

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

**CURRICULUM FRAMEWORK (2019 PATTERN)**  
**INFORMATION TECHNOLOGY**

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)			4	3	3	3	2		<b>15</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>10</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>55</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>13</b>
2.	Engineering Science (ESC)	11	7		4					<b>22</b>	<b>14</b>
3.	Discipline Core (DC)			12	12	11	11	8		<b>54</b>	<b>34</b>
4.	Discipline Elective (DE)								6	<b>6</b>	<b>4</b>
5.	Open Elective (OE)					4	4	4		<b>12</b>	<b>8</b>
6.	Humanities and Social Science (HSS)	0	2		2	2	2	2	2	<b>12</b>	<b>8</b>
7.	Skill Development and Project (SDP)	2	2	5	3	4	4	8	6	<b>36</b>	<b>21</b>
<b>TOTAL</b>		<b>21</b>	<b>19</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>22</b>	<b>14</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>				
<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	21	21	<b>42</b>
3.	Third Year	21	21	<b>42</b>
4.	Final Year	22	14	<b>36</b>
<b>TOTAL</b>				<b>160</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	26/28	<b>55</b>
2.	Second Year	32	31	<b>63</b>
3.	Third Year	27	30	<b>57</b>
4.	Final Year	25	20	<b>45</b>
<b>TOTAL</b>				<b>220</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>An Autonomous Institute Affiliated to SPPU</b> <b>SCHOOL OF ENGINEERING SCIENCES AND HUMANITIES</b>	<b>COURSE STRUCTURE</b> (2019 - 2023)		
	<b>W.E.F</b>	:	<b>2019-2020</b>
<b>FIRST YEAR BACHLEOR OF TECHNOLOGY</b> <b>IN INFORMATION TECHNOLOGY</b>	<b>RELEASE DATE</b>	:	<b>01/07/2019</b>
	<b>REVISION NO.</b>	:	<b>1.0</b>


<b>SEMESTER: I(Version 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>
			L	P	T	MSE	ESE	IA	T/P	DM		
NSC1	AS105	Calculus and Differential Equations	3	-	1	30	30	40	50	-	150	4
NSC2	AS106	Engineering Physics	3	2	-	30	30	40	50	-	150	4
ESC1	EX102	Electrical & Electronic Engineering	3	2	-	30	30	40	50	-	150	4
ESC2	ME104	Engineering Graphics	2	4	-	-	60	40	100	-	200	4
ESC3	CS101	Logic Development	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>90</b>	<b>190</b>	<b>160</b>	<b>390</b>	<b>60</b>	<b>890</b>	<b>21</b>

<b>SEMESTER: II (Version I)</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		
NSC3	AS107	Statistics and Integral Calculus	3	-	1	30	30	40	50	-	150	4
NSC4	CH101	Science of Nature	3	2	-	30	30	40	50	-	150	4
ESC4	CV102	Applied Mechanics	3	2	-	30	30	40	50	-	150	4
HSS1	HP103/4/5	English for Engineers //(German/Japanese)	0	4	-	-	-	-	100	-	100	2
ESC5	CS102	Application Programming	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>90</b>	<b>130</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 (2019 - 2023)</b>			
	<b>SCHOOL OF ENGINEERING SCIENCES AND HUMANITIES</b>	<b>W.E.F</b>	<b>:</b>	<b>2019-2020</b>
<b>FIRST YEAR BACHLEOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY</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 (Version II)</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	30	30	40	50	-	150	4
NSC4	CH101	Science of Nature	3	2	-	30	30	40	50	-	150	4
ESC4	CV102	Applied Mechanics	3	2	-	30	30	40	50	-	150	4
HSS1	HP103/4/5	English for Engineers /(German/Japanese)	0	4	-	-	-	-	100	-	100	2
ESC3	CS101	Logic Development	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>90</b>	<b>130</b>	<b>120</b>	<b>390</b>	<b>60</b>	<b>790</b>	<b>19</b>


