

**NEW COURSE STRUCTURE**  
**(Effective from Year 2019 Batch)**

COURSE STRUCTURE FIRST YEAR		FIRST SEMESTER (THEORY)		
Sl.No	Course Code	Subject	Contact Hrs. L-T-P	Credits
1	UBS	Mathematics-I	3-1-0	4
2	UBS	Physics / Chemistry	3-0-0	3
3	UES	Basic Electrical Engg. / Basic Electronics	3-0-0	3
4	UHS/ UES	English For Business Communication/ Programming for Problem Solving	3-0-0	3
5	UES	Engineering Mechanics/Basic Civil Engg.	3-0-0	3
<b>SESSIONALS</b>				
1	UBL	Physics Laboratory/Chemistry Lab	0-0-3	1.5
2	UEL	Basic Electrical Engg. Lab / Basic Electronics Lab	0-0-3	1.5
3	UHL/ UES	Business Communication Skills/ Programming Lab	0-0-3	1.5
4	UEL	Engineering Graphics & Design/ Workshop & Manufacturing Practices	0-0-3	1.5
<b>NON-CREDIT</b>				
	UMC	Induction Programme and participation in Clubs/Societies	0-0-2*	0
<b>Total</b>			<b>15-1-12</b>	<b>22</b>

COURSE STRUCTURE FIRST YEAR		SECOND SEMESTER (THEORY)		
Sl.No	CourseCode	Subject	Contact Hrs. L-T-P	Credits
1	UBS	Mathematics - II	3-1-0	4
2	UES/UHS	Programming for Problem Solving / English For Business Communication	3-0-0	3
3	UBS	Chemistry / Physics	3-0-0	3
4	UES	Basic Electronics / Basic Electrical Engg.	3-0-0	3
5	UES	Basic Civil Engineering / Engineering Mechanics	3-0-0	3
<b>SESSIONALS</b>				
1	UBL	Chemistry Lab / Physics Laboratory	0-0-3	1.5
2	UEL	Basic Electronics Lab / Basic Electrical Engg. Lab	0-0-3	1.5
3	UEL/UHL	Engineering Graphics & Design / Business Communication Skills Lab	0-0-3	1.5
4	UEL	Engineering Graphics & Design/ Workshop & Manufacturing Practices	0-0-3	1.5
<b>NON-CREDIT</b>				
	UMC	NSS/NCC/Yoga *	0-0-2*	0
<b>Total</b>			<b>15-1-12</b>	<b>22</b>

\* This contact hour is beyond the regular time table teaching.

COURSE STRUCTURE SECOND YEAR		THIRD SEMESTER (THEORY)		
Sl.No	CourseCode	Subject	Contact Hrs. L-T-P	Total Credits
1	UBS	Math-III	3-1-0	4
2	UPC	Electrical Machines-I	3-0-0	3
3	UPC	Network Theory	3-0-0	3
4	UPC	Analog and Digital Electronics	3-0-0	3
5	UHS	Economics for Engineers/OrganisationalBehaviour	3-0-0	3
<b>SESSIONAL</b>				
1	UPL	Electrical Machines Lab-I	0-0-3	1.5
2	UPL	Network Lab.	0-0-3	1.5
3	UPL	Analog and Digital Electronics Lab.	0-0-6	3
<b>NON-CREDIT</b>				
	UMC	Essence of India Traditional Knowledge/ Environmental Sciences	2-0-0*	0
<b>TOTAL</b>			<b>15-1-12</b>	<b>22</b>

