



# JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

## COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F

2024-2025

RELEASE DATE

01/07/2025

SECOND YEAR BACHELOR OF TECHNOLOGY  
(ELECTRONICS AND TELECOMMUNICATION) (REGULAR STUDENTS)

REVISION NO.

1.0 (NEP)

### SEMESTER III (LEVEL 5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)							
BSC	230GMAB07_03	Ordinary Differential Equations and Multivariate Calculus	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PCC	231GETB03_03	Electronic Circuits and Applications	2	-	-	-	30	30	40	50	-	-	-	-	50	2
	230GETB04_03	Digital Electronics	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	231GETB05_03	Network Analysis	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VEC (HSMC)	230USYB02_03	Professional Laws, Ethics, Values and Harmony	2	-	-	-	30	30	40	50	-	-	-	-	50	2
LC	230GETB06_03	Electronic Circuits and Applications Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
	230GETB07_03	Digital Electronics Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
LLC	230HFSB80_03	Health and Nutrition	1	-	-	2	-	-	-	-	-	-	50	-	50	1.5
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>6</b>	<b>4</b>									<b>750</b>	<b>20</b>

Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111 03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01 04			
	Course Name	Sensors and Actuators			
V	Course Code	230GCSB125 05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116 06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52 07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55 07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	250GBTB01 03			
	Course Name	Bioengineering			
V	Course Code	230GCSB168 05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64 07			
	Course Name	Smart Materials			



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### SEMESTER III (LEVEL 5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
BSC	230GMAL01_03	Linear Algebra and Univariate Calculus	3	1	-	-	30	30	40	100	-	-	-	-	100	4
PCC	231GETB03_03	Electronic Circuits and Applications	2	-	-	-	30	30	40	50	-	-	-	-	50	2
	230GETB04_03	Digital Electronics	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	231GETB05_03	Network Analysis	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VSC	230IDCB01_03	Design Thinking and Creativity	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
AEC (HSMC)	230UENB01_03	Effective Communication Skills	1	-	2	-	30	30	40	50	-	-	-	-	50	2
LC	230GETB06_03	Electronic Circuits and Applications Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
	230GETB07_03	Digital Electronics Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>21</b>

Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111 03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01 04			
	Course Name	Sensors and Actuators			
V	Course Code	230GCSB125 05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116 06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52 07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55 07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	250GBTB01 03			
	Course Name	Bioengineering			
V	Course Code	230GCSB168 05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64 07			
	Course Name	Smart Materials			



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(ELECTRONICS AND TELECOMMUNICATION) (REGULAR STUDENTS)

### SEMESTER IV (LEVEL 5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)								
BSC	230GMAB08_04	Vector Calculus and Partial Differential Equations	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	231GETB11_04	Signals and Systems	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
	231GETB12_04	Analog Communication	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
	231GETB13_04	Control Systems	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
VEC/EEC	231GCEB02_04	Environment and Sustainability	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
SEC	250GCSB202_04	Introduction to R Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3	
AEC (HSMC)	230UENB02_04	Communicative Proficiency Skills	1	-	2	-	30	30	40	50	-	-	-	-	50	2	
LC	230GETB14_04	Analog Communication Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/FP/CEP	230GETB15_04	Internship / Field Project / Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>22</b>	
DSH	-	Domain Specific Honours	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
MLC*	-	Audit Course	-	-	2	-	-	-	-	-	-	-	50	-	50	1	

**Note:** A Certificate will be awarded if a student exits after the First year.

For "Exit" at the end of the First Year the student must complete a total of 8 additional credits.

a) An internship / OJT of 8 - 10 weeks (4 credits) over and above semester 2 internship of minimum 4 weeks.

b) Additional one Course of 4 credits (Course offered will be Vocational Skill Course (VSC) or Skill Enhancement Course (SEC) or a mini project).

Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111_03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01_04			
	Course Name	Sensors and Actuators			
V	Course Code	230GCSB125_05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116_06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52_07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55_07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	250GBTB01_03			
	Course Name	Bioengineering			
V	Course Code	230GCSB168_05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64_07			
	Course Name	Smart Materials			

Mandatory Learning Course (MLC <sup>2</sup> ) Audit Course			
Course Code	241GETB01_04	Course Code	240GETB04_06
Course Name	PCB Design and Fabrication	Course Name	Android App Development
Course Code	240GETB02_05	Course Code	230UPOB02_07
Course Name	Drone Technology: Quadcopter Design and Control	Course Name	Introduction to Indian Constitution
Course Code	240GETB03_06		
Course Name	Amateur Radio: Theory and Practice		

Sem.	Domain Specific Honours (DSH)		
	Specialization	Sustainable Energy Systems	Next Generation Communication
IV	Course Code	230GETB75_04	230GETB127_04
	Course Name	Renewable Energy	4G Cellular Communication
V	Course Code	230GETB76_05	230GETB107_05
	Course Name	Climate Change and Environmental Science	Cognitive Radio Technology
	Course Code	230GETB132_05	230GETB108_05
	Course Name	Climate Change and Environmental Science Lab	Cognitive Radio Technology Lab
VI	Course Code	230GETB77_06	230GETB105_06
	Course Name	Sustainable and Green Technology	Advanced Antenna Design for 5G
VI	Course Code	230GETB78_06	230GETB106_06
	Course Name	Sustainable and Green Technology Lab	Advanced Antenna Design for 5G Lab
VII	Course Code	230GETB79_07	230GETB109_07
	Course Name	Smart Grid	Software Defined Networks
VII	Course Code	230GETB80_07	230GETB133_07
	Course Name	Smart Grid Lab	Software Defined Networks Lab
VIII	Course Code	230GETB81_08	230GETB110_08
	Course Name	MOOC- II	MOOC-III



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### SEMESTER IV (LEVEL 5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assign-ments (40 Marks)								
BSC	230GMAL02_04	Multivariate Calculus and Differential Equations	3	1	-	-	30	30	40	100	-	-	-	-	100	4	
PCC	231GETB11_04	Signals and Systems	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
	231GETB12_04	Analog Communication	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
	231GETB13_04	Control Systems	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
VEC/EEC	231GCEB02_04	Environment and Sustainability	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
SEC	250GCSB202_04	Introduction to R Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3	
AEC (HSM C)	230UENB02_04	Communicative Proficiency Skills	1	-	2	-	30	30	40	50	-	-	-	-	50	2	
LC	230GETB14_04	Analog Communication Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/FP/CEP	230GETB15_04	Internship / Field Project / Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>23</b>	
DSH	-	Domain Specific Honours	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
MLC <sup>a</sup>	-	Audit Course	-	-	2	-	-	-	-	-	-	-	50	-	50	1	

**Note:** A Certificate will be awarded if a student exits after the First year.

For "Exit" at the end of the First Year the student must complete a total of 8 additional credits.

a) An internship / OJT of 8 - 10 weeks (4 credits) over and above semester 2 internship of minimum 4 weeks.

b) Additional one Course of 4 credits (Course offered will be Vocational Skill Course (VSC) or Skill Enhancement Course (SEC) or a mini project).

Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111_03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01_04			
	Course Name	Sensors and Actuators			
V	Course Code	230GCSB125_05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116_06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52_07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55_07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	250GBTB01_03			
	Course Name	Bioengineering			
V	Course Code	230GCSB168_05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64_07			
	Course Name	Smart Materials			

Mandatory Learning Course (MLC <sup>2</sup> ) Audit Course			
Course Code	241GETB01_04	Course Code	240GETB04_06
Course Name	PCB Design and Fabrication	Course Name	Android App Development
Course Code	240GETB02_05	Course Code	230UPOB02_07
Course Name	Drone Technology: Quadcopter Design and Control	Course Name	Introduction to Indian Constitution
Course Code	240GETB03_06		
Course Name	Amateur Radio: Theory and Practice		

Sem.	Domain Specific Honours (DSH)		
	Specialization	Sustainable Energy Systems	Next Generation Communication
IV	Course Code	230GETB75_04	230GETB127_04
	Course Name	Renewable Energy	4G Cellular Communication
V	Course Code	230GETB76_05	230GETB107_05
	Course Name	Climate Change and Environmental Science	Cognitive Radio Technology
	Course Code	230GETB132_05	230GETB108_05
	Course Name	Climate Change and Environmental Science Lab	Cognitive Radio Technology Lab
VI	Course Code	230GETB77_06	230GETB105_06
	Course Name	Sustainable and Green Technology	Advanced Antenna Design for 5G
VI	Course Code	230GETB78_06	230GETB106_06
	Course Name	Sustainable and Green Technology Lab	Advanced Antenna Design for 5G Lab
VII	Course Code	230GETB79_07	230GETB109_07
	Course Name	Smart Grid	Software Defined Networks
VII	Course Code	230GETB80_07	230GETB133_07
	Course Name	Smart Grid Lab	Software Defined Networks Lab
VIII	Course Code	230GETB81_08	230GETB110_08
	Course Name	MOOC- II	MOOC-III

**Batch: 2024**  
**(Course structure for Approval)**



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SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

RELEASE DATE

01/07/2025

Electronics & Telecommunication Engineering

REVISION NO.

