



Shri Mata Vaishno Devi University

Faculty of Engineering
School of Electrical Engineering

Annexure-1

Proposed Program Structure for Upcoming B.Tech.(EE)-Batch 2025-29

Semester I

First Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	BSC-1	MTL BS101	Engineering Mathematics-I	3	1	0	4
2.	BSC-2	BTL BS 111	Applied Chemistry	3	0	0	3
3.	BSC-2	BTP BS 111	Applied Chemistry Lab	0	0	2	1
4.	ESC-1	CSL ES101	Introduction to 'C' Programming	3	0	0	3
5.	ESC-1	CSP ES101	'C' Programming Lab	0	0	2	1
6.	ESC-2	MEL ES101	Introduction to Engineering Mechanics	3	1	0	4
7.	SEC-1	EEP SE XXX	Skill Enhancement Basket	1	0	2	2
8.	AEC-1/VAC-1		AEC-1 / VAC-1	x	x	x	2
			Total Credits				20

Semester II

First Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	BSC 3	MTL BS102	Engineering Mathematics II	3	1	0	4
2.	BSC 4	PHL BS101	Engineering Physics	3	0	0	3
3.	BSC 4	PHP BS101	Engineering Physics Lab	0	0	2	1
4.	DCC-1	EEL DC104	Network analysis & Synthesis	3	1	0	4
5.	DCC-2	EEL DC106	Electrical Measurements and Instrumentation	3	0	0	3
6.	DCC-2	EEP DC106	Electrical Measurements and Instrumentation Lab	0	0	2	1
7.	AEC-2	EEP AE102	Electrical Wiring / from the basket	2	0	0	2
8.	SEC-2	EEP SE101	MATLAB/Simulink / from the basket	1	0	2	2
9.	VAC-2		As available from the basket	x	x	x	2
10.	MAK-I	PCL MA102	Universal Human Value-II				NC
			Total Credits				22

*Universal Human Values-II Mandatory NC course



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Semester III

Second Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	DCC-3	EEL DC 210	Electromagnetic Field Theory	3	1	0	4
2.	ESC-3	ECL ES 203	Digital Electronics	3	0	0	3
3.	ESC-3	ECP ES 203	Digital Electronics Lab	0	0	2	1
4.	DCC-4	EEL DC 201	Electrical Machines – I	3	0	0	3
5.	DCC-4	EEP DC 201	Electrical Machines Lab - I	0	0	2	1
6.	DCC-5	EEL DC 203	Signal & Systems	3	1	0	4
7.	DCC-6	EEL DC 205	Electronics Devices and circuits	3	0	0	3
8.	DCC-6	EEP DC 205	Electronics Devices and circuits	0	0	2	1
9.	SEC-3	EEP SE103	Skill Enhancement Basket	0	0	4	2
10.	PR-1	EEI PR 201	Summer Internship - I	0	0	2	1
11.	VAC-3		Value Added Course Basket	2	0	0	2
			Total Credits				25

Semester IV

Second Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	DCC-7	EEL DC 202	Electrical Machines - II	3	0	0	3
2.	DCC-7	EEP DC 202	Electrical Machines Lab - II	0	0	2	1
3.	DCC-8	EEL DC 204	Analog Integrated Circuits	3	0	0	3
4.	DCC-8	EEP DC 204	Analog Integrated Circuits lab	0	0	2	1
5.	DCC-9	EEL DC 206	Microprocessors & Microcontrollers	3	0	0	3
6.	DCC-9	EEP DC 206	Microprocessors & Microcontrollers Lab	0	0	2	1
7.	DCC-10	EEL DC 208	Control Systems	3	0	0	3
8.	DCC-10	EEP DC 208	Control Systems Lab	0	0	2	1
9.	BSC-5	EEL DC 212	Numerical Methods and Optimization	3	0	0	3
10.	VAC-4		Environmental studies	2	0	0	2
			Total Credits				21



