

# MIT Academy of Engineering

An autonomous institute affiliated to Savitribai Phule Pune University

## CURRICULUM FRAMEWORK- (CIVIL ENGINEERING)

The B. Tech Program shall be based on the following types of courses

SL. NO.	TYPE OF COURSE	ABBREVIATION
1.	Natural Science	NSC
2.	Engineering Science	ESC
3.	Program Core	PC
4.	Discipline Core	DC
5.	Department Elective	DE
6.	Open Elective	OE
7.	Humanities and Social Science	HSS
8.	Skill Development and Project	SDP

The Course and Credit Distribution shall be as under,

SL. NO.	TYPE OF COURSE	NO. OF COURSES	TOTAL CREDITS	
			NO.	%
1.	Natural Science	4	18	10.96
2.	Engineering Science	4	16	9.76
3.	Program Core	5	19	11.59
4.	Discipline Core	12	48	29.27
5.	Department Elective	2	6	3.66
6.	Open Elective	4	16	9.76
7.	Humanities and Social Science	8/9	17	10.37
8.	Skill Development and Project	10/9	24	14.63
<b>TOTAL</b>		<b>49</b>	<b>164</b>	<b>100</b>

<b>COURSE DISTRIBUTION: SEMESTER WISE</b>										
<b>SL. NO.</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	2	2							<b>4</b>
2.	Engineering Science	2	2							<b>4</b>
3.	Program Core			3	2					<b>5</b>
4.	Discipline Core			2	2	3	3	1	1	<b>12</b>
5.	Department Elective							1	1	<b>2</b>
6.	Open Elective					1	1	1	1	<b>4</b>
7.	Humanities & Social Science	1	1		1	1	2	1/2	2	<b>8/9</b>
8.	Skill Development & Project	1	1	1	1	1	1	2/3	1	<b>9/10</b>
<b>TOTAL</b>		<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>6</b>	<b>49</b>

<b>CREDIT DISTRIBUTION: SEMESTER WISE</b>										
<b>1 Lecture hour = 1 Credit 2 Lab Hours = 1 Credit 1 Tutorial Hour = 1 Credit</b>										
<b>SL. NO.</b>	<b>TYPE OF COURSE</b>	<b>NO. OF CREDITS/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	9	9							<b>18</b>
2.	Engineering Science	8	8							<b>16</b>
3.	Program Core			11	8					<b>19</b>
4.	Discipline Core			8	8	12	12	4	4	<b>48</b>
5.	Department Elective							3	3	<b>6</b>
6.	Open Elective					4	4	4	4	<b>16</b>
7.	Humanities & Social Science	2	2		3	2	3	2	3	<b>17</b>
8.	Skill Development & Project	2	2	2	2	2	2	8	4	<b>24</b>
<b>TOTAL</b>		<b>21</b>	<b>21</b>	<b>21</b>	<b>21</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>18</b>	<b>164</b>

**SCHOOL OF MECHANICAL & CIVIL ENGINEERING**

**W. E. F : 2017-18**

**FIRST YEAR BACHELOR OF TECHNOLOGY**

**RELEASE DATE : 01/06/2017**

**DEPARTMENT OF CIVIL ENGINEERING**

**REVISION NO. : 0.0**

**SEMESTER: I**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P/T*	CREDIT
1.	NSC1	AS101	Mathematics – I	4	1	5
2.	NSC2	AS102/ AS103	Physics/ Chemistry	3	2	4
3.	ESC1	EX101/ CV101	Electrical & Electronics Engg/ Applied Mechanics	3	2	4
4.	ESC2	ME101/ IT101	Engineering Graphics/ Computer Programming	2	4	4
5.	HSS1	HP101	Language & Communication – I	1	2	2
6.	SDP1	ME102/ ME103	Experimental Tools & Techniques/ Design Thinking	--	4	2
<b>TOTAL</b>				13	15	21

