MIT Academy of Engineering

An Autonomous Institute affiliated to SavitribaiPhule Pune University

CURRICULUM FRAMEWORK (ELECTRONICS ENGINEERING)

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**	**10.96**
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**
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	2	1	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**	**7**	**6**	**7**	**5**	**49**

CREDIT DISTRIBUTION : SEMESTER WISE										
1 Lecture hour = 1 Credit 2 Lab Hours = 1 Credit 1 Tutorial Hour = 1 Credit										
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			11	8					**19**
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		3	3	2	3	2	**17**
8.	Skill Development & Project	2	2	2	2	2	2	8	4	**24**
TOTAL		**21**	**21**	**21**	**21**	**21**	**20**	**22**	**17**	**164**

MIT | Academy of Engineering (An Autonomous Institute)	CURRICULUM STRUCTURE (2018 - 2022)		
SCHOOL OF ELECTRICAL ENGINEERING	**W.E.F**	**:**	**2016-17**
DEPARTMENT OF ELECTRONICS ENGINEERING	**RELEASE DATE**	**:**	**1/06/2016**
FIRST YEAR BACHELOR OF TECHNOLOGY	**REVISION NO.**	**:**	**0.0**

SEMESTER: I

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P/T*	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 – I	1	2	2
6.	SDP1	ME102 / ME103	Experimental Tools & Techniques / Design Thinking	-	4	2
TOTAL				**13**	**15**	**21**

SEMESTER: II

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P/T*	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	ME101/ IT101	Engineering Graphics / Computer Programming	2	4	4
5.	HSS2	HP102	Language & Communication – II	1	2	2
6.	SDP2	ME103 / ME102	Design Thinking / Experimental Tools & Techniques	-	4	2
TOTAL				**13**	**15**	**21**

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

MIT | Academy of Engineering (An Autonomous Institute)	CURRICULUM STRUCTURE (2018 - 2022)		
SCHOOL OF ELECTRICAL ENGINEERING	W.E.F	:	2017-18
DEPARTMENT OF ELECTRONICS ENGINEERING	RELEASE DATE	:	1/06/2017
SECOND YEAR BACHELOR OF TECHNOLOGY	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	ET202	Analog Electronics	3	2	4
5.	DC2	EX202	Applied Digital Circuits	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	ET211	Signals and Systems	2	2	3
5.	DC4	ET212	Network Analysis Techniques	3	2	4
6.	DC5	ET214	Data Structures and Algorithms	-	2	1
7.	SDP4	EX213	Minor Project	---	4	2
TOTAL				**14**	**14**	**21**

L: Lecture, P: Practical

MIT | Academy of Engineering (An Autonomous Institute)	CURRICULUM STRUCTURE (2018 - 2022)		
SCHOOL OF ELECTRICAL ENGINEERING	**W.E.F**	**:**	**2018-19**
DEPARTMENT OF ELECTRONICS ENGINEERING	**RELEASE DATE**	**:**	**1/06/2018**
THIRD YEAR BACHELOR OF TECHNOLOGY	**REVISION NO.**	**:**	**0.0**

SEMESTER:V

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC6	EX301	Embedded System Design	3	2	4
2.	DC7	ET301	Control Systems	3	2	4
3.	DC8	EX303	Computer Network	3	2	4
4.	OE1	EX31#	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	EX30#	Skill Development Lab - Refer Annexure	-	4	2
TOTAL				**13**	**16**	**21**

SEMESTER : VI

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC9	EX321	Real Time Operating System	3	2	4
2.	DC10	EX322	Digital Signal Processing	3	2	4
3.	DC11	EX323	Power Electronics & Application	3	2	4
4.	OE2	EX33#	Open Elective - Refer Annexure	3	2	4
5.	HSS5	HP302	Professional Skills	1	2	2
6.	SDP6	EX324	Mini Project	-	4	2
TOTAL				**13**	**14**	**20**

