

**MIT Academy of Engineering, Alandi, Pune**  
An Autonomous Institute affiliated to Savitribai Phule Pune University

**CURRICULUM FRAMEWORK ( 2019 PATTERN )**  
**ELECTRONICS ENGINEERING**

The Bachelor of Technology Program shall be based on the following type of courses.


<b>COURSE DISTRIBUTION : SEMESTER WISE</b>										
<b>S.N.</b>	<b>TYPE OF COURSE</b>	<b>NO. OF COURSES/SEMESTER</b>								<b>TOTAL</b>
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	
1.	Natural Science (NSC)	2	2	1						<b>5</b>
2.	Engineering Science (ESC)	3	2	2						<b>7</b>
3.	Discipline Core (DC)			3	3	3	3	2		<b>14</b>
4.	Discipline Elective (DE)								2	<b>2</b>
5.	Open Elective (OE)					1	1	1		<b>3</b>
6.	Humanities and Social Science (HSS)	1	1		2	1	1	1	1	<b>8</b>
7.	Skill Development and Project (SDP)	1	1	3	2	2	2	3	1	<b>15</b>
<b>TOTAL</b>		<b>7</b>	<b>6</b>	<b>9</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>54</b>

<b>CREDIT DISTRIBUTION : SEMESTER WISE</b>											
<b>1 Lecture hour = 1 Credit</b>			<b>2 Lab Hours = 1 Credit</b>			<b>1 Tutorial Hour = 1 Credit</b>					
<b>S.N.</b>	<b>TYPE OF COURSE</b>	<b>NO. OF CREDITS/SEMESTER</b>								<b>TOTAL</b>	<b>%</b>
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>		
1.	Natural Science (NSC)	8	8	4						<b>20</b>	<b>12.34</b>
2.	Engineering Science (ESC)	11	7		4					<b>22</b>	<b>13.58</b>
3.	Discipline Core (DC)			12	12	11	11	8		<b>54</b>	<b>33.33</b>
4.	Discipline Elective (DE)								6	<b>6</b>	<b>3.70</b>
5.	Open Elective (OE)					4	4	4		<b>12</b>	<b>7.40</b>
6.	Humanities and Social Science (HSS)	0	2		2	2	2	2	2	<b>12</b>	<b>7.40</b>
7.	Skill Development and Project (SDP)	2	2	6	4	4	4	8	6	<b>36</b>	<b>22.22</b>
<b>TOTAL</b>		<b>21</b>	<b>19</b>	<b>22</b>	<b>22</b>	<b>21</b>	<b>21</b>	<b>22</b>	<b>14</b>	<b>162</b>	<b>100</b>

<b>CREDITS</b>				
<b>1 Lecture Hour = 1 Credit, 2 Lab Hours = 1 Credit, 1 Tutorial Hour = 1 Credit</b>				
<b>SL. NO.</b>	<b>YEAR</b>	<b>SEMESTER</b>		<b>TOTAL</b>
		<b>1</b>	<b>2</b>	
1.	First Year	21	19	<b>40</b>
2.	Second Year	22	22	<b>44</b>
3.	Third Year	21	21	<b>42</b>
4.	Final Year	22	14	<b>36</b>
<b>TOTAL</b>				<b>162</b>


<b>CONTACT HOURS</b>				
<b>SL. NO.</b>	<b>YEAR</b>	<b>SEMESTER</b>		<b>TOTAL</b>
		<b>1</b>	<b>2</b>	
1.	First Year	29	27	<b>56</b>
2.	Second Year	33	32	<b>65</b>
3.	Third Year	27	30	<b>57</b>
4.	Final Year	24	20	<b>44</b>
<b>TOTAL</b>				<b>222</b>

<b>ABBREVIATIONS</b>		
1.	MSE	Mid Semester Exam
2.	ESE	End Semester Exam
3.	IA	Internal Assessment
4.	T/P	Term Work / Practical
5.	DM	Demonstration
6.	L	Lecture
7.	P	Practical
8.	T	Tutorial
9.	Lab	Laboratory