COURSE STRUCTURE SECOND YEAR		FOURTH SEMESTER (THEORY)		
Sl. No	Course Code	Subject	Contact Hrs. L-T-P	Credit
1	UPC	Electrical Machines-II	3-0-0	3
2	UPC	Measurement and Instrumentation	3-0-0	3
3	UPC	Signals and Systems-I	3-0-0	3
4	UBS/UES	Math-IV	3-1-0	4
5	UHS	OrganisationalBehaviour/Economics for Engineers	3-0-0	3
<b>SESSIONALS</b>				
6	UES	Electrical Machines Lab-II	0-0-6	3
7	UPL	Signals and Systems Lab-I	0-0-3	1.5
8	UPL	Measurement and Instrumentation Lab.	0-0-3	1.5
<b>NON-CREDIT</b>				
	UMC	Environmental Sciences/ Essence of India Traditional Knowledge	2-0-0*	0
	USI	Summer Internship/ Training/ Project	0-0-0	0
<b>Total</b>			<b>15-1-12</b>	<b>22</b>

\* This contact hour is beyond the regular time table teaching.

COURSE STRUCTURE THIRD YEAR		FIFTH SEMESTER (THEORY)		
Sl. No	Course Code	Subject	Contact Hrs. L-T-P	Credit
1	UPC	Power System-I	3-0-0	3
2	UPC	Power Electronics	3-0-0	3

3	UPC	Communication System-I	3-0-0	3
4	UPE	Professional Elective -I	3-0-0	3
5	UOE	Open Elective -I	3-0-0	3
6	UHS	Professional Ethics, Professional Law & Human Values / Financial Management, Costing, Accounting, Balance Sheet & Ratio Analysis	2-0-0	2
<b>SESSIONAL</b>				
1	UPL	Communication System Lab-I	0-0-3	1.5
2	UPL	Power Electronics Lab.	0-0-3	1.5
3	UPL	Microprocessor & Microcontroller Lab	0-0-3	1.5
<b>Total</b>			<b>17-0-9</b>	<b>21.5</b>

COURSE STRUCTURE THIRD YEAR		SIXTH SEMESTER (THEORY)		
Sl. No	Course Code	Subject	Contact Hrs. L-T-P	Credit
1	UPC	Power System-II	3-0-0	3
2	UPC	Control System Engineering	3-0-0	3
3	UPE	Professional Elective -II	3-0-0	3
4	UPE	Professional Elective-III	3-0-0	3
5	UOE	Open Elective-II	3-0-0	3
6	UHS	Financial Management Costing, Accounting, Balance Sheet & Ratio Analysis/ Professional Ethics, Professional Law & Human Values	2-0-0	2
<b>SESSIONALS</b>				
1	UPL	Signals and Systems Lab-II	0-0-3	1.5
2	UPL	Control System Lab.	0-0-3	1.5
3	UPL	CAD of Electrical Apparatus	0-0-3	1.5
<b>NON-CREDIT</b>				
	USI	Summer Internship/ Training/ Project	0-0-0	0
<b>Total</b>			<b>17-0-9</b>	<b>21.5</b>

COURSE STRUCTURE FOURTH YEAR		SEVENTH SEMESTER (THEORY)		
SL NO	COURSE CODE	SUBJECT	CONTACT HRS L-T-P	CR
1	UPC	Power System-III	3-0-0	3
2	UPC	High Voltage Engineering	3-0-0	3
4	UPE	Professional Elective-IV	3-0-0	3
5	UOE	Open Elective-III	3-0-0	3
<b>SESSIONALS</b>				
1	UPR	Project - I	0-0-6	3
2	UPL	Power System Lab	0-0-3	1.5
3	USI	Seminar on internship	0-0-3	1.5

<b>TOTAL</b>	<b>12-0-12</b>	<b>18</b>
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### Steel Structures

COURSE STRUCTURE FOURTH YEAR		EIGHTH SEMESTER (THEORY)		
SL NO	COURSE CODE	SUBJECT	CONTACT HRS L-T-P	CR
1	UPE	Professional Elective-V	3-0-0	3
2	UPE	Professional Elective-VI	3-0-0	3
3	UOE	Open Elective-IV	3-0-0	3
<b>SESSIONALS</b>				
1	UPR	Project II	0-0-12	6
2	UPR	Seminar on Project	0-0-2	1
<b>TOTAL</b>			<b>9-0-14</b>	<b>16</b>