L: Lecture, P: Practical

MIT | Academy of Engineering (An Autonomous Institute)	CURRICULUM STRUCTURE (2018 - 2022)		
SCHOOL OF ELECTRICAL ENGINEERING	W.E.F	:	2019-20
DEPARTMENT OF ELECTRONICS ENGINEERING	RELEASE DATE	:	1/06/2019
FINAL YEAR BACHELOR OF TECHNOLOGY	REVISION NO.	:	0.0

SEMESTER:VII

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC12	ET401	VLSI Design	3	2	4
2.	DE1	EX41#	Department Elective - Refer Annexure	3	-	3
3.	OE3	EX42#	Open Elective - Refer Annexure	3	2	4
4.	HSS7	HP401	Engineering Economics	2	-	2
5.	HSS8 / SDP7	HP403 / ET403	Business Strategies / Programming in Java	-	2	1
6.	SDP8	EX402	Project – I	-	8	4
7.	SDP9	EX404	Summer Internship	-	-	4
TOTAL				**11**	**14**	**22**

SEMESTER:VIII

SL. No.	COURSE TYPE	COURSE CODE	COURSE	TEACHING SCHEME		
				L	P	CREDIT
1.	DC13	EX431	Consumer Electronics	3	2	4
2.	DE2	EX44#	Department Elective - Refer Annexure	3	-	3
3.	OE4	EX45#	Open Elective - Refer Annexure	3	2	4
4.	HSS9	HP402	Sociology	2	-	2
5.	SDP10	EX432	Project – II	-	8	4
TOTAL				**11**	**12**	**17**

L: Lecture, P: Practical

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	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	**48**
TOTAL				**215**

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
5.	ME104	Science of Nature or Model Making
6.	CS101	Logic Design

Program Core (PC) : 5 Courses		
1.	CH201	Environmental Science
2.	AS202	Applied Mathematics
3.	ET201	System Engineering
4.	IT201	Engineering Informatics
5.	ME201	Material Engineering

Discipline Core (DC) : 13 Courses		
1.	ET202	Analog Electronics
2.	EX202	Applied Digital Circuits
3.	EX211	Analog and Digital Communication
4.	EX212	Circuit Theory
5.	EX301	Embedded System Design
6.	ET301	Control Systems
7.	EX303	Computer Network
8.	EX321	Real Time Operating System
9.	ET322	Digital Signal Processing
10.	EX323	Power Electronics & Application
11.	ET401	VLSI Design
12.	EX431	Consumer Electronics
13.	ET214	Data Structures and Algorithms

Department Elective (DE) : 2 Courses		
1.	ET411	Digital Image Processing
	ET412	Microwave Engineering
	EX413	Electronic Drives and Applications
	ET414	Machine Learning
2.	EX441	Biomedical Engineering
	ET442	Artificial Intelligence
	ET443	Wireless Sensor Network
	ET444	Speech Signal Processing

Open Elective (OE) : 4 Courses		
Sl. No.	**Course Code**	**Course**
1	ET311	Embedded System Programming (ESP)
2	ET331	Embedded Processor
3	ET421	Low-Power SoC Architecture & Applications
4	ET451	Real Time Embedded System
5	ET312	IoT Architecture and Sensors
6	ET332	IoT Network & Protocols
7	ET422	Privacy and Security in IoT
8	ET452	Energy Management for IoT Device
9	EX311	Fundamentals of Robotics
10	EX331	Kinematics and Dynamics of Robotics
11	EX421	Robotics Vision
12	EX451	Intelligent and High Performance Robotics

Open Elective (OE) :Term - I (List of courses)		
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
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)		
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 Network& 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)		
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
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)		
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	Cyber 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

Skill Development and Project (SDP) : 10 Courses		
Sl. No.	**Course**	
1.	ME102	Engineering Tools and Techniques
2.	ME103	Design Thinking
3.	ET206	Prototyping
4.	EX213	Minor Project
5.	ET304	Graphical Programming Lab
	ET305	MATLAB
	EX304	Embedded Linux
6.	EX324	Mini Project
7.	ET403	Programming in Java
8.	EX402	Project – I
9.	EX404	Summer Internship
10.	EX432	Project – II