

DAV UNIVERSITY, JALANDHAR

**DAV UNIVERSITY
JALANDHAR**



Course Scheme & Syllabus

For

B. Tech. in Electrical Engineering

**1st TO 8th SEMESTER
Examinations 2021-2025 Session**

Syllabi Applicable For Admissions in 2021

DAV UNIVERSITY, JALANDHAR

Scheme of Courses Integrated B. Tech-M.Tech(Electrical Engineering)

Semester-1*

Sr. No	Course Code	Course Title	L	T	P	Cr	Course Type
1	MTH151A	ENGINEERING MATHEMATICS-I	4	0	0	4	BS
2	CHE151A	CHEMISTRY	4	0	0	4	BS
3	CSE101A	COMPUTER FUNDAMENTALS AND PROGRAMMING	4	0	0	4	ES
4	EVS100A	ENVIRONMENTAL STUDIES	4	0	0	0	MC
5	MEC101A	ENGINEERING DRAWING	2	0	4	4	ES
6	ENG151A	BASIC COMMUNICATION SKILLS	3	0	0	3	HSMC
7	CHE152	CHEMISTRY LAB	0	0	2	1	BS
8	CSE103	COMPUTER FUNDAMENTALS AND PROGRAMMING LAB	0	0	2	1	ES
9	ENG152	BASIC COMMUNICATION SKILLS LAB	0	0	2	1	HSMC
TOTAL			21	0	10	22	

** Before the commencement of the classes of regular courses a three weeks induction program for newly admitted students is proposed*

Scheme of Courses Integrated B. Tech- M.Tech (Electrical Engineering) Semester-2

Sr.No	Course Code	Course Title	L	T	P	Cr	Course Type
1	MTH152A	ENGINEERING MATHEMATICS-II	4	0	0	4	BS
2	PHY151B	ENGINEERING PHYSICS	4	0	0	4	BS
3	MEC103	MECHANICAL ENGINEERING FUNDAMENTALS	4	0	0	4	ES
4	ELE105	BASIC ELECTRICAL ENGINEERING	4	0	0	4	ES
5	SGS107B	HUMAN VALUES AND GENERAL STUDIES	4	0	0	0	MC
6	MEC104	MANUFACTURING PRACTICE	0	0	4	2	ES
7	PHY152	ENGINEERING PHYSICS LAB	0	0	2	1	BS
8	ELE106	ELECTRICAL AND ELECTRONICS TECHNOLOGY LAB	0	0	2	1	ES
TOTAL			20	0	8	20	

Note: At the end of the examination of 2nd Semester the students will undergo compulsory internship of swachhbharatabhiyan for a period of 15 days (100 hrs.) duration in villages approved by university. Every student will submit the Report on internship within two weeks from the start of teaching for 3rd Semester. The marks for this will be included in the 3rd Semester.

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Scheme of Courses Integrated B. Tech- M.Tech (Electrical Engineering) Semester-3

Sr No.	COURSE CODE	COURSE TITLE	L	T	P	CR.	NATURE OF COURSE
1.	ELE201A	NETWORK ANALYSIS & SYNTHESIS	4	0	0	4	PCC
2.	ELE202A	ELECTRICAL MACHINES-I (DC MACHINES & TRANSFORMERS)	4	0	0	4	PCC
3.	ELE209A	ELECTRICAL MEASUREMENT AND INSTRUMENTATION	4	0	0	4	PCC
4.	MTH252A	ENGINEERING MATHEMATICS-III	4	0	0	4	BS
5.	ELE216	GENERATION & CONTROL OF POWER	4	0	0	4	PCC
6.	ELE203A	DC MACHINE & TRANSFORMERS LABORATORY	0	0	2	1	PCC
7.	ELE210	ELECTRICAL MEASUREMENT AND INSTRUMENTATION LABORATORY	0	0	2	1	LC
8.		SWACHH BHARAT SUMMER INTERNSHIP	0	0	0	2	
TOTAL			20	0	4	24	