0.0 (NEP)

### SEMESTER V (LEVEL 5.5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
BSC	230GETB97_05	Electromagnetic Theory	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PCC	230GETB16_05	Digital Communication	2	-	-	-	30	30	40	50	-	-	-	-	50	2
PCC	230GETB17_05	Microprocessors and Microcontrollers	2	-	-	-	30	30	40	50	-	-	-	-	50	2
PCC	230GETB18_05	Digital Signal Processing	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
PEC	-	Program Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	100	-	-	-	-	100	2
HSSM	231VBCB27_05	Finance for Engineers	1	-	-	4	-	-	-	-	-	-	50	50	50	2
VSC	230IINB02_05	Innovation	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
LC	230GETB20_05	Digital Communication Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
LC	230GETB21_05	Microprocessors and Microcontrollers Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>6</b>	<b>8</b>									<b>800</b>	<b>22</b>
DSH	-	Domain Specific Honours	3	-	-	-	30	30	40	100	-	-	-	-	100	3
DSH_LC	-	Domain Specific Honours Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
MLC#	-	Audit Course	-	-	2	-	-	-	-	-	-	-	50	-	50	1

Sem.	Program Elective Course			
	Specialization	Intelligent Systems and Data Analytics	Advanced Communication Systems	Microwave and Antenna Engineering
V	Course Code	230GETB112_05	230GETB113_05	230GETB114_05
	Course Name	Fundamentals of Artificial Intelligence	Fiber Optic Communication	Microwave Theory and Techniques
VI	Course Code	230GETB115_06	230GETB116_06	230GETB117_06
	Course Name	Machine Learning	Satellite Communication	Antennas and Wave Propagation
VII	Course Code	230GETB118_07	230GETB119_07	230GETB120_07
	Course Name	Big Data Analytics	Advanced Mobile Communications	Next-Generation Antenna Technologies

Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111_03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01_04			
	Course Name	Sensors and Actuators			
V	Course Code	05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116_06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52_07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55_07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	230HFSB16_03			
	Course Name	Biology for Engineers			
V	Course Code	230GCSB168_05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64_07			
	Course Name	Smart Materials			

Mandatory Learning Course (MLC#) Audit Course			
Course Code	240GETB01_04	Course Code	240GETB04_06
Course Name	PCB Design and Fabrication	Course Name	Android App Development
Course Code	240GETB02_05	Course Code	230UPOB02_07
Course Name	Drone Technology: Quadcopter Design and Control	Course Name	Introduction to Indian Constitution
Course Code	240GETB03_06		
Course Name	Amateur Radio: Theory and Practice		

Sem.	Domain Specific Honours (DSH)		
	Specialization	Sustainable Energy Systems	Next Generation Communication
IV	Course Code	230GETB75_04	230GETB127_04
	Course Name	Renewable Energy	4G Cellular Communication
V	Course Code	230GETB76_05	230GETB107_05
	Course Name	Climate Change and Environmental Science	Cognitive Radio Technology
	Course Code	230GETB132_05	230GETB108_05
	Course Name	Climate Change and Environmental Science Lab	Cognitive Radio Technology Lab
VI	Course Code	230GETB77_06	230GETB105_06
	Course Name	Sustainable and Green Technology	Advanced Antenna Design for 5G
VI	Course Code	230GETB78_06	230GETB106_06
	Course Name	Sustainable and Green Technology Lab	Advanced Antenna Design for 5G Lab
VII	Course Code	230GETB79_07	230GETB109_07
	Course Name	Smart Grid	Software Defined Networks
VII	Course Code	230GETB80_07	230GETB133_07
	Course Name	Smart Grid Lab	Software Defined Networks Lab
VIII	Course Code	230GETB81_08	230GETB110_08
	Course Name	MOOC- II	MOOC-III



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### SEMESTER VI (LEVEL 5.5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)								
PSBC	230GETB96_06	Probability Statistics and Queuing Theory	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	230GETB122_06	Internet of Things	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
PCC	230GETB27_06	VLSI Design	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
PEC	-	Program Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
AEC	230UENB03_06	Soft Skill Development	1	-	2	-	30	30	40	50	-	-	-	-	50	2	
HSSM	230UEEB19_06	Engineering Economics	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
VSC	230IESB03_06	Entrepreneurship	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5	
LC	230GETB123_06	Internet of Things Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
LC	230GETB49_06	VLSI Design Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/ FP/ CEP	230GETB126_06	Internship / Field Project / Community Engagement Program	4 to 6 Weeks				-	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>22</b>	
DSH	-	Domain Specific Honours	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
DSH_ LC	-	Domain Specific Honours Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
MLC*	-	Audit Course	-	-	2	-	-	-	-	-	-	-	50	-	50	1	

Sem.	Program Elective Course			
	Specialization	Intelligent Systems and Data Analytics	Advanced Communication Systems	Microwave and Antenna Engineering
V	Course Code	230GETB112_05	230GETB113_05	230GETB114_05
	Course Name	Fundamentals of Artificial Intelligence	Fiber Optic Communication	Microwave Theory and Techniques
VI	Course Code	230GETB115_06	230GETB116_06	230GETB117_06
	Course Name	Machine Learning	Satellite Communication	Antennas and Wave Propagation
VII	Course Code	230GETB118_07	230GETB119_07	230GETB120_07
	Course Name	Big Data Analytics	Advanced Mobile Communications	Next-Generation Antenna Technologies

Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111_03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01_04			
	Course Name	Sensors and Actuators			
V	Course Code	230GCSB125_05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116_06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52_07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55_07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	230HFSB16_03			
	Course Name	Biology for Engineers			
V	Course Code	230GCSB168_05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GETB33_07			
	Course Name	Electric Vehicle (EV) Technology			

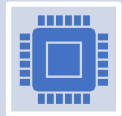
Mandatory Learning Course (MLC)		Audit Course	
Course Code	240GETB01_04	Course Code	240GETB04_06
Course Name	PCB Design and Fabrication	Course Name	Android App Development
Course Code	240GETB02_05	Course Code	230UPOB02_07
Course Name	Drone Technology: Quadcopter Design and Control	Course Name	Introduction to Indian Constitution
Course Code	240GETB03_06		
Course Name	Amateur Radio: Theory and Practice		

Sem.	Domain Specific Honours (DSH)		
	Specialization	Sustainable Energy Systems	Next Generation Communication
IV	Course Code	230GETB75_04	230GETB127_04
	Course Name	Renewable Energy	4G Cellular Communication
V	Course Code	230GETB76_05	230GETB107_05
	Course Name	Climate Change and Environmental Science	Cognitive Radio Technology
	Course Code	230GETB132_05	230GETB108_05
	Course Name	Climate Change and Environmental Science Lab	Cognitive Radio Technology Lab
VI	Course Code	230GETB77_06	230GETB105_06
	Course Name	Sustainable and Green Technology	Advanced Antenna Design for 5G
VI	Course Code	230GETB78_06	230GETB106_06
	Course Name	Sustainable and Green Technology Lab	Advanced Antenna Design for 5G Lab
VII	Course Code	230GETB79_07	230GETB109_07
	Course Name	Smart Grid	Software Defined Networks
VII	Course Code	230GETB80_07	230GETB133_07
	Course Name	Smart Grid Lab	Software Defined Networks Lab
VIII	Course Code	230GETB81_08	230GETB110_08
	Course Name	MOOC- II	MOOC-III

# Audit Course



SEM- IV: Disaster Risk Management and Safety Planning- 1 credit



SEM- V: PCB Design and Fabrication -2 credit



SEM- VI: Drone Technology: Quadcopter Design and Control- 2 credits



SEM- VII: Introduction to Indian Constitution- 1 credit

**Batch: 2023**  
**(Course structure for Approval)**



# JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

## COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F

2024-2025

RELEASE DATE

01/07/2024

ELECTRONICS & TELECOMMUNICATION ENGINEERING

REVISION NO.

0.0 (NEP)

### SEMESTER VII (LEVEL 6.5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS									TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)								
PCC	230GETB23_07	Embedded Systems	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
PCC	230GETB124_07	Wireless Ad Hoc and Sensor Network	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
PCC	230GETB25_07	Information Theory and Coding Techniques	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
PEC	-	Program Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
RMC	230IRMB02_07	Research Methodology, Methods and Techniques	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
LC	230GETB121_07	Embedded Systems Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
LC	230GETB125_07	Wireless Ad Hoc and Sensor Network Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
Proj	230GETB51_07	Internship / Field Project / Community Engagement Program	-	-	2	4	-	-	-	-	-	-	-	50	50	2	
			16	-	10	4										750	22
DSH	-	Domain Specific Honours	4	-	-	-	30	30	40	100	-	-	-	-	100	4	
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1	

Sem.	Program Elective Course			
	Specialization	Intelligent Systems and Data Analytics	Advanced Communication Systems	Microwave and Antenna Engineering
V	Course Code	230GETB112_05	230GETB113_05	230GETB114_05
	Course Name	Fundamentals of Artificial Intelligence	Fiber Optic Communication	Microwave Theory and Techniques
VI	Course Code	230GETB115_06	230GETB116_06	230GETB117_06
	Course Name	Machine Learning	Satellite Communication	Antennas and Wave Propagation
VII	Course Code	230GETB118_07	230GETB119_07	230GETB120_07
	Course Name	Big Data Analytics	Advanced Mobile Communications	Next-Generation Antenna Technologies


Sem.	Multidisciplinary Minor Course (MMC)				
	Specialization				
III	Course Code	230GCSB111_03			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GMTB01_04			
	Course Name	Sensors and Actuators			
V	Course Code	05			
	Course Name	Internet and Cloud Computing			
VI	Course Code	230GCSB116_06			
	Course Name	Data Science and Analytics			
VII	Course Code	230GMEB52_07			
	Course Name	3-D Printing			
VII	Course Code	230GRAB55_07			
	Course Name	Industrial Robots			

Sem.	Interdisciplinary Open Course (IOC)				
	Specialization				
III	Course Code	230HFSB16_03			
	Course Name	Biology for Engineers			
V	Course Code	230GCSB168_05			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64_07			
	Course Name	Smart Materials			


Mandatory Learning Course (MLC#) Audit Course			
Course Code	240GETB01_04	Course Code	240GETB04_06
Course Name	PCB Design and Fabrication	Course Name	Android App Development
Course Code	240GETB02_05	Course Code	230UPOB02_07
Course Name	Drone Technology: Quadcopter Design and Control	Course Name	Introduction to Indian Constitution
Course Code	240GETB03_06		
Course Name	Amateur Radio: Theory and Practice		

Sem.	Domain Specific Honours (DSH)			
	Specialization	EV Technology	Sustainable Energy Systems	5G Communication
IV	Course Code	230GETB82_04	230GETB75_04	230GETB127_04
	Course Name	Electrical Vehicles-Policies and Regulations	Renewable Energy	4G Cellular Communication
V	Course Code	230GETB83_05	230GETB76_05	230GETB107_05
	Course Name	Introduction to Automobiles	Climate Change and Environmental Science	Cognitive Radio Technology
	Course Code	230GETB131_05	230GETB132_05	230GETB108_05
	Course Name	Introduction to Automobiles Lab	Climate Change and Environmental Science Lab	Cognitive Radio Technology Lab
VI	Course Code	230GETB84_06	230GETB77_06	230GETB105_06
	Course Name	EV Charging Technology	Sustainable and Green Technology	Advanced Antenna Design for 5G
VI	Course Code	230GETB85_06	230GETB78_06	230GETB106_06
	Course Name	EV Charging Technology Lab	Sustainable and Green Technology Lab	Advanced Antenna Design for 5G Lab
VII	Course Code	230GETB86_07	230GETB79_07	230GETB109_07
	Course Name	Introduction of EV in Utility Grid	Smart Grid	Software Defined Networks
VII	Course Code	230GETB87_07	230GETB80_07	230GETB133_07
	Course Name	Introduction of EV in Utility Grid Lab	Smart Grid Lab	Software Defined Networks Lab
VIII	Course Code	230GETB88_08	230GETB81_08	230GETB110_08
	Course Name	MOOC-I	MOOC- II	MOOC-III