 <b>MIT</b>   Academy of Engineering An Autonomous Institute Affiliated to SPPU	<b>COURSE STRUCTURE (2019 - 2023)</b>			
	<b>SCHOOL OF ELECTRICAL ENGINEERING</b>	<b>W.E.F</b>	<b>:</b>	<b>2019 - 2020</b>
<b>FIRST YEAR BACHLEOR OF TECHNOLOGY IN ELECTRONICS ENGINEERING</b>	<b>RELEASE DATE</b>	<b>:</b>	<b>01/07/2019</b>	
	<b>REVISION NO.</b>	<b>:</b>	<b>1.0</b>	


<b>SEMESTER: I</b>												
<b>INDUCTION PROGRAM: 3 WEEKS</b>												
<b>COURSE</b>			<b>TEACHING SCHEME</b>			<b>EXAMINATION SCHEME AND MARKS</b>					<b>CREDIT</b>	
<b>TYPE</b>	<b>CODE</b>	<b>NAME</b>	<b>Hour/Week</b>			<b>THEORY</b>			<b>PRACT</b>			<b>TOTAL</b>
			<b>L</b>	<b>P</b>	<b>T</b>	<b>MSE</b>	<b>ESE</b>	<b>IA</b>	<b>T/P</b>	<b>DM</b>		
NSC1	AS105	Calculus and Differential Equations	3	-	1	20	40	40	50	-	150	4
NSC2	AS106	Engineering Physics	3	2	-	20	40	40	50	-	150	4
	CH101	Science of Nature										
ESC1	EX102	Electrical & Electronic Engineering	3	2	-	20	40	40	50	-	150	4
	CV102	Applied Mechanics										
ESC2	ME104	Engineering Graphics	2	4	-	-	60	40	100	-	200	4
HSS1	HP103 / 4 / 5	English for Engineers / (German / Japanese )	0		-	-	-	-		-	100	-
ESC3	CS101	Logic Development	1	4	-	-	40	-	100	-	140	3
SDP1	ME105	Experimental Tools and Techniques	-	4	-	-	-	-	40	60	100	2
	ME106	Design Thinking			-							
<b>TOTAL</b>			<b>12</b>	<b>16</b>	<b>1</b>	<b>60</b>	<b>220</b>	<b>160</b>	<b>390</b>	<b>60</b>	<b>890</b>	<b>21</b>
			<b>10</b>				<b>160</b>	<b>220</b>			<b>790</b>	<b>19</b>

SEMESTER: II												
COURSE			TEACHING SCHEME			EXAMINATION SCHEME AND MARKS					CREDIT	
TYPE	CODE	NAME	Hour/Week			THEORY			PRACT			TOTAL
			L	P	T	MSE	ESE	IA	T/P	DM		
NSC3	AS107	Statistics and Integral Calculus	3	-	1	20	40	40	50	-	150	4
NSC4	CH101	Science of Nature	3	2	-	20	40	40	50	-	150	4
	AS106	Engineering Physics										
ESC4	CV102	Applied Mechanics	3	2	-	20	40	40	50	-	150	4
	EX102	Electrical and Electronics Engineering										
HSS1	HP103 / 4 / 5	English for Engineers / (German / Japanese )	0	4	-	-	-	-	100	-	100	2
ESC2	ME104	Engineering Graphics	2		-	-	60	40	100	-	200	4
ESC5	CS102	Application Programming	1	4	-	-	40		100	-	140	3
SDP2	ME106	Design Thinking	-	4	-	-	-	-	40	60	100	2
	ME105	Experimental Tools and Techniques			-				40	60		
HSS2		Indian Constitution	1		-	-	-	-	-	-	<b>Audit</b>	
<b>TOTAL</b>			<b>10</b>	<b>16</b>	<b>1</b>	<b>60</b>	<b>220</b>	<b>160</b>	<b>390</b>	<b>60</b>	<b>790</b>	<b>19</b>
			<b>12</b>								<b>890</b>	<b>21</b>