L: Lectures T: Tutorial P: Practical Cr: Credits

Scheme of Courses Integrated B. Tech- M.Tech (Electrical Engineering) Semester-4

Sr. NO.	COURSE CODE	COURSE TITLE	L	T	P	CR.	NATURE OF COURSE
1.	ECE211	ANALOG ELECTRONICS	4	0	0	4	PCC
2.	ELE204	ELECTROMAGNETIC FIELD THEORY	4	0	0	4	PCC
3.	ELE218	ELECTRICAL MACHINES -II (ASYNCHRONOUS & SPECIAL PURPOSE MACHINES)	4	0	0	4	PCC
4.	ELE217	POWER SYSTEM-I (TRANSMISSION & DISTRIBUTION)	3	0	0	3	PCC
5.	ELE214A	RENEWABLE ENERGY SOURCES AND MANAGEMENT	4	0	0	4	PCC
6.	ECE214	ANALOG ELECTRONICS LABORATORY	0	0	2	1	LC
7.	ELE470A	ESTIMATION AND COSTING LABORATORY	0	0	6	3	LC
TOTAL			19	0	8	23	

L: Lectures T: Tutorial P: Practical Cr: Credits

Note: At the end of the examination of 4th Semester the students will undergo compulsory industrial training for a period of 4 weeks duration in reputed industries. Every student will submit the Training Report within two weeks from the start of teaching for 5th Semester. The credit for this will be included in the 5th Semester.

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Scheme of Courses Integrated B. Tech- M.Tech (Electrical Engineering) Semester-5

Sr. NO.	COURSE CODE	COURSE TITLE	L	T	P	CR.	NATURE OF COURSE
			3	0	0	3	PCC
1.	ELE330	SIGNAL AND SYSTEMS	4	0	0	4	PCC
2.	ELE306A	POWER ELECTRONICS	0	0	2	1	LC
3.	ELE 310	POWER ELECTRONICS LABORATORY	3	0	0	3	PCC
4.	ELE314	DIGITAL ELECTRONICS	3	0	0	3	PCC
5.	ELE342	POWER SYSTEM-II (STABILITY & FAULT ANALYSIS)	4	0	0	4	PCC
6.	ELE318	TRANSDUCER AND SIGNAL CONDITIONING	0	0	2	1	LC
7.	ELE331	DIGITAL ELECTRONICS LABORATORY	0	0	0	2	PWSI
8.	ELE350	INDUSTRIAL TRAINING I	1	0	3	2	LC
9.	ELE317	DESIGN AND SOFTWARE LABORATORY	18	0	7	23	
TOTAL							

Scheme of Courses Integrated B. Tech- M Tech (Electrical Engineering) Semester-6

Sr. NO.	COURSE CODE	COURSE TITLE	L	T	P	CR.	NATURE OF COURSE
			4	0	0	4	PCC
1.	ELE337	POWER SYSTEM -III(SWITCHGEAR & PROTECTION)	4	0	0	4	PCC
2.	ELE338	CONTROL SYSTEM	0	0	2	1	LC
3.	ELE339	CONTROL SYSTEM LABORATORY	3	0	0	3	PCC
4.	ELE343	INDUSTRIAL SAFETY AND STANDARDS	3	0	0	3	BS
5.	ENG351	TECHNICAL COMMUNICATION	4	0	0	4	PCC
6.	ELE340	ELECTRICAL MACHINES - III (SYNCHRONOUS MACHINES)	4	0	0	4	PEC
7.	ELE33X	PROGRAM SPECIALIZATION ELECTIVE -I	0	0	2	1	LC
8.	ELE309	POWER SYSTEM LABORATORY	0	0	2	1	LC
9.	ELE341	ASYNCHRONOUS & SYNCHRONOUS MACHINES LABORATORY	22	0	6	25	
TOTAL							

L: Lectures T: Tutorial P: Practical Cr: Credits

- Note:**
- Discipline specific elective-I should be from the basket of "Discipline Specific Elective-I".
 - At the end of the examination of 6th Semester the students will undergo compulsory industrial training for a period of 6 weeks duration in reputed industries. Every student will submit the training report within two weeks from the start of teaching of 7th Semester. The credits for this will be included in the 7th semester.

