

Bachelor of Technology in Electrical Engineering

Department of Electrical Engineering

The overall Credit Structure

Course Category	Credits
Institute Core Courses	
Basic Sciences (BS)	24
Engineering Arts and Science (EAS)	19
Humanities and Social Sciences (HuSS)	15
Programme-linked Courses	15
Departmental Courses	
Departmental Core	60
Departmental Electives	10
Open Category Courses	10
Total Graded Credit requirement	153
Non Graded Units	15

Institute Core: Basic Sciences

CML101	Introduction to Chemistry	3	1	0	4
CMP100	Chemistry Laboratory	0	0	4	2
MTL100	Calculus	3	1	0	4
MTL101	Linear Algebra and Differential Equations	3	1	0	4
PYL101	Electromagnetic Waves and Quantum Mechanics	3	1	0	4
PYP100	Physics Laboratory	0	0	4	2
SBL100	Introductory Biology for Engineers	3	0	2	4
Total Credits		24			

Institute Core: Engineering Arts and Sciences

APL100	Engineering Mechanics	3	1	0	4
COL100	Introduction to Computer Science	3	0	2	4
CVL100	Environmental Science	2	0	0	2
ELL101	Introduction to Electrical Engineering	3	1	2	5
MCP100	Introduction to Engineering Visualization	0	0	4	2
MCP101	Introduction to Product Realization through Manufacturing	0	0	4	2
Total Credits		19			

Programme-Linked Basic/Engineering Arts/Sciences Core

COL106	Data Structures and Algorithms	3	0	4	5
MTL106	Probability and Stochastic Processes	3	1	0	4
MCL142	Thermal Science for Electrical Engineers	3	0	0	3
PYL102	Principles of Electronic Materials	3	0	0	3
Total Credits		15			

Departmental Core

ELL201	Digital Electronics	3	0	3	4.5
ELL202	Circuit Theory	3	1	0	4
ELL203	Electromechanics	3	1	0	4
ELP203	Electromechanics Laboratory	0	0	3	1.5

ELL205	Signals and Systems	3	1	0	4
ELL211	Physical Electronics	3	0	0	3
ELL212	Engineering Electromagnetics	3	1	0	4
ELP212	Electromagnetics Laboratory	0	0	3	1.5
ELL225	Control Engineering-I	3	1	0	4
ELP225	Control Engineering Laboratory	0	0	3	1.5
ELL302	Power Electronics	3	0	0	3
ELP302	Power Electronics Laboratory	0	0	3	1.5
ELL303	Power Engineering-I	3	1	0	4
ELP303	Power Engineering Laboratory	0	0	3	1.5
ELL304	Analog Electronic Circuits	3	1	3	5.5
ELL305	Computer Architecture	3	0	0	3
ELP305	Design and System Laboratory	0	0	3	1.5
ELL311	Communication Engineering	3	1	0	4
ELP311	Communication Engineering Laboratory	0	0	2	1
ELD411	B.Tech. Project-I	0	0	6	3

Total Credits

60

Departmental Electives

ELL301	Electrical and Electronics Instrumentation	3	0	0	3
ELL312	Semiconductor process technology	3	0	0	3
ELL313	Antennas and Propagation	3	0	0	3
ELL315	Introduction to Analog Integrated Circuits	3	0	0	3
ELL316	Introduction to VLSI Design	3	0	0	3
ELL318	Digital Hardware Design	3	0	0	3
ELL319	Digital Signal Processing	3	0	2	4
ELL332	Electric Drives	3	0	0	3
ELL333	Multivariable Control	3	0	0	3
ELL365	Embedded Systems	3	0	0	3
ELL400	Power Systems Protection	3	0	0	3
ELL401	Advanced Electromechanics	3	0	0	3
ELL402	Computer Communication	3	0	0	3
ELL405	Operating Systems	3	0	0	3
ELL406	Robotics and Automation	3	0	0	3
ELL407	Power Quality	3	0	2	4
ELL409	Machine Intelligence and Learning	3	0	2	4
ELL410	Multicore Systems	3	0	0	3
ELL411	Digital Communications	3	0	2	4
ELL703	Optimal Control Theory	3	0	0	3
ELL710	Coding Theory	3	0	0	3
ELL715	Digital Image Processing	3	0	2	4
ELL716	Telecommunication Switching and Transmission	3	0	0	3
ELL725	Wireless Communications	3	0	0	3
ELL730	I.C. Technology	3	0	0	3
ELL738	Micro and Nano Photonics	3	0	0	3
ELL740	Compact Modeling of Semiconductor Devices	3	0	2	4
ELL758	Power Quality	3	0	0	3
ELL765	Smart Grid Technology	3	0	0	3
ELS310	Independent Study (EL)	0	3	0	3

