

MIT Academy of Engineering

An autonomous institute affiliated to SavitribaiPhule Pune University

CURRICULUM FRAMEWORK (Information Technology)

The BTECH Program shall be based on the following type 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	10.98
2.	Engineering Science	4	16	9.76
3.	Program Core	5	20	12.20
4.	Discipline Core	12	48	29.26
5.	Department Elective	2	6	3.66
6.	Open Elective	4	16	9.76
7.	Humanities and Social Science	8/9	16	9.76
8.	Skill Development and Project	10/9	24	14.62
TOTAL		49	164	100

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

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

 Academy of Engineering (An Autonomous Institute Affiliated to SPPU)		COURSE STRUCTURE (2016 - 2020)				
SCHOOL OF COMPUTER ENGINEERING AND TECHNOLOGY		W.E.F	:	2016-17		
FIRST YEAR BACHELOR OF TECHNOLOGY INFORMATION TECHNOLOGY		RELEASE DATE	:	1/06/2016		
		REVISION NO.	:	0.0		
SEMESTER: I						
SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	NSC1	AS101	Mathematics – 1	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 – 1	1	2	2
6.	SDP1	ME102 / ME103	Engineering Tools & Techniques / Design Thinking	---	4	2
TOTAL				13	15	21
SEMESTER: II						
SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	NSC3	AS104	Mathematics – 2	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	HP102	Language & Communication – 2	1	2	2
6.	SDP2	ME103 / ME102	Design Thinking / Engineering Tools & Techniques	---	4	2
TOTAL				13	15	21

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

**SCHOOL OF COMPUTER
ENGINEERING AND TECHNOLOGY**

W.E.F : 2019-20

**SECOND YEAR BACHELOR OF
TECHNOLOGY
INFORMATION TECHNOLOGY**

**RELEASE
DATE** : 1/06/2019

**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	AS202	Applied Mathematics	3	2	4
3.	PC3	ET201	System Engineering	3	2	4
4.	DC1	IT202	Object Oriented Technology	3	2	4
5.	DC2	IT203	Computer Network Technology	3	2	4
6.	SDP3	ET206	Prototyping	--	4	2
TOTAL				14	14	21

SEMESTER:IV

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	HSS3	HP201	Psychology	3	--	3
2.	PC4	IT201	Engineering Informatics	3	2	4
3.	PC5	ME201	Material Engineering	3	2	4
4.	DC3	IT211	Data Structures and Applications	3	2	4
5.	DC4	IT212	Database Systems	3	2	4
6.	SDP4	IT213	Minor Project	--	4	2
TOTAL				15	12	21

**SCHOOL OF COMPUTER
ENGINEERING AND TECHNOLOGY**

W.E.F : 2019-20

**THIRD YEAR BACHELOR OF
TECHNOLOGY
INFORMATION TECHNOLOGY**

**RELEASE
DATE** :

-

**REVISION
NO.** :

0.0

SEMESTER: V

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC5	IT301	Computability Theory	3	2	4
2.	DC6	IT302	Operating System	3	2	4
3.	DC7	IT303	Web Technology	3	2	4
4.	OE1	IT311 CS311 CS312	Open Elective - Refer Annexure.	3	2	4
5.	HSS4	HP301	Project Management	1	2	2
6	HSS6	HP303	Basics of Entrepreneurship	--	2	1
7	SDP5	CS305 CS306 CS307	Skill Development Lab	--	4	2
TOTAL				13	16	21

SEMESTER:VI

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC8	IT321	Computational Intelligence	3	2	4
2.	DC9	IT322	Cloud Services and Applications	3	2	4
3.	DC10	IT323	Mobile Application Development	3	2	4
4.	OE2	IT331 CS331 CS332	Open Elective - Refer Annexure.	3	2	4
5.	HSS5	HP302	Professional Skills	1	2	2
6.	SDP6	IT324	Mini Project		4	2
TOTAL				13	14	20

**SCHOOL OF COMPUTER ENGINEERING
AND TECHNOLOGY**

W.E.F : 2020-21

**FINAL YEAR BACHELOR OF
TECHNOLOGY
INFORMATION TECHNOLOGY**

**RELEASE
DATE** : -

**REVISION
NO.** : 0.0

SEMESTER: VII

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P/T*	CREDIT
1.	DC – 11	CS401	Software Engineering, Testing and Quality Assurance	3	2	4
2.	DE – 1	IT41#	Department (Program) elective - Refer Annexure	3	--	3
3.	OE – 3	IT421 CS421 CS422	Open elective - Refer Annexure	3	2	4
4.	HSS – 7	HP401	Engineering Economics	2	--	2
5.	HSS – 8 / SDP – 7	HP403/CS40#	Business Strategies / Advance skill development lab (Adv. Java/ R programming/Python with kali Linux)	--	2	1
6.	SDP – 8	IT402	Project - I	--	8	4
7.	SDP-9	CS406	Summer Internship	--	--	4
TOTAL				11	14	22

SEMESTER: VIII

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P/T*	CREDIT
1.	DC – 12	CS431	Human Computer Interactions	3	2	4
2.	DE – 2	IT44#	Department (Program) elective - Refer Annexure	3	--	3
3.	OE – 4	IT451 CS451 CS452	Open elective - Refer Annexure	3	2	4
4.	HSS – 9	HP402	Sociology	2	--	2
5.	SDP –10	IT432	Project - II	--	8	4
TOTAL				11	12	17