## SCHEME A (In-house Project)

		<b>JSPM University Pune</b>								<b>COURSE STRUCTURE (NEP 2020 Aligned)</b>								
		<b>FACULTY OF SCIENCE &amp; TECHNOLOGY</b>								<b>W. E. F</b>		<b>2024-2025</b>						
		<b>SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES</b>								<b>RELEASE DATE</b>		<b>01/07/2024</b>						
<b>ELECTRONICS &amp; TELECOMMUNICATION ENGINEERING</b>								<b>REVISION NO.</b>		<b>0.0 (NEP)</b>								
<b>SEMESTER VIII (LEVEL 6.5)</b>																		
<b>COURSE</b>			<b>TEACHING SCHEME</b>				<b>EXAMINATION SCHEME AND MARKS</b>										<b>C R E D I T S</b>	
<b>TYPE</b>	<b>CODE</b>	<b>COURSE NAME</b>	<b>Hours / Week</b>				<b>THEORY (Equal Weightage for CIE and ESE)</b>				<b>PRACTICAL (Equal Weightage for CIE and ESE)</b>		<b>ORAL (Equal Weightage for CIE and ESE)</b>					<b>T O T A L</b>
			<b>L</b>	<b>T</b>	<b>P</b>	<b>EL</b>	<b>CONTINUOUS INSEMESTER EVALUATION (100 Marks)</b>			<b>END SEMESTER EXAMINATI ON (100 / 50 Marks)</b>	<b>CONTINU US INSEMEST ER EVALUATI ON (50 Marks)</b>	<b>END SEMESTER EXAMINATI ON (50 Marks)</b>	<b>CONTINU US INSEMEST ER EVALUATI ON (50 Marks)</b>	<b>END SEMESTER EXAMINATI ON (50 Marks)</b>				
							<b>T1 (30 Marks)</b>	<b>T2 (30 Marks)</b>	<b>Assign- ments (40 Marks)</b>									
PEC	-	Program Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3		
PEC	-	Program Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3		
PROJ	230GETB56_08	Major Project	-	-	10	20	-	-	-	-	150	150	100	100	250	10		
<b>TOTAL</b>			<b>6</b>	<b>-</b>	<b>10</b>	<b>20</b>											<b>450</b>	<b>16</b>
DSH		Domain Specific Honours	3	-	-	-	30	30	40	100	-	-	-	-	100	3		

## SCHEME B (Industry)

		JSPM University Pune						COURSE STRUCTURE (NEP 2020 Aligned)								
		FACULTY OF SCIENCE & TECHNOLOGY						W. E. F		2024-2025						
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES						RELEASE DATE		01/07/2024						
BACHELOR OF TECHNOLOGY						REVISION NO.		0.0 (NEP)								
SEMESTER VIII (LEVEL 5.5)																
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								C R E D I T S	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			T O T A L
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PEC	-	Program Elective Course (MOOC)	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PEC	-	Program Elective Course (MOOC)	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PROJ	230GETB56_08	Major Project	-	-	10	20	-	-	-	-	150	150	100	100	250	10
<b>TOTAL</b>			<b>6</b>	<b>-</b>	<b>10</b>	<b>20</b>									<b>450</b>	<b>16</b>
DSH	-	Domain Specific Honours(MOOC)	3	-	-	-	30	30	40	100	-	-	-	-	100	3



Sem.	Program Elective Course			
	Specialization	Intelligent Systems and Data Analytics	Advanced Communication Systems	Microwave and Antenna Engineering
V	Course Code	230GETB112_05	230GETB113_05	230GETB114_05
	Course Name	Fundamentals of Artificial Intelligence	Fiber Optic Communication	Microwave Theory and Techniques
VI	Course Code	230GETB115_06	230GETB116_06	230GETB117_06
	Course Name	Machine Learning	Satellite Communication	Antennas and Wave Propagation
VII	Course Code	230GETB118_07	230GETB119_07	230GETB120_07
	Course Name	Big Data Analytics	Advanced Mobile Communications	Next-Generation Antenna Technologies
VIII	Course Code			
	Course Name	Deep Learning	Communication using GNU Radio	RF System Design
	Course Code			
	Course Name	Generative AI	Mobile Communications standards for 5G and beyond	RF Integrated Circuits/MMIC

Sem.	Domain Specific Honours (DSH)			
	Specialization	EV Technology	Sustainable Energy Systems	5G Communication
IV	Course Code	230GETB82_04	230GETB75_04	230GETB127_04
	Course Name	Electrical Vehicles-Policies and Regulations	Renewable Energy	4G Cellular Communication
V	Course Code	230GETB83_05	230GETB76_05	230GETB107_05
	Course Name	Introduction to Automobiles	Climate Change and Environmental Science	Cognitive Radio Technology
	Course Code	230GETB131_05	230GETB132_05	230GETB108_05
	Course Name	Introduction to Automobiles Lab	Climate Change and Environmental Science Lab	Cognitive Radio Technology Lab
VI	Course Code	230GETB84_06	230GETB77_06	230GETB105_06
	Course Name	EV Charging Technology	Sustainable and Green Technology	Advanced Antenna Design for 5G
VI	Course Code	230GETB85_06	230GETB78_06	230GETB106_06
	Course Name	EV Charging Technology Lab	Sustainable and Green Technology Lab	Advanced Antenna Design for 5G Lab
VII	Course Code	230GETB86_07	230GETB79_07	230GETB109_07
	Course Name	Introduction of EV in Utility Grid	Smart Grid	Software Defined Networks
VII	Course Code	230GETB87_07	230GETB80_07	230GETB133_07
	Course Name	Introduction of EV in Utility Grid Lab	Smart Grid Lab	Software Defined Networks Lab
VIII	Course Code	230GETB88_08	230GETB81_08	230GETB110_08
	Course Name	MOOC-I	MOOC- II	MOOC-III


# **Electrical Engineering**

## **B.Tech Structure**

# 3. Approval of SY B.Tech. Electrical Engineering Structure

III Semester (Regular)

Third Batch 2025-

		JSPM University Pune				COURSE STRUCTURE (NEP 2020 Aligned)												
		FACULTY OF SCIENCE & TECHNOLOGY				W. E. F.		2024-2025										
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				RELEASE DATE		01/07/2025										
SECOND YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING) (REGULAR STUDENTS)						REVISION NO.		2.0 (NEP)										
SEMESTER III (LEVEL 5)																		
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)				
							T1 (30 Marks)	T2 (30 Marks)	Assign-ments (40 Marks)									
BSC	230GMAB07	Ordinary Differential Equations and Multivariate Calculus	2	1	-	-	30	30	40	100	-	-	-	-	100	3		
PCC	250GEEB31	Electrical Circuits	3	-	-	-	30	30	40	100	-	-	-	-	100	3		
	240GEEB02	Analog and Digital Circuits	2	-	-	-	30	30	40	50	-	-	-	-	50	2		
	250GEEB33	Electromagnetics and Power Transfer	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5		
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2		
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	100	-	-	-	-	100	2		
VEC (HSMC)	230USYB02	Professional Laws, Ethics, Values and Harmony	2	-	-	-	30	30	40	50	-	-	-	-	50	2		
LC	250GEEB32	Electrical Circuits Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1		
	240GEEB04	Analog and Digital Circuits Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1		
LLC	230HFSB80	Health and Nutrition	1	-	-	2	-	-	-	-	-	-	50	-	50	1.5		
TOTAL			15	1	6	4								750	20			

# 3. Approval of SY B.Tech. Electrical Engineering Structure

III Semester (Regular/ Lateral Entry)

**Third Batch**

Sem.	Multidisciplinary Minor Course (MMC)			
III	Course Code	230GETB36	240GFRB51	
	Course Name	Microcontrollers and Applications	Safety Management	Fundamentals of Data Science
IV	Course Code	230GMTB01	240GFRB53	230GCSB116
	Course Name	Sensors and Actuators	Industrial Fire Safety	Data Science and Analytics
V	Course Code	230GETB34	230GMEB53	230GCSB117
	Course Name	IOT and Applications	CAD/ CAM	Machine Learning in Practice
VI	Course Code	230GETB41	230GMEB55	
	Course Name	Introduction to Embedded System	Industrial Equipment Design and Drawing	Cryptography and Cyber Security
VII	Course Code	230GETB31	230GRAB55	
	Course Name	Data Communication	Industrial Robots	Mobile Application Development
VII	Course Code	230VOSB30	240GCEB37	
	Course Name	Fundamentals of Project Management	Smart Transportation System	Basics of Software Project Management

Sem.	Interdisciplinary Open Course (IOC)			
III	Course Code	230HFSB16	230GMEB62	230GCEB31
	Course Name	Bioengineering	Green Technology and Sustainability Engineering	E-Waste Management
V	Course Code	230GCEB34	230GCEB37	230VBBB28
	Course Name	Disaster Management	Water and Climate Change	Engineering Economics and Financial Management
VII	Course Code	240GFRB62	230GCEB30	230GFRB63
	Course Name	Behavior of Safety	Plastic Waste Management	Industrial Waste Management


**Syllabus Link (III Semester)**

[Odd Semester - Google Drive](#)

# 3. Approval of SY B.Tech. Electrical Engineering Structure Cntd..

III Semester (Lateral)

Third Batch

		JSPM University Pune		COURSE STRUCTURE (NEP 2020 Aligned)												
		FACULTY OF SCIENCE & TECHNOLOGY		W. E. F.		2024-2025										
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES		RELEASE DATE		01/07/2025										
SECOND YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING) (LATERAL ENTRY)				REVISION NO.		2.0 (NEP)										
SEMESTER III (LEVEL 5)																
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
BSC	230GMAL01	Linear Algebra and Univariate Calculus	3	1	-	-	30	30	40	100	-	-	-	-	100	4
PCC	250GEEB31	Electrical Circuits	3	-	-	-	30	30	40	100	-	-	-	-	100	3
	240GEEB02	Analog and Digital Circuits	2	-	-	-	30	30	40	50	-	-	-	-	50	2
	250GEEB32	Electromagnetics and Power Transfer	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VSC	230IDCB01_03	Design Thinking and Creativity	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
AEC (HSMC)	230UENB01_03	Effective Communication Skills	1	-	2	-	30	30	40	50	-	-	-	-	50	2
LC	250GEEB33	Electrical Circuits Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
	240GEEB04	Analog and Digital Circuits Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
TOTAL			15	1	8	4									750	21


Syllabus Link  
(III Semester)

[Odd Semester - Google Drive](#)

# 3. Approval of SY B.Tech. Electrical Engineering Structure Cntd..

IV Semester (Regular)