 Academy of Engineering <b>Autonomous Institute Affiliated to SPPU</b>		<b>COURSE STRUCTURE (2019 - 2023)</b>		
<b>SCHOOL OF ELECTRICAL ENGINEERING</b>		<b>W.E.F</b>	<b>:</b>	<b>2020 - 2021</b>
<b>SECOND YEAR BACHLEOR OF TECHNOLOGY IN ELECTRONICS ENGINEERING</b>		<b>RELEASE DATE</b>	<b>:</b>	<b>01/01/2020</b>
		<b>REVISION NO.</b>	<b>:</b>	<b>1.0</b>


<b>SEMESTER: III</b>												
<b>COURSE</b>			<b>TEACHING SCHEME</b>			<b>EXAMINATION SCHEME AND MARKS</b>					<b>CREDIT</b>	
<b>TYPE</b>	<b>CODE</b>	<b>NAME</b>	<b>Hour/Week</b>			<b>THEORY</b>			<b>PRACT</b>			<b>TOTAL</b>
			<b>L</b>	<b>P</b>	<b>T</b>	<b>MSE</b>	<b>ESE</b>	<b>IA</b>	<b>T/P</b>	<b>DM</b>		
NSC5	AS204	Applied Mathematics	3	2	-	20	50	30	50	0	150	4
ESC6	IT221	Engineering Informatics										
DC01	ET221	Electronic Devices And Circuits	3	2	-	20	50	30	50	0	150	4
DC02	ET222	Digital Systems And Applications	3	2	-	20	50	30	50	0	150	4
DC03	ET223	Signals And Systems	3	2	-	20	50	30	50	0	150	4
SDP3	ET224	Prototyping I	0	4	-	0	0	25	0	50	75	2
SDP4	ET225	Minor Project I ( Ethics )	1	2	-	0	0	25	0	50	75	2
SDP5	ET226	Skill Development Course 1 Data Structures And Algorithms	0	4	-	0	0	25	0	50	75	2
ESC7	CV201	Environmental Sciences	0	2	-	-	-	-	-	-	<b>Audit</b>	
<b>TOTAL</b>			<b>13</b>	<b>20</b>	<b>0</b>	<b>80</b>	<b>200</b>	<b>195</b>	<b>200</b>	<b>150</b>	<b>825</b>	<b>22</b>

<b>SEMESTER: IV</b>												
<b>COURSE</b>			<b>TEACHING SCHEME</b>			<b>EXAMINATION SCHEME AND MARKS</b>					<b>CREDIT</b>	
<b>TYPE</b>	<b>CODE</b>	<b>NAME</b>	<b>Hour/Week</b>			<b>THEORY</b>			<b>PRACT</b>			<b>TOTAL</b>
			<b>L</b>	<b>P</b>	<b>T</b>	<b>MSE</b>	<b>ESE</b>	<b>IA</b>	<b>T/P</b>	<b>DM</b>		
NSC5	AS204	Applied Mathematics	3	2	-	20	50	30	50	0	150	4
ESC8	IT221	Engineering Informatics										
DC04	EX231	Discrete Circuit Design	3	0	-	20	50	30	50	0	100	3
DC05	ET232	Network Analysis Techniques	3	2	-	20	50	30	50	0	150	4
DC06	ET233	Microcontroller & Applications	3	2	-	20	50	30	50	0	150	4
DC07	EX232	Advanced Simulation Tools	1						25	25		1
SDP6	ET235	Prototyping II	0	4	-	0	0	25	0	50	75	2
SDP7	ET236	Minor Project II ( IPR )	1	2	-	0	0	25	0	50	75	2
HSS3	HP202	Professional Skills I	0	4	-	0	0	25	0	50	75	2
HSS4	HP203	Liberal Learning	1	0	-	-	-	-	-	-	<b>Audit</b>	
<b>TOTAL</b>			<b>14</b>	<b>18</b>	<b>0</b>	<b>80</b>	<b>200</b>	<b>195</b>	<b>200</b>	<b>150</b>	<b>825</b>	<b>22</b>

