

CURRICULUM

FOR

B. TECH DEGREE PROGRAMME

IN

ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTERS I TO VIII

2020 SCHEME

(AUTONOMOUS)



MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Autonomous Institution Affiliated to APJ Abdul Kalam Technological University)
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CURRICULUM

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING****B.Tech. Programme in Electrical and Electronics Engineering***For the students admitted from 2020-21***Scheduling of Courses****i) Knowledge Segments and Credits**

Every course of BTech Programme is placed in one of the nine categories as listed in table below. No semester shall have more than six lecture-based courses and two laboratory courses, and/or drawing/seminar/project courses in the curriculum.

Table 1: Credit distribution and the Knowledge Domains

Sl. No.	Category	Category Code	Total credits
1	Humanities and Social Sciences including Management Courses	HSC	8
2	Basic Science Courses	BSC	26
3	Engineering Science Courses	ESC	22
4	Programme Core Courses, Comprehensive Course Work and Viva Voce	PCC	76
5	Programme Elective Courses	PEC	15
6	Open Elective Courses	OEC	3
7	Project Work and Seminar	PWS	10
8	Mandatory Non-credit Courses (P/F) with Grade	MNC	---
9	Mandatory Student Activities (P/F)	MSA	2
Total Mandatory Credits			162
	Value Added Courses (Optional) – Honours/Minor	VAC	20

ii) Semester-wise Credit Distribution

Semester	I	II	III	IV	V	VI	VII	VIII	Total Credits
<i>Credits for Courses</i>	17	21	22	22	23	23	15	17	160
<i>Activity Points (Min.)</i>	40				60				100
<i>Credits for Activities</i>	2								2
<i>Total Credits</i>									162
<i>Value Added Courses (Optional) – Honours / Minor</i>									20
Total Credits									182



SEMESTER I						
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
A	BSC	MA0U10A	Linear Algebra and Calculus	3-1-0	4	4
B 1/2	BSC	PH0U10A	Engineering Physics A	3-1-0	4	4
		CY0U10A	Engineering Chemistry	3-1-0	4	4
C 1/2	ESC	ES0U10A	Engineering Mechanics	2-1-0	3	3
		ES0U10B	Engineering Graphics	2-0-2	4	3
D 1/2	ESC	ES0U10C	Basics of Civil and Mechanical Engineering	4-0-0	4	4
		ES0U10D	Basics of Electrical and Electronics Engineering	4-0-0	4	4
E	HSC	HS0U10A	Life Skills	2-0-2	4	---
S 1/2	BSC	PH0U18A	Engineering Physics Lab	0-0-2	2	1
		CY0U18A	Engineering Chemistry Lab	0-0-2	2	1
T 1/2	ESC	ES0U18A	Civil and Mechanical Workshop	0-0-2	2	1
		ES0U18B	Electrical and Electronics Workshop	0-0-2	2	1
TOTAL					23/24	17

SEMESTER II						
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
A	BSC	MA0U10B	Vector Calculus, Differential Equations and Transforms	3-1-0	4	4
B 1/2	BSC	PH0U10A	Engineering Physics A	3-1-0	4	4
		CY0U10A	Engineering Chemistry	3-1-0	4	4
C 1/2	ESC	ES0U10A	Engineering Mechanics	2-1-0	3	3
		ES0U10B	Engineering Graphics	2-0-2	4	3
D 1/2	ESC	ES0U10C	Basics of Civil and Mechanical Engineering	4-0-0	4	4
		ES0U10D	Basics of Electrical and Electronics Engineering	4-0-0	4	4
E	HSC	HS0U10B	Professional Communication	2-0-2	4	---
F	ESC	ES0U10E	Programming in C	2-1-2	5	4
S 1/2	BSC	PH0U18A	Engineering Physics Lab	0-0-2	2	1
		CY0U18A	Engineering Chemistry Lab	0-0-2	2	1
T 1/2	ESC	ES0U18A	Civil and Mechanical Workshop	0-0-2	2	1
		ES0U18B	Electrical and Electronics Workshop	0-0-2	2	1
TOTAL					28/29	21