Third Batch

		JSPM University Pune				COURSE STRUCTURE (NEP 2020 Aligned)												
		FACULTY OF SCIENCE & TECHNOLOGY				W. E. F.		2024-2025										
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				RELEASE DATE		01/07/2025										
SECOND YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING) (REGULAR STUDENTS)					REVISION NO.		1.0 (NEP)											
SEMESTER IV (LEVEL 5)																		
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)				
							T1 (30 Marks)	T2 (30 Marks)	Assign-ments (40 Marks)									
BSC	230GMAB08	Vector Calculus and Partial Differential Equations	2	1	-	-	30	30	40	100	-	-	-	-	100	3		
PCC	250GEEB41	Power Generation, Transmission and Distribution	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5		
	250GEEB42	Electrical Machines and Energy Conversion System	2	-	-	-	30	30	40	50	-	-	-	-	50	2		
	240GEEB44	Electrical Measurement and Sensor Technologies	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5		
VEC/EEC	231GCEB02	Environment and Sustainability	2	-	-	-	30	30	40	50	-	-	-	-	50	2		
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2		
SEC	250GC SB202	Introduction to R Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3		
AEC (HSMC)	230UENB02	Communicative Proficiency Skills	1	-	2	-	30	30	40	50	-	-	-	-	50	2		
LC	240GEEB43	Electrical Machines and Energy Conversion System Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1		
IITP/ FP/ CEP	230GEEB34	Internship / Field Project / Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2	
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>22</b>		
DSH	-	Domain Specific Honours	3	-	-	-	30	30	40	100	50	50	-	-	150	4		
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1		

# 3. Approval of SY B.Tech. Electrical Engineering Structure Cntd..

## IV Semester (Regular/ Lateral)

**Third Batch**

Sem.	Multidisciplinary Minor Course (MMC)			
III	Course Code	230GETB36	240GFRB51	
	Course Name	Microcontrollers and Applications	Safety Management	Fundamentals of Data Science
IV	Course Code	230GMTB01	240GFRB53	230GCSB116
	Course Name	Sensors and Actuators	Industrial Fire Safety	Data Science and Analytics
V	Course Code	230GETB34	230GMEB53	230GCSB117
	Course Name	IOT and Applications	CAD/ CAM	Machine Learning in Practice
VI	Course Code	230GETB41	230GMEB55	
	Course Name	Introduction to Embedded System	Industrial Equipment Design and Drawing	Cryptography and Cyber Security
VII	Course Code	230GETB31	230GRAB55	
	Course Name	Data Communication	Industrial Robots	Mobile Application Development
VII	Course Code	230VOSB30	240GCEB37	
	Course Name	Fundamentals of Project Management	Smart Transportation System	Basics of Software Project Management

Sem.	Interdisciplinary Open Course (IOC)			
III	Course Code	230HFSB16	230GMEB62	230GCEB31
	Course Name	Bioengineering	Green Technology and Sustainability Engineering	E-Waste Management
V	Course Code	230GCEB34	230GCEB37	230VBBB28
	Course Name	Disaster Management	Water and Climate Change	Engineering Economics and Financial Management
VII	Course Code	240GFRB62	230GCEB30	230GFRB63
	Course Name	Behavior of Safety	Plastic Waste Management	Industrial Waste Management

# 3. Approval of SY B.Tech. Electrical Engineering Structure Cntd..

## IV Semester (Regular/ Lateral)

**Third Batch**

Sem.	Multidisciplinary Minor Course (MMC)			
III	Course Code	230GETB36	240GFRB51	
	Course Name	Microcontrollers and Applications	Safety Management	Fundamentals of Data Science
IV	Course Code	230GMTB01	240GFRB53	230GCSB116
	Course Name	Sensors and Actuators	Industrial Fire Safety	Data Science and Analytics
V	Course Code	230GETB34	230GMEB53	230GCSB117
	Course Name	IOT and Applications	CAD/ CAM	Machine Learning in Practice
VI	Course Code	230GETB41	230GMEB55	
	Course Name	Introduction to Embedded System	Industrial Equipment Design and Drawing	Cryptography and Cyber Security
VII	Course Code	230GETB31	230GRAB55	
	Course Name	Data Communication	Industrial Robots	Mobile Application Development
VII	Course Code	230VOSB30	240GCEB37	
	Course Name	Fundamentals of Project Management	Smart Transportation System	Basics of Software Project Management

Sem.	Interdisciplinary Open Course (IOC)			
III	Course Code	230HFSB16	230GMEB62	230GCEB31
	Course Name	Bioengineering	Green Technology and Sustainability Engineering	E-Waste Management
V	Course Code	230GCEB34	230GCEB37	230VBBB28
	Course Name	Disaster Management	Water and Climate Change	Engineering Economics and Financial Management
VII	Course Code	240GFRB62	230GCEB30	230GFRB63
	Course Name	Behavior of Safety	Plastic Waste Management	Industrial Waste Management

# 3. Approval of SY B.Tech. Electrical Engineering Structure Cntd..

IV Semester (Regular/ Lateral)

**Third Batch**

Sem.	Domain Specific Honors (DSH)			
	Specialization	EV Technology	Renewable Energy	Smart Grid
IV	Course Code	240GEEB401	240GEEB403	240GEEB405
	Course Name	Electric Vehicle Fundamentals and Policies	Wind Energy Conversion System	Technologies of Smart Grid
	Course Code	240GEEB402	240GEEB404	240GEEB406
	Course Name	Electric Vehicle Fundamentals Lab	Wind Energy Conversion System Lab	Technologies of Smart Grid Lab
V	Course Code	240GEEB501	240GEEB501	240GEEB502
	Course Name	Battery Technology and Energy Storage System	Battery Technology and Energy Storage System	Smart Grid Planning, Operation & Markets
VI	Course Code	240GEEB601	240GEEB603	240GEEB605
	Course Name	EV Special Drives	Solar Energy Conversion System	Micro Grid Design Operation and Control
	Course Code	240GEEB602	240GEEB604	240GEEB606
	Course Name	EV Special Drives Lab	Solar Energy Conversion System Lab	Micro Grid Design Operation and Control Lab
VII	Course Code	240GEEB701	240GEEB703	240GEEB705
	Course Name	EV Charging Technology	Power Converters for Renewable Energy	Power Electronics for Distributed Energy Systems
VII	Course Code	240GEEB702	240GEEB704	240GEEB706
	Course Name	EV Charging Technology Lab	Power Converters for Renewable Energy Lab	Power Electronics for Distributed Energy Systems Lab
VIII	Course Code	240GEEB801	240GEEB802	240GEEB803
	Course Name	MOOC-I	MOOC-II	MOOC-III

# 3. Approval of SY B.Tech. Electrical Engineering Structure Cntd..

## IV Semester (Lateral)

**Third Batch**



### JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY  
SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

### COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F.

2024-2025

RELEASE DATE

01/07/2025

SECOND YEAR BACHELOR OF TECHNOLOGY  
(ELECTRICAL ENGINEERING) (LATERAL ENTRY)

REVISION NO.

1.0 (NEP)


### SEMESTER IV (LEVEL 5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
BSC	230GMAL02	Multivariate Calculus and Differential Equations	3	1	-	-	30	30	40	100	-	-	-	-	100	4
PCC	250GEEB41	Power Generation, Transmission and Distribution	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
	250GEEB42	Electrical Machines and Energy Conversion System	2	-	-	-	30	30	40	50	-	-	-	-	50	2
	240GEEB44	Electrical Measurement and Sensor Technologies	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
VEC/EEC	230GCEB02	Environment and Sustainability	2	-	-	-	30	30	40	50	-	-	-	-	50	2
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
SEC	250GC SB202	Introduction to R Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3
AEC (HSMC)	230UENB02	Communicative Proficiency Skills	1	-	2	-	30	30	40	50	-	-	-	-	50	2
LC	240GEEB43	Electrical Machines and Energy Conversion System Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
IIT/ FP/ CEP	230GEEB34	Internship / Field Project / Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>23</b>
DSH	-	Domain Specific Honors	3	-	-	-	30	30	40	100	-	-	-	-	100	3
DSHLC		Domain Specific Honors									50	50			50	1
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1

# 2. Approval of TY B.Tech. Electrical Engineering Structure and Syllabus

V Semester

Second Batch 2024-25

		JSPM University Pune							COURSE STRUCTURE (NEP 2020 Aligned)								
		FACULTY OF SCIENCE & TECHNOLOGY							W. E. F.		2025-2026						
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES							RELEASE DATE		01/07/2025						
THIRD YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING)							REVISION NO.		1.0 (NEP)								
SEMESTER V (LEVEL 5.5)																	
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										C R E D I T S
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)		T O T A L			
			L	T	P	E L	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)		END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assign-ments (40 Marks)								
BSC	240GEEB51	Smart Power Conversion	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	240GEEB53	Foundation of AC Machine	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
	240GEEB55	Power Generation, Transmission and Distribution	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
	240GEEB56	Standards in Electrical Engineering	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
PEC	-	Programme Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	100	-	-	-	-	100	2	
HSSM	231VBCB27	Finance for Engineers	1	-	-	4	-	-	-	-	-	-	50	50	50	2	
VSC	230IINB02	Innovation	1	-	-	2	-	-	-	-	-	-	50	-	50	1.5	
LC	240GEEB52	Smart Power Conversion Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
	240GEEB54	Foundation of AC Machine Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>6</b>	<b>8</b>									<b>800</b>	<b>22</b>	
DSH	-	Domain Specific Honours	4	-	-	-	30	30	40	100	50	50	-	-	150	4	
MLC <sup>#</sup>	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1	

# 2. Approval of TY B.Tech. Electrical Engineering Structure Cntd..

V Semester

Second Batch

Sem.	Programme Elective Courses			
		Power and Smart Grid	EV and Renewable Energy	Embedded System and Industrial Automation
V	Course Code	240GEEB57	240GEEB58	240GEEB59
	Course Name	Utilization and Conservation of Electrical Energy	Solar Energy Conversion System	Embedded Systems
VI	Course Code	240GEEB67	240GEEB68	240GEEB69
	Course Name	Renewable Energy and Grid Integration	Wind Energy Conversion System	FPGA and Hardware Acceleration
VII	Course Code	240GEEB77	240GEEB78	240GEEB79
	Course Name	Smart Grid	Power Electronics for EV and Renewable Energy	Industrial Automation
VIII	Course Code	240GEEB83	240GEEB84	240GEEB85
	Course Name	Distributed Generation and Microgrid	Power Quality	Advanced Robotics and Automation
	Course Code	240GEEB86	240GEEB87	
	Course Name	FACTS and Grid Stability	Special Electrical Machines and Drives	
	Course Code	240GEEB88	240GEEB89	
	Course Name	Hybrid Electric Vehicle Design	Switch Mode Power Supplies	