**Note: Each hour of practical /lab/sessional class = 0.5 credit**

**The students should undergo Summer Internship or Project in India or Abroad for a minimum period of 8 weeks either in 4<sup>th</sup> & 6<sup>th</sup> Semesters together or in one semester at a stretch.**

List of Professional Elective (Third Year)		
Sl. No.	Category	Subject Name
1	UPE-I	Microprocessor & Microcontroller Theory & Applications
2		MEMS and NEMS
3		VLSI Theory & Design
4		Embedded System
1	UPE-II	Communication System-II
2		Wireless Communication
3		Mobile Communication
4		Optical and Satellite Communication
1	UPE-III	Signals and Systems-II
2		Digital Image Processing
3		Electromagnetic Field Theory
4		Industrial Automation and Control

List of Professional Elective (Fourth Year)		
Sl. No.		Subject Name
1	UPE-IV	HVDC transmission
2		Power Quality
3		Alternative Energy Source
4		Illumination Engineering

5		Electrical and Electronic Engineering Materials
1	UPE-V	Wide Area Monitoring & Control
2		Robust & Optimal Control
3		Digital Control
4		Optimization Techniques
5		AI and Machine Learning
1	UPE-VI	Smart Power Grids
2		Electrical & Hybrid Vehicles
3		Forecasting Methods in Engineering
4		Reliability Engineering
5		Bio-Medical Instrumentation

**Suggested grouping of open elective subjects:**

COURSE CODE	SL. NO.	OPEN ELECTIVE SUBJECTS	DEPARTMENT TO OFFER
UOE-I	1	Energy Science and Engineering	Electrical Engg./ME/CHEM ENGG
	2	Soft Skills & Interpersonal Communication	Humanities
	3	Cyber Laws and Ethics	Computer Sc. & Engg. /IT
	4	ICT for Developments	IT
	5	Probability & Statistics	MATHS
	6	Biology for Engineers	
UOE-II	1	Internet of Things (IOT)	IT
	2	Project Management	Civil Engg. /ME/PE
	3	Introduction to Philosophical Thoughts	Humanities
	4	Database Management System(DBMS)	CSE /IT
	5	Introduction to Art & Aesthetics	Architecture Dept.
UOE-III	1	Data Analytics	IT
	2	Modern Manufacturing Process	Production Engg./MME/ME
	3	Entrepreneurship Development	ME/PE/MME
	4	Image Processing	Electronics & TC Engg.
UOE-IV	1	HR planning Development & Management	Humanities
	2	Economics Policy in India	Humanities
	3	Virtual Lab	Comp Sc /IT
	4	Applied Optimization	CE/ME/PE

**Suggested Open Electives from Electrical and Electronics Department**

COURSE CODE	SL. NO.	OPEN ELECTIVE SUBJECTS	DEPARTMENT TO OFFER
UOE-I	1	MEMS and NEMS	EEE
	2	Microprocessor & Microcontroller Theory & Applications	EEE
	3	Electromagnetic Field Theory	EEE
UOE-II	1	VLSI Theory & Design	EEE
	2	Digital Circuit Design	EEE
	3	Signal & Systems	EEE
UOE-III	1	Digital Signal Processing	EEE
	2	Digital Image Processing	EEE
	3	Modelling and Simulation	EEE

UOE-IV	1	Mobile Computing	EEE
	2	Utilization of Electrical Energy	EEE
	3	Process Control and Instrumentation	EEE

**Abbreviations:**

UBS : Basic Science Course  
 UPC : Professional Core Course  
 UHS: Humanities and Social Sciences including management  
 UPE : Professional Elective Course  
 UOE : Open Elective Course  
 UM : Mandatory Courses (non- credit)  
 UES : Engineering Science Courses  
 UPL : Professional Core Lab  
 UBL : Basic Science Lab  
 UEL : Engineering Science Lab  
 UPR : Project  
 USI : Summer Internship / Training