 <b>MIT</b>   Academy of Engineering Autonomous Institute Affiliated to SPPU	<b>COURSE STRUCTURE (2019 - 2023)</b>		
<b>SCHOOL OF ELECTRICAL ENGINEERING</b>	<b>W.E.F</b>	:	<b>2021 - 2022</b>
<b>THIRD YEAR BACHLEOR OF TECHNOLOGY IN ELECTRONICS ENGINEERING</b>	<b>RELEASE DATE</b>	:	<b>01/01/2020</b>
	<b>REVISION NO.</b>	:	<b>1.0</b>

<b>SEMESTER: V</b>												
<b>COURSE</b>			<b>TEACHING SCHEME</b>			<b>EXAMINATION SCHEME AND MARKS</b>					<b>CREDIT</b>	
<b>TYPE</b>	<b>CODE</b>	<b>NAME</b>	<b>Hour/Week</b>			<b>THEORY</b>			<b>PRACT</b>			<b>TOTAL</b>
			L	P	T	MSE	ESE	IA	T/P	DM		
DC08	ET341	Control System	3	2	-	20	50	30	50	0	150	4
DC09	EX341	Computer N / W	3	2	-	20	50	30	50	0	150	4
DC10	EX342	Power Electronics & Application	3	0	-	20	50	30	0	0	100	3
OE01	ET35# / EX35#	Open Elective	3	2	-	20	50	30	50	0	150	4
HSS5	HP304	Project Management	2	0	-	0	50	25	0	0	75	2
SDP8	ET343	Skill Development Course OOP JAVA / C++	0	4	-	0	0	25	50	0	75	2
SDP9	ET344	Mini Project I ( Technical Writing )	1	2	-	0	0	25	0	50	75	2
<b>TOTAL</b>			<b>15</b>	<b>12</b>	<b>0</b>	<b>80</b>	<b>250</b>	<b>195</b>	<b>200</b>	<b>50</b>	<b>775</b>	<b>21</b>

<b>SEMESTER: VI</b>												
<b>COURSE</b>			<b>TEACHING SCHEME</b>			<b>EXAMINATION SCHEME AND MARKS</b>					<b>CREDIT</b>	
<b>TYPE</b>	<b>CODE</b>	<b>NAME</b>	<b>Hour/Week</b>			<b>THEORY</b>			<b>PRACT</b>			<b>TOTAL</b>
			L	P	T	MSE	ESE	IA	T/P	DM		
DC11	EX361	Electronic Communication Systems	3	0	-	20	50	30	50	0	100	3
DC12	ET361	VLSI Design	3	2	-	20	50	30	50	0	150	4
DC13	ET362	Digital Signal Processing	3	2	-	20	50	30	0	0	150	4
OE02	ET37# / EX37#	Open Elective	3	2	-	20	50	30	50	0	150	4
SDP10	ET364	Skill Development Course 3 Networking ( CCNA )	0	4	-	0	0	25	50	0	75	2
SDP11	EX365	Mini Project II	0	4	-	0	0	25	0	50	75	2
HSS6	HP305	Professional Skills 2	0	4	-	0	0	25	0	50	75	2
<b>TOTAL</b>			<b>12</b>	<b>18</b>	<b>0</b>	<b>80</b>	<b>200</b>	<b>195</b>	<b>200</b>	<b>100</b>	<b>775</b>	<b>21</b>

 <b>Academy of Engineering</b> Autonomous Institute Affiliated to SPPU	<b>COURSE STRUCTURE (2019 - 2023)</b>		
	<b>SCHOOL OF ELECTRICAL ENGINEERING</b>	<b>W.E.F</b>	<b>: 2022 - 2023</b>
<b>FINAL YEAR BACHLEOR OF TECHNOLOGY IN ELECTRONICS ENGINEERING</b>	<b>RELEASE DATE</b>	<b>: 01/01/2020</b>	
	<b>REVISION NO.</b>	<b>: 1.0</b>	