Semester	Course-1	Course-2	Course-3	Course-4	Course-5	Course-6	Course-7	Course-8	Course-9	L	T	P	Credits	Non-Graded Units	Contact Hours
I	ELL101 Introduction to Electrical Engineering	MCP100 Introduction to Engineering Visualization	PYL101 Electromagnetic Waves and Quantum Mechanics	MTL100 Calculus	PYP100 Physics Laboratory	MCP101 Product Realization through Manufacturing	NIN100 Introduction to Engineering (Non-graded)	NEN100 Professional Ethics and Social Responsibility-1 (Non-graded)	NLN100 Language and Writing Skills-1 (Non-Graded)	9.0	3	14	19.0	2.5	31.0
	APL100 Engineering Mechanics	COL100 Introduction to Computer Science	CML101 Introduction to Chemistry	MTL101 Linear Algebra and Differential Equations	CMP100 Chemistry Laboratory			NEN101 Professional Ethics and Social Responsibility-2 (Non-graded)	NLN101 Language and Writing Skills-2 (Non-Graded)	9.0	3	6	18.0	1.5	24.0
II	ELL202 Circuit Theory	COL106 Data Structures & Algorithms	ELL203 Electromechanics	ELL211 Physical Electronics	ELL205 Signals and Systems	HUL2XX	ELN101 Introduction to Electrical Engineering (Non-graded)								
	ELL201 Digital Electronics	ELL212 Engineering Electromagnetics	SBL100 Introductory Biology for Engineers	MTL106 Probability and Stochastic Processes	ELL225 Control Engineering-I	ELP203 Electromechanics Laboratory				18.0	4	4	24.0	1	28.0
IV	ELL304 Analog Electronic Circuits	ELL311 Communication Engineering	CVL100 Environmental Science	ELL302 Power Electronics	ELL305 Computer Architecture	ELP212 Electromagnetics Laboratory	ELP225 Control Engineering Lab			15.0	3	8	22.0	0	26.0
	MCL142 Thermal Science for Electrical Engineers	HUL2XX	PYL102 Principles of Electronic Materials	ELL303 Power Engineering-I	DE 1	ELP311 Communication Engineering Laboratory	ELP305 Design and System Laboratory	ELP302 Power Electronics Laboratory		14.0	2	9	20.5	1.5	25.0
VI			DE 2	OC1	ELD411 B.Tech. Project	ELP303 Power Engineering Laboratory				15.0	2	10	22.0	3	27.0
	DE 3	OC2	OC3	HUL3XX						9.0	1	11	15.5	0	21.0
VIII															
	3 0 0 3	3 0 0 3	3 0 0 3	3 0 0 3	3 0 0 3	3 0 0 3	3 0 0 3	3 0 0 3	3 0 0 3	12.0	0	0	12.0	0	12.0
Note: Courses 1-6 above are attended in the given order by half of all first year students. The other half of First year students attend the Courses 1-6 of II semester first.															
TOTAL=153.0															

Bachelor of Technology in Electrical Engineering Power and Automation

Department of Electrical Engineering

The overall Credit Structure

Course Category	Credits
Institute Core Courses	
Basic Sciences (BS)	24
Engineering Arts and Science (EAS)	19
Humanities and Social Sciences (HuSS)	15
Programme-linked Courses	14
Departmental Courses	
Departmental Core	60
Departmental Electives	10
Open Category Courses	10
Total Graded Credit requirement	152
Non Graded Units	15

