

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

CURRICULUM FRAMEWORK (2019 PATTERN)
COMPUTER 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)			4	3	3	3	2		15
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	2	2	3	1	15
TOTAL		7	6	10	7	7	7	7	4	55

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	13
2.	Engineering Science (ESC)	11	7		4					22	14
3.	Discipline Core (DC)			12	12	11	11	8		54	34
4.	Discipline Elective (DE)								6	6	4
5.	Open Elective (OE)					4	4	4		12	8
6.	Humanities and Social Science (HSS)	0	2		2	2	2	2	2	12	8
7.	Skill Development and Project (SDP)	2	2	5	3	4	4	8	6	36	21
TOTAL		21	19	21	21	21	21	22	14	160	100

CREDITS				
1Lecture 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	21	21	42
3.	Third Year	21	21	42
4.	Final Year	22	14	36
TOTAL				160


CONTACT HOURS				
SL. NO.	YEAR	SEMESTER		TOTAL
		1	2	
1.	First Year	29/27	26/28	55
2.	Second Year	32	31	63
3.	Third Year	27	30	57
4.	Final Year	25	20	45
TOTAL				220

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

 Academy of Engineering An Autonomous Institute Affiliated to SPPU SCHOOL OF ENGINEERING SCIENCES AND HUMANITIES	COURSE STRUCTURE (2019 - 2023)		
	W.E.F	:	2019-2020
FIRST YEAR BACHLEOR OF TECHNOLOGY IN COMPUTER ENGINEERING	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	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
TOTAL			12	16	1	90	190	160	390	60	890	21

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	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	
TOTAL			11	16	1	90	130	120	390	60	790	19

 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 COMPUTER ENGINEERING	RELEASE DATE	:	01/07/2019	
	REVISION NO.	:	1.0	

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	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
TOTAL			10	16	1	90	130	120	390	60	790	19


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	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	
TOTAL			13	16	1	90	190	160	390	60	890	21

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

SEMESTER: III												
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		
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
TOTAL			12	20	0	140	140	195	150	150	775	21

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	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	
TOTAL			13	18	0	140	140	170	200	150	800	21

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

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
TOTAL			15	12	0	140	190	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		
DC11	CS347	Design Analysis and Algorithms	3	2	-	35	35	30	50	0	150	4
DC12	CS348	Compiler Design	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
TOTAL			12	18	0	140	140	195	200	100	775	21

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

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	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
TOTAL			11	14	0	105	155	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	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
TOTAL			8	12	0	70	120	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	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
TOTAL			6	0	0	70	70	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.	AS203/04/05	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.	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.	CS348	Compiler Design
13.	CS349	Software Engineering
14.	CS481	Distributed Systems
15.	CS482	Human Computer Interaction

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

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.	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

Open/Minor Elective School Wise : 3 Courses		
Sl. No.	Course Code	Course Name
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

Open//Minor 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//Minor 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	Robot Dynamics and Control
E & TC		
8	ET371	Embedded Processor
9	ET372	IoTNetwork & Protocols
IT		
10	IT352	Cyber Security and 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//Minor 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 and 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 and Analytics
IT		
10	IT461	Ethical Hacking & Cyber Laws
Mechanical		
11	ME491	Advanced Analysis
12	ME492	Electrical and Electronics System of Robots
13	ME493	Supply Chain Management
14	ME494	Autotronics and e-Vehicles
Humanities and Social Science		
15	HP411	Startup and Incubation

Honors Elective Courses : 4 Courses			
Sl. No.	Course Code	Course Name	Credits
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