Operation of a Smart Grid	3	0	0	3
ELL773	High Voltage DC Transmission	3	0	0	3
ELL774	Flexible AC Transmission System	3	0	0	3
ELL777	Power System operation and control	3	0	0	3
ELL778	Dynamic Modelling And Control of Sustainable Energy Systems	3	0	0	3
ELL779	Forecasting Techniques for Power System	3	0	0	3
ELL870	Restructured Power System	3	0	0	3
ELL871	Distribution System Operation and Planning	3	0	0	3
ELL872	Selected Topics in Power System	3	0	0	3
ELL873	Power System Transient	3	0	0	3
ELL874	Power System Reliability	3	0	0	3

Sem.	Courses (number, Abbreviated Title, L-T-P, Credits)					Lecture courses	Contact h/week				Credits
							L	T	P	Total	
I	ELL 770 Power System Analysis (3-0-0)	ELL771 Advanced Power System Protection (3-0-0)	ELL775 Power System Dynamics (3-0-0)	ELP870 Power System Lab-I (0-1-4)		3	9	1	4	14	12
II	ELL776 Advanced Power System Optimization (3-0-0)	ELP871 Power System Lab-II (0-1-4)	PE/OE (3-0-0)	PE/OE (3-0-0)		3	9	1	4	14	12
Summer											
III	ELD871 Major Project Part-I (0-0-12)		PE/OE (3-0-0)	PE/OE (3-0-0)		2	6	0	12	18	12
IV (Project based) OR	ELD871 Major Project Part-II (0-0-24)					0	0	0	24	24	12
IV (Course based)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)	PE/OE (3-0-0)		4	12	0	0	12	12

Total = 48

Master of Technology in Computer Technology

Department of Electrical Engineering

The overall credits structure

Category	PC	PE	OC	Total
Credits	21	24/27	3/6	51

Program Core

ELD780	Minor Project	0	0	4	2
ELD880	Major Project Part-I	0	0	12	6
ELL780	Mathematical Foundations of Computer Technology	3	0	0	3
ELL781	Software Fundamentals for Computer Technology	3	0	0	3
ELL782	Computer Architecture	3	0	0	3
ELL783	Operating Systems	3	0	2	4
	Total Credits				***21***

Program Electives

ELD881	Major Project Part-II	0	0	24	12
ELL880	Special Topics in Computers-I	3	0	0	3
ELL881	Special Topics in Computers-II	3	0	0	3
ELV752	Special Modules in EET – I	1	0	0	1
ELV780	Special Module in Computers	1	0	0	1

Streamed Electives (EET) in (Cognitive and Intelligent Systems)

Required Electives

ELL784	Introduction to Machine Learning	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3

Other Electives

ELL704	Advanced Robotics	3	0	0	3
ELL707	Systems Biology	3	0	0	3
ELL715	Digital Image Processing	3	0	2	4
ELL741	Neuromorphic Engineering	3	0	0	3
ELL785	Computer Communication Networks	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL788	Computational Perception and Cognition	3	0	0	3
ELL789	Intelligent Systems	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL793	Computer Vision	3	0	0	3
ELL794	Human-Computer Interface	3	0	0	3
ELL795	Swarm Intelligence	3	0	0	3
ELL796	Signals and Systems in Biology	3	0	0	3
ELL798	Agent Technologies	3	0	0	3
ELL799	Natural Computing	3	0	0	3
ELL882	Large-Scale Machine Learning	3	0	0	3
ELL883	Embedded Intelligence	3	0	0	3
ELL884	Information Retrieval	3	0	0	3
ELL885	Machine Learning for Computational Finance	3	0	0	3
ELL886	Big Data Systems	3	0	0	3
ELL887	Cloud Computing	3	0	0	3
ELL888	Advanced Machine Learning	3	0	0	3
ELL890	Computational Neuroscience	3	0	0	3
ELL891	Computational Linguistics	3	0	0	3
ELL893	Cyber-Physical Systems	3	0	0	3

Streamed Electives (EET) in (Embedded Intelligent Systems)

Required Electives

ELL784	Introduction to Machine Learning	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3

Other Electives

COL719	Synthesis of Digital Systems	3	0	2	4
COL812	System Level Design and Modelling	3	0	0	3
ELL704	Advanced Robotics	3	0	0	3
ELL710	Coding Theory	3	0	0	3
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL728	Optoelectronic Instrumentation	3	0	0	3
ELL731	Mixed Signal Circuit Design	3	0	0	3
ELL733	Digital ASIC Design	3	0	2	4
ELL734	MOS VLSI design	3	0	0	3
ELL735	Analog Integrated Circuits	3	0	0	3
ELL748	System-on-Chip Design and Test	3	0	0	3
ELL766	Appliance Systems	3	0	0	3
ELL767	Mechatronics	3	0	0	3
ELL785	Computer Communication Networks	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3
ELL790	Digital Hardware Design	3	0	0	3
ELL791	Neural Systems and Learning Machines	3	0	2	4
ELL797	Energy-Efficient Computing	3	0	0	3
ELL802	Adaptive and Learning Control	3	0	0	3
ELL883	Embedded Intelligence	3	0	0	3
ELL887	Cloud Computing	3	0	0	3
ELL898	Pervasive Computing	3	0	0	3
ELL899	Testing and Fault Tolerance	3	0	0	3
ELP780	Software Lab	0	1	4	3
ELP781	Digital Systems Lab	0	1	4	3
ELP831	IEC Laboratory-I	0	0	6	3

Streamed Electives (EET) in (Computer Communication and Networks)