**SEMESTER: II**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P/T	CREDIT
1.	NSC3	AS101	Mathematics – II	4	1	5
2.	NSC4	AS103/ AS102	Chemistry/ Physics	3	2	4
3.	ESC3	CV101/ EX101	Applied Mechanics/ Electrical & Electronics Engg	3	2	4
4.	ESC4	IT101/ ME101	Computer Programming/ Engineering Graphics	2	4	4
5.	HSS2	HP101	Language & Communication – II	1	2	2
6.	SDP2	ME103/ ME102	Design Thinking/ Experimental Tools & Techniques	--	4	2
<b>TOTAL</b>				13	15	21

L: Lecture, P: Practical, T:Tutorial; \*Applicable for FY BTech

**SCHOOL OF MECHANICAL & CIVIL  
ENGINEERING**

**W. E. F : 2018-19**

**SECOND YEAR BACHELOR OF  
TECHNOLOGY**

**RELEASE DATE : 01/06/2018**

**DEPARTMENT OF CIVIL EGG**

**REVISION NO. : 0.0**

**SEMESTER: III**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	PC1	CH201	Environmental Science	2	2	3
2.	PC2	AS201	Applied Mathematics	3	2	4
3.	PC3	ET201	System Engineering	3	2	4
4.	DC1	CV201	Mechanics of Solids	3	2	4
5.	DC2	CV202	Geospatial Engineering Technology	3	2	4
6.	SDP3	ET206	Prototyping	--	4	2
<b>TOTAL</b>				14	14	21

**SEMESTER: IV**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	PC4	IT201	Engineering Informatics	3	2	4
2.	PC5	ME201	Materials Engineering	3	2	4
3.	DC3	CV211	Building Design & Construction	3	2	4
4.	DC4	CV212	Geotechnical Engineering	3	2	4
5.	HSS3	HP201	Psychology	3	--	3
6.	SDP4	CV213	Minor Project	--	4	2
<b>TOTAL</b>				15	12	21

*L: Lecture, P: Practical*

<b>SCHOOL OF MECHANICAL &amp; CIVIL ENGINEERING</b>	<b>W. E. F</b> :	<b>2019-20</b>
<b>THIRD YEAR BACHELOR OF TECHNOLOGY</b>	<b>RELEASE DATE</b> :	<b>01/06/2019</b>
<b>DEPARTMENT OF CIVIL EGG</b>	<b>REVISION NO.</b> :	<b>0.0</b>

**SEMESTER: V**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC5	CV301	Mechanics of Fluids	3	2	4
2.	DC6	CV302	Structural Analysis	3	2	4
3.	DC7	CV303	Concrete Technology	3	2	4
4.	OE1	CV31#	Open Elective - Refer Annexure.	3	2	4
5.	HSS4	HP301	Project Management	1	2	2
6.	SDP5	CV30#	Skill Development Lab - Refer Annexure	--	4	2
<b>TOTAL</b>				<b>13</b>	<b>14</b>	<b>20</b>

**SEMESTER:VI**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC8	CV321	Design of Structures	3	2	4
2.	DC9	CV322	Transportation Engineering	3	2	4
3.	DC10	CV323	Water Resources Engineering	3	2	4
4.	OE2	CV33#	Open Elective - Refer Annexure.	3	2	4
5.	HSS5	HP302	Professional Skills	--	4	2
6.	HSS6	HP303	Basics of Entrepreneurship	--	2	1
7.	SDP6	CV324	Mini Project	--	4	2
<b>TOTAL</b>				<b>12</b>	<b>18</b>	<b>21</b>

L: Lecture, P: Practical

<b>SCHOOL OF MECHANICAL &amp; CIVIL ENGINEERING</b>	<b>W. E. F</b> :	<b>2019-20</b>
<b>FINAL YEAR BACHELOR OF TECHNOLOGY</b>	<b>RELEASE DATE</b> :	<b>01/06/2020</b>
<b>DEPARTMENT OF CIVIL EGG</b>	<b>REVISION NO.</b> :	<b>0.0</b>