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Scheme of Courses Integrated B. Tech- M Tech (Electrical Engineering) Semester-7

Sr. NO.	COURSE CODE	COURSE TITLE	L	T	P	CR.	NATURE OF COURSE
1.	ELE410	MICROPROCESSOR & MICROCONTROLLER	4	0	0	4	PCC
2.	ELE411	MICROPROCESSOR, MICROCONTROLLER & PLC LABORATORY	0	0	2	1	LC
3.	MGT551	Research methodology	4	0	0	4	PCC
4.	ELEXXX	PG ELECTIVE I	4	0	0	4	PEC
5.	ELEXXX	PROGRAM SPECIALIZATION ELECTIVE -II	4	0	0	4	PEC
6.	ELEXXX	PROGRAM SPECIALIZATION ELECTIVE -III	4	0	0	4	PEC
7.	ELE406A	INDUSTRIAL TRAINING-II	0	0	0	2	PWSI
8.	ELE451A	Minor Project	0	0	8	4	PWSI
TOTAL			20	0	10	27	

Scheme of Courses Integrated B. Tech- M Tech (Electrical Engineering) Semester-8

Sr. NO.	COURSE CODE	COURSE TITLE	L	T	P	CR.	NATURE OF COURSE
1.	ELEXXX	PROGRAM SPECIALIZATION ELECTIVE- IV	4	0	0	4	PEC
2.	ELEXXX	PROGRAM SPECIALIZATION ELECTIVE-V	4	0	0	4	PEC
3.	ELEXXX	PG ELECTIVE II	4	0	0	4	PEC
4.	ELEXXX	PG ELECTIVE III	4	0	0	4	PEC
5.	ELEXXX	PROGRAM SPECIALIZATION ELECTIVE-VI	4	0	0	4	PEC
6.	ELEXXX	Major project	0	0	12	6	PROJ
TOTAL			20	0	12	26	

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Scheme of Courses Integrated B. Tech- M Tech (Electrical Engineering)

Semester-9

Sr. No	Course Code	Course Title	L	T	P	Cr	NATURE OF COURSE
1	ELEXXX	PG ELECTIVE IV	4	0	0	4	PEC
2	ELE501A	Modern Power System Analysis	4	0	0	4	PCC
3	ELE502A	Power System Dynamics	4	0	0	4	PCC
4	ELEXXX	PGELECTIVE-V	4	0	0	4	PCC
5	ELEXXX	PG ELECTIVE-VI	4	0	0	4	PEC
6	ELE505A	Electrical Power System Laboratory	0	0	4	2	LC
	ELEXXX	Seminar	0	0	4	2	Seminar
7	ELEXXX	DISSERTATION PART - I	0	0	16	8	PROJ
TOTAL			20	0	24	32	

Scheme of Courses Integrated B. Tech- M Tech (Electrical Engineering) Semester-10

Sr. No	Course Code	Course Title	L	T	P	Cr	NATURE OF COURSE
1	ELEXXX	DISSERTATION PART - II	0	0	16	12	PROJ
TOTAL			0	0	16	12	

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Total credit (From one to ten Semester) = 234

Year	PROGRAM STRUCTURE	BS	ES	M C	PCC	HSM C	PEC	PWSI	LC	PROJ	Total CR
2021	Integrated B.TECH-M.TECH. ECE	25	20	0	92	4	44	8	15	26	234

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List of PROGRAM SPECIALIZATION ELECTIVE

PROGRAM SPECIALIZATION ELECTIVE - I						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	ELE327	ELECTRICAL MACHINE DESIGN	4	0	0	4
2	ELE332	ENERGY EFFICIENT MACHINES	4	0	0	4
3	ELE333	BIOMEDICAL ENGINEERING	4	0	0	4
4	ELE334	INDUSTRIAL PROCESS CONTROL	4	0	0	4
5	ELE335	COMMUNICATION SYSTEMS	4	0	0	4
		MOOC-I Courses	4	0	0	4
PROGRAM SPECIALIZATION ELECTIVE - II						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	ELE431	RELIABILITY ENGINEERING	4	0	0	4
2	ELE443	HVDC AND EHVAC TRANSMISSION	4	0	0	4
3	ELE447	DIGITAL CONTROL SYSTEMS	4	0	0	4
4	ELE439	MICROSENSORS AND SMART DEVICES	4	0	0	4
5	ELE437	DIGITAL SIGNAL PROCESSING	4	0	0	4
		MOOC-II Courses	4	0	0	4
PROGRAM SPECIALIZATION ELECTIVE - III						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	ELE448	OPTIMAL CONTROL	4	0	0	4
2	ELE436	FUNDAMENTALS OF VIRTUAL INSTRUMENTATION	4	0	0	4
3	ELE449	COMPUTATIONAL ELECTROMAGNETICS	4	0	0	4
4	ELE450	ELECTRICAL ENGINEERING MATERIALS	4	0	0	4
5	ELE468	ADVANCED INSTRUMENTATION	4	0	0	4
		MOOC-III Courses	4	0	0	4
PROGRAM SPECIALIZATION ELECTIVE - IV						

