AISSMS
INSTITUTE OF INFORMATION TECHNOLOGY
(IOIT)
ADDING VALUE TO ENGINEERING
An Autonomous Institute Affiliated to Savitribai Phule Pune University
Approved by AICTE, New Delhi and Recognised by Govt. of Maharashtra
Accredited by NAAC with "A+" Grade | NBA - 5 UG Programmes

Program - Electrical Engineering
(Autonomous UG Structure)

A. Definition of Credit:

1 Hr. Lecture (L) per week	1 credit
1 Hr. Tutorial (T) per week	1 credit
1 Hr. Practical (P) per week 2 Hours Practical (Lab)/week	0.5 credits 1 credit

B. Range of credits –

A range of credits from 150 to 160 for a student to be eligible to get Undergraduate degree in Engineering. A student will be eligible to get Undergraduate degree with Honors or additional Minor Engineering, if he/she completes an additional 20 credits.

C. Credit for Undergraduate Degree in Electrical Engineering

Sr. No.	Year	Semester	Credits
1	First Year	I	21
2		II	19
3	Second Year	III	22
4		IV	24
5	Third Year	V	23
6		VI	25
7	Final Year	VII	12
8		VIII	14
Total Credits			**160**

D. Structure of Undergraduate Engineering program

Sr. No.	Domains	Code	Total Credits	As per NEP Credits
1	Basic Science Courses	ELBSC	**16**	14-18
2	Engineering Science Courses	ELESC	**16**	16-12
3	Programme Core Courses	ELPCC	**56**	44-56
4	Programme Elective courses	ELPEC	**18**	20
5	Open Elective other than particular Programme	ELOEC	**06**	08
6	Vocational and Skill Enhancement Courses	ELVSE	**08**	08
7	Humanities Social Science and Management	ELHSM	**12**	14
8	Experiential Learning Courses	ELELC	**24**	22
9	Liberal Learning Courses	ELLLC	**04**	04
Total Credits			**160**	**160 - 176**

E. Domain wise Credits Distribution:

Sr. No.	Domain Code	UG Program Credits									
		Semesters								Total Credits	Credits As Per NEP
		I	II	III	IV	V	VI	VII	VIII		
1	ELBSC	8	8	-	-	-	-	-	-	**16**	14-18
2	ELESC	9	7	-	-	-	-	-	-	**16**	16-12
3	ELPCC	-	-	16	16	13	8	3	-	**56**	44-56
4	ELPEC	-	-	-	-	4	7	7	-	**18**	20
5	ELOEC	-	-	3	-	3	-	-	-	**06**	08
6	ELVSE	1	1	-	3	-	3	-	-	**08**	08
7	ELHSM	-	-	3	3	3	3	-	-	**12**	14
8	ELELC	3	3	-	-	-	2	2	14	**24**	22
9	ELLLC	-	-	-	2	-	2	-	-	**04**	04
Total Credits		**21**	**19**	**22**	**24**	**23**	**25**	**12**	**14**	**160**	160 - 176
Total Working Hours per Week		**28**	**26**	**25**	**27**	**27**	**29**	**16**	**26**	**-**	**-**
Total Marks		**650**	**650**	**725**	**725**	**725**	**725**	**600**	**600**	**5400**	**-**

F. Honor Degree:

i) Technical Honor Degree –Advanced Electrical Engineering

Sr. No.	Offered in Semester & Course Code	Course Title	Hours per week			Credits	Examination scheme					
			L	T	P		ISE	ESE	TW	PR	OR	Total
1	5th – ELHDT511	Advanced Power Electronics	3	1	2	**05**	40	60	25	--	--	**125**
2	6th – ELHDT613	Advanced Power System	3	--	2	**04**	40	60	--	--	--	**100**
3	7th – ELHDT707	Advanced Control System	3	1	2	**05**	40	60	25	--	--	**125**
4	8th – ELHDT803	Non-Conventional Energy Systems	3	--	2	**04**	40	60	--	--	--	**100**
Total			**12**	**02**	**08**	**18**	**160**	**240**	**50**	--	--	**450**