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Semester V

Third Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	DCC-11	EEL DC 303	Power System - I	3	0	0	3
2.	DCC-11	EEP DC 303	Power Systems Lab - I	0	0	2	1
3.	DCC-12	EEL DC 305	Power Electronics	3	0	0	3
4.	DCC-12	EEP DC 305	Power Electronics Lab	0	0	2	1
5.	DCC-13	EEL DC 304	AI and ML in Electrical Engineering	3	0	0	3
6.	DCC-13	EEP DC 304	AI and ML Lab	0	0	2	1
7.	PR-2	EED PR 301	Project Work – I	0	0	2	1
8.	DEC-1		Department Elective - 1	3	1	0	4
9.	DEC-II/GEC-1		Department Elective-II/Generic Elective - 1	3	1	0	4
10.	PR-3	EEI PR 301	Summer Internship – II	0	0	2	1
11.	MAK-III		Universal Human Value-II	2	0	0	NC
			Total Credits				22

Semester VI

Third Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	DCC-14	EEL DC 302	Power System - II	3	0	0	3
2.	DCC-14	EEP DC 302	Power System Lab - II	0	0	2	1
3.	DCC-15	EEL DC 306	Electric Vehicles	3	0	0	3
4.	AEC 3	MB BS XXX	Entrepreneurship/Management	3	0	0	3
5.	DEC-3		Department Elective - 3	3	1	0	4
6.	DEC-4/GEC-2		Department Elective –4 / General Elective -2	3	1	0	4
7.	PR-4	EED PR 302	Project Work –II	0	0	4	2
			Total Credits				20



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Semester VII

Fourth Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	DCC-16	EEL DC 401	Switchgear & Protection	3	1	0	4
2.	DCC-17	EEL DC 403	Power System Operation & Control	3	0	0	3
3.	PR-5	EED PR 401	Project Work –III	0	0	6	3
4.	PR-6	EEI PR 401	Internship - III	0	0	4	2
5.	DEC-5		Department Elective - 5	3	1	0	4
6.	DEC-6 / GEC-3		Department Elective – 6 / Generic Elective - 3	3	1	0	4
			Total Credits				20

Semester VIII

Fourth Year

S. No.	Category	Course Code	Course Title	L	T	S/P	C
1.	PR	EED PR 402/EEI PR 402	Project Work –IV (Major) / Internship	0	0	20	10
			Total Credits				10

Credits Division

Category	Credits
BSC	19
DCC	66
DEC/GEC	24
ESC	12
AEC/VAC/SEC	19
PR	20
Total Credits	160



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List of Departmental/School Core Courses (DCC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	EEL DC104	Network analysis & Synthesis	3	1	0	4
2	EEL DC 102	Electrical Measurements and Instrumentation	3	0	0	3
3	EEP DC 102	Electrical Measurements and Instrumentation Lab	0	0	2	1
4	EEL DC 210	Electromagnetic Field Theory	3	1	0	4
5	EEL DC 201	Electrical Machines – I	3	0	0	3
6	EEP DC 201	Electrical Machines Lab - I	0	0	2	1
7	EEL DC 203	Signal & Systems	3	1	0	4
8	EEL DC 205	Electronics Devices and circuits	3	0	0	3
9	EEP DC 205	Electronics Devices and circuits	0	0	2	1
10	EEL DC 202	Electrical Machines - II	3	0	0	3
11	EEP DC 202	Electrical Machines Lab - II	0	0	2	1
12	EEL DC 204	Analog Integrated Circuits	3	0	0	3
13	EEP DC 204	Analog Integrated Circuits lab	0	0	2	1
14	EEL DC 206	Microprocessors & Microcontrollers	3	0	0	3
15	EEP DC 206	Microprocessors & Microcontrollers Lab	0	0	2	1
16	EEL DC 208	Control Systems	3	0	0	3
17	EEP DC 208	Control Systems Lab	0	0	2	1
18	EEL DC 303	Power System - I	3	0	0	3
19	EEP DC 303	Power Systems Lab - I	0	0	2	1
20	EEL DC 305	Power Electronics	3	0	0	3
21	EEP DC 305	Power Electronics Lab	0	0	2	1
22	EEL DC 304	AI and ML in Electrical Engineering	3	0	0	3
23	EEP DC 304	AI and ML Lab	0	0	2	1
24	EEL DC 302	Power System - II	3	0	0	3
25	EEP DC 302	Power System Lab - II	0	0	2	1
26	EEL DC 306	Electric Vehicles	3	0	0	3
27	EEL DC 401	Switchgear & Protection	3	1	0	4
28	EEL DC 403	Power System Operation & Control	3	0	0	3
Total Credits						66