**OLD COURSE STRUCTURE  
 (Effective from Year 2015 Batch)**

FIRST YEAR (COMMON TO ALL BRANCHES)							
FIRST SEMESTER				SECOND SEMESTER			
Theory		Contact Hrs.	CR	Theory		Contact Hrs.	CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
	Mathematics - I	3 - 1 - 0	4		Mathematics - II	3 - 1 - 0	4
	Physics/Chemistry	3 - 1 - 0	4		Chemistry/ Physics	3 - 1 - 0	4
	Engineering Mechanics/ Computer Programming	3 - 1 - 0	4		Computer Programming/ Engineering Mechanics	3 - 1 - 0	4
	Basic Electrical Engineering/ Basic Electronics	3 - 1 - 0	4		Basic Electronics/ Basic Electrical Engineering	3 - 1 - 0	4
	English for Communication/ Environmental Science	3 - 1 - 0	4		Environmental Science/ English	3 - 1 - 0	4
<b>Sessional</b>		<b>Sessional</b>				<b>Sessional</b>	
	Applied Physics Laboratory/Chemistry Lab	0 - 0 - 3	2		Chemistry Lab/Applied Physics Laboratory	0 - 0 - 3	2

	Workshop-I/ Engineering Drawing	0 - 0 - 3	2		Engineering Drawing/ Workshop-I	0 - 0 - 3	2
	Basic Electrical Engg. Lab/ Basic Electronics Lab	0 - 0 - 3	2		Basic Electronics Lab/ Basic Electrical Engg. Lab	0 - 0 - 3	2
	Business Communication Skill/ Programming Lab	0 - 0 - 3	2		Programming Lab/ Business Communication Skill	0 - 0 - 3	2
	<b>Total</b>	<b>15-5-12</b>	<b>28</b>		<b>Total</b>	<b>15-5-12</b>	<b>28</b>

SECOND YEAR							
THIRD SEMESTER				FOURTH SEMESTER			
Theory		Contact Hrs.	CR	Theory		Contact Hrs.	CR
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
	Mathematics-III	3 - 1 - 0	4		Mathematics-IV	3 - 1 - 0	4
EE15-016	Electrical Machines-I	3 - 1 - 0	4	EE15-018	Electrical Machines II	3 - 1 - 0	4
EE15-032	Network theory	3 - 1 - 0	4	EE15-023	Electronics Circuits	3 - 1 - 0	4
	Engineering Thermodynamics	3 - 1 - 0	4		Object Oriented Programming	3 - 1 - 0	4
	Organisation Behaviour	3 - 1 - 0	4		Engineering Economics	3 - 1 - 0	4
<b>Sessional</b>				<b>Sessional</b>			
EE15-017	Electrical Machines-1 Lab	0 - 0 - 3	2	EE15-019	Electrical Machines II Laboratory (twice)	0 - 0 - 6	4
	Mechanical Engineering Lab	0 - 0 - 3	2		Object Oriented Programming Lab	0 - 0 - 3	2
EE15-012	Electrical Circuit Computation Lab	0 - 0 - 3	2	EE15-024	Electronics Circuit Lab	0 - 0 - 3	2
EE15-033	Network Theory Lab	0 - 0 - 3	2				
	<b>Total</b>	<b>15-5-12</b>	<b>28</b>		<b>Total</b>	<b>15-5-12</b>	<b>28</b>

THIRD YEAR					
FIFTH SEMESTER			SIXTH SEMESTER		
Theory	Contact Hrs.		Theory	Contact Hrs.	