**SEMESTER: VII**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC11	CV401	Drinking Water & Sanitary Engineering	3	2	4
2.	DE1	CV41#	Discipline Elective - Refer Annexure.	3	--	3
3.	OE3	CV42#	Open Elective - Refer Annexure.	3	2	4
4.	HSS7	HP401	Engineering Economics	2	--	2
5.	HSS9/ SDP7	HP403/ CV403	Business Strategies / Urban & Town Planning	--	2	1
6.	SDP8	CV402	Project - I	--	8	4
7.	SDP9	CV404	Summer Internship	--	--	4
<b>TOTAL</b>				<b>11</b>	<b>14</b>	<b>22</b>

**SEMESTER: VIII**

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC12	CV431	Estimation & Costing	3	2	4
2.	DE2	CV44#	Discipline Elective - Refer Annexure	3	--	3
3.	OE4	CV45#	Open Elective - Refer Annexure	3	2	4
4.	HSS8	HP402	Sociology	2	--	2
5.	SDP10	CV432	Project - II	--	8	4
<b>TOTAL</b>				<b>11</b>	<b>12</b>	<b>17</b>

L: Lecture, P: Practical

<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	21	<b>42</b>
2.	Second Year	21	21	<b>42</b>
3.	Third Year	20	21	<b>41</b>
4.	Final Year	22	17	<b>39</b>
<b>TOTAL</b>				<b>164</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	28	28	<b>56</b>
2.	Second Year	28	27	<b>55</b>
3.	Third Year	28	29	<b>57</b>
4.	Final Year	25	23	<b>48</b>
<b>TOTAL</b>				<b>216</b>

## ANNEXURE

<b>Natural Science (NSC): 4 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
1.	AS101	Mathematics – 1
2.	AS104	Mathematics – 2
3.	AS102	Physics
4.	AS103	Chemistry

<b>Engineering Science (ESC): 4 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
1.	EX101	Electrical and Electronics Engineering
2.	ME101	Engineering Graphics
3.	CV101	Applied Mechanics
4.	IT101	Computer Programming

<b>Program Core (PC): 5 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
1.	CH201	Environmental Science
2.	AS201	Applied Mathematics
3.	ET201	System Engineering
4.	IT201	Engineering Informatics
5.	ME201	Materials Engineering



<b>Discipline Core (DC): 12 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
1.	CV201	Continuum Mechanics of Solids
2.	CV202	Geospatial Engineering
3.	CV211	Buildings Design and Construction
4.	CV212	Geotechnical Engineering
5.	CV301	Mechanics of Fluids
6.	CV302	Structural Analysis
7.	CV303	Concrete Technology
8.	CV321	Design of Structures
9.	CV322	Transportation Engineering
10.	CV323	Water Resources Engineering
11.	CV401	Drinking Water & Sanitary Engineering
12.	CV431	Estimation & Costing

<b>Department Elective (DE): 2 Courses</b>		
	<b>Course Code</b>	<b>Name of Course</b>
1.	CV411	Building Services
	CV412	Advanced Design of Structures
	CV413	Railway Engineering
	CV414	Hydro Power Engineering
2.	CV441	Foundation Engineering
	CV442	Engineering Geology

	CV443	Design of Hydraulic Structures	
	CV444	Air & Noise Pollution and Control measures	
	CV445	Advances in Geospatial Engineering	
<b>Open Elective (OE): 4 Courses</b>			
Construction Project Management	<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
	1.	CV311	Construction Planning & Management
	2.	CV331	Operation Research
	3.	CV421	Financial Management
	4.	CV451	Statistical Methods in Construction
<b>Open Elective (OE): Term - I (List of courses for Academic Year 2019-20)</b>			
<b>Chemical</b>			
1	CH311	Process Modeling and Simulation.	
2	CH312	Piping Engineering	
<b>Civil</b>			
3	CV311	Construction Planning & Management	
<b>Computer</b>			
4	IT311	Cryptography & System Security	
5	CS311	Descriptive Analytics	
6	CS312	Artificial Intelligence & Neural Network	
<b>Electronics</b>			
7	EX311	Fundamentals of Robotics	
<b>E &amp; TC</b>			
8	ET311	Embedded System Programming (ESP)	
9	ET312	IoT Architecture and Protocols	
<b>IT</b>			
10	IT311	Cryptography & System Security	
11	CS311	Descriptive Analytics	
12	CS312	Artificial Intelligence & Neural Network	
<b>Mechanical</b>			
13	ME311	Geometric Modeling & Design	
14	ME312	Fundamentals of Robotics	

