

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.

COURSE DISTRIBUTION: SEMESTER WISE										
S.N.	TYPE OF COURSE	NO. OF COURSES/SEMESTER								TOTAL
		1	2	3	4	5	6	7	8	
1.	Natural Science (NSC)	2	2	1						5
2.	Engineering Science (ESC)	3	2	2						7
3.	Discipline Core (DC)			3	3	3	3	2		14
4.	Discipline Elective (DE)								2	2
5.	Open Elective (OE)					1	1	1		3
6.	Humanities and Social Science (HSS)	1	1		2	1	1	1	1	8
7.	Skill Development and Project (SDP)	1	1	3	2	4	2	4	1	18
TOTAL		7	6	9	7	9	7	8	4	57

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

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


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

ABBREVIATIONS		
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

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


SEMESTER: 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
	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			-							
TOTAL			12	16	1	60	220	160	390	60	890	21
			10				160	120			790	19

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	HP106	Indian Constitution	1		-	-	-	-	-	-	Audit	
TOTAL			10	16	1	60	220	160	390	60	790	19
			12					220			890	21

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


SEMESTER: III													
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			
ESC6/ ESC7	ME221 / IT221	Material Engineering/ Engineering Informatics	3	2	-	20	50	30	50	0	150	4	
DC01	ME231	Strength of Materials	3	2	-	20	50	30	50	0	150	4	
DC02	ME232	Thermal Engineering	3	2	-	20	50	30	50	0	150	4	
DC03	ME233	Metal Forming Processes	3	2	-	20	50	30	50	0	150	4	
SDP3	ET224	Prototyping I	0	4	-	0	0	25	0	50	75	2	
SDP4	ME230	Minor Project I (Ethics)	1	2	-	0	0	25	0	50	75	2	
SDP5	ME241	Skill Development Course 1 (Mechanical Measurements)	0	4	-	0	0	25	0	50	75	2	
ESC7	CH226	Environmental Sciences	0	2	-	-	-	-	-	-	Audit		
TOTAL			13	20	0	80	200	195	200	150	825	22	

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			
NSC5	AS203	Applied Mathematics	3	2	-	20	50	30	50	0	150	4	
DC04	ME234	Machines & Mechanisms	3	2	-	20	50	30	50	0	150	4	
DC05	ME235	Fluid Mechanics	3	2	-	20	50	30	50	0	150	4	
DC06	ME236	Metal Cutting Technology	3	2	-	20	50	30	50	0	150	4	
SDP6	ET235	Prototyping II	0	4	-	0	0	25	0	50	75	2	
SDP7	ME240	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	-	-	-	-	-	-	Audit		
TOTAL			14	18	0	80	200	195	200	150	825	22	

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

SEMESTER: V												
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	-	20	50	30	50	0	150	4
DC08	ME342	Turbomachines	3	2	-	20	50	30	50	0	150	4
DC09	ME343	Hydraulics & Pneumatics	3	0	-	20	50	30	0	0	100	3
OE01	ME35#	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	ME37#	Skill Development Course 2 (Six Sigma/ Piping Design/ Energy Audit)	0	4	-	0	0	25	50	0	75	2
SDP9	ME324	Mini Project I (Technical Writing)	1	2	-	0	0	25	0	50	75	2
TOTAL			15	12	0	80	250	195	200	50	775	21

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	Mechanical System Design	3	2	-	20	50	30	50	0	150	4
DC11	ME345	Heat Transfer	3	2	-	20	50	30	50	0	150	4
DC12	ME346	Quality Assurance	3	0	-	20	50	30	0	0	100	3
OE02	ME36#	Open Elective	3	2	-	20	50	30	50	0	150	4
SDP10	ME381	Skill Development Course 3 (CAD/CAM/CIM)	0	4	-	0	0	25	50	0	75	2
SDP11	ME326	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
TOTAL			12	18	0	80	200	195	200	100	775	21

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

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	Heating Ventilation & Air Conditioning	3	2	-	20	50	30	50	0	150		4
DC14	ME462	Machine Dynamics	3	2	-	20	50	30	50	0	150	4	
OE03	ME49#	Open Elective	3	2	-	20	50	30	50	0	150	4	
SDP12	ME38#	Skill Development Course 4 (Ansys/ LSDyna)	0	4	-	0	0	25	50	0	75	2	
HSS7	HP405/ HP406	Engineering Economics/ Psychology	1	-	-	0	50	25	0	0	75	2	
SDP13	ME454	Project I	0	4	-	0	0	25	0	50	75	2	
SDP14	ME465	Summer Internship	-	-	-	-	-	-	-	150	150	4	
TOTAL			10	14	0	60	200	165	200	200	825	22	