Course Code	Subject	L-T-P	CR	Course Code	Subject	L-T-P	CR
EE15-029	Microprocessor & Microcontroller Theory & Applications	3 - 1 - 0	4	EE15-037	Power System-II	3 - 1 - 0	4
EE15-042	Signals & Systems-I	3 - 1 - 0	4	EE15-020	Electrical Measurements & Instrumentation	3 - 1 - 0	4
EE15-008	Digital Circuits & Design	3 - 1 - 0	4	EE15-022	Electromagnetic Theory	3 - 1 - 0	4
EE15-036	Power System-I	3 - 1 - 0	4	EE15-005	Control System Engineering-I	3 - 1 - 0	4
EE15-034	Power Electronics	3 - 1 - 0	4	<b>Core Elective (Any One)</b>			
				EE15-043	Signals & Systems-II	3 - 1 - 0	4
				EE15-048	VLSI Theory & Design	3 - 1 - 0	4
				EE15-021	Electric Drives & Traction	3 - 1 - 0	4
				EE15-028	Image Processing	3 - 1 - 0	4
<b>Sessional</b>				<b>Sessional</b>			
EE15-044	Signal Systems Lab-I	0 - 0 - 3	2	EE15-045	Signal System Lab-II	0 - 0 - 3	2
EE15-009	Digital Circuit Lab	0 - 0 - 3	2	EE15-007	Control & Instrumentation Lab	0 - 0 - 3	2
EE15-030	Microprocessors & Microcontrollers Laboratory	0 - 0 - 3	2	EE15-015	Electric Equipment Design & Simulation Lab(twice)	0 - 0 - 6	4
EE15-035	Power Electronics Lab	0 - 0 - 3	2			0 - 0 - 3	2
	<b>Total</b>	<b>15-5-12</b>	<b>28</b>		<b>Total</b>	<b>15-5-12</b>	<b>28</b>

<b>FOURTH YEAR</b>							
<b>SEVENTH SEMESTER</b>				<b>EIGHTH SEMESTER</b>			
<b>Theory</b>		<b>Contact Hrs.</b>	<b>CR</b>	<b>Theory</b>		<b>Contact Hrs.</b>	<b>CR</b>
Course Code	Subject	L-T-P		Course Code	Subject	L-T-P	
EE15-038	Power Systems-III	3 - 1 - 0	4	EE15-004	Communication Systems-II	3 - 1 - 0	4
EE15-003	Communication Systems-I	3 - 1 - 0	4	EE15-011	Digital Signal Processing	3 - 1 - 0	4
EE15-006	Control System Engineering-II	3 - 1 - 0	4		Open Elective	3 - 1 - 0	4
<b>Core Elective (Any One)</b>							
EE15-025	Embedded System	3 - 1 - 0	4				



EE15-027	HVDC Transmission	3 - 1 - 0	4				
EE15-040	Power Quality	3 - 1 - 0	4				
EE15-014	Electrical Engineering Material	3 - 1 - 0	4				
	Open Elective	3 - 1 - 0	4				
<b>Sessionals</b>				<b>Sessionals</b>			
	Minor Project	0 - 0 - 3	2		Seminar	0 - 0 - 3	2
EE15-039	Power System Lab	0 - 0 - 3	2		Comprehensive Viva	0 - 0 - 3	2
					Major Project	0 - 0 - 6	8
	<b>Total</b>	<b>15-5-6</b>	<b>24</b>		<b>Total</b>	<b>9-3-12</b>	<b>24</b>

### CORE ELECTIVE SUBJECTS FOR EEE DEPARTMENT

Course Code		Subject
Core elective1	EE15-043	Signal & Systems-II
	EE15-048	VLSI Theory & Design
	EE15-021	Electric Drives & Traction
	EE15-028	Image Processing
Core elective2	EE15-025	Embedded System
	EE15-027	HVDC Transmission
	EE15-040	Power Quality
	EE15-014	Electrical Engineering Material

### OPEN ELECTIVE SUBJECTS ARE OFFERED BY EEE DEPARTMENT

Course Code		Subject
Open elective1	EE15-026	Energy Management
	EE15-010	Digital Image Processing
	EE15-031	Modelling & Simulation
Open elective2	EE15-047	Utilization of Electrical Energy
	EE15-041	Process Control & Instrumentation
	EE15-046	Signal and System