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Sr. No.	Course Code	Course Title	L	T	P	Credit
1	ELE459	ELECTRICAL AND HYBRID VEHICLES	4	0	0	4
2	ELE460	NEURAL NETWORKS AND FUZZY LOGICS	4	0	0	4
3	ELE408	ELECTRICAL ENERGY AUDITING AND DEREGULATION	4	0	0	4
4	ELE461	POWER QUALITY AND FACTS	4	0	0	4
5	ELE435	OPTIMIZATION TECHNIQUES	4	0	0	4
		MOOC-IV Courses	4	0	0	4
PROGRAM SPECIALIZATION ELECTIVE -V						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	ELE463	POWER SYSTEM DYNAMICS AND CONTROL	4	0	0	4
2	ELE464	INDUSTRIAL ELECTRICAL SYSTEMS	4	0	0	4
3	ELE465	ADVANCED ELECTRIC DRIVES	4	0	0	4
4	ELE467	CONTROL SYSTEMS DESIGN	4	0	0	4
5	ELE407	POWER PLANT ENGINEERING	4	0	0	4
		MOOC-V Courses	4	0	0	4
PROGRAM SPECIALIZATION ELECTIVE -VI						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	ELE511	POWER SYSTEM OPTIMISATION	4	0	0	4
2	ELE503A	ADVANCED ELECTRIC DRIVES	4	0	0	4
3	ELE479	ENERGY CONSERVATION AND PRACTICES	4	0	0	4
4	ELE480	ARTIFICIAL INTELLIGENCE	4	0	0	4
		MOOC-VI Courses	4	0	0	4

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List of PG ELECTIVE

PGELECTIVE -I						
Sr. No.	Course Code	Course Title	L	T	P	Cr.
1	ELE514A	DESIGN OF ELECTRICAL MACHINES	4	0	0	4
2	ELE621A	POWER SYSTEM PLANNING AND RELIABILITY	4	0	0	4
3	ELE651	COMPUTER AIDED DESIGN OF ELECTRICAL MACHINES	4	0	0	4
4	ELE652	POWER SYSTEM TRANSIENTS	4	0	0	4
PGELECTIVE -II						
Sr. No.	Course Code	Course Title	L	T	P	Cr.
1	ELE517	ADVANCED POWER ELECTRONICS AND DRIVES	4	0	0	4
2	ELE513A	HIGH VOLTAGE AC & DC TRANSMISSION	4	0	0	4
3	ELE670	AUTOMATIC CONTROL OF DC DRIVES	4	0	0	4
4	ELE663	SPECIAL ELECTRICAL MACHINES	4	0	0	4
PGELECTIVE -III						
Sr. No.	Course Code	Course Title	L	T	P	Cr.
1	ELE653	FLEXIBLE AC TRANSMISSION SYSTEMS	4	0	0	4
2	ELE654	POWER STATION DESIGN	4	0	0	4
3	ELE655	HIGH VOLTAGE ENGINEERING	4	0	0	4
4	ELE658	POWER SYSTEM RELIABILITY	4	0	0	4
PGELECTIVE -IV						
Sr. No.	Course Code	Course Title	L	T	P	Cr.
1	ELE659	ENERGY AUDITING, CONSERVATION AND MANAGEMENT	4	0	0	4
2	ELE660	ORGANIZATION AND FINANCE IN POWER	4	0	0	4