Institute Core : Basic Sciences

CML101	Introduction to Chemistry	3	1	0	4
CMP100	Chemistry Laboratory	0	0	4	2
MTL100	Calculus	3	1	0	4
MTL101	Linear Algebra and Differential Equations	3	1	0	4
PYL101	Electromagnetic Waves and Quantum Mechanics	3	1	0	4
PYP100	Physics Laboratory	0	0	4	2
SBL100	Introductory Biology for Engineers	3	0	2	4
Total Credits					24

Institute Core: Engineering Arts and Sciences

APL100	Engineering Mechanics	3	1	0	4
COL100	Introduction to Computer Science	3	0	2	4
CVL100	Environmental Science	2	0	0	2
ELL101	Introduction to Electrical Engineering	3	1	2	5
MCP100	Introduction to Engineering Visualization	0	0	4	2
MCP101	Product Realization through Manufacturing	0	0	4	2
Total Credits					19

Programme-Linked Basic/Engineering Arts/Sciences Core

COL106	Data Structures and Algorithms	3	0	4	5
MTL106	Probability and Stochastic Processes	3	1	0	4
MCL142	Thermal Science for Electrical Engineers	3	0	0	3
PYL102	Principles of Electronic Materials	3	0	0	3
Total Credits					15

Departmental Core

ELL201	Digital Electronics	3	0	3	4.5
ELL202	Circuit Theory	3	1	0	4
ELL203	Electromechanics	3	1	0	4

ELP203	Electromechanics Laboratory	0	0	3	1.5
ELL205	Signals and Systems	3	1	0	4
ELL225	Control Engineering-I	3	1	0	4
ELP225	Control Engineering Laboratory	0	0	3	1.5
ELL231	Power Electronics and Energy Devices	3	0	0	3
ELL302	Power Electronics	3	0	0	3
ELP302	Power Electronics Laboratory	0	0	3	1.5
ELL303	Power Engineering-I	3	1	0	4
ELP303	Power Engineering Laboratory	0	0	3	1.5
ELL304	Analog Electronic Circuits	3	1	3	5.5
ELL305	Computer Architecture	3	0	0	3
ELP305	Design and System Laboratory	0	0	3	1.5
ELL332	Electric Drives	3	0	0	3
ELP332	Electric Drives Laboratory	0	0	3	1.5
ELL363	Power Engineering-II	3	0	0	3
ELL365	Embedded Systems	3	0	0	3
ELD431	B.Tech. Project-I	0	0	6	3
Total Credits					60

Departmental Electives

ELL301	Electrical and Electronics Instrumentation	3	0	0	3
ELL311	Communication Engineering	3	1	0	4
ELL319	Digital Signal Processing	3	0	2	4
ELL333	Multivariable Control	3	0	0	3
ELL334	Multivariable Control	3	0	2	4
ELL400	Power Systems Protection	3	0	0	3
ELL401	Advanced Electromechanics	3	0	0	3
ELL405	Operating Systems	3	0	0	3
ELL406	Robotics and Automation	3	0	0	3
ELL407	Power Quality	3	0	2	4
ELL409	Machine Intelligence and Learning	3	0	2	4
ELL410	Multicore Systems	3	0	0	3
ELL417	Renewable Energy System	3	0	0	3
ELL431	Power System Optimization	3	0	0	3
ELL436	Digital Control	3	0	0	3
ELL437	Switch Mode Power Conversion	3	0	0	3
ELL453	Power System Dynamics and Control	3	0	0	3
ELL703	Optimal Control Theory	3	0	0	3
ELL715	Digital Image Processing	3	0	2	4
ELL730	I.C. Technology	3	0	0	3
ELL758	Power Quality	3	0	0	3
ELL765	Smart Grid Technology	3	0	0	3
ELS330	Independent Study (EP)	0	3	0	3