List of Basic Science Courses Offered by School (BSC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	MTL BS 101	Engineering Mathematics-I	3	1	0	4
2	BTL BS 111	Applied Chemistry	3	0	0	3
3	BTP BS 111	Applied Chemistry Lab	0	0	2	1
4	MTL BS 102	Engineering Mathematics II	3	1	0	4
5	PHL BS 101	Engineering Physics	3	0	0	3
6	PHP BS 101	Engineering Physics Lab	0	0	2	1
7	EEL BS 212	Numerical Methods and Optimization	3	0	0	3
Total Credits						19



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List of Engineering Science Courses Offered by School (ESC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	CSL ES 101	Introduction to 'C' Programming	3	0	0	3
2	CSP ES 101	'C' Programming Lab	0	0	2	1
3	MEL ES 101	Introduction to Engineering Mechanics	3	1	0	4
4	ECL ES 203	Digital Electronics	3	0	0	3
5	ECP ES 203	Digital Electronics Lab	0	0	2	1
Total Credits						12

List of Ability Enhancement Courses Offered by School (AEC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	EEL AE 102	Electrical Wiring	2	0	0	2
2	EEL AE 104	Fundamentals of Algorithmic logic	2	0	0	2

List of Skill Enhancement Courses Offered by School (SEC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	EEP SE 103	Electrical Workshop	0	0	4	2
2	EEM SE 106	Python Programming for Engineers	1	0	2	2
3	EEP SE 104	Electrical Circuit Design and analysis using SIMULINK	1	0	2	2

List of Value Addition Courses Offered by School (VAC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	EEL VA 102	Probability and Random Variables	2	0	0	2
2	EEL VA 104	Mathematical Modelling Using SIMULINK	1	0	2	2
3	EEL VA 101	Introduction to Electrical & Electronics Engineering	2	0	0	2

List of Project/Internship (PR Offered by School

S. No	Course Code	Course Title	L	T	S/P	Credit
1	EEI PR 201	Summer Internship - I	0	0	2	1
2	EED PR 301	Project Work – I	0	0	2	1
3	EEI PR 301	Summer Internship – II	0	0	2	1
4	EED PR 302	Project Work –II	0	0	4	2
5	EED PR 401	Project Work –III	0	0	6	3
6	EEI PR 401	Internship - III	0	0	4	2
7	EED PR 402/EEI PR 402	Project Work –IV (Major) / Internship	0	0	20	10
Total Credits						20



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List of General Elective Courses Offered by School (GEC)

