

**MIT ACADEMY OF ENGINEERING, ALANDI**  
**Savitribai Phule Pune University**

**Curriculum for**  
**Bachelor of Technology in**

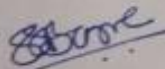
**Mechanical Engineering**  
**(Choice Based Credit System)**

**2019-2023**



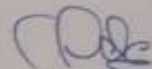
**BoS Chairman**  
**Dean, School of**  
**Mechanical & Civil**  
**Engineering**  
**CHAIRMAN**

**BOS-Mechanical Engineering**  
**MIT Academy of Engineering**  
**(An Autonomous Institute)**



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**MIT Academy of Engineering**  
**Alandi (D.), Pune-412 105.**



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**MIT Academy of Engineering**  
**Alandi (D.), Pune-412 105.**

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

**CURRICULUM FRAMEWORK (2019 PATTERN)**  
**MECHANICAL 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		1					<b>6</b>
3.	Discipline Core (DC)			3	3	3	3	1	1	<b>14</b>
4.	Discipline Elective (DE)							1	1	<b>2</b>
5.	Open Elective (OE)					1	1	1		<b>3</b>
6.	Humanities and Social Science (HSS)		1		1	1	1		2	<b>6</b>
7.	Skill Development and Project (SDP)	1	1	3	2	2	2	3	1	<b>15</b>
<b>TOTAL</b>		<b>6</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>51</b>
Audit Course			1	1	2		1			<b>5</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>12.5</b>
2.	Engineering Science (ESC)	11	7		4					<b>26</b>	<b>16.25</b>
3.	Discipline Core (DC)			12	12	11	11	4	4	<b>54</b>	<b>33.75</b>
4.	Discipline Elective (DE)							3	3	<b>6</b>	<b>3.75</b>
5.	Open Elective (OE)					4	4	4		<b>12</b>	<b>7.5</b>
6.	Humanities and Social Science (HSS)	0	2		2	2	2		4	<b>12</b>	<b>7.5</b>
7.	Skill Development and Project (SDP)			5	3	4	4	10	4	<b>30</b>	<b>18.75</b>

<b>TOTAL</b>		<b>21</b>	<b>19</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>15</b>	<b>160</b>	<b>100</b>
<b>CREDITS</b>											
<b>1 Lecture Hour = 1 Credit, 2 Lab Hours = 1 Credit, 1 Tutorial Hour = 1 Credit</b>											
SL. NO.	YEAR	SEMESTER		TOTAL							
		1	2								
1.	First Year	21	19	<b>40</b>							
2.	Second Year	21	21	<b>42</b>							
3.	Third Year	21	21	<b>42</b>							
4.	Final Year	21	15	<b>36</b>							
<b>TOTAL</b>				<b>160</b>							


<b>CONTACT HOURS</b>				
SL. NO.	YEAR	SEMESTER		TOTAL
		1	2	
1.	First Year	29/27	28/30	<b>57</b>
2.	Second Year	31	31	<b>62</b>
3.	Third Year	27	30	<b>57</b>
4.	Final Year	25	20	<b>45</b>
<b>TOTAL</b>				<b>221</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 (REVISION 2019)</b>			
	SCHOOL OF HUMANITIES AND ENGINEERING SCIENCES	W.E.F	:	2019-2020
FIRST YEAR BACHLEOR OF TECHNOLOGY	RELEASE DATE	:	01/07/2019	
	REVISION NO.	:	1.0	


SEMESTER: I (Version I)												
INDUCTION PROGRAM: 3 WEEKS												
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		
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
ESC1	EX102	Electrical and Electronics Engineering	3	2	-	20	40	40	50	-	150	4
ESC2	ME104	Engineering Graphics	2	4	-	-	60	40	100	-	200	4
ESC3	CS101	Logic Development-C Programming	1	4	-	-	40	-	100	-	140	3
SDP1	ME105	Experimental Tools and Techniques	-	4	-	-	-	-	40	60	100	2
<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>

SEMESTER: II (Version I)												
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
ESC4	CV102	Applied Mechanics	3	2	-	20	40	40	50	-	150	4
HSS1	HP103/4/5	English for Engineers (German/Japanese)	0	4	-	-	-	-	100	-	100	2
ESC5	CS102	Applications Programming -Python	1	4	-	-	40	-	100	-	140	3
SDP2	ME106	Design Thinking	-	4	-	-	-	-	40	60	100	2
HSS2	HP106	Indian Constitution	1	-	-	-	-	-	-	-	Audit	
<b>TOTAL</b>			<b>11</b>	<b>16</b>	<b>1</b>	<b>60</b>	<b>160</b>	<b>120</b>	<b>390</b>	<b>60</b>	<b>790</b>	<b>19</b>