# 2. Approval of TY B.Tech. Electrical Engineering Structure Cntd..

V Semester

Second Batch

Sem.	Multidisciplinary Minor Course (MMC)				Sem.	Interdisciplinary Open Course (IOC)			
III	Course Code			230GCSB111	III	Course Code	230HFSB16	230GMEB62	230GCEB31
	Course Name	Fundamentals of Data Science	Elements of Company Law	Basics of Data Structures and Algorithms		Course Name	Bioengineering	Green Technology and Sustainability Engineering	E-Waste Management
IV	Course Code	230GMTB01	240GFRB53	230GCSB116	V	Course Code	230GCSB168	230GCEB37	230VBBB28
	Course Name	Sensors and Actuators	Industrial Fire and Safety	Data Science and Analytics		Course Name	Disaster Management	Water and Climate Change	Engineering Economics and Financial Management
V	Course Code	230GETB36	230GMEB53		VII	Course Code	230GMEB64	230GCEB30	230GFRB63
	Course Name	Microcontrollers and Applications	CAD/CAM	Machine Learning in Practice		Course Name	Behavior of Safety	Plastic Waste Management	Industrial Waste Management
VI	Course Code	230GETB34	230GMEB55		Sem. Mandatory Learning Course (MLC#) Audit Course				
	Course Name	IoT and Applications	Industrial Equipment Design and Drawing	Cryptography and Cyber Security	IV	Course Code	241GETB01		
VII	Course Code	230GCSB133	230GRAB55			Course Name	PCB Design and Fabrication		
	Course Name	Introduction to Embedded System	Industrial Robots	Mobile Application Development	V	Course Code	240GETB02		
VII	Course Code	230GCSB117	240GFRB51	240GCEB37		Course Name	Drone Technology: Quadcopter Design and Control		
	Course Name	Project Management	Safety Engineering	Smart Transportation System	VI	Course Code	240GETB03	240GETB04	
				Course Name		Amateur Radio: Theory and Practice	Android App Development		
					VII	Course Code	230UPOB02		
				Course Name		Introduction to Indian Constitution			

# 2. Approval of TY B.Tech. Electrical Engineering Structure Cntd..

V Semester

Second Batch

Sem.	Domain Specific Honors (DSH)			
	Specialization	EV Technology	Sustainable Energy Systems	Cyber Physical Systems
IV	Course Code	230GETB82	230GETB75	230GETB89
	Course Name	Electrical Vehicles-Policies and Regulations	Climate Change and Environmental Science	Introduction to Cyber Physical Systems
V	Course Code	240GEEB53	240GEEB54	240GEEB55
	Course Name	EV Drives and Control	Wind and Solar Energy Conversion	Communication for Cyber Physical Systems
	Course Code	240GEEB56	240GEEB57	240GEEB58
	Course Name	EV Drives and Control Lab	Wind and Solar Energy Conversion Lab	Communication for Cyber Physical Systems Lab
VI	Course Code	240GEEB63	240GEEB64	240GEEB65
	Course Name	Power Converters for EV	Power Converters for Renewable Energy	Cyber Physical System Design
	Course Code	240GEEB66	240GEEB67	240GEEB68
	Course Name	Power Converters for EV Lab	Power Converters for Renewable Energy Lab	Cyber Physical System lab
VII	Course Code	240GEEB73	240GEEB74	240GEEB75
	Course Name	EV Charging Technology	Grid Intonation	Smart Infrastructure
	Course Code	240GEEB76	240GEEB77	240GEEB78
	Course Name	EV Charging Technology Lab	Grid Integration Lab	Smart Infrastructure
VIII	Course Code	240GEEB83	240GEEB84	240GEEB85
	Course Name	MOOC-1	MOOC-2	MOOC-3


[Syllabus Link \(V Semester\)](#)

[Odd Semester - Google Drive](#)

# 2. Approval of TY B.Tech. Electrical Engineering Structure Cntd..

VI Semester

Second Batch

		JSPM University Pune				COURSE STRUCTURE (NEP 2020 Aligned)											
		FACULTY OF SCIENCE & TECHNOLOGY				W. E. F.		2025-2026									
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				RELEASE DATE		01/07/2024									
SECOND YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING)						REVISION NO.		1.0 (NEP)									
SEMESTER VI (LEVEL 5.5)																	
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)		TOTAL	CREDITS	
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)								
PBSC	230GETB96	Probability, Statistics and Queuing Theory	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	240GEEB61	Power System Modeling and Analysis	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
	240GEEB63	Electromechanical System Design	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
PEC	-	Programme Elective Course	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
AEC	230UENB03	Soft Skill Development	1	-	2	-	30	30	40	50	-	-	-	-	50	2	
HSMC	230UEEB19	Engineering Economics	1	-	-	4	-	-	-	-	-	-	50	50	50	2	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
VSC	230IESB03	Entrepreneurship	1	-	-	2	30	30	40	50	-	-	-	-	50	1.5	
LC	240GEEB62	Power System Modeling and Analysis Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
LC	240GEEB64	Electromechanical System Design Drawing	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/FP/CEP	240GEEB21	Internship / Field Project / Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>13</b>	<b>1</b>	<b>8</b>	<b>8</b>									<b>750</b>	<b>22</b>	
DSH	-	Domain Specific Honors	3	-	-	-	30	30	40	100	50	50	-	-	150	4	
MLC#	-	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1	

# 2. Approval of Final Year B.Tech. Electrical Engineering Structure

## VI Semester

**Second Batch**

Sem.	Multidisciplinary Minor Course (MMC)	
III	Course Code	230GCSB111
	Course Name	Basics of Data Structures and Algorithms
IV	Course Code	230GCSB116
	Course Name	Data Science and Analytics
V	Course Code	230GMTB01
	Course Name	Sensors and Actuators
VI	Course Code	230GETB34
	Course Name	IoT and Applications
VII	Course Code	230GCSB133
	Course Name	Foundations of Artificial Intelligence
VII	Course Code	230GCSB117
	Course Name	Machine Learning in Practice

Sem.	Programme Elective Courses		
V	Course Code	240GEEB11	240GETB05
	Course Name	Renewable Energy Technology /	Introduction to Digital Signal Processing
	Course Code	240GEEB13	240GEEB15
	Course Name	Advanced Control System	Electrical Estimation and Costing
VI	Course Code	230GETB23	240GEEB20
	Course Name	Embedded Systems	Extra High Voltage AC & HVDC Transmission
	Course Code	240GEEB14	230GETB32
	Course Name	Energy Storage Systems	Cyber Physical Systems
VII	Course Code	240GEEB22	240GEEB23
	Course Name	Soft Computing Techniques	Industrial Automation
	Course Code	240GEEB18	240GEEB12
	Course Name	Advanced Power Electronics	Automotive Electronics
VIII	Course Code	240GEEB24	240GEEB25
	Course Name	Smart Grid Technologies	Hybrid electric Vehicle Design
	Course Code	240GEEB19	240GEEB27
	Course Name	Advanced Electrical Mobility	Energy Management
	Course Code	240GEEB26	240GEEB28
	Course Name	Deregulated Power Systems	ANN and Fuzzy Logic Applications in Power Engineering

Sem.	Interdisciplinary Open Course (IOC)		
III	Course Code	230HFSB16	
	Course Name	Biology for Engineers	
V	Course Code	230GCSB168	
	Course Name	Fundamentals of Computer Networks	
VII	Course Code	230GMEB64	
	Course Name	Smart Materials	

Sem.	Mandatory Learning Course (MLC#) Audit Course		
IV	Course Code	241GETB01	
	Course Name	PCB Design and Fabrication	
V	Course Code	240GETB02	
	Course Name	Drone Technology: Quadcopter Design and Control	
VI	Course Code	240GETB03	240GETB04
	Course Name	Amateur Radio: Theory and Practice	Android App Development
VII	Course Code	230UPOB02	
	Course Name	Introduction to Indian Constitution	

**Syllabus Link (VI Semester)**

[Even Semester - Google Drive](#)

# 1. Approval of Final Year B.Tech. Electrical Engineering Structure and Syllabus VII Semester

**First Batch 2023-24**



		<b>JSPM University Pune</b>				<b>COURSE STRUCTURE (NEP 2020 Aligned)</b>											
		FACULTY OF SCIENCE & TECHNOLOGY				W. E. F.		2026-2027									
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				RELEASE DATE		01/07/2026									
SECOND YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING)					REVISION NO.		0.0 (NEP)										
SEMESTER VII (LEVEL 6.5)																	
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										C R E D I T S
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)		T O T A L		
			L	T	P	E L	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATI ON (100 / 50 Marks)	CONTINUO US IN SEMESTER EVALUATI ON (50 Marks)	END SEMESTER EXAMINATI ON (50 Marks)	CONTINUO US IN SEMESTER EVALUATI ON (50 Marks)	END SEMESTER EXAMINATI ON (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)								
PCC	230GEEB70	Design of Electrical System	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
	230GEEB72	Electrical Machine Design	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
	230GEEB74	Power Quality	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
PEC	-	Program Elective-III	2	-	2	-	30	30	40	50	50	50	-	-	100	3	
MMC	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
	-	Multidisciplinary Minor Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
IOC	-	Interdisciplinary Open Course	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
RMC	-	Research Methodology	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
LC	230GEEB73	Electrical Machine Design Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
	230GEEB71	Design of Electrical System Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
Project	230GETB51	Internship / Field Project / Community Engagement Programme	-	-	2	4	-	-	-	-	-	-	50	50	50	2	
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>12</b>	<b>4</b>									<b>750</b>	<b>22</b>	
DSH	-	Domain Specific Honours	3	-	-	1	30	30	40	100	-	-	-	-	100	3	
MLC	-	Audit Course-IV	1	-	-	-	-	-	-	50	-	-	-	-	50	1	
<b>GRAND TOTAL</b>			<b>20</b>	<b>1</b>	<b>10</b>	<b>4</b>									<b>900</b>	<b>26</b>	

# 1. Approval of Final Year B.Tech. Electrical Engineering Structure Cntd..

## VII Semester

**First Batch**

Sem.	Multidisciplinary Minor Course (MMC)				
III	Course Code	230GCSB111			
	Course Name	Basics of Data Structures and Algorithms			
IV	Course Code	230GCSB116			
	Course Name	Data Science and Analytics			
V	Course Code	230GMTB01			
	Course Name	Sensors and Actuators			
VI	Course Code	230GETB34			
	Course Name	IoT and Applications			
VII	Course Code	230GCSB133			
	Course Name	Foundations of Artificial Intelligence			
VII	Course Code	230GCSB117			
	Course Name	Machine Learning in Practice			