S. No	Course Code	Course Title	L	T	S/P	Credit
1	EEL DE 301	Non-Conventional Energy Resources	3	1	0	4
2	EEL DE 303	Electrical Materials	3	1	0	4
3	EEE DE 322	Power Electronics controlled Drives	3	1	0	4
4	EEL DE 311	Sensors & Actuators	3	1	0	4
5	EEL DE 304	Advanced Control Systems	3	1	0	4
6	EEL DE 406	Power Plant Engineering	3	1	0	4
7	EEE DE 312	Analog Communication	3	1	0	4
8	EEL DE314	Digital Control Systems	3	1	0	4
9	EEL DE 408	Biomedical Instrumentation	3	1	0	4
10	EEE DE 412	Smart metering and Advanced Metering Infrastructure	3	1	0	4
11	EEE DE 309	Switched Mode DC-DC Converters	3	1	0	4
12	EEL DE 421	Switch Mode Power Supply	3	1	0	4
13	EEE DE 324	Introduction to Smart grid	3	1	0	4
14	EEE DE 417	Advanced Power System Protection	3	1	0	4
15	EEE DE 419	Microgrid Dynamics and Control	3	1	0	4
16	EEE DE 326	Random Variables & Stochastic Techniques	3	1	0	4
17	EEE DE 308	Design of Solar PV system	3	1	0	4
18	EEL DE 308	Electric Drives	3	1	0	4

List of Departmental/School Elective Electives (DEC)

S. No.	Course Code	Course Title	L	T	S/P	Credit
Elective – 1						
1	EEL DE 301	Non-Conventional Energy Resources	3	1	0	4
2	EEL DE 303	Electrical Materials	3	1	0	4
3	EEE DE 305	Advance Power Electronics and Control	3	1	0	4
4	EEL DE 307	Electrical Machine Design	3	1	0	4
5	EEE DE 309	Switched Mode DC-DC Converters	3	1	0	4
6	EEL DE 311	Sensors & Actuators	3	1	0	4
Elective – 2						
1	EEE DE 311	Special Electrical Machines	3	1	0	4
2	EEL DE 304	Advanced Control Systems	3	1	0	4
3	EEE DE 324	Introduction to Smart grid	3	1	0	4
4	EEE DE 308	Design of Solar PV system	3	1	0	4
5	EEL DE 310	Power Utilization and Traction	3	1	0	4
6	EEE DE 326	Random Variables & Stochastic Techniques	3	1	0	4
Elective – 3						
1	EEE DE 322	Line Commutated and PWM Rectifiers	3	1	0	4
2	EEL DE 314	Digital Control Systems	3	1	0	4
3	EEE DE 314	Electrical motor design	3	1	0	4



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4	EEL DE 318	Digital Signal Processing	3	1	0	4
5	EEE DE 318	Wind and Solar PV system	3	1	0	4
6	EEE DE 419	Microgrid Dynamics and Control	3	1	0	4
Elective – 4						
1	EEE DE 415	Fuzzy Logic and Neural Networks	3	1	0	4
2	EEE DE 401	DC Microgrid and Control System	3	1	0	4
3	EEE DE 412	Smart metering and Advanced Metering Infrastructure	3	1	0	4
4	EEE DE 409	Power Quality and FACTS Devices	3	1	0	4
5	EEE DE 411	Solar Energy Engineering and Technology	3	1	0	4
6	EEE DE 417	Advanced Power System Protection	3	1	0	4
Elective – 5						
1	EEE DE 414	HVDC Transmission Systems	3	1	0	4
2	EEE DE 405	Hydrogen Energy Engineering	3	1	0	4
3	EEL DE 419	Modelling and Analysis of Electric Distribution System	3	1	0	4
4	EEE DE 324	Introduction to Smart grid	3	1	0	4
5	EEL DE 423	Electrical Energy Conservation and Auditing	3	1	0	4
6	EEL DE 425	Power System Optimization	3	1	0	4



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Baskets for Major (Honors) Specializations

B. Tech. (Electrical Engineering) with Major Specialization (Honors)

The basket of Courses with two major specializations namely:

1. B. Tech. (Electrical Engineering) with Honor Specialization in Electric Vehicles (EV)
2. B. Tech. (Electrical Engineering) with Honor Specialization in Smart Grids (SG)