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	ME47#	Discipline Elective	3	0	-	20	50	30	0	0	100		3
DE02	ME48#	Discipline Elective	3	0	-	20	50	30	0	0	100	3	
HSS8	HP405/ HP406	Psychology /Engineering Economics	2	0	-	0	50	25	0	0	75	2	
SDP15	ME456	Project II	-	12	-	0	0	100	0	100	200	6	
TOTAL			8	12	0	40	150	185	0	100	475	14	

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	ME47#	Discipline Elective	3	0	-	20	50	30	0	0	100	3
DE02	ME48#	Discipline Elective	3	0	-	20	50	30	0	0	100	3
Semester Long Internship Design			-	-	-	-	-	-	-	150	150	4
Semester Long Internship Implementation			-	-	-	-	-	-	-	150	150	4
TOTAL			6	0	0	40	100	60	0	300	500	14

Natural Science (NSC): 5 Courses		
Sl. No.	Course Code	Course Name
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

Engineering Science (ESC): 7 Courses		
Sl. No.	Course Code	Course Name
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

Humanities and Social Science (HSS) : 10 Courses		
Sl. No.	Course Code	Course Name
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

Discipline Core (DC) : 14 Courses		
Sl. No.	Course Code	Course Name
1.	ME231	Strength of Materials
2.	ME232	Thermal Engineering
3.	ME233	Metal Forming Processes
4.	ME234	Machines & Mechanisms
5.	ME235	Fluid Mechanics
6.	ME236	Metal Cutting Technology
7.	ME341	Machine Design
8.	ME342	Turbomachines
9.	ME343	Hydraulics & Pneumatics
10.	ME344	Mechanical System Design
11.	ME345	Heat Transfer
12.	ME346	Quality Assurance
13.	ME461	Heating Ventilation & Air Conditioning
14.	ME462	Machine Dynamics

Discipline Elective (DE): 2 Courses		
Sl. No.	Course Code	Course Name
1.	ME471	Operations Research
	ME472	Optimization Tools & Techniques
	ME473	Tribology
	ME744	Power Plant Engineering
2.	ME481	Mechatronics
	ME482	Product Lifecycle Management
	ME483	Non-Conventional Machining
	ME484	Reliability Engineering
	ME485	Industrial Engineering

Skill Development and Project (SDP): 15 Courses			
Sl. No.	Course Code	Course Name	
1.	ME105	Experimental Tools and Techniques	
2.	ME106	Design Thinking	
3.	ET224	Prototyping I	
4.	ME230	Minor Project I (Ethics)	
5.	ME241	Skill Development Course 1 (Mechanical Measurements)	
6.	ET235	Prototyping II	
7.	ME240	Minor Project II (IPR)	
8.	ME371	Skill Development Course 2	Piping Design
	ME372		Six Sigma
	ME373		Energy Audit
9.	ME324	Mini Project I (Technical Writing)	
10.	ME381	Skill Development Course 3 (CAD/CAM/CIM)	
11.	ME326	Mini Project II	
12.	ME382	Skill Development Course 4	Ansys
	ME383		LS Dyna
13.	ME402	Project I	
14.	ME406	Summer Internship	
15.	ME432	Project II	

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

Open Elective (OE): Semester - VI		
Chemical		
1	CH371	Process Modeling and Simulation.
2	CH372	Piping Layout
Civil		
3	CV331	Operation Research
4	CV332	Unit operations for liquid waste/ effluent treatment
Computer		
5	CS353	Predictive Analysis
6	CS354	Machine Learning
Electronics		
7	EX331	Kinematics and Dynamics of Robotics
E & TC		
8	ET331	Embedded Processor
9	ET332	IoT Network & Protocols
IT		
10	IT352	Cyber Security & Forensics
Mechanical		
11	ME361	Computational Fluid Dynamics
12	ME362	Kinematics & Dynamics of Robots
13	ME363	Facility Planning & Design
14	ME364	Vehicle Dynamics
Humanities and Social Science		
15	HP312	Advanced Course in Entrepreneurship

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