		CREDITS		
		1 Lecture hour = 1 Credit 2 Lab Hours = 1 Credit 1 Tutori		
SL. NO.	YEAR	SEMESTER		TOTAL
		1	2	
1.	First Year	21	21	42
2.	Second Year	21	21	42
3.	Third Year	21	20	41
4.	Final Year	22	17	39
TOTAL				164

CONTACT HOURS				
SL. NO.	YEAR	SEMESTER		TOTAL
		1	2	
1.	First Year	28	28	56
2.	Second Year	28	27	55
3.	Third Year	29	27	56
4.	Final Year	25	23	38
TOTAL				205

ANNEXURE

Natural Science (NSC) : 4 Courses		
1.	AS101	Mathematics – 1
2.	AS102	Mathematics – 2
3.	AS103	Physics
4.	AS104	Chemistry

Engineering Science (ESC) : 6 Courses		
1	EX101	Electrical and Electronic Engineering
2	CV101	Applied Mechanics
3	ME101	Engineering Graphics
4	IT101	Computer Programming

Program Core (PC) : 5 Courses		
1.	CH201	Environmental Science
2.	AS201	Applied Mathematics
3.	ET201	System Engineering
4.	IT201	Engineering Informatics
5.	ME201	Material Engineering

Discipline Core (DC) : 12 Courses		
1.	IT202	Object Oriented Technology
2.	IT203	Computer Network Technology
3.	IT211	Data Structures and Applications
4.	IT212	Database Systems
5.	IT301	Computability Theory
6.	IT302	Operating System
7.	IT303	Web Technology
8.	IT321	Computational Intelligence
9.	IT322	Cloud Services and Applications
10.	IT323	Mobile Application Development
11.	CS 401	Software Engineering Testing and Quality Assurance
12.	CS431	Human Computer Interacion

Department Elective (DE) : 6 Courses	
IT411	Operating System Administration
CS412	Wireless and Mobile Network
CS413	Information Retrieval
CS441	Distributed System
IT442	IoT and Wireless Sensor Network
IT443	Computer Graphics & Multimedia Techniques

Open Elective (OE) : 4 Courses		
Sl. No.	Course Code	Course
1	IT311	Cryptography and System Security
2	IT331	Cyber Security
3	IT421	Ethical Hacking & Cyber Laws
4	IT451	Digital Forensics
5	CS311	Descriptive Analytics
6	CS331	Predictive Analytics
7	CS421	Big Data Analytics
8	CS451	Practitioner's approach for Data Analytics
9	CS312	Artificial Intelligence & Neural Network
10	CS332	Machine Learning
11	CS422	Deep Learning
12	CS452	Pattern Learning

Open Elective (OE) :Term - I (List of courses for Academic Year 2018-19)		
Chemical		
1	CH311	Process Modeling and Simulation.
2	CH312	Piping Engineering
Civil		
3	CV311	Construction Planning & Management
Computer		
4	CS311	Descriptive Analytics
5	CS312	Artificial Intelligence & Neural Network
Electronics		
6	EX311	Fundamentals of Robotics
E & TC		
7	ET311	Embedded System Programming (ESP)
8	ET312	IoT Architecture and Sensors
IT		
9	IT311	Cryptography & System Security
Mechanical		
10	ME311	Geometric Modeling & Design
11	ME312	Fundamentals of Robotics
12	ME313	Work Process Assessment

Open Elective (OE) :Term - II (List of courses for Academic Year 2018-19)		
Chemical		
1	CH331	Process Engineering.
2	CH332	Piping Layout
Civil		
3	CV331	Operation Research
Computer		
4	CS331	Predictive Analysis
5	CS332	Machine Learning
Electronics		
6	EX331	Kinematics and Dynamics of Robotics
E & TC		
7	ET331	Embedded Processor
8	ET332	IoT Networks & Protocols
IT		
9	IT331	Cyber Security
Mechanical		
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 2019-20)		
Chemical		
1	CH421	Process Optimization
2	CH422	Piping Design & Engineering
Civil		
3	CV421	Financial Management
Computer		
4	CS421	Big Data Analytics
5	CS422	Deep Learning
Electronics		
6	EX421	Robotics Vision and Control
E & TC		
7	ET421	Low-Power SoC Architecture & Applications (SoC&A)
8	ET422	Privacy and Security in IoT
IT		
9	IT421	Ethical Hacking & Cyber Laws
Mechanical		
10	ME421	Computational Fluid Dynamics
11	ME422	Robotics Vision and Control
12	ME423	Operations Management

Open Elective (OE) :Term - II (List of courses for Academic Year 2019-20)		
Chemical		
1	CH451	Process Intensification & Integration
2	CH452	Pipeline Engineering
Civil		
3	CV451	Visualization and Information Exchange
Computer		
4	CS451	Practitioner's approach for Data analytics
5	CS452	Pattern Recognition
Electronics		
6	EX451	Intelligent and High-Performance Robotics
E & TC		
7	ET451	Real-Time Embedded System (RES)
8	ET452	Energy Management for IoT Devices
IT		
9	IT451	Digital Forensics
Mechanical		
10	ME451	Advanced Analysis
11	ME452	Intelligent and High Performance Robotics
12	ME453	Supply Chain Management

Humanities and Social Science (HSS) : 9 Courses		
Sl. No.	Course	
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 / Programming in Java

Skill Development and Project (SDP) : 9 Courses		
Sl. No.	Course Code	Course
1.	ME102	Engineering Tools and Techniques
2.	ME103	Design Thinking
3.	ET206	Prototyping
4.	CH213	Minor Project
5.	CH304	Skill development Lab.
6.	CH324	Mini Project
7.	CH402	Skill development Lab 2
8.	CH403	Project - I
9.	CH432	Project - II