Required Electives

ELL785	Computer Communication Networks	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3

Other Electives

ELL710	Coding Theory	3	0	0	3
ELL711	Signal Theory	3	0	0	3
ELL712	Digital Communications	3	0	0	3
ELL714	Basic Information Theory	3	0	0	3
ELL716	Telecommunication Switching and Transmission	3	0	0	3
ELL717	Optical Communication Systems	3	0	0	3
ELL723	Broadband Communication Systems	3	0	0	3
ELL725	Wireless Communications	3	0	0	3
ELL784	Introduction to Machine Learning	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL797	Energy-Efficient Computing	3	0	0	3
ELL813	Advanced Information Theory	3	0	0	3
ELL816	Satellite Communication	3	0	0	3
ELL817	Access Networks	3	0	0	3
ELL818	Telecommunication Technologies	3	0	0	3
ELL820	Photonic Switching and Networking	3	0	0	3
ELL887	Cloud Computing	3	0	0	3
ELL889	Protocol Engineering	3	0	0	3
ELL892	Internet Technologies	3	0	0	3
ELL894	Network Performance Modeling and Analysis	3	0	0	3
ELL895	Network Security	3	0	0	3
ELL896	Mobile Computing	3	0	0	3
ELL897	Network Management	3	0	0	3
ELL898	Pervasive Computing	3	0	0	3
ELP720	Telecommunication Networks Laboratory	0	1	4	3
ELP780	Software Lab	0	1	4	3
ELP781	Digital Systems Lab	0	1	4	3
ELP782	Computer Networks Lab	0	1	4	3
ELP821	Advanced Telecommunication Networks Laboratory	0	1	4	3
ELP822	Network Software Laboratory	0	1	4	3

Streamed Electives (EET) in (Multimedia Information Processing)

Required Electives

ELL786	Multimedia Systems	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3

Other Electives

ELL710	Coding Theory	3	0	0	3

ELL711	Signal Theory	3	0	0	3
ELL714	Basic Information Theory	3	0	0	3
ELL715	Digital Image Processing	3	0	2	4
ELL718	Statistical Signal Processing	3	0	0	3
ELL719	Detection and Estimation Theory	3	0	0	3
ELL720	Advanced Digital Signal Processing	3	0	0	3
ELL784	Introduction to Machine Learning	3	0	0	3
ELL785	Computer Communication Networks	3	0	0	3
ELL788	Computational Perception and Cognition	3	0	0	3
ELL792	Computer Graphics	3	0	0	3
ELL793	Computer Vision	3	0	0	3
ELL813	Advanced Information Theory	3	0	0	3
ELL882	Large-Scale Machine Learning	3	0	0	3
CRL707	Human & Machine Speech Communication	3	0	0	3

Streamed Electives (EET) in (Internet Technologies)

Required Electives

ELL784	Introduction to Machine Learning	3	0	0	3
ELL785	Computer Communication Networks	3	0	0	3

Other Electives

ELL723	Broadband Communication Systems	3	0	0	3
ELL765	Smart Grid Technology	3	0	0	3
ELL766	Appliance Systems	3	0	0	3
ELL772	Planning and Operation of a Smart Grid	3	0	0	3
ELL786	Multimedia Systems	3	0	0	3
ELL787	Embedded Systems and Applications	3	0	0	3
ELL797	Energy-Efficient Computing	3	0	0	3
ELL798	Agent Technologies	3	0	0	3
ELL884	Information Retrieval	3	0	0	3
ELL887	Cloud Computing	3	0	0	3
ELL892	Internet Technologies	3	0	0	3
ELL895	Network Security	3	0	0	3
ELL896	Mobile Computing	3	0	0	3
ELL898	Pervasive Computing	3	0	0	3
ELP721	Embedded Telecommunication Systems Laboratory	0	1	4	3
ELP780	Software Lab	0	1	4	3
ELP781	Digital Systems Lab	0	1	4	3
ELP782	Computer Networks Lab	0	1	4	3
ELP855	Smart Grids Laboratory	0	1	4	3

Sem.	Courses (Number, Abbreviated Title, L-T-P, Credits)					Lecture courses	Contact h/week				Credits
							L	T	P	Total	
I	ELL780 Mathematical Foundations of Computer Technology (3-0-0)	ELL781 Software Fundamentals for Computer Technology (3-0-0)	ELL782 Computer Architecture (3-0-0)	PE-1 (3-0-0)	PE-2 (3-0-0)	5	15	0	0	15	15
II	ELL783 Operating Systems (3-0-2)	ELD780 Minor Project (0-0-4)	PE-3 (3-0-0)	PE-4 (3-0-0)		4	9	0	6	15	12
Summer: [PC-6] ELD880 Major Project Part 1 (for M.Tech with Dissertation)											
III (M.Tech. with DIssertation) OR	ELD880 Major Project Part-I (0-0-12)	PE-5 (3-0-0)	OE-1 (3-0-0)			2	6	0	12	18	12
III (M.Tech. without Dissertation)	PE-5 (3-0-0)	PE-6 (3-0-0)	PE-7/OE-1 (3-0-0)	PE-8/OE-2 (3-0-0)		4	12	0	0	12	12
IV (M.Tech. with Dissertation) OR	ELD881 Major Project Part-II (0-0-24)					0	0	0	24	24	12
IV (M.Tech. without Dissertation)	ELD880 Major Project Part-I (0-0-12)	PE-7/OE-1 (3-0-0)	PE-8/OE-2 (3-0-0)			2	6	0	12	18	12

Total = 51