ii) Honor Degree –with Research

Sr. No.	Offered in Semester	Course Code	Course Title	Hours per week			Credits	Examination scheme					
				L	T	P		ISE	ESE	TW	PR	OR	Total
1	7th	ELHDR708	Research Methodology	3	-	-	**03**	40	60	-	-	-	**100**
2		ELHDR709	Mathematical Modeling	3	-	-	**03**	40	60	-	-	-	**100**
3		ELHDR710	Dissertation Phase 1	-	-	4	**02**	-	-	25	-	25	**50**
5	8th	ELHDR804	Paper Publication	-	-	4	**02**	-	-	50	-	-	**50**
6		ELHDR805	Research Publication Ethics	2	-	-	**02**	-	50	-	-	-	**50**
7		ELHDR806	Dissertation Phase 2	-	-	12	**06**	-	-	100	-	50	**150**
Total				**08**	**-**	**20**	**18**	**80**	**170**	**175**	**--**	**75**	**500**

G. BSC/ESC Courses:

SEM	Sr. No.	Course Code	Course Title	Hours per week			Credits	Examination scheme					
				L	T	P		ISE	ESE	TW	PR	OR	Total
1st	1	FEBSC101	Engineering Mathematics-I	3	--	--	**03**	40	60*	--	--	--	**100**
	2	FEBSC102/ FEBSC103	Engineering Physics / Industrial Chemistry	3	--	--	**03**	40	60*	--	--	--	**100**
	3	FEESC104	Engineering Graphics and Introduction to CAD	1	--	2	**02**	--	--	25	25	--	**50**
	4	FEESC105	Engineering Mechanics	2	--	2	**03**	40	60*	--	--	--	**100**
	5	FEESC106/ FEESC107	Basic Electrical Engineering/ Basic Electronics Engineering	3	--	--	**03**	40	60*	--	--	--	**100**
	6	FEBSC110	Engineering Mathematics-I (Lab)	--	--	2	**01**	--	--	--	25	--	**25**
	7	FEBSC111/ FEBSC112	Engineering Physics / Industrial Chemistry (Lab)	--	--	2	**01**	--	--	--	25	--	**25**
	8	FEESC113/ FEESC114	Basic Electrical Engineering/Basic Electronics Engineering (Lab)	--	--	2	**01**	--	--	--	25	--	**25**
2nd	9	FEBSC201	Engineering Mathematics-II	3	--	--	**03**	40	60*	--	--	--	**100**
	10	FEBSC202/ FEBSC203	Engineering Physics / Industrial Chemistry	3	--	--	**03**	40	60*	--	--	--	**100**
	11	FEESC204	Basics in Mechanical Engineering	1	--	2	**02**	40	60*	--	--	--	**100**
	12	FEESC205	Environmental Informatics	--	--	2	**01**	--	--	25	25	--	**50**
	13	FEESC206/ FEESC207	Basic Electrical Engineering/ Basic Electronics Engineering	3	--	--	**03**	40	60*	--	--	--	**100**
	14	FEBSC210	Engineering Mathematics-II (Lab)	--	--	2	**01**	--	--	--	25	--	**25**
	15	FEBSC211/ FEBSC212	Engineering Physics / Industrial Chemistry (Lab)	--	--	2	**01**	--	--	--	25	--	**25**
	16	FEESC213/ FEESC214	Basic Electrical Engineering/ Basic Electronics Engineering (Lab)	--	--	2	**01**	--	--	--	25	--	**25**
Total Credits (BSC/ESC)							**32**						