Honors in Electric Vehicles

S. No.	Course Code	Course Title	L	T	P	C	Category
1	EEL DC 202	Electrical Machines - II	3	0	0	3	DCC
2	EEP DC 202	Electrical Machines Lab - II	0	0	2	1	DCC
3	EEL DC 305	Power Electronics	3	0	0	3	DCC
4	EEP DC 305	Power Electronics Lab	0	0	2	1	DCC
5	EEP DC 208	Control Systems Lab	0	0	2	1	DCC
6	EEL DC 306	Electric Vehicles	3	0	0	3	DCC
7	EEE DE 322	Power Electronics controlled Drives	3	1	0	4	DEC/GEC
8	EEE DE 309	Switched Mode DC-DC Converters	3	1	0	4	DEC/GEC
9	EEE DE 305	Advance Power Electronics and Control	3	1	0	4	DEC/GEC
10	EEE DE 311	Special Electrical Machines	3	1	0	4	DEC/GEC
11	EEE DE 308	Design of Solar PV system	3	1	0	4	DEC/GEC
12	EEE DE 314	Electrical motor design	3	1	0	4	DEC/GEC
13	EEE DE 409	Power Quality and FACTS Devices	3	1	0	4	DEC/GEC
14	EEE DE 411	Solar Energy Engineering and Technology	3	1	0	4	DEC/GEC



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Honors in Smart Grid

S. No.	Course Code	Course Title	L	T	P	C	Category
1	EEL DC 208	Control Systems	3	0	0	3	DCC
2	EEP DC 208	Control Systems Lab	0	0	2	1	DCC
3	EEL DC 303	Power System - I	3	0	0	3	DCC
4	EEP DC 303	Power Systems Lab - I	0	0	2	1	DCC
5	EEL DC 302	Power System - II	3	0	0	3	DCC
6	EEP DC 302	Power System Lab - II	0	0	2	1	DCC
7	EEE DE 324	Introduction to Smart grid	3	1	0	4	DEC/GEC
8	EEE DE 417	Advanced Power System Protection	3	1	0	4	DEC/GEC
9	EEE DE 419	Microgrid Dynamics and Control	3	1	0	4	DEC/GEC
10	EEE DE 412	Smart metering and Advanced Metering Infrastructure	3	1	0	4	DEC/GEC
11	EEL DE 425	Power System Optimization	3	1	0	4	DEC/GEC
12	EEE DE 318	Wind and Solar PV system	3	1	0	4	DEC/GEC
13	EEL DE 419	Modelling and Analysis of Electric Distribution System	3	1	0	4	DEC/GEC
14	EEE DE 409	Power Quality and FACTS Devices	3	1	0	4	DEC/GEC



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Basket for Minor Specializations

Minor Specialization in Electrical System (ES)

S. No.	Course Title	Pre-requisites	L	T	P	C	Category	Minor Basket
1	Fundamentals of Electrical Engineering	Mathematics / Physics	3	1	0	4	GEC	ES
2	Switched Mode DC-DC Converters	Fundamentals of Electrical Engineering	3	1	0	4	GEC	ES
3	Electrical Materials	Physics / Fundamentals of Electrical Engineering	3	1	0	4	GEC	ES
4	Design of Solar PV system	Physics	3	1	0	4	GEC	ES
5	Non-conventional Energy Sources	Physics / Fundamentals of Electrical Engineering	3	1	0	4	GEC	ES
6	Electrical Measuring Instruments & Instrumentation	Fundamentals of Electrical Engineering / Physics / Basic Electronics	3	1	0	4	GEC	ES
7	Analog Electronics	BEEE	3	1	0	4	GEC	ES
8	Control Systems	Mathematics	3	1	0	4	GEC	ES
9	Power Electronics	Fundamentals of Electrical Engineering / Physics / Basic Electronics	3	1	0	4	GEC	ES

***ES stands for Electrical System. Students aspiring for minor specialization in ES shall have to earn 12 additional credits from the basket of 10 electives courses.**