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


SEMESTER: I (Version II)												
INDUCTION PROGRAM: 3 WEEKS												
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		
NSC1	AS105	Calculus and Differential Equations	3	-	1	20	40	40	50	-	150	4
NSC4	CH101	Science of Nature	3	2	-	20	40	40	50	-	150	4
ESC4	CV102	Applied Mechanics	3	2	-	20	40	40	50	-	150	4
HSS1	HP103/4/5	English for Engineers / (German/Japanese)	0	4	-	-	-	-	100	-	100	2
ESC3	CS101	Logic Development-C Programming	1	4	-	-	40	-	100	-	140	3
SDP2	ME106	Design Thinking	-	4	-	-	-	-	40	60	100	2
<b>TOTAL</b>			<b>10</b>	<b>16</b>	<b>1</b>	<b>60</b>	<b>160</b>	<b>120</b>	<b>390</b>	<b>60</b>	<b>790</b>	<b>19</b>

SEMESTER: II (Version II)												
COURSE			TEACHING SCHEME			EXAMINATION SCHEME AND MARKS					CREDIT	
PE	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
NSC2	AS106	Engineering Physics	3	2	-	20	40	40	50	-	150	4
ESC1	EX102	Electrical and Electronics Engineering	3	2	-	20	40	40	50	-	150	4
ESC2	ME104	Engineering Graphics	2	4	-	-	60	40	100	-	200	4
ESC5	CS102	Applications Programming -Python	1	4	-	-	40	-	100	-	140	3
SDP1	ME105	Experimental Tools and Techniques	-	4	-	-	-	-	40	60	100	2
HSS2	HP106	Indian Constitution	1	-	-	-	-	-	-	-	Audit	
<b>TOTAL</b>			<b>13</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>MIT</b>   Academy of Engineering Autonomous Institute Affiliated to SPPU	<b>COURSE STRUCTURE (REVISION 2019)</b>		
<b>SCHOOL OF MECHANICAL &amp; CIVIL ENGINEERING</b>	<b>W.E.F</b>	<b>:</b>	<b>2020-2021</b>
<b>SECOND YEAR BACHLEOR OF TECHNOLOGY IN MECHANICAL ENGINEERING</b>	<b>RELEASE DATE</b>	<b>:</b>	<b>01/06/2020</b>
	<b>REVISION NO.</b>	<b>:</b>	<b>1.0</b>


SEMESTER: III													
SUMMER INTERNSHIP (Audit: ME200)													
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			
ESC5	AS203	Applied Mathematics	3	2	-	35	35	30	50	0	150	4	
DC01	ME231	Strength of Materials	3	2	-	35	35	30	50	0	150	4	
DC02	ME232	Thermal Engineering	3	2	-	35	35	30	50	0	150	4	
DC03	ME233	Manufacturing Technology	3	2	-	35	35	30	50	0	150	4	
SDP3	ET224	Digital Prototyping	0	4	-	0	0	25	0	50	75	2	
SDP4	ME230	Minor Project Design	0	2	-	0	0	0	0	50	50	1	
SDP5	ME241	Skill Development Course (Industrial Measurements & Instrumentation)	0	4	-	0	0	25	0	50	75	2	
ESC7	CV203	Environmental Sciences	1	0	-	-	-	-	-	-	Audit		
<b>TOTAL</b>			<b>13</b>	<b>18</b>	<b>0</b>	<b>140</b>	<b>140</b>	<b>170</b>	<b>200</b>	<b>150</b>	<b>800</b>	<b>21</b>	

SEMESTER: IV													
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			
ESC8	ME221	Materials Engineering	3	2	-	35	35	30	50	0	150	4	
DC04	ME222	Engineering Informatics	3	2	-	35	35	30	50	0	150	4	
DC05	ME234	Machines & Mechanisms	3	2	-	35	35	30	50	0	150	4	
DC06	ME235	Fluid Mechanics	3	2	-	35	35	30	50	0	150	4	
SDP6	ET235	Rapid Prototyping	0	4	-	0	0	25	0	50	75	2	
SDP7	ME240	Minor Project Implementation	0	2	-	0	0	0	0	50	50	1	
HSS3	HP202	Professional Skill	0	4	-	0	0	25	0	50	75	2	
HSS4	HP203	Liberal Learning	1	0	-	-	-	-	-	-	Audit		
<b>TOTAL</b>			<b>13</b>	<b>18</b>	<b>0</b>	<b>140</b>	<b>140</b>	<b>170</b>	<b>200</b>	<b>150</b>	<b>800</b>	<b>21</b>	