H. Major Courses:

Sr. No.	Semester	Course Code	Course Title	Credits
1	Sem-III	ELPCC301	Electrical Circuit Analysis	**04**
2	Sem-III	ELPCC302	Electrical Measurements	**03**
3	Sem-III	ELPCC303	Analog and Digital Circuits	**03**
4	Sem-III	ELPCC304	Power System Engineering	**03**
5	Sem-III	ELPCC307	Electrical Circuit Analysis Lab	**01**
6	Sem-III	ELPCC308	Electrical Measurements Lab	**01**
7	Sem-III	ELPCC309	Analog and Digital Circuits Lab	**01**
8	Sem-IV	ELPCC401	Computational Techniques	**03**
9	Sem-IV	ELPCC402	DC and Induction Machines	**03**
10	Sem-IV	ELPCC403	Microcontroller & Integrated Circuit based Appli.	**04**
11	Sem-IV	ELPCC404	Power Electronics	**03**
12	Sem-IV	ELPCC410	Computational Techniques Lab	**01**
13	Sem-IV	ELPCC411	DC and Induction Machines Lab	**01**
14	Sem-IV	ELPCC412	Power Electronics Lab	**01**
15	Sem-V	ELPCC501	Power System Analysis	**03**
16	Sem-V	ELPCC502	Control System Engineering	**04**
17	Sem-V	ELPCC503	Principles of Electrical Machine Design	**04**
18	Sem-V	ELPEC504	Elective-I	**03**
19	Sem-V	ELPCC508	Power System Analysis Lab	**01**
20	Sem-V	ELPEC509	Elective-I Lab	**01**
21	Sem-V	ELPCC510	Control System Engineering Lab	**01**
22	Sem-VI	ELPCC601	Switch Gear and Protection	**03**
23	Sem-VI	ELPCC602	Power System Operation & Control	**03**
24	Sem-VI	ELPEC603	A. Electrical Estimation Costing and Design/ B. Electric Dives	**04**
25	Sem-VI	ELPEC604	Elective-II	**03**
26	Sem-VI	ELPCC611	Switch Gear and Protection Lab	**01**
27	Sem-VI	ELPCC612	Power System Operation & Control Lab	**01**
28	Sem-VII	ELPCC701	Power Quality: Issues and Mitigation	**02**
29	Sem-VII	ELPEC702	Elective-III	**03**
30	Sem-VII	ELPEC703	Elective-IV	**03**
31	Sem-VII	ELPCC705	Power Quality: Issues and Mitigation lab	**01**
32	Sem-VII	ELPEC706	Elective-III Lab	**01**

33	Sem-I	FEELC109	Problem Solving and Programming I	**03**
34	Sem-II	FEELC209	Problem Solving and Programming II	**03**
35	Sem-VI	ELELC608	Mini Project	**02**
36	Sem-VII	ELELC704	Project Stage-I	**02**
37	Sem-VIII	ELELC801	Internship/ 2 MOOCs/ Entrepreneurship/ Research Project	**12**
38	Sem-VIII	ELELC802	Project Stage-II	**02**
			Total Major Courses Credits	**98**

I. Minor Courses:

Sr. No.	SEM	Course Code	Course Title	Hours per week			Credits	Examination scheme					
				L	T	P		ISE	ESE	TW	PR	OR	Total
1	3rd	ELPCC301	Electrical Measurements	3	-	-	**03**	40#	60**				**100**
2		ELPCC308	Electrical Measurements Lab			2	**01**			25			**25**
3	4th	ELPCC402	DC and Induction Machines	3			**03**	40#	60*				**100**
4		ELPCC411	DC and Induction Machines Lab			2	**01**			25	25		**50**
5	5th	ELPCC503	Principles of Electrical Machine Design	3		2	**04**	40#	60**				**100**
6	6th	ELPCC601	Switch Gear and Protection	3			**03**	40#	60*				**100**
7		ELPCC611	Switch Gear and Protection Lab			2	**01**			25			**25**
Total				**12**	**0**	**8**	**16**	**160**	**240**	**75**	**25**	**00**	**500**

J. Open Elective Courses:

Sr. No.	Semester	Course Code	Course Title	Credits
1	Sem-III	ELOEC305	Solar and Wind Energy Systems/ MOOCs	**03**
2	Sem-V	ELOEC505	Energy Audit and Management/ MOOCs	**03**
			Total Credits	**06**

K. Vocational and Skill Enhancement Courses:

Sr. No.	Semester	Course Code	Course Title	Credits
1	Sem-I	FEVSE108	Project Based Learning Management I	**01**
2	Sem-I	FEVSE208	Project Based Learning Management II	**01**
3	Sem-IV	ELVSE405	Electrical Safety	**03**
4	Sem-VI	ELVSE605	Electric Vehicle	**03**
			Total Credits	**08**

