

ELECTRICAL AND COMPUTER ENGINEERING (ELC)

COURSE STRUCTURE (2024-25)

SEMESTER- III

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1	EX20003	Scientific and Technical Writing	2	0	0	2	2
2	MA21001	Probability and Statistics	3	1	0	4	4
3	EE20001	Network Theory	3	0	0	3	3
4	EE20010	Electrical Machines	3	0	0	3	3
5	ES20001	Data Structure and Algorithms	3	0	0	3	3
6	EE20007	Analog and Digital Electronics Circuit	3	0	0	3	3
Total credit (Theory Subjects)						18	18
Practical							
1	EE29002	Electrical Machines Laboratory	0	0	2	2	1
2	ES29001	Data Structure and Algorithms Lab	0	0	2	2	1
3	EE29005	Analog and Digital Circuit Design Laboratory	0	0	2	2	1
Total credit (Practical Subjects)						06	03
Sessional/Vocational							
1		Vocational Electives	0	0	2	2	1
Total credit (Vocational Subjects)						02	01
Total Practical & Sessional/Vocational						08	04
Total Credit (Semester)						26	22

SEMESTER- IV

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1		HASS Elective II	3	0	0	3	3
2	MA21006	Vectors, Differential Equations and Complex Analysis	3	1	0	4	4
3	EE20004	Linear Control System	3	0	0	3	3
4	ES20002	Computer Organization	3	0	0	3	3
5	ES20004	Introduction to Data Base Management System	3	0	0	3	3
6	EX20001	Industry 4.0 Technologies	2	0	0	2	2
Total credit (Theory Subjects)						18	18
Practical							
1	ES29002	Data Base Management System Lab	0	0	2	2	1
2	EE29004	Control System Laboratory	0	0	2	2	1
Total credit (Practical Subjects)						04	02
Sessional/Vocational							
1	EE28002	Electrical System Modeling Using MATLAB	0	0	2	2	1
Total credit (Vocational Subjects)						02	01
Total Practical & Sessional/Vocational						06	03
Total Credit (Semester)						24	21

SEMESTER- V

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1	HS30101	Engineering Economics	3	0	0	3	3
2		HASS Elective II	3	0	0	3	3
3	EE31003	Power Electronics and Drives	3	1	0	4	4
4	ES30001	Operating Systems Concept	3	0	0	3	3
5		Professional Elective-I	3	0	0	3	3
6	HS30401	Universal Human Values	3	0	0	3	3
Total credit (Theory Subjects)						19	19
Practical							
1	ES39001	Power Electronics and Drives Laboratory	0	0	2	2	1
Total credit (Practical Subjects)						02	01
Sessional/Vocational							
1	ES38001	Python Programming	0	0	2	2	1
2	ES38003	Sensor Modeling and Simulation	0	0	2	2	1
3	ES38005	Embedded System Design and Interfacing	0	0	2	2	1
4		K-Explore (Practice-oriented Open Elective I)	0	0	0	0	1
Total credit (Vocational Subjects)						06	04
Total Practical & Sessional/Vocational						08	05
Total Credit (Semester)						27	24

SEMESTER- VI

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1	ES30002	Signal Processing	3	0	0	3	3
2	ES30004	Data Communication and Computer Networks	3	0	0	3	3
3	EE31004	Power System Engineering	3	1	0	4	4
4		Professional Elective-II	3	0	0	3	3
5		Professional Elective-III	3	0	0	3	3
6		Open Elective II/(MI-1)	3	0	0	3	3
Total credit (Theory Subjects)						19	19
Practical							
1	ES39002	Power System Engineering Laboratory	0	0	2	2	1
2	ES39004	Data communication and computer networks Laboratory	0	0	2	2	1
Total credit (Practical Subjects)						04	02
Sessional/Vocational							
1	EE38002	IOT in Engineering	0	0	2	2	1
2	ES37002	Mini Project	0	0	4	4	2
Total credit (Vocational Subjects)						06	03
Total Practical & Sessional/Vocational						10	05
Total Credit (Semester)						29	24

SEMESTER- VII (For Honours Options Students)

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1		Professional Elective-IV	3	0	0	3	3
2		Open Elective II/(MI-2)	3	0	0	3	3
3	EX40003	Engineering Professional Practice	2	0	0	2	2
4		(MI-3)	3	0	0	3	3
5		(MI-4)	3	0	0	3	3
Total credit (Theory Subjects)						08	08
Sessional/Vocational							
1	ES48001	Internship	0	0	0	0	2
2	ES47001	Project-1	0	0	10	10	5
3		(Project/Lab-Minor)	0	0	4	4	2
Total credit (Practical Subjects)						10	07
Sessional/Vocational							
Total Practical & Sessional/Vocational						10	07
Total Credit (Semester)						18	15

SEMESTER- VIII (For Honours Options Students)

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1		Professional Elective-V	3	0	0	3	3
2		Open Elective IV	3	0	0	3	3
3		(MI-5)	3	0	0	3	3
		(MI-6)					
Total credit (Theory Subjects)						06	06
Sessional/Vocational							
1	ES47002	Project-II	0	0	18	18	9
Total credit (Vocational Subjects)						18	9
Total Practical & Sessional/Vocational						18	09
Total Credit (Semester)						24	15