Sem.	Interdisciplinary Open Course (IOC)				
III	Course Code	230HFSB16			
	Course Name	Biology for Engineers			
V	Course Code	230GCSB168			
	Course Name	Fundamentals of Computer Networks			
VII	Course Code	230GMEB64			
	Course Name	Smart Materials			
Sem.	Programme Elective Courses -III				
VII	Course Code	230GEEB75	230GEEB76	230GEEB77	
	Course Name	Control of Wind and Solar Energy Conversion System	Industrial Automation	Advanced Power Electronics	

# 1. Approval of Final Year B.Tech. Electrical Engineering Structure Cntd..

## VII Semester

**First Batch**

Sem.	Domain Specific Honors (DSH)			
	Specialization	EV Technology	Sustainable Energy Systems	Cyber Physical Systems
IV	Course Code	230GETB82	230GETB75	230GETB89
	Course Name	Electrical Vehicles-Policies and Regulations	Renewable Energy	Introduction to Cyber Physical Systems
V	Course Code	230GETB83	230GETB76	230GETB90
	Course Name	Introduction to Automobiles	Climate Change and Environmental Science	Communication for CPS
VI	Course Code	230GETB84	230GETB77	230GETB92
	Course Name	EV Charging Technology	Sustainable and Green Technology	CPS System Design
VI	Course Code	230GETB85	230GETB78	230GETB93
	Course Name	EV Charging Technology Lab	Sustainable and Green Technology Lab	CPS System Design lab
VII	Course Code	230GETB86	230GETB73	230GETB75
	Course Name	Introduction of EV in Utility Grid	Smart Grid	Smart Infrastructure
	Course Code	230GETB87	230GETB74	230GETB79
	Course Name	Introduction of EV in Utility Grid Lab	Smart Grid Lab	Smart Infrastructure Lab
VIII	Course Code	230GEEB89	230GEE91	230GEE93
	Course Name	MOOC-I	MOOC-II	MOOC-III
	Course Code	230GEEB90	230GEEB92	230GEEB94
	Course Name	Mini Project	Mini Project	Mini Project


**Syllabus Link (VII Semester)**

[Odd Semester - Google Drive](#)

# 1. Approval of Final Year B.Tech. Electrical Engineering Structure Cntd..

## VIII Semester

**First Batch**

		JSPM University Pune				COURSE STRUCTURE (NEP 2020 Aligned)												
		FACULTY OF SCIENCE & TECHNOLOGY				W. E. F.		2026-2027										
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				RELEASE DATE		01/07/2026										
SECOND YEAR BACHELOR OF TECHNOLOGY (ELECTRICAL ENGINEERING)						REVISION NO.		0.0 (NEP)										
SEMESTER VIII (LEVEL 6.5)																		
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS										T O T A L	C R E D I T S
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)				
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)									
PEC	--	Elective-IV	3	-	-	-	30	30	40	100	-	-	-	-	100	3		
	--	Elective-V	3	-	-	-	30	30	40	100	-	-	-	-	100	3		
Project	230GEEB89	Major Project	-	-	12	24					150	150	150	150	300	12		
TOTAL			6	-	12	24											500	18
DSH	-	Domain Specific Honours	4	-	-	-	30	30	40	100	-	-	-	-	100	3		
DSH	-	Mini Project	-	-	2	-	-	-	-	50			50	50	50	1		
GRAND TOTAL			10	0	12	24											650	22

# 1. Approval of Final Year B.Tech. Electrical Engineering Structure Cntd..

## VIII Semester

**First Batch**


Sem.	<u>Programme Elective Courses -IV</u>				
VIII Sem.	Course Code	230GEEB81	230GEEB82	230GEEB83	230GEEB84
	Course Name	Smart Grid and Micro Grid	Distributed Generation and Microgrid	FACTS and Grid Stability	Hybrid Electric Vehicle Design
	<u>Programme Elective Courses -V</u>				
	Course Code	230GEEB85	230GEEB86	230GEEB87	230GEEB88
	Course Name	Advanced Electrical Drives	Special Electrical Machines and Control	Advanced Electrical Mobility	Switch Mode Power Supplies

**Syllabus Link (VIII Semester)**

[Even Semester - Google Drive](#)

**M.Tech Structure**  
**Power Electronics and Drives**


# 4. Approval of M.Tech. Power Electronics and Drives Structure

		<b>JSPM University Pune</b> FACULTY OF SCIENCE & TECHNOLOGY SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				<b>COURSE STRUCTURE</b> (NEP 2020 Aligned)										
						W. E. F RELEASE DATE	2025-2026 01/07/2025									
		<b>MASTER OF TECHNOLOGY (POWER ELECTRONICS AND DRIVES)</b>				REVISION NO.	0.0 (NEP)									
<b>SEMESTER I (LEVEL 6.5)</b>																
<b>COURSE</b>			<b>TEACHING SCHEME</b>				<b>EXAMINATION SCHEME AND MARKS</b>									
<b>TYPE</b>	<b>CODE</b>	<b>COURSE NAME</b>	<b>Hours / Week</b>				<b>THEORY</b> (Equal Weightage for CIE and ESE)				<b>PRACTICAL</b> (Equal Weightage for CIE and ESE)		<b>ORAL</b> (Equal Weightage for CIE and ESE)		<b>TOTAL</b>	<b>CREDITS</b>
			<b>L</b>	<b>T</b>	<b>P</b>	<b>EL</b>	<b>CONTINUOUS INSEMESTER EVALUATION</b> (100 Marks)			<b>END SEMESTER EXAMINATION</b> (100 / 50 Marks)	<b>CONTINUOUS INSEMESTER EVALUATION</b> (50 Marks)	<b>END SEMESTER EXAMINATION</b> (50 Marks)	<b>CONTINUOUS INSEMESTER EVALUATION</b> (50 Marks)	<b>END SEMESTER EXAMINATION</b> (50 Marks)		
							<b>T1</b> (30 Marks)	<b>T2</b> (30 Marks)	<b>Assignments</b> (40 Marks)							
PSMC	230GMAM02_01	Advanced Numerical Methods	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PCC	250GPEM01_01	Analysis of Power Converters	2	-	-	-	30	30	40	50	-	-	-	-	50	2
PCC	250GPEM02_01	Modeling and Analysis of Electric Drives	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
PCC	250GPEM03_01	Modern Control Theory	3	-	-	-	30	30	40	100	-	-	-	-	100	3
MMC	---	Multidisciplinary Minors Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
SEC	240GCSM05_01	Advanced Python Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3
VSC	230IDCB01_01	Design Thinking and Creativity	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
AEC	231UENM01_01	Communicative English for Professionals	1	-	2	-	-	-	-	-	50	50	-	-	50	2
RMC	230IRMM01_01	Research Methodology	2	-	-	-	30	30	40	50	-	-	-	-	50	2
LC	250GPEM04_01	Analysis of Power Converters Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
<b>TOTAL</b>			<b>16</b>	<b>1</b>	<b>8</b>	<b>4</b>									<b>750</b>	<b>22</b>

## 4. Approval of M.Tech. Power Electronics and Drives Structure Cntd...

Sem.	Multidisciplinary Minors Course (MMC)			
I	Course Code	230GRAM24_01	230GCSM28_01	230GRAB51_01
	Course Name	Sensors and Automation	Introduction to Data Science	Robot Modeling
II	Course Code	230GETM16_02	230GCSM29_02	230GRAB52_02
	Course Name	IOT Basics and Applications	Introduction to Artificial Intelligence	Autonomous Mobile Robot

# 4. Approval of M.Tech. Power Electronics and Drives Structure Cntd...

		JSPM University Pune				COURSE STRUCTURE (NEP 2020 Aligned)											
		FACULTY OF SCIENCE & TECHNOLOGY				W. E. F		2025-2026									
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES				RELEASE DATE		01/07/2025									
		MASTER OF TECHNOLOGY (Power Electronics and Drives)				REVISION NO.		0.0 (NEP)									
SEMESTER II (LEVEL 6.5)																	
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS									TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)					
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)								
PSBC	250GPEM05_02	Switched Mode Power Supplies	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	250GPEM06_02	Digital Control of Power Electronic Systems	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
PCC	250GPEM07_02	Industrial Electrical Drives	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
MMC	---	Multidisciplinary Minors Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
SEC	230GETM19_02	System Design with Embedded Linux	2	-	2	-	-	-	-	-	50	50	50	50	100	3	
VSC	230IINB02_02	Innovation	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5	
AEC	231UENM02_02	Business Communication	1	-	2	-	-	-	-	-	50	50	-	-	50	2	
RMC	230IRMM02_02	Research Design and Techniques	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
LC	250GPEM08_02	Industrial Electrical Drives Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
LC	250GPEM09_02	PLC and SCADA System Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/ P/CE P	250GPEM10_02	Internship/Field Project/Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>13</b>	<b>1</b>	<b>10</b>	<b>4</b>									<b>750</b>	<b>22</b>	

**Note:** A Postgraduate Diploma will be awarded if a student exits after first year. For Exit at the end of first year the student must complete: (Total credits = 8). a) An internship / OJT of 8 - 10 weeks (4 credits). b) Additional Course 1 (4 credits) (Vocational Skill Course (VSC) / Skill Enhancement Course (SEC))

# 4. Approval of M.Tech. Power Electronics and Drives Structure Cntd...



**JSPM University Pune**

**FACULTY OF SCIENCE & TECHNOLOGY**

**SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES**

**COURSE STRUCTURE  
(NEP 2020 Aligned)**

**W. E. F**

**2026-2027**

**RELEASE DATE**

**01/07/2026**

**MASTER OF TECHNOLOGY (POWER ELECTRONICS AND DRIVES)**

**REVISION NO.**

**0.0 (NEP)**

**SEMESTER III (LEVEL-7)**

COURSE		TEACHING SCHEME	EXAMINATION SCHEME AND MARKS												C R E D I T S	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			T O T A L
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PEC	---	Program Elective Course -I/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PEC	---	Program Elective Course -II/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
IOC	---	Interdisciplinary Open Elective Course -I	2	-	-	-	30	30	40	100	-	-	-	-	100	2
IOC	---	Interdisciplinary Open Elective Course -II	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VEC (HSM C)	230USYB01_03	Behavioral Science and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
SLC	250GPEM17_03	Seminar	-	-	-	8	-	-	-	-	-	-	50	50	50	2
PROJ	250GPEM18_03	Field Project	-	-	4	8	-	-	-	-	-	-	100	100	100	4
<b>TOTAL</b>			<b>12</b>	<b>0</b>	<b>4</b>	<b>16</b>									<b>600</b>	<b>18</b>