L. Humanities Social Science and Management Courses:

Sr. No.	Semester	Course Code	Course Title	Credits
1	Sem-III	ELHSM306	Democracy, Election and Governance	**02**
2	Sem-III	ELHSM310	Audit Course 3 - Vedic Mathematics	**01**
3	Sem-IV	ELHSM406	Industrial Management	**02**
4	Sem-IV	ELHSM407	Audit Course 4 - Sustainable Development Goals (SDG)	**01**
5	Sem-V	ELHSM506	Intellectual Property Rights	**02**
6	Sem-V	ELHSM507	Audit Course-5 Professional Etiquettes	**01**
7	Sem-VI	ELHSM606	Seminar and Technical Paper writing	**02**
8	Sem-VI	ELHSM607	Audit Course-6 Entrepreneurship Development Program	**01**
			Total Credits	**12**

M. Experiential Learning Courses:

Sr. No.	Semester	Course Code	Course Title	Credits
1	Sem-I	FEELC109	Problem Solving and Programming I	**03**
2	Sem-II	FEELC209	Problem Solving and Programming II	**03**
3	Sem-VI	ELELC608	Mini Project	**02**
4	Sem-VII	ELELC704	Project Stage-I	**02**
5	Sem-VIII	ELELC801	Internship/ 2 MOOCs/Entrepreneurship/ Research Project	**12**
6	Sem-VIII	ELELC802	Project Stage-II	**02**
			Total Credits	**24**

N. Liberal Learning Courses:

Sr. No.	Semester	Course Code	Course Title	Credits
1	Sem-IV	ELLLC408	Lifelong Learning Skills - 1	**01**
2	Sem-IV	ELLLC409	Lifelong Learning Skills - 2	**01**
3	Sem-VI	ELLLC609	Lifelong Learning Skills - 3	**01**
4	Sem-VI	ELLLC610	Lifelong Learning Skills - 4	**01**
			Total Credits	**04**

O. Exit Courses:

Sr. No.	Exit Point	Course Code	Course Title	Hours per week			Credits	Examination scheme					
				L	T	P		ISE	ESE	TW	PR	OR	Total
1	After First Year	ELEXC101	Electrical Wiring and Maintenance	--	--	4	**02**	--	--	50	--	--	**50**
2		ELEXC102	Electrical Safety	--	--	4	**02**	--	--	50	--	--	**50**
3		ELEXC103	Internship	--	--	8	**04**	--	--	100	--	--	**100**
Total				**--**	**--**	**16**	**08**	**--**	**--**	**200**	**--**	**--**	**200**

Sr. No.	Exit Point	Course Code	Course Title	Hours per week			Credits	Examination scheme					
				L	T	P		ISE	ESE	TW	PR	OR	Total
1	After Second Year	ELEXC201	Electrical Installation and Maintenance	--	--	4	**02**	--	--	50	--	--	**50**
2		ELEXC202	Energy Audit	--	--	4	**02**	--	--	50	--	--	**50**
3		ELEXC203	Internship	--	--	8	**04**	--	--	100	--	--	**100**
Total				**--**	**--**	**16**	**08**	**--**	**--**	**200**	**--**	**--**	**200**

Sr. No.	Exit Point	Course Code	Course Title	Hours per week			Credits	Examination scheme					
				L	T	P		ISE	ESE	TW	PR	OR	Total
1	After Third Year	ELEXC301	Substation Operation	--	--	4	**02**	--	--	50	--	--	**50**
2		ELEXC302	Commissioning of Installation	--	--	4	**02**	--	--	50	--	--	**50**
3		ELEXC303	Internship	--	--	8	**08**	--	--	100	--	--	**100**
Total				**--**	**--**	**16**	**08**	**--**	**--**	**200**	**--**	**--**	**200**