 <b>MIT</b>   Academy of Engineering Autonomous Institute Affiliated to SPPU	<b>COURSE STRUCTURE (REVISION 2019)</b>		
<b>SCHOOL OF MECHANICAL &amp; CIVIL ENGINEERING</b>	<b>W.E.F</b>	<b>:</b>	<b>2021-2022</b>
<b>THIRD YEAR BACHLEOR OF TECHNOLOGY IN MECHANICAL ENGINEERING</b>	<b>RELEASE DATE</b>	<b>:</b>	<b>01/06/2020</b>
	<b>REVISION NO.</b>	<b>:</b>	<b>1.0</b>

SEMESTER: V												
SUMMER INTERNSHIP (Audit: ME300)												
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		
DC07	ME341	Machine Design	3	2	-	35	35	30	50	0	150	4
DC08	ME342	Turbomachines	3	2	-	35	35	30	50	0	150	4
DC09	ME343	Hydraulics & Pneumatics	3	0	-	35	35	30	0	0	100	3
OE01	ME35#	Open Elective	3	2	-	35	35	30	50	0	150	4
HSS5	CS361	Project Management	2	0	-	0	50	25	0	0	75	2
SDP8	ME371	Skill Development Course (Computer Aided Product Design)	0	4	-	0	0	25	50	0	75	2
SDP9	ME350	Project Design	0	4	-	0	0	25	0	50	75	2
<b>TOOTAL</b>			<b>15</b>	<b>12</b>	<b>0</b>	<b>140</b>	<b>190</b>	<b>195</b>	<b>200</b>	<b>50</b>	<b>775</b>	<b>21</b>

SEMESTER: VI												
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		
DC10	ME344	Design of Transmission Systems	3	2	-	35	35	30	50	0	150	4
DC11	ME346	Heat Transfer	3	2	-	35	35	30	50	0	150	4
DC12	ME347	Quality Management	3	0	-	35	35	30	0	0	100	3
OE02	ME36#	Open Elective	3	2	-	35	35	30	50	0	150	4
SDP10	ME381	Skill Development Course (Mechanical Simulations)	0	4	-	0	0	25	50	0	75	2
SDP11	ME360	Project Implementation	0	4	-	0	0	25	0	50	75	2
HSS6	HP305	Employability and Career Development	0	4	-	0	0	25	0	50	75	2
<b>TOTAL</b>			<b>12</b>	<b>18</b>	<b>0</b>	<b>140</b>	<b>140</b>	<b>195</b>	<b>200</b>	<b>100</b>	<b>775</b>	<b>21</b>

 <b>MIT</b>   Academy of Engineering Autonomous Institute Affiliated to SPPU	<b>COURSE STRUCTURE (REVISION 2019)</b>		
<b>SCHOOL OF MECHANICAL &amp; CIVIL ENGINEERING</b>	<b>W.E.F</b>	:	<b>2022-2023</b>
<b>FINAL YEAR BACHLEOR OF TECHNOLOGY IN MECHANICAL ENGINEERING</b>	<b>RELEASE DATE</b>	:	<b>01/06/2020</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		
DC13	ME461	Refrigeration & Air Conditioning	3	2	-	35	35	30	50	0	150	4
DE01	ME47#	Discipline Elective	3	-	-	35	35	30	0	0	100	3
OE03	ME49#	Open Elective	3	2	-	35	35	30	50	0	150	4
SDP12	ME463	Skill Development Course (Object-Oriented Programming with Python)	-	4	-	0	0	25	50	0	75	2
SDP13	ME470	Project Evaluation	-	8	-	0	0	50	0	100	150	4
SDP14	ME400	Summer Internship	-	-	-	-	-	-	-	150	150	4
<b>TOTAL</b>			<b>9</b>	<b>16</b>	<b>0</b>	<b>105</b>	<b>105</b>	<b>165</b>	<b>150</b>	<b>250</b>	<b>775</b>	<b>21</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		
DC14	ME462	Machine Dynamics	3	2	-	35	35	30	50	0	150	4
DE02	ME48#	Discipline Elective	3	-	-	35	35	30	0	0	100	3
SDP15	ME480	Capstone Portfolio	-	8	-	-	-	-	-	150	150	4
HSS7	HP405	Engineering Economics	2	-	-	0	50	25	0	0	75	2
HSS8	HP406	Psychology	2	-	-	0	50	25	0	0	75	2
<b>TOTAL</b>			<b>10</b>	<b>10</b>	<b>0</b>	<b>70</b>	<b>170</b>	<b>160</b>	<b>50</b>	<b>75</b>	<b>550</b>	<b>15</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		
DE02	ME48#	Discipline Elective	3	-	-	35	35	30	0	0	100	3
SDP15	ME480	Capstone Portfolio	-	8	-	-	-	-	-	150	150	4
SDP16	ME467	Semester Long Internship Design	-	-	-	-	-	-	-	150	150	4
SDP17	ME468	Semester Long Internship Implementation	-	-	-	-	-	-	-	150	150	4
<b>TOTAL</b>			<b>6</b>	<b>2</b>	<b>0</b>	<b>70</b>	<b>70</b>	<b>60</b>	<b>50</b>	<b>300</b>	<b>550</b>	<b>15</b>