<b>SEMESTER: II (Version II)</b>												
<b>COURSE</b>			<b>TEACHING SCHEME</b>			<b>EXAMINATION SCHEME AND MARKS</b>					<b>CREDIT</b>	
<b>PE</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>		
NSC3	AS107	Statistics and Integral Calculus	3	-	1	30	30	40	50	-	150	4
NSC2	AS106	Engineering Physics	3	2	-	30	30	40	50	-	150	4
ESC1	EX102	Electrical & Electronic Engineering	3	2	-	30	30	40	50	-	150	4
ESC2	ME104	Engineering Graphics	2	4	-	-	60	40	100	-	200	4
ESC5	CS102	Application Programming	1	4	-	-	40	-	100	-	140	3
SDP1	ME105	Experimental Tools and Techniques	-	4	-	-	-	-	40	60	100	2
SS2	HP106	Indian Constitution	1	-	-	-	-	-	-	-	Audit	
<b>TOTAL</b>			<b>13</b>	<b>16</b>	<b>1</b>	<b>90</b>	<b>190</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 (2019 - 2023)</b>		
<b>SCHOOL OF COMPUTER ENGINEERING &amp; TECHNOLOGY</b>	<b>W.E.F</b>	:	<b>2020-2021</b>
<b>SECOND YEAR BACHLEOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY</b>	<b>RELEASE DATE</b>	:	<b>01/01/2020</b>
	<b>REVISION NO.</b>	:	<b>1.0</b>

<b>SEMESTER: III</b>												
<b>SUMMER INTERNSHIP</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		
NSC5	AS204	Applied Mathematics	3	2	-	35	35	30	50	0	150	4
ESC6	IT221	Engineering Informatics										
DC01	CS221	Data Structures	3	-	-	35	35	30	0	0	100	3
DC02	CS222	Discrete Structure and Graph Theory	3	-	-	35	35	30	0	0	100	3
DC03	CS223	Computer Graphics	3	2	-	35	35	30	50	0	150	4
DC04	CS224	Data Structure Lab	-	4	-	-	-	25	50	-	75	2
SDP3	ET224	Prototyping I	0	4	-	0	0	25	0	50	75	2
SDP4	CS230	Minor Project I	0	2	-	0	0	0	0	50	50	1
SDP5	CS226/ 27	Skill Development Course 1CPP/Core Java	0	4	-	0	0	25	0	50	75	2
ESC7	CV201	Environmental Sciences	0	2	-	-	-	-	-	-	-	Audit
<b>TOTAL</b>			<b>12</b>	<b>20</b>	<b>0</b>	<b>140</b>	<b>140</b>	<b>195</b>	<b>150</b>	<b>150</b>	<b>775</b>	<b>21</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>
			L	P	T	MSE	ESE	IA	T/P	DM		
NSC5	AS204	Applied Mathematics	3	2	-	35	35	30	50	0	150	4
ESC8	IT221	Engineering Informatics										
DC05	CS228	Advanced Data Structures	3	2	-	35	35	30	50	0	150	4
DC06	CS229	Computer organization & Architecture	3	2	-	35	35	30	50	0	150	4
DC07	CS231	Database Management System	3	2	-	35	35	30	50	0	150	4
SDP6	ET235	Prototyping II	0	4	-	0	0	25	0	50	75	2


SDP7	CS240	Minor Project II	0	2	-	0	0	0	0	50	50	1
HSS3	HP202	Professional Skills I	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>SCHOOL OF COMPUTER ENGINEERING &amp; TECHNOLOGY</b>	<b>COURSE STRUCTURE (2019 - 2023)</b>		
	<b>W.E.F</b>	:	<b>2021-2022</b>
<b>THIRD YEAR BACHLEOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY</b>	<b>RELEASE DATE</b>	:	<b>01/01/2020</b>
	<b>REVISION NO.</b>	:	<b>1.0</b>

SEMESTER: V												
SUMMER 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		
DC08	CS341	Operating System	3	2	-	35	35	30	50	0	150	4
DC09	CS342	Theory of Computation	3	0	-	35	35	30	0	0	100	3
DC10	CS343	Computer Networks	3	2	-	35	35	30	50	0	150	4
OE01	IT351/ CS351 /CS352,/ HP 311/ IT 391	Open Elective	3	2	-	35	35	30	50	0	150	4
HSS5	HP304	Project Management	2	0	-	0	50	25	0	0	75	2
SDP8	CS344/ CS346	Skill Development Course 2 Red Hat Linux/ Web Technology	0	4	-	0	0	25	50	0	75	2
SDP9	CS345	Mini Project I	1	2	-	0	0	25	0	50	75	2
<b>TOTAL</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		
DC11	CS347	Design Analysis and Algorithms	3	2	-	35	35	30	50	0	150	4
DC12	IT348	Mobile Application Development	3	0	-	35	35	30	0	0	100	3
DC13	CS349	Software Engineering	3	2	-	35	35	30	50	0	150	4