SEMESTER: VII													
COURSE			TEACHING SCHEME			EXAMINATION SCHEME AND MARKS						CREDIT	
TYPE	CODE	NAME	Hour/Week			THEORY			PRACT		TOTAL		
			L	P	T	MSE	ESE	IA	T/P	DM			
DC14	EX461	MEMS	3	2	-	20	50	30	50	0	150	4	
DC15	ET462	Machine Learning	3	2	-	20	50	30	50	0	150	4	
OE03	ET47# / EX47#	Open Elective	3	2	-	20	50	30	50	0	150	4	
SDP12	ET463	Skill Development Course 2 Embedded Linux	0	4	-	0	0	25	50	0	75	2	
HSS7	HP405 / HP406	Engineering Economics / Psychology	1	-	-	0	50	25	0	0	75	2	
SDP13	ET464	Project I	0	4	-	0	0	25	0	50	75	2	
SDP14	ET465	Summer Internship	-	-	-	-	-	-	-	150	150	4	
<b>TOTAL</b>			<b>10</b>	<b>14</b>	<b>0</b>	<b>60</b>	<b>200</b>	<b>165</b>	<b>200</b>	<b>200</b>	<b>825</b>	<b>22</b>	

SEMESTER: VIII (PART A)													
COURSE			TEACHING SCHEME			EXAMINATION SCHEME AND MARKS						CREDIT	
TYPE	CODE	NAME	Hour/Week			THEORY			PRACT		TOTAL		
			L	P	T	MSE	ESE	IA	T/P	DM			
DE01	ET48# / EX48#	Discipline Elective	3	0	-	20	50	30	0	0	100	3	
DE02	ET49# / EX49#	Discipline Elective	3	0	-	20	50	30	0	0	100	3	
HSS8	AS201	Psychology / Engineering Economics	2	0	-	0	50	25	0	0	75	2	
SDP15	EX432	Project II	-	12	-	0	0	100	0	100	200	6	
<b>TOTAL</b>			<b>8</b>	<b>12</b>	<b>0</b>	<b>40</b>	<b>150</b>	<b>185</b>	<b>0</b>	<b>100</b>	<b>475</b>	<b>14</b>	

**SEMESTER: VIII (PART B SEMESTER LONG INTERNSHIP)**

COURSE			TEACHING SCHEME			EXAMINATION SCHEME AND MARKS					CREDIT	
TYPE	CODE	NAME	Hour/Week			THEORY			PRACT			TOTAL
			L	P	T	MSE	ESE	IA	T/P	DM		
DE01	ET48# / EX48#	Discipline Elective	3	0	-	20	50	30	0	0	100	3
DE02	ET49# / EX49#	Discipline Elective	3	0	-	20	50	30	0	0	100	3
SDP16	ET467	Semester Long Internship Design	-	-	-	-	-	-	-	150	150	4
SDP17	ET468	Semester Long Internship Implementation	-	-	-	-	-	-	-	150	150	4
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>100</b>	<b>60</b>	<b>0</b>	<b>300</b>	<b>500</b>	<b>14</b>



<b>Natural Science (NSC) : 5 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	AS105	Calculus and Differential Equations
2.	AS106	Engineering Physics
3.	CH101	Science of Nature
4.	AS107	Statistics and Integral Calculus
5.	AS201	Applied Mathematics

<b>Engineering Science (ESC) : 7 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	EX102	Electrical and Electronics Engineering
2.	CV102	Applied Mechanics
3.	ME104	Engineering Graphics
4.	CS101	Logic Development
5.	CS102	Application Programming
6.	ME201	Material Engineering
7.	IT201	Engineering Informatics