SEMESTER WISE STRUCTURES

Electrical Engineering – Second Year B. Tech (Semester –III)												
Sr. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Examination scheme**					
			L	**T**	**P**		**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**
1	ELPCC301	Electrical Circuit Analysis	3	1	--	**04**	40#	60*	--	--	--	**100**
2	ELPCC302	Electrical Measurements	3	--	--	**03**	40#	60**	--	--	--	**100**
3	ELPCC303	Analog and Digital Circuits	3	--	--	**03**	40#	60*	--	--	--	**100**
4	ELPCC304	Power System Engineering	3	--	--	**03**	40#	60*	--	--	--	**100**
5	ELOEC305	Solar and Wind Energy Systems/ MOOCs	3	--	--	**03**	40$	60$$	--	--	--	**100**
6	ELHSM306	Democracy, Election and Governance	2	--	--	**02**	--	--	25	--	25	**50**
7	ELPCC307	Electrical Circuit Analysis Lab	--	--	2	**01**	--	--	25	50	--	**75**
8	ELPCC308	Electrical Measurements Lab	--	--	2	**01**	--	--	25	--	--	**25**
9	ELPCC309	Analog and Digital Circuits Lab	--	--	2	**01**	--	--	25	25	--	**50**
10	ELHSM310	Audit Course 3 - Vedic Mathematics	1	--	--	**01**	--	--	25	--	--	**25**
Total			**18**	**01**	**06**	**22**	**200**	**300**	**125**	**75**	**25**	**725**

L-Lecture, T-Tutorial, P-Practical

* **End Semester Examination (ESE)** based on subjective questions.

** **Practical or Activity based Evaluation.**

\# **In Semester Evaluation**
In Semester I: Subjective Examination/ Multiple-Choice Question (MCQ) examination.
In Semester II: based on Presentation/ Group Discussion/ Laboratory Work/ Course Project/ Home Assignment/ Comprehensive Viva Voce/ Blog Writing/ Case Study/ Survey.

$ **For MOOCs:** Assignments marks will be converted on the scale of 40 marks.

$$ **For MOOCs:** Score of examination conducted by the respective authority of MOOC or Score of ESE Conducted by Institute will be converted on the scale of 60 marks.

MOOC: Solar and Wind Energy Systems:

Solar Energy Engineering and Technology	https://onlinecourses.nptel.ac.in/noc20_ph14/preview

Electrical Engineering – Second Year B. Tech (Semester –IV)												
Sr. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Examination scheme**					
			L	**T**	**P**		**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**
1	ELPCC401	Computational Techniques	3	--	--	**03**	40#	60*	--	--	--	**100**
2	ELPCC402	DC and Induction Machines	3	--	--	**03**	40#	60*	--	--	--	**100**
3	ELPCC403	Microcontroller & Integrated Circuit based Application	3	--	2	**04**	40#	60**	--	--	--	**100**
4	ELPCC404	Power Electronics	3	--	--	**03**	40#	60*	--	--	--	**100**
5	ELVSE405	Electrical Safety	2	--	2	**03**	40#	60*	--	--	--	**100**
6	ELHSM406	Industrial Management	1	1	--	**02**	--	--	25	--	25	**50**
7	ELHSM407	Audit Course 4 - Sustainable Development Goals (SDG)	1	--	--	**01**	--	--	25	--	--	**25**
8	ELLLC408	Lifelong Learning Skills - 1	--	--	--	**01**	--	--	--	--	--	--
9	ELLLC409	Lifelong Learning Skills - 2	--	--	--	**01**	--	--	--	--	--	--
10	ELPCC410	Computational Techniques Lab	--	--	2	**01**	--	--	25	25	--	**50**
11	ELPCC411	DC and Induction Machines Lab	--	--	2	**01**	--	--	25	25	--	**50**
12	ELPCC412	Power Electronics Lab	--	--	2	**01**	--	--	25	25	--	**50**
Total			**16**	**01**	**10**	**24**	**200**	**300**	**125**	**75**	**25**	**725**

L-Lecture, T-Tutorial, P-Practical

* **End Semester Examination (ESE)** based on subjective questions.

** **Practical or Activity based Evaluation.**

\# **In Semester Evaluation (ISE)**
In Semester I: Subjective Examination/ Multiple-Choice Question (MCQ) examination.
In Semester II: based on Presentation/ Group Discussion/ Laboratory Work/ Course Project/ Home Assignment/ Comprehensive Viva Voce/ Blog Writing/ Case Study/ Survey.