OE02	IT352/ CS353/CS 354 / HP 312/ IT392	Open Elective	3	2	-	35	35	30	50	0	150	4
SDP10	CS356/ CS357/ CS358	Skill Development Course3 Adv.Java/ .Net core/Red Hat Linux	0	4	-	0	0	25	50	0	75	2
SDP11	CS365	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>140</b>	<b>140</b>	<b>195</b>	<b>200</b>	<b>100</b>	<b>775</b>	<b>21</b>

 <b>Autonomous Institute Affiliated to SPPU</b> <b>SCHOOL OF COMPUTER ENGINEERING &amp; TECHNOLOGY</b>	<b>COURSE STRUCTURE (2019 - 2023)</b>		
	<b>W.E.F</b>	:	<b>2022-2023</b>
	<b>RELEASE DATE</b>	:	<b>01/01/2020</b>
	<b>REVISION NO.</b>	:	<b>1.0</b>

<b>SEMESTER: VII</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		
DC14	CS481	Distributed Systems	3	2	-	35	35	30	50	0	150	4
DC15	CS482	Human Computer Interaction	3	2	-	35	35	30	50	0	150	4
OE03	IT 461/ CS461/ CS462/ HP411/ IT491	Open Elective	3	2	-	35	35	30	50	0	150	4
SDP12	CS 485/ CS486	Skill Development Course4 AWS cloud services/ Android Application Development	0	4	-	0	0	25	50	0	75	2
HSS7	HP405/ HP406	Engineering Economics/ Psychology	2	-	-	0	50	25	0	0	75	2
SDP13	CS464/I T492	Project I	0	4	-	0	0	25	0	50	75	2
SDP14	CS465	Summer Internship	-	-	-	-	-	-	-	150	150	4
<b>TOTAL</b>			<b>11</b>	<b>14</b>	<b>0</b>	<b>105</b>	<b>155</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	CS47#	Discipline Elective	3	0	-	35	35	30	0	0	100	3
DE02	CS47#	Discipline Elective	3	0	-	35	35	30	0	0	100	3
HSS8	HP406/ HP405	Psychology /Engineering Economics	2	0	-	0	50	25	0	0	75	2
SDP15	CS466	Project II	-	12	-	0	0	100	0	100	200	6
<b>TOTAL</b>			<b>8</b>	<b>12</b>	<b>0</b>	<b>70</b>	<b>120</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	CS47#	Discipline Elective	3	0	-	35	35	30	0	0	100	3
DE02	CS47#	Discipline Elective	3	0	-	35	35	30	0	0	100	3
Semester Long Internship Design			-	-	-	-	-	-	-	150	150	4
Semester Long Internship Implementation			-	-	-	-	-	-	-	150	150	4
<b>TOTAL</b>			<b>6</b>	<b>0</b>	<b>0</b>	<b>70</b>	<b>70</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.	AS203/04/05	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.	ME221	Material Engineering
7.	IT221	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.	HP304	Project Management
8.	HP305	Professional Skills 2
9.	HP405	Engineering Economics
10.	HP406	Psychology

<b>Discipline Core (DC) : 14 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	CS221	Data Structures
2.	CS222	Discrete Structure and Graph Theory
3.	CS223	Computer Graphics
4.	CS224	Data Structures Lab
5.	CS228	Advanced Data Structures
6.	CS229	Computer Organization & Architecture
7.	CS231	Database Management System
8.	CS341	Operating System
9.	CS342	Theory of Computation
10.	CS343	Computer Networks
11.	CS347	Design Analysis and Algorithms
12.	IT348	Mobile application Development
13.	CS349	Software Engineering
14.	CS481	Distributed Systems
15.	CS482	Human Computer Interaction

<b>Discipline Elective (DE) : 2 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1.	CS471	Cloud and Virtualization
	CS472	Wireless and Mobile network
	CS473	Information Retrieval
2.	CS474	Digital Enterprise Management
	CS475	Ubiquitous Systems
	CS476	AR/VR

<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.	CS230	Minor Project I
5.	CS226/ CS227	Skill Development Course 1: CPP/Core Java
6.	ET235	Prototyping II
7.	CS240	Minor Project II
8.	CS344/ CS346	Skill Development Course 2: Red Hat Linux/ Web Technology
9.	CS345	Mini Project I
10.	CS356/ CS357/ CS358	Skill Development Course3: Adv. Java/ .Net core/Red Hat Linux
11.	CS365	Mini Project II
12.	CS 485/ CS486	Skill Development Course4 : AWS cloud services/ Android Application Development
13.	CS464	Project I
14.	CS465	Summer Internship
15.	CS466	Project II