<b>Humanities and Social Science (HSS) : 10 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	HP103	English for Engineers
2.	HP104	German
3.	HP105	Japanese
4.	HP106	Indian Constitution
5.	HP202	Professional Skills I
6.	HP203	Liberal Learning
7.	HP302	Project Management
8.	HP305	Professional Skills 2
9.	HP405	Engineering Economics
10.	HP406	Psychology

<b>Discipline Core (DC) : 15 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	ET221	Electronic Devices and Circuits
2.	ET222	Digital Systems and Applications
3.	ET223	Signals and Systems
4.	EX231	Discrete Circuit Design
5.	ET232	Network Analysis Techniques
6.	ET233	Microcontroller & Applications
7.	EX232	Advanced Simulation Tools
8.	ET341	Control System
9.	EX341	Computer N / W
10.	EX342	Power Electronics & Application
11.	EX361	Electronic Communication Systems
12.	ET362	Digital Signal Processing
13.	ET361	VLSI Design
14.	EX461	MEMS
15.	ET462	Machine Learning

<b>Discipline Elective (DE) : 2 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	ET481	Digital Image Processing
	ET482	Microwave Engineering
	ET483	RISC Processors
	ET484	Deep Learning
	ET485	Fiber optic communications
2.	EX491	Biomedical Engineering
	ET491	Natural Language Processing
	ET492	Internet of Things
	EX492	Speech Signal Processing

<b>Skill Development and Project (SDP) : 15 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	ME105	Experimental Tools and Techniques
2.	ME106	Design Thinking
3.	ET224	Prototyping I
4.	ET225	Minor Project I (Ethics)
5.	ET226	Skill Development Course - Data Structures and Algorithms
6.	ET235	Prototyping II
7.	ET236	Minor Project II (IPR)
8.	ET343	Skill Development Course OOP JAVA / C++
9.	ET344	Mini Project I ( Technical Writing )
10.	ET364	Skill Development Course 3 ( CCNA )
11.	ET365	Mini Project II
12.	ET463	Skill Development Course 2 - Embedded Linux
13.	ET464	Project I
14.	ET465	Summer Internship
15.	ET466	Project II
16.	ET467	Semester long Internship Design
17.	ET468	Semester long Internship Implementation

<b>Open Elective (OE) : Semester - VI</b>		
<b>Chemical</b>		
1	CH331	Process Engineering.
2	CH332	Piping Layout
<b>Civil</b>		
3	CV331	Operation Research
<b>Computer</b>		
4	CS331	Predictive Analysis
5	CS332	Machine Learning
<b>Electronics</b>		
6	EX371	Robot Dynamics & Control
<b>E &amp; TC</b>		
7	ET371	Embedded Processor
8	ET372	IoT Network & Protocols
<b>IT</b>		
9	IT331	Cyber Security
<b>Mechanical</b>		
10	ME331	Finite Element Analysis
11	ME332	Kinematics & Dynamics of Robots
12	ME333	Facility Planning & Design

<b>Open Elective (OE) : Semester - VII</b>		
<b>Chemical</b>		
1	CH421	Process Optimization
2	CH422	Piping Design & Engineering
<b>Civil</b>		
3	CV421	Financial Management
<b>Computer</b>		
4	CS421	Big Data Analytics
5	CS422	Deep Learning
<b>Electronics</b>		
6	EX471	Robotics Vision
<b>E &amp; TC</b>		
7	ET471	RTOS
8	ET472	Data Management & Analytics
<b>IT</b>		
9	IT421	Ethical Hacking & Cyber Laws
<b>Mechanical</b>		
10	ME421	Computational Fluid Dynamics
11	ME422	Robotics Vision and Control
12	ME423	Operations Management

<b>Open Elective (OE) School Wise : 3 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1	ET351	Embedded System Programming ( ESP )
2	ET371	Embedded Processors
3	ET471	RTOS
5	ET352	IoT Architecture & Sensors
6	ET372	IoT Network & Protocols
7	ET472	Data Management & Analytics
9	EX351	Fundamentals of Robotics
10	EX371	Robot Dynamics & Control
11	EX471	Robotics Vision