Discipline Elective (DE): 2 Courses and 6 Credits			
Sl. No.	Course Code	Course Name	Course Credits
1.	ME471	Operations Research	3
	ME472	Mechanical Control Systems	
	ME473	Mechanical System Design	
	ME474	Sustainable Energy	
	ME475	Artificial Intelligence	
2.	ME481	Optimization Tools & Techniques	3
	ME482	Product Lifecycle Management	
	ME483	Smart Manufacturing	
	ME484	Reliability Engineering	
	ME485	Machine Learning	
	MESWAYAM01	Discipline Elective_Swayam MOOC Courses	
	MESWAYAM02	Discipline Elective_Swayam MOOC Courses	
	MESWAYAM03	Discipline Elective_Swayam MOOC Courses	

Natural Science (NSC): 5 Courses and 20 Credits			
Sl. No.	Course Code	Course Name	Course Credits
1.	AS105	Calculus and Differential Equations	4
2.	AS106	Engineering Physics	4
3.	CH101	Science of Nature	4
4.	AS107	Statistics and Integral Calculus	4
5.	AS203/04	Applied Mathematics	4

<b>Humanities and Social Science (HSS): 6 Courses and 12 Credits</b>			
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Course Credits</b>
1.	HP103	English for Engineers	2
	HP104	German	
	HP105	Japanese	
Audit	HP106	Indian Constitution	Audit
2.	HP202	Professional Skills	2
Audit	HP203	Liberal Learning	Audit
3.	CS361	Project Management	2
4.	HP305	Employability and Career Development	2
5.	HP405	Engineering Economics	2
6.	HP406	Psychology	2

<b>Engineering Science (ESC): 8 Courses and 26 Credits</b>			
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Course Credits</b>
1.	EX102	Electrical and Electronics Engineering	4
2.	CV102	Applied Mechanics	4
3.	ME104	Engineering Graphics	4
4.	ME105	Experimental Tools and Techniques	2
5.	ME106	Design Thinking	2
6.	CS101	Logic Development - C Programming	3
7.	CS102	Application Programming - Python	3
8.	ME221	Material Engineering	4
	IT221	Engineering Informatics	
Audit	CV203	Environmental Sciences	Audit

<b>Discipline Core (DC): 14 Courses and 54 Credits</b>			
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Course Credits</b>
1.	ME231	Strength of Materials	4
2.	ME232	Thermal Engineering	4
3.	ME233	Manufacturing Technology	4
4.	ME222	Engineering Informatics	4
5.	ME234	Machines & Mechanisms	4
6.	ME235	Fluid Mechanics	4
7.	ME341	Machine Design	4
8.	ME342	Turbomachines	4
9.	ME343	Hydraulics & Pneumatics	3
10.	ME344	Design of Transmission Systems	4
11.	ME346	Heat Transfer	4
12.	ME347	Quality Management	3
13.	ME461	Refrigeration & Air Conditioning	4
14.	ME462	Machine Dynamics	4