<b>Open/Minor Elective School Wise : 3 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>
1	IT351	Cryptography and System Security
2	IT352	Cyber Security & Forensics
3	IT461	Ethical Hacking & cyber laws
4	CS 351	Descriptive Analytics
5	CS353	Predictive Analytics
6	CS461	Big Data Analytics
7	CS352	Artificial Intelligence
8	CS354	Machine Learning
9	CS462	Deep Learning

<b>Open//Minor Elective (OE) : Semester - V</b>		
<b>Chemical</b>		
1	CH351	Process Engineering
2	CH352	Piping Engineering
<b>Civil</b>		
3	CV311	Construction Planning & Management
4	CV312	Solid Waste Management
<b>Computer</b>		
5	CS351	Descriptive Analytics
6	CS352	Artificial Intelligence
<b>Electronics</b>		
7	EX311	Fundamentals of Robotics
<b>E &amp; TC</b>		
8	ET351	Embedded System Programming (ESP)
9	ET352	Introduction to Internet of Things (IoT)
<b>IT</b>		
10	IT351	Cryptography & System Security
<b>Mechanical</b>		
11	ME351	Finite Element Analysis
12	ME352	Fundamentals of Robotics
13	ME353	Work Process Assessment
14	ME354	Automobile System Design
<b>Humanities and Social Science</b>		
15	HP311	Foundation Course in Entrepreneurship

<b>Open//Minor Elective (OE) : Semester - VI</b>		
<b>Chemical</b>		
1	CH371	Process Modeling and Simulation
2	CH372	Piping Layout
<b>Civil</b>		
3	CV331	Operation Research
4	CV332	Unit Operations for Liquid Waste/Effluent Treatment
<b>Computer</b>		
5	CS353	Predictive Analysis
6	CS354	Machine Learning
<b>Electronics</b>		
7	EX331	Robot Dynamics and Control
<b>E &amp; TC</b>		
8	ET371	Embedded Processor
9	ET372	IoTNetwork & Protocols
<b>IT</b>		
10	IT352	Cyber Security and Forensics
<b>Mechanical</b>		
11	ME361	Computational Fluid Dynamics
12	ME362	Kinematics & Dynamics of Robots
13	ME363	Facility Planning & Design
14	ME364	Vehicle Dynamics
<b>Humanities and Social Science</b>		
15	HP312	Advanced Course in Entrepreneurship

<b>Open//Minor Elective (OE) : Semester - VII</b>		
<b>Chemical</b>		
1	CH471	Process Intensification and Integration
2	CH472	Piping Design & Engineering
<b>Civil</b>		
3	CV411	Financial Management
4	CV412	Environmental Impact assessment and Climate Change
<b>Computer</b>		
5	CS461	Big Data Analytics
6	CS462	Deep Learning
<b>Electronics</b>		
7	EX421	Robotics Vision
<b>E &amp; TC</b>		
8	ET471	RTOS
9	ET472	Data Management and Analytics
<b>IT</b>		
10	IT461	Ethical Hacking & Cyber Laws
<b>Mechanical</b>		
11	ME491	Advanced Analysis
12	ME492	Electrical and Electronics System of Robots
13	ME493	Supply Chain Management
14	ME494	Autotronics and e-Vehicles
<b>Humanities and Social Science</b>		
15	HP411	Startup and Incubation

<b>Honors Elective Courses : 4 Courses</b>			
<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credits</b>
1	HP311	Foundation Course in Entrepreneurship	4
2	HP312	Advanced Course in Entrepreneurship	4
3	HP411	Startup and Incubation	4



4		Project: Entrepreneurship	4
5		Product Design I	4
6		Product Design II	4
7		Product Design III	4
8		Project: Product Design	4
9	IT 391	Industry 4.0 (IT, COMP)	4
10	IT 392	Industry 4.0 (IT, COMP)	4
11	IT 491	Industry 4.0 (IT, COMP)	4
12	IT 492	Project: Industry 4.0 (IT, COMP)	4
13		Industry 4.0 (MECH)	4
14		Industry 4.0 (MECH)	4
15		Industry 4.0 (MECH)	4
16		Project: Industry 4.0 (MECH)	4

**NOTE: 1. Additional 16 Credits for Honors Degree**

**2. PI add details of Industry 4.0 if your school is offering Honors Degree**