Electrical Engineering – Third Year B. Tech (Semester –V)												
Sr. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Examination scheme**					
			L	**T**	**P**		**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**
1	ELPCC501	Power System Analysis	3	--	--	**03**	40#	60*	--	--	--	**100**
2	ELPCC502	Control System Engineering	3	1	--	**04**	40#	60*	--	--	--	**100**
3	ELPCC503	Principles of Electrical Machine Design	3	--	2	**04**	40#	60**	--	--	--	**100**
4	ELPEC504	Elective-I	3	--	--	**03**	40#	60*	--	--	--	**100**
5	ELOEC505	Energy Audit and Management/ MOOCs	3	--	--	**03**	40$	60$$	--	--	--	**100**
6	ELHSM506	Intellectual Property Rights	2	--	--	**02**	--	--	25	--	25	**50**
7	ELHSM507	Audit Course-5 Professional Etiquettes	1	--	--	**01**	--	--	25	--	--	**25**
8	ELPCC508	Power System Analysis Lab	--	--	2	**01**	--	--	25	25	--	**50**
9	ELPEC509	Elective-I Lab	--	--	2	**01**	--	--	25	--	--	**25**
10	ELPCC510	Control System Engineering Lab	--	--	2	**01**	--	--	25	--	50	**75**
Total			**18**	**01**	**08**	**23**	**200**	**300**	**100**	**25**	**75**	**725**

L-Lecture, T-Tutorial, P-Practical

* **End Semester Examination (ESE)** based on subjective questions.

** **Practical or Activity based Evaluation.**

\# **In Semester Evaluation (ISE)**
In Semester I: Subjective Examination/ Multiple-Choice Question (MCQ) examination.
In Semester II: based on Presentation/ Group Discussion/ Laboratory Work/ Course Project/ Home Assignment/ Comprehensive Viva Voce/ Blog Writing/ Case Study/ Survey.

$ **For MOOCs:** Assignments marks will be converted on the scale of 40 marks.

$$ **For MOOCs:** Score of examination conducted by the respective authority of MOOC or Score of ESE Conducted by Institute will be converted on the scale of 60 marks.

MOOC: Energy Audit and Management:

Energy Audits	https://www.mooc-list.com/tags/energy-audits

Elective-I
A. Synchronous and Special Purpose Machines
B. Digital Signal Processing
C. Internet of Things
D. Sustainable Engineering

Electrical Engineering – Third Year B. Tech (Semester –VI)												
Sr. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Examination scheme**					
			L	**T**	**P**		**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**
1	ELPCC601	Switch Gear and Protection	3	--	--	**03**	40#	60*	--	--	--	**100**
2	ELPCC602	Power System Operation & Control	3	--	--	**03**	40#	60*	--	--	--	**100**
3	ELPEC603	A. Electrical Estimation Costing and Design/ B. Electric Dives	3	--	2	**04**	40#	60**	--	--	--	**100**
4	ELPEC604	Elective-II	3	--	--	**03**	40#	60*	--	--	--	**100**
5	ELVSE605	Electric Vehicle	2	--	2	**03**	40#	60*	--	--	--	**100**
6	ELHSM606	Seminar and Technical Paper writing	1	--	2	**02**	--	--	50	--	--	**50**
7	ELHSM607	Audit Course-6 Entrepreneurship Development Program	1	--	--	**01**	--	--	25	--	--	**25**
8	ELELC608	Mini Project	--	--	4	**02**	--	--	50	--	--	**50**
9	ELLLC609	Lifelong Learning Skills - 3	--	--	--	**01**	--	--	--	--	--	--
10	ELLLC610	Lifelong Learning Skills - 4	--	--	--	**01**	--	--	--	--	--	--
11	ELPCC611	Switch Gear and Protection Lab	--	--	2	**01**	--	--	25	--	25	**50**
12	ELPCC612	Power System Operation & Control Lab	--	--	2	**01**	--	--	25	--	25	**50**
Total			**17**	**0**	**12**	**25**	**200**	**300**	**150**	**00**	**50**	**725**

L-Lecture, T-Tutorial, P-Practical

* **End Semester Examination (ESE)** based on subjective questions.