SEMESTER- VII (For Research Options Students)

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1		Research Elective-I	3	0	0	3	3
2		(MI-2)	3	0	0	3	3
3	EX40003	Engineering Professional Practice	2	0	0	2	2
	EX40001	Research Methods and Ethics					
4		(MI-3)	3	0	0	3	3
5		(MI-4)	3	0	0	3	3
Total credit (Theory Subjects)						08	08
Sessional/Vocational							
1	ES48001	Internship	0	0	0	0	2
2	ES47003	Project-1	0	0	10	10	5
3		(Project/Lab-Minor)	0	0	4	4	2
Total credit (Practical Subjects)						10	07
Sessional/Vocational							
Total Practical & Sessional/Vocational						10	07
Total Credit (Semester)						18	15

SEMESTER- VIII (For Research Options Students)

Theory							
Sl. No	Course Code	Subject	L	T	P	Total	Credit
1		Professional Elective II	3	0	0	3	3
2		(MI-5)	3	0	0	3	3
3		(MI-6)	3	0	0	3	3
Total credit (Theory Subjects)						03	03
Sessional/Vocational							
1	ES47004	Research Project-II	0	0	24	24	12
Total credit (Vocational Subjects)						24	12
Total Practical & Sessional/Vocational						24	12
Total Credit (Semester)						27	15

Professional Electives:

PE-I

Sl. No	Code	Subject	Credit
1	EE30011	Electromagnetic Field Theory	3
2	EE30004	Microprocessors and Embedded System	3
3	EE30012	Sensors and Actuators	3
4	ES30011	Computational Intelligence Techniques	3
5	ES30013	Principles of Algorithm Analysis (DAA)	3
6	ES30015	Machine Learning	3

PE-II

Sl. No	Code	Subject	Credit
1	EE40042	Robotics and Control	3
2	EE30016	Renewable Energy Resource	3
3	EE30002	Principles of Communication Engineering	3
4	ES30012	Theory of Computation	3
5	ES30014	Web Technology	3
6	ES30016	Data Mining	3

PE-III

Sl. No	Code	Subject	Credit
1	EE30014	Power Generation and Control	3
2	EE30042	Energy Storage Technology	3
3	EE40009	Industrial Automation	3
4	ES30018	Cyber Security	3
5	ES30020	Compiler Design	3
6	ES30022	Deep Learning	3

PE-IV

Sl. No	Code	Subject	Credit
1	EE40053	Hybrid Electric Vehicles	3
2	EE30006	Power System Operation and Control	3
3	EE30020	Energy Audit and Accounting	3
4	ES40011	Principle of Software Engineering	3
5	ES40013	Cloud Computing	3
6	ES40015	High Performance Computing	3

PE-V

Sl. No	Code	Subject	Credit
1	EE40012	Smart Grid	3
2	EE30021	Semiconductor Fabrication Design and Technology	3
3	EE40054	Numerical Relay and Digital Protection	3
4	ES40012	Quantum Computing	3
5	ES40014	Artificial Intelligence	3
6	ES40016	Big Data	3

Research Elective-I

Sl. No	Code	Subject	Area
1	EE40019	Power Converter Analysis and Design	Data Science
	EE40021	Battery Management System	
2	EE40023	Power Quality	Power Engineering
	EE40025	State estimation and security	
3	EE40027	Renewable Energy resources assessment and forecasting	Renewable energy
	EE40029	Wind Turbine and Aerodynamics	

Research Elective-II

Sl. No	Code	Subject	Area
1	EE40020	Digital System Design using FPGA	Drives and Electric Vehicle
	EE40022	Vehicle Charging Technology	
2	EE40024	Distributed generation of Microgrid	Power system
	EE40026	Synchrophasors Application to Power System	
3	EE40028	Grid Integration and Control	Renewable energy
	EE40030	Energy Systems Modelling and Analysis	

HASS ELECTIVE

HASS Elective II

Sl. No	Code	Subject	Credit
1	HS 20220	Organizational Behaviour	3
2	HS20222	Human Resource Management	3
3	HS 20120	Economics of Development	3
4	HS 20122	International Economic Cooperation	3

HASS Elective III

Sl. No	Code	Subject	Credit
1	HS 30225	Business Ethics and Corporate Social Responsibility	3
2	HS 30227	Leadership and Team Effectiveness	3
3	HS 30125	Market Structure and Pricing Policies	3
4	HS 30127	Pragmatic Inquiry	3
5	HS 30129	Economic Analysis of Decision Rules	3
6	HS 30131	Economics of Health and Education	3
7	HS30421	Gender Studies	3
8	HS30423	Tribal Resource Management	3
9	HS30425	Indian Knowledge System	3

Vocational courses offered by School of Electrical Engineering

Sl. No.	Course Code	Subjects
1	EE28011	Industrial wiring and control panel design
2	EE28013	Installation, operation and maintenance of solar power system
3	EE28015	Domestic wiring and home automation
4	EE28017	Cyber physics application in industrial IOT
5	EE28019	Industrial Control and Remote Monitoring
6	EE28021	MATLAB Applications