15	ME313	Work Process Assessment
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<b>Open Elective (OE): Term - II (List of courses for Academic Year 2019-20)</b>		
<b>Chemical</b>		
1	CH331	Process Engineering.
2	CH332	Piping Layout
<b>Civil</b>		
3	CV331	Operation Research
<b>Computer</b>		
4	IT331	Cyber Security
5	CS331	Data Science-I
6	CS332	Machine Learning
<b>Electronics</b>		
7	EX331	Kinematics and Dynamics of Robotics
<b>E &amp; TC</b>		
8	ET331	Embedded Processor
9	ET332	IoT Network & Protocols
<b>IT</b>		
10	IT331	Cyber Security
11	CS331	Data Science-I
12	CS332	Machine Learning
<b>Mechanical</b>		
10	ME331	Finite Element Analysis
11	ME332	Kinematics & Dynamics of Robots
12	ME333	Facility Planning & Design

**Open Elective (OE): Term - I**  
**(List of courses for Academic Year 2020-21 )**

<b>Chemical</b>		
1	CH421	Process Optimization
2	CH422	Piping Design & Engineering
<b>Civil</b>		
3	CV421	Financial Management
<b>Computer</b>		
4	IT421	Ethical Hacking & Cyber Laws
5	CS421	Data Science-II
6	CS422	Pattern Recognition
<b>Electronics</b>		
7	EX421	Robotics Vision and Control
<b>E &amp; TC</b>		
8	ET421	Low-Power SoC Architecture & Applications (SoC&A)
9	ET422	Privacy and Security in IoT
<b>IT</b>		
10	IT421	Ethical Hacking & Cyber Laws
11	CS421	Data Science-II
12	CS422	Pattern Recognition
<b>Mechanical</b>		
13	ME421	Computational Fluid Dynamics
14	ME422	Robotics Vision and Control
15	ME423	Operations Management

**Open Elective (OE): Term - II**  
**(List of courses for Academic Year 2020-21 )**

<b>Chemical</b>		
1	CH451	Process Intensification & Integration
2	CH452	Pipeline Engineering
<b>Civil</b>		
3	CV451	Visualization & Information Exchange
<b>Computer</b>		
4	IT451	Cyber Forensics
5	CS451	Practitioner's approach for Data analytics
6	CS452	Reinforcement Learning
<b>Electronics</b>		
7	EX451	Intelligent and High Performance Robotics
<b>E &amp; TC</b>		
8	ET451	Real-Time Embedded System (RES)
9	ET452	Energy Management for IoT Devices
<b>IT</b>		
10	IT451	Cyber Forensics
11	CS451	Practitioner's approach for Data analytics
12	CS452	Reinforcement Learning
<b>Mechanical</b>		
13	ME451	Advanced Analysis
14	ME452	Intelligent and High Performance Robotics
15	ME453	Supply Chain Management

<b>Humanities and Social Science (HSS): 9 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
1.	HP101	Language & Communication – I
2.	HP102	Language & Communication – II
3.	HP201	Psychology
4.	HP301	Project Management
5.	HP302	Professional Skills
6.	HP303	Basics of Entrepreneurship
7.	HP401	Engineering Economics
8	HP402	Sociology
9	HP403	Business Strategies

<b>Skill Development and Project (SDP): 10 Courses</b>		
<b>Sl. No.</b>	<b>Course Code</b>	<b>Name of Course</b>
1.	ME102	Engineering Tools and Techniques
2.	ME103	Design Thinking
3.	ET206	Prototyping
4.	CV213	Minor Project
5.	CV304	ETABS (Extended Three-Dimensional analysis of building system)
6.	CV403	Urban & Town Planning
7.	CV324	Mini Project
8.	CV402	Project - I
9.	CV404	Summer Internship
10.	CV432	Project - II