** **Practical or Activity based Evaluation.**

\# **In Semester Evaluation (ISE)**
In Semester I: Subjective Examination/ Multiple-Choice Question (MCQ) examination.
In Semester II: based on Presentation/ Group Discussion/ Laboratory Work/ Course Project/ Home Assignment/ Comprehensive Viva Voce/ Blog Writing/ Case Study/ Survey.

$ **For MOOCs:** Assignments marks will be converted on the scale of 40 marks.

$$ **For MOOCs:** Score of examination conducted by the respective authority of MOOC or Score of ESE Conducted by Institute will be converted on the scale of 60 marks.

Elective-II
A. Modern Control Engineering
B. Restructuring & Deregulation
C. HVDC and FACTS

Electrical Engineering – Final B. Tech (Semester –VII)												
Sr. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Examination scheme**					
			L	**T**	**P**		**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**
1	ELPCC701	Power Quality: Issues and Mitigation	2	--	--	**02**	40#	60*	--	--	--	**100**
2	ELPEC702	Elective-III	3	--	--	**03**	40#	60*	--	--	--	**100**
3	ELPEC703	Elective-IV	3	--	--	**03**	40#	60*	--	--	--	**100**
4	ELELC704	Project Stage-I	--	--	4	**02**	--	--	100	--	50	**150**
5	ELPCC705	Power Quality: Issues and Mitigation lab	--	--	2	**01**	--	--	--	--	50	**50**
6	ELPEC706	Elective-III Lab	--	--	2	**01**	--	--	50	50	--	**100**
Total			**08**	**--**	**08**	**12**	**120**	**180**	**150**	**50**	**100**	**600**

L-Lecture, T-Tutorial, P-Practical

* **End Semester Examination (ESE)** based on subjective questions.

** **Practical or Activity based Evaluation.**

\# **In Semester Evaluation (ISE)**
In Semester I: Subjective Examination/ Multiple-Choice Question (MCQ) examination.
In Semester II: based on Presentation/ Group Discussion/ Laboratory Work/ Course Project/ Home Assignment/ Comprehensive Viva Voce/ Blog Writing/ Case Study/ Survey.

$ **For MOOCs:** Assignments marks will be converted on the scale of 40 marks.

$$ **For MOOCs:** Score of examination conducted by the respective authority of MOOC or Score of ESE Conducted by Institute will be converted on the scale of 60 marks.

Elective-III	**Elective-IV**
A. PLC, SCADA and its Applications	A. Robotics and Automation
B. Digital Control System	B. Utilization of Electrical Energy
C. Smart Grid	C. Illumination Engineering
D. High Voltage Engineering	D. Industrial Ecology

MOOC: Energy Storage Devices:

Energy Storage Devices	Link will be provided at the commencement of the course.

Electrical Engineering – Final B. Tech (Semester –VIII)												
Sr. No.	**Course Code**	**Course Title**	**Hours per week**			**Credits**	**Examination scheme**					
			L	**T**	**P**		**ISE**	**ESE**	**TW**	**PR**	**OR**	**Total**
2	ELELC801	Internship/ 2 MOOCs/Entrepreneurship/ Research Project	2	--	20	**12**	--	--	200@	--	100	**300**
3	ELELC802	Project Stage-II	--	--	4	**02**	--	--	200	--	100	**300**
	Total		**02**	--	**24**	**14**	--	--	**400**	--	**200**	**600**

L-Lecture, T-Tutorial, P-Practical

@ Marks obtained in two MOOCs will be converted on the scale of 200 marks.

$$ **For MOOCs:** Score of examination conducted by the respective authority of MOOC orScore of ESE Conducted by Institute will be converted on the scale of 60 marks.

Under Course code ELELC801 select any TWO Massive Open Online Courses (not less than 8 week) listed below:

Energy Resources & Technology	https://archive.nptel.ac.in/courses/108/105/108105058/
NPTEL Internship	https://nptel.ac.in/internship
Electrical Distribution System Analysis	https://onlinecourses.nptel.ac.in/noc19_ee61/preview