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		SECTOR				
3	ELE661	DISTRIBUTION AUTOMATION	4	0	0	4
4	ELE662	RENEWABLE ENERGY RESOURCES	4	0	0	4
PGELECTIVE -V						
Sr. No.	Course Code	Course Title	L	T	P	Cr.
1	ELE469	SENSORS AND TRANSDUCERS	4	0	0	4
2	ELE470	SOFT COMPUTING TECHNIQUES	4	0	0	4
3	ELE471	ELECTRICAL SAFETY AND STANDARDS	4	0	0	4
4	ELE472	COMPUTATIONAL ELECTROMAGNETICS	4	0	0	4
PGELECTIVE -VI						
Sr. No.	Course Code	Course Title	L	T	P	Cr.
1	ELE473	ELECTRIC AND HYBRID VEHICLES	4	0	0	4
2	ELE474	ADVANCED MICROPROCESSOR AND MICROCONTROLLER	4	0	0	4
3	ELE475	TELEMETRY AND DATA ACQUISITION	4	0	0	4
4	ELE476	VIRTUAL INSTRUMENTATION	4	0	0	4

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List of MOOC Courses

Students have been given the choices for the MOOC/Elective courses. The proposed list of MOOC courses have been given, however the student have choice to choose relevant courses with due consent of department head that must be running in particular academic semester.

MOOC COURSES-I						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	MOOC	POWER QUALITY	4	0	0	4
2	MOOC	SIGNAL PROCESSING FOR MMWAVE COMMUNICATION FOR 5G AND BEYOND	4	0	0	4
3	MOOC	CONTROL AND TUNING METHODS IN SWITCHED MODE POWER CONVERTERS	4	0	0	4
4	MOOC	ADVANCED MICROWAVE GUIDED-STRUCTURES AND ANALYSIS	4	0	0	4
MOOC COURSES -II						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	MOOC	INTRODUCTION TO SEMICONDUCTOR DEVICES	4	0	0	4
2	MOOC	MATHEMATICAL ASPECTS OF BIOMEDICAL ELECTRONIC SYSTEM DESIGN	4	0	0	4
3	MOOC	DIGITAL SIGNAL PROCESSING AND ITS APPLICATIONS	4	0	0	4
4	MOOC	COMPUTER VISION AND IMAGE PROCESSING FUNDAMENTALS AND APPLICATIONS	4	0	0	4
MOOC COURSES -III						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	MOOC	INTRODUCTION TO TIME-VARYING ELECTRICAL NETWORKS	4	0	0	4
2	MOOC	DIGITAL SYSTEM DESIGN	4	0	0	4
3	MOOC	PHOTONIC INTEGRATED CIRCUIT	4	0	0	4
4	MOOC	APPLIED LINEAR ALGEBRA	4	0	0	4
MOOC COURSES -IV						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	MOOC Courses	POWER SYSTEM PROTECTION	4	0	0	4
2	MOOC	FIBER OPTIC COMMUNICATION TECHNOLOGY	4	0	0	4

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3	MOOC	IMAGE SIGNAL PROCESSING	4	0	0	4
4	MOOC	INTRODUCTORY NEUROSCIENCE & NEURO-INSTRUMENTATION	4	0	0	4
MOOC COURSES -V						
Sr. No.	Course Code	Course Title	L	T	P	Credit
1	MOOC	INFORMATION THEORY	4	0	0	4
2	MOOC	HIGH POWER MULTILEVEL CONVERTERS ANALYSIS, DESIGN AND OPERATIONAL ISSUES	4	0	0	4
3	MOOC	MICROPROCESSORS AND INTERFACING	4	0	0	4
4	MOOC	STATISTICAL SIGNAL PROCESSING	4	0	0	4
MOOC COURSES -IV						
1	MOOC	SPECIAL ELECTROMECHANICAL SYSTEMS	4	0	0	4
2	MOOC	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	4	0	0	4
3	MOOC	STOCHASTIC MODELING AND THE THEORY OF QUEUES	4	0	0	4
4	MOOC	INTEGRATED PHOTONICS DEVICES AND CIRCUITS	4	0	0	4

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Mandatory Induction program (Appendix A)

[Induction program for students to be offered right at the start of the first year.]

3 Weeks Induction Program(Mandatory)

- Physical activity
- Creative Arts
- Universal Human Values
- Literary
- Proficiency Modules
- Lectures by Eminent People
- Visits to Local Areas
- Familiarization to Dept./Branch & Innovations

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