# 4. Approval of M.Tech. Power Electronics and Drives Structure Cntd...

Sem.	Programme Elective Course (PEC- I, II)			
	Specialization/ Verticals	Renewable Energy and Smart Grid	Electric Vehicle (EV) and Control	Energy Management and Audit
III	PEC-I			
	Course Code	250GPEM11_03	250GPEM13_03	250GPE M15_03
	Course Name	Power Electronics for Renewable Energy System	EV Architecture and Power Train Design	Energy Management
	PEC-II			
	Course Code	250GPEM12_03	250GPEM14_03	250GPEM16_03
	Course Name	Energy Storage and Battery Management System	Drives and Control for EV	Energy Audit and Instrumentation
IV	PEC-III			
	Course Code	250GPEM19_04	250GPEM21_04	250GPEM23_04
	Course Name	Modeling and Simulation of Renewable Energy System	EV Charging and Battery Management System	Power Quality and Mitigation
	PEC-IV			
	Course Code	250GPEM20_04	250GPEM22_04	250GPEM24_04
	Course Name	Smart Grid and Communications	EV Simulation and Embedded System	Energy Conservation in Drives

Sem.	Interdisciplinary Open Elective Course -I (IOC-I)			
III	Course Code	230VMSM05_03	230GCSB160_03	230VMSM08_03
	Course Name	Fundamentals of Financial Management	Introduction to Deep Learning	Entrepreneurship and Start up Management

Sem.	Interdisciplinary Open Elective Course -II (IOC-II)			
III	Course Code	230GRAM51_03	230GCSM32_03	230GCSB158_03
	Course Name	Industrial Robotics and Automation	Machine Learning in Practice	Basics of Neural Network

# 4. Approval of M.Tech. Power Electronics and Drives Structure Cntd...

		<b>JSPM University Pune</b>				<b>COURSE STRUCTURE (NEP 2020 Aligned)</b>											
		<b>FACULTY OF SCIENCE &amp; TECHNOLOGY</b>				<b>W. E. F</b>		<b>2026-2027</b>									
		<b>SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES</b>				<b>RELEASE DATE</b>		<b>01/07/2026</b>									
<b>MASTER OF TECHNOLOGY (POWER ELECTRONICS AND DRIVES)</b>					<b>REVISION NO.</b>		<b>0.0 (NEP)</b>										
<b>SEMESTER IV (LEVEL-7)</b>																	
<b>COURSE</b>			<b>TEACHING SCHEME</b>				<b>EXAMINATION SCHEME AND MARKS</b>										<b>C R E D I T S</b>
<b>TYPE</b>	<b>CODE</b>	<b>COURSE NAME</b>	<b>Hours / Week</b>				<b>THEORY (Equal Weightage for CIE and ESE)</b>				<b>PRACTICAL (Equal Weightage for CIE and ESE)</b>		<b>ORAL (Equal Weightage for CIE and ESE)</b>		<b>T O T A L</b>		
			<b>L</b>	<b>T</b>	<b>P</b>	<b>EL</b>	<b>CONTINUOUS IN SEMESTER EVALUATION (100 Marks)</b>			<b>END SEMESTER EXAMINATION (100 / 50 Marks)</b>	<b>CONTINUOUS IN SEMESTER EVALUATION (50 Marks)</b>	<b>END SEMESTER EXAMINATION (50 Marks)</b>	<b>CONTINUOUS IN SEMESTER EVALUATION (50 Marks)</b>	<b>END SEMESTER EXAMINATION (50 Marks)</b>			
							<b>T1 (30 Marks)</b>	<b>T2 (30 Marks)</b>	<b>Assignments (40 Marks)</b>								
PEC	---	Program Elective Course -III / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
PEC	---	Program Elective Course -IV/ MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3	
PROJ	250GPEM25_04	Project / Internship with Project	-	-	12	24	-	-	-	-	200	200	100	100	300	12	
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>12</b>	<b>24</b>									<b>500</b>	<b>18</b>	

## 4. Approval of M.Tech. Power Electronics and Drives Structure Cntd...

Sem.	Programme Elective Course (PEC- III, IV)			
	Specialization/ Verticals	Renewable Energy and Smart Grid	Electric Vehicle (EV) and Control	Energy Management and Audit
	<b>PEC-I</b>			
III	<b>Course Code</b>	<b>250GPEM11_03</b>	<b>250GPEM13_03</b>	<b>250GPE M15_03</b>
	<b>Course Name</b>	Power Electronics for Renewable Energy System	EV Architecture and Power Train Design	Energy Management
	<b>PEC-II</b>			
	<b>Course Code</b>	<b>250GPEM12_03</b>	<b>250GPEM14_03</b>	<b>250GPEM16_03</b>
	<b>Course Name</b>	Energy Storage and Battery Management System	Drives and Control for EV	Energy Audit and Instrumentation
IV	<b>PEC-III</b>			
	<b>Course Code</b>	<b>250GPEM19_04</b>	<b>250GPEM21_04</b>	<b>250GPEM23_04</b>
	<b>Course Name</b>	Modeling and Simulation of Renewable Energy System	EV Charging and Battery Management System	Power Quality and Mitigation
	<b>PEC-IV</b>			
	<b>Course Code</b>	<b>250GPEM20_04</b>	<b>250GPEM22_04</b>	<b>250GPEM24_04</b>
<b>Course Name</b>	Smart Grid and Communications	EV Simulation and Embedded System	Energy Conservation in Drives	

## 5. Proposed MMC Courses for III and IV Semester


1. MATLAB and Toolboxes for Engineers – III Semester
2. Modelling Concept for Electric Vehicle – IV Semester

**Syllabus Link (MMC Courses)**

[MMC Courses - Google Drive](#)

# **VLSI and Embedded Systems**

## **M.Tech Structure**

		JSPM University Pune						COURSE STRUCTURE (NEP 2020 Aligned)								
		FACULTY OF SCIENCE & TECHNOLOGY						W. E. F		2024-2025						
		SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES						RELEASE DATE		01/07/2025						
MASTER OF TECHNOLOGY (VLSI AND EMBEDDED SYSTEMS)						REVISION NO.		1.0 (NEP)								
SEMESTER I (LEVEL 6.5)																
COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PSMC	230GMAM02_01	Advanced Numerical Methods	2	1	-	-	30	30	40	100	-	-	-	-	100	3
PCC	231GETM01_01	Analog CMOS VLSI Design	2	-	-	-	30	30	40	50	-	-	-	-	50	2
PCC	230GETM02_01	Advanced Embedded System	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5
PCC	250GVEM01_01	VLSI Architecture	2	-	-	-	30	30	40	50	-	-	-	-	50	2
MMC	---	Multidisciplinary Minors Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2
SEC	240GCSM05_01	Advanced Python Programming	2	-	2	-	-	-	-	-	50	50	50	50	100	3
VSC	230IDCB01_01	Design Thinking and Creativity	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5
AEC	231UENM01_01	Communicative English for Professionals	1	-	2	-	-	-	-	-	50	50	-	-	50	2
RMC	230IRMM01_01	Research Methodology	2	-	-	-	30	30	40	50	-	-	-	-	50	2
LC	230GETM21_01	Advanced Embedded System Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
LC	250GVEM02_01	VLSI Architecture Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1
<b>TOTAL</b>			<b>15</b>	<b>1</b>	<b>10</b>	<b>4</b>									<b>750</b>	<b>22</b>



# JSPM University Pune

FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

COURSE STRUCTURE  
(NEP 2020 Aligned)

W. E. F

2024-2025

RELEASE DATE

01/07/2025

MASTER OF TECHNOLOGY (VLSI AND EMBEDDED SYSTEMS)

REVISION NO.

1.0 (NEP)

## SEMESTER II (LEVEL 6.5)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS	
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)			
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)								
PSBC	230GETM20_02	Basics of IC Fabrication	2	1	-	-	30	30	40	100	-	-	-	-	100	3	
PCC	230GETM04_02	RTL Synthesis and Simulation	2	-	-	2	30	30	40	100	-	-	-	-	100	2.5	
PCC	240GETM01_02	CMOS Digital VLSI Design	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
MMC	---	Multidisciplinary Minors Course	1	-	2	-	-	-	-	-	50	50	50	50	100	2	
SEC	230GETM19_02	System Design with Embedded Linux	2	-	2	-	-	-	-	-	50	50	50	50	100	3	
VSC	230IINB02_02	Innovation	1	-	-	2	-	-	-	-	-	-	50	50	50	1.5	
AEC	231UENM02_02	Business Communication	1	-	2	-	-	-	-	-	50	50	-	-	50	2	
RMC	230IRMM02_02	Research Design and Techniques	2	-	-	-	30	30	40	50	-	-	-	-	50	2	
LC	230GETM22_02	RTL Synthesis and Simulation Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
LC	250GVEM03_02	CMOS Digital VLSI Design Lab	-	-	2	-	-	-	-	-	50	50	-	-	50	1	
IITP/ P/CE P	230GETM24_02	Internship/Field Project/Community Engagement Programme	4 to 6 weeks				-	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>13</b>	<b>1</b>	<b>10</b>	<b>4</b>									<b>750</b>	<b>22</b>	

**Note:** A Postgraduate Diploma will be awarded if a student exits after first year. For Exit at the end of first year the student must complete: (Total credits = 8)

a) An internship / OJT of 8 - 10 weeks (4 credits)

Sem.	Multidisciplinary Minors Course (MMC)			
I	<b>Course Code</b>	230GRAM24_01	230GCSM28_01	230GRAB51_01
	<b>Course Name</b>	Sensors and Automation	Introduction to Data Science	Robot Modeling
II	<b>Course Code</b>	250GCSM02_02	250GCSM01_02	230GRAB52_02
	<b>Course Name</b>	Cloud Computing and Services	Cyber Security Fundamentals	Autonomous Mobile Robot



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MASTER OF TECHNOLOGY (VLSI AND EMBEDDED SYSTEMS)

REVISION NO.