<b>Skill Development and Project (SDP): 13 Courses and 30 Credits</b>			
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Course Credits</b>
1.	ET224	Digital Prototyping	2
2.	ME230	Minor Project Design	1
3.	ME225	Skill Development Course 1 (Industrial Measurements & Instrumentation)	2
4.	ET235	Rapid Prototyping	2
5.	ME240	Minor Project Implementation	1
6.	ME371	Skill Development Course 2 (Computer Aided Product Design)	2
7.	ME350	Project Design	2
8.	ME381	Skill Development Course 3 (Mechanical Simulations)	2
9.	ME360	Project Implementation	2
10.	ME463	Skill Development Course 4 (Object Oriented Programming with Python)	2
11.	ME470	Project Evaluation	4
12.	ME400	B. Tech Summer Internship	4
13.	ME480	Capstone Work	4
14.	ME467	Semester Long Internship Design	4
15.	ME468	Semester Long Internship Implementation	4
Audit	ME200	SY Summer Internship	Audit
Audit	ME300	TY Summer Internship	Audit

<b>List of Skill Development Courses</b>				
<b>Programme Name</b>	<b>Skill Development Course 1</b>	<b>Skill Development Course 2</b>	<b>Skill Development Course 3</b>	<b>Skill Development Course 4</b>
<b>Chemical</b>	CFD	ASPEN ONE	Aspen EDR	Plant Design Piping
<b>Civil</b>	REVIT/ MS EXCEL	ETABS	Open Road Designer/WaterGEMS	CFD / QGIS
<b>Computer and Information Technology</b>	CPP/Core Java	RHA I/ Web Technology	Adv. Java/ .Net Core/RHA II	AWS cloud services/ Android App Development
<b>Mechanical</b>	Industrial Measurements & Instrumentation	Computer Aided Product Design	Mechanical Simulations	Object Oriented Programming with Python
<b>Electronics Engineering and ENTC</b>	Data Structures and Algorithms	OOP JAVA / C++	Networking Data Science	EMB Linux/Cloud Computing/System Verilog



**Open Electives (OE): 03 Courses**

Programme Name	Open Track Name	Semester V		Semester VI		Semester VII	
		Course Code	Course Name	Course Code	Course Name	Course Code	Course Name
<b>Chemical Engineering</b>	Process Engineering	CH351	Process Engineering	CH371	Process Modeling and Simulation	CH471	Process Intensification and Integration
	Energy Engineering	CH352	Energy Technology	CH372	Energy Modeling and Simulation	CH472	Energy Management and Audit
<b>Civil Engineering</b>	Project Management	CV325	Planning and Management	CV332	Operation Research	CV422	Financial Management
	Environmental Engineering	CV326	Solid Waste Management	CV333	Unit Operations for Liquid Waste/Effluent Treatment	CV423	Environmental Impact assessment and Climate Change
<b>Computer Engineering</b>	Data science	CS351	Descriptive Analytics	CS354	Predictive Analysis	CS461	Big Data Analytics
	Artificial Intelligence and Machine Learning	CS352	Artificial Intelligence	CS355	Machine Learning	CS462	Deep Learning
	Cloud Computing	CS353	Cloud Computing Foundation	CS356	Cloud Native Application Development	CS463	Cloud Native DevOps
<b>Electronics Engineering</b>	Robotics and Automation	ME352	Robot Fundamentals and Kinematics	EX371	Robot Dynamics and Control	EX471	AI in Robotics

**Open Electives (OE)**

Programme Name	Open Track Name	Semester V		Semester VI		Semester VII	
		Course Code	Course Name	Course Code	Course Name	Course Code	Course Name
<b>Electronics &amp; Telecommunication</b>	Healthcare Technology	ET351	Fundamentals of Healthcare Technology	ET371	Healthcare Informatics	ET471	AI in Healthcare
	Internet of Things	ET352	IoT Architecture and Sensors	ET372	IoT Network & Protocols	ET472	Data Management and Analytics
<b>Information Technology</b>	Computer Security	IT351	Cryptography and System Security	IT352	Cyber Security and Forensics	IT461	Ethical Hacking & Cyber Laws
<b>Mechanical Engineering</b>	Computer Aided Engineering	ME351	Finite Element Analysis	ME361	Computational Fluid Dynamics	ME491	Advanced Fluid Dynamics
	Robotics and Automation	ME352	Robot Fundamental & Kinematics	EX371	Robot Dynamics and Control	EX471	AI in Robotics
	Automobile Engineering	ME354	Automobile System Design	ME364	Vehicle Dynamics	ME494	Autotronics and e-Vehicles
<b>Entrepreneurship Cell</b>	Innovation, Entrepreneurship & Venture Development	HP311	Foundational Course in Entrepreneurship	HP312	Advanced Course in Entrepreneurship	HP411	Startup and Incubation