0.0 (NEP)

### SEMESTER III (LEVEL-7)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)				PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)			
			L	T	P	EL	CONTINUOUS INSEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS INSEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PEC	---	Program Elective Course -I/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PEC	---	Program Elective Course -II/MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
IOC	---	Interdisciplinary Open Elective Course -I	2	-	-	-	30	30	40	100	-	-	-	-	100	2
IOC	---	Interdisciplinary Open Elective Course -II	2	-	-	-	30	30	40	100	-	-	-	-	100	2
VEC (HSM C)	230USYB01_03	Behavioral Science and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
PROJ	231GETM26_03	Field Project	-	-	4	8	-	-	-	-	50	50	50	50	100	4
SLC	231GETM25_03	Seminar	-	-	-	8	-	-	-	-	-	-	50	50	50	2
<b>TOTAL</b>			<b>12</b>	<b>0</b>	<b>4</b>	<b>16</b>									<b>600</b>	<b>18</b>
MLC#	---	Audit Course	-	-	2	-	-	-	-	-	-	-	50	-	50	1

Sem.	Programme Elective Course (PEC-I)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
III	Course Code	230GETM06_03	230GETM07_03	230GETM08_03
	Course Name	VLSI Design Flow: RTL to GDS	VLSI Architectural Design and Implementation	Testing of VLSI Circuits

Sem.	Programme Elective Course (PEC-II)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
III	Course Code	230GETM09_03	230GETM10_03	230GETM11_03
	Course Name	Embedded System Integration	System-on-Programmable-Chip Design	Design of Semiconductor Memories

Sem.	Interdisciplinary Open Elective Course -I (IOC-I)			
III	Course Code	230VMSM05_03	230GCSM29_03	230VMSM08_03
	Course Name	Fundamentals of Financial Management	Introduction to Artificial Intelligence	Entrepreneurship and Start up Management

Sem.	Interdisciplinary Open Elective Course -II (IOC-II)			
III	Course Code	230GRAM51_03	230GCSM32_03	230HFGM25_03
	Course Name	Industrial Robotics and Automation	Machine Learning in Practice	Intellectual Property

Sem.	Mandatory Learning Course (MLC#) Audit Course				
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
III	Course Code	240GETB02_03	241GETB01_03	240GETB03_03	240GETB04_03
	Course Name	Drone Technology: Quadcopter Design and Control	PCB Design and Fabrication	Amateur Radio: Theory and Practice	Android App Development
IV	Course Code	230UPOB02_04			
	Course Name	Introduction to Indian Constitution			



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SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

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W. E. F

2025-2026

RELEASE DATE

01/07/2025

MASTER OF TECHNOLOGY (VLSI AND EMBEDDED SYSTEMS)

REVISION NO.

0.0 (NEP)

### SEMESTER IV (LEVEL-7)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PEC	---	Program Elective Course -III / MOOC	3	-	-	-			25	75	-	-	-	-	100	3
PEC	---	Program Elective Course -IV/ MOOC	3	-	-	-			25	75	-	-	-	-	100	3
PROJ	250GVEM06_04	Project / Internship with Project	-	-	12	24	-	-	-	-	200	200	100	100	300	12
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>12</b>	<b>24</b>									<b>500</b>	<b>18</b>
MLC#	---	Audit Course	1	-	-	-	-	-	-	50	-	-	-	-	50	1

Sem.	Programme Elective Course (PEC-III)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
IV	Course Code	230GETM12_04	230GETM13_04	230GETM14_04
	Course Name	Design and Analysis of VLSI Subsystems	Embedded Systems-Design Verification and Test	Physical Design Automation

Sem.	Programme Elective Course (PEC-IV)			
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
IV	Course Code	230GETM15_04	230GETM29_04	230GETM32_04
	Course Name	Digital VLSI Testing	VLSI Signal Processing	Machine Learning in VLSI CAD

Sem.	Mandatory Learning Course (MLC <sup>#</sup> ) Audit Course				
	Specialization	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems	VLSI and Embedded Systems
III	Course Code	240GETB02_03	241GETB01_03	240GETB03_03	240GETB04_03
	Course Name	Drone Technology: Quadcopter Design and Control	PCB Design and Fabrication	Amateur Radio: Theory and Practice	Android App Development
IV	Course Code	230UPOB02_04			
	Course Name	Introduction to Indian Constitution			

# **Electrical Engineering**

## **Ph.D. Structure**



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FACULTY OF SCIENCE & TECHNOLOGY  
SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

## COURSE STRUCTURE (NEP 2020 Aligned)

W. E. F

2025-2026

RELEASE DATE

01/07/2025

Doctor of Philosophy  
(ELECTRICAL ENGINEERING)

REVISION NO.

0.0 (NEP)

### SEMESTER I (LEVEL 8)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	E L	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATI ON (100 / 50 Marks)	CONTINUO US IN SEMESTE R EVALUATI ON (50 Marks)	END SEMESTER EXAMINATI ON (50 Marks)	CONTINUO US IN SEMESTE R EVALUATI ON (50 Marks)	END SEMESTER EXAMINATI ON (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assign- ments (40 Marks)							
PCC	-	Domain Specific Course-1 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PSMC	230GMAD01	Foundations of Mathematical Modelling and Statistical Techniques	3	-	-	-	30	30	40	100	-	-	-	-	100	3
RMC	231IRMD01	Research Publication and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
RMC	231IRMD02	Research Proposal Writing	1	1	-	-	-	-	-	-	-	-	50	50	50	2
RMC	231IRMD03	Writing Literature Review	2	-	-	-	-	-	-	-	-	-	50	50	50	2
SLC	231ISR01	Seminar	-	-	-	4	-	-	-	-	-	-	50	50	50	1
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>0</b>	<b>4</b>									<b>500</b>	<b>16</b>

Sem.	PCC (Domain Specific Course-1 / MOOC)	
III	Course Code	230GEED01
	Course Name	Smart Grid: Basics to Advanced Technologies/ MOOC
	Course Code	230GETD06
	Course Name	Fundamentals of Artificial Intelligence/MOOC
	Course Code	230GEED09
	Course Name	Introduction to Machine Learning/MOOC

Sem.	PCC (Domain Specific Course-2 / MOOC)				
III	Course Code	230GEED02	230GEED03	230GEED04	230GEED05
	Course Name	Power Quality/ MOOC	Introduction to Electric and Hybrid Electric Vehicle/ MOOC	Sustainable Power Generation Systems/ MOOC	Design of Photovoltaic Systems/ MOOC
	Course Code	230GEED06	230GEED07	230GEED08	250GEED01
	Course Name	Power Electronics Application in Power System /MOOC	Renewable Energy Engineering/MOOC	Advance Power Electronics/MOOC	Electrical Distribution System Analysis/MOOC

**Electronics and Telecommunication  
Engineering  
Ph.D. Structure**



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FACULTY OF SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL AND COMMUNICATION SCIENCES

Doctor of Philosophy  
(ELECTRONICS AND TELECOMMUNICATION)

COURSE STRUCTURE  
(NEP 2020 Aligned)

W. E. F

2025-2026

RELEASE DATE

01/07/2025

REVISION NO.

0.0 (NEP)

## SEMESTER I (LEVEL 8)

COURSE			TEACHING SCHEME				EXAMINATION SCHEME AND MARKS								TOTAL	CREDITS
TYPE	CODE	COURSE NAME	Hours / Week				THEORY (Equal Weightage for CIE and ESE)			PRACTICAL (Equal Weightage for CIE and ESE)		ORAL (Equal Weightage for CIE and ESE)				
			L	T	P	EL	CONTINUOUS IN SEMESTER EVALUATION (100 Marks)			END SEMESTER EXAMINATION (100 / 50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)	CONTINUOUS IN SEMESTER EVALUATION (50 Marks)	END SEMESTER EXAMINATION (50 Marks)		
							T1 (30 Marks)	T2 (30 Marks)	Assignments (40 Marks)							
PCC	-	Domain Specific Course-1 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PCC	-	Domain Specific Course-2 / MOOC	3	-	-	-	30	30	40	100	-	-	-	-	100	3
PSMC	230GMAD01	Foundations of Mathematical Modelling and Statistical Techniques	3	-	-	-	30	30	40	100	-	-	-	-	100	3
RMC	231IRMD01	Research Publication and Ethics	2	-	-	-	30	30	40	50	-	-	-	-	50	2
RMC	231IRMD02	Research Proposal Writing	1	1	-	-	-	-	-	-	-	-	50	50	50	2
RMC	231IRMD03	Writing Literature Review	2	-	-	-	-	-	-	-	-	-	50	50	50	2
SLC	231ISR01	Seminar	-	-	-	4	-	-	-	-	-	-	50	50	50	1
<b>TOTAL</b>			<b>14</b>	<b>1</b>	<b>0</b>	<b>4</b>									<b>500</b>	<b>16</b>

Sem.	PCC (Domain Specific Course-1 / MOOC)	
	Specialization	
I	Course Code	<b>230GETD01</b>
	Course Name	An Introduction to Artificial Intelligence/ MOOC
	Course Code	<b>230GETD06</b>
	Course Name	Fundamentals of Artificial Intelligence/MOOC
	Course Code	<b>230GETD12</b>
	Course Name	Machine Learning for Engineering and Science Applications/MOOC

Sem.	PCC (Domain Specific Course-2 / MOOC)				
I	Specialization				
	Course Code	<b>230GETD02</b>	<b>230GETD03</b>	<b>230GETD04</b>	<b>230GETD05</b>
	Course Name	RF Transceiver Design/ MOOC	Biophotonics/ MOOC	Computer Vision and Image Processing/ MOOC	Communication Networks/ MOOC
	Course Code	<b>230GETD07</b>	<b>230GETD08</b>	<b>230GETD09</b>	<b>230GETD10</b>
	Course Name	Microwave Engineering/MOOC	Digital Image Processing/MOOC	Nanobiophotonics: Touching Our Daily Life/MOOC	Analog Communication/MOOC
	Course Code	<b>230GETD11</b>	<b>230GETD13</b>	<b>230GETD14</b>	<b>230GETD15</b>
	Course Name	5G Wireless Standard Design/MOOC	Introduction To Internet Of Things/MOOC	Biomedical Signal Processing/MOOC	Computer Vision and Image Processing - Fundamentals and Applications/MOOC
	Course Code	<b>250GETD01</b>	<b>250GETD02</b>	<b>250GETD03</b>	<b>250GETD04</b>
	Course Name	Introduction to Wireless and Cellular Communications/MOOC	Nanophotonics, Plasmonics, and Metamaterials/MOOC	Deep Learning for Computer Vision/MOOC	Deep Learning/MOOC
	Course Code	<b>250GETD05</b>	<b>250GETD06</b>	<b>250GETD07</b>	<b>250GETD08</b>
	Course Name	Applied Linear Algebra for Signal Processing, Data Analytics and Machine Learning/MOOC	RF and Microwave Networks/MOOC	Mathematical Foundations of Machine Learning/MOOC	Photonic Integrated Circuit/MOOC
	Course Code	<b>250GETD09</b>			
	Course Name	Electromagnetic Waves and 5G Smart Antennas			