SEMESTER III							
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit	
A	BSC	MA0U20A	Partial Differential Equations and Complex Analysis	3-1-0	4	4	
B	PCC	EE1U20A	Circuits and Networks	2-2-0	4	4	
C	PCC	EE1U20B	Measurements and Instrumentation	3-1-0	4	4	
D	PCC	EE1U20C	Analog Electronics	3-1-0	4	4	
E 1/2	ESC	ES0U20A	Design and Engineering	2-0-0	2	2	
	HSC	HS0U20A	Professional Ethics	2-0-0	2	2	
F	MNC	NC0U20A	Sustainable Engineering	2-0-0	2	---	
S	PCC	EE1U28A	Circuits and Measurements Lab	0-0-3	3	2	
T	PCC	EE1U28B	Analog Electronics Lab	0-0-3	3	2	
R/M	VAC		Remedial/Minor Course	3-1-0/ 4-0-0	4	4	
TOTAL						26/30	22/26

SEMESTER IV							
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit	
A	BSC	MA0U20C	Probability, Random Processes and Numerical Methods	3-1-0	4	4	
B	PCC	EE1U20D	DC Machines and Transformers	2-2-0	4	4	
C	PCC	EE1U20E	Electromagnetic Theory	3-1-0	4	4	
D	PCC	EE1U20F	Digital Electronics	3-1-0	4	4	
E 1/2	ESC	ES0U20A	Design and Engineering	2-0-0	2	2	
	HSC	HS0U20A	Professional Ethics	2-0-0	2	2	
F	MNC	NC0U20B	Constitution of India	2-0-0	2	-	
S	PCC	EE1U28C	Electrical Machines Lab I	0-0-3	3	2	
T	PCC	EE1U28D	Digital Electronics Lab	0-0-3	3	2	
R/M/H	VAC		Remedial/Minor/Honours Course	3-1-0/ 4-0-0	4	4	
TOTAL						26/30	22/26



SEMESTER V						
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
A	PCC	EE1U30A	Power Systems I	3-1-0	4	4
B	PCC	EE1U30B	Microprocessors and Microcontrollers	3-1-0	4	4
C	PCC	EE1U30C	Signals and Systems	3-1-0	4	4
D	PCC	EE1U30D	Synchronous and Induction Machines	3-1-0	4	4
E 1/2	HSC	HS0U30A	Industrial Economics & Foreign Trade	3-0-0	3	3
		HS0U30B	Management for Engineers	3-0-0	3	3
F	MNC	NC0U30A	Disaster Management	2-0-0	2	-
S	PCC	EE1U38A	Microprocessors and Microcontrollers Lab	0-0-3	3	2
T	PCC	EE1U38B	Electrical Machines Lab II	0-0-3	3	2
R/M/H	VAC		Remedial/Minor/Honours Course	3-1-0/ 4-0-0	4	4
TOTAL					27/31	23/27

SEMESTER VI						
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
A	PCC	EE1U30E	Linear Control Systems	2-2-0	4	4
B	PCC	EE1U30F	Power Systems II	3-1-0	4	4
C	PCC	EE1U30G	Power Electronics	3-1-0	4	4
D	PEC	EE1UXXX	Program Elective I	3-0-0	3	3
E 1/2	HSC	HS0U30A	Industrial Economics & Foreign Trade	3-0-0	3	3
		HS0U30B	Management for Engineers	3-0-0	3	3
F	PCC	EE1U30H	Comprehensive Course work	1-0-0	1	1
S	PCC	EE1U38C	Power Systems Lab	0-0-3	3	2
T	PCC	EE1U38D	Power Electronics Lab	0-0-3	3	2
R/M/H	VAC		Remedial/Minor/Honours Course	3-1-0/ 4-0-0	4	4
TOTAL					25/29	23/27



PROGRAMME ELECTIVE I

Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
D	PEC	EE1U31A	Biomedical Instrumentation	3-0-0	3	3
		EE1U31B	Renewable Energy Sources	3-0-0	3	3
		EE1U31C	Computer Organization	3-0-0	3	3
		EE1U31D	High Voltage Engineering	3-0-0	3	3
		EE1U31E	Object Oriented Programming	3-0-0	3	3
		EE1U31F	Material Science	3-0-0	3	3
		EE1U31G	Soft Computing	3-0-0	3	3

SEMESTER VII						
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
A	PCC	EE1U40A	Advanced Control Systems	2-1-0	3	3
B	PEC	EE1UXXX	Program Elective II	2-1-0/ 3-0-0	3	3
C	OEC	EE0UXXX	Open Elective	2-1-0/ 3-0-0	3	3
D	MNC	NC0U40A	Industrial Safety Engineering	2-1-0	3	-
S	PCC	EE1U48A	Control Systems Lab	0-0-3	3	2
T	PWS	EE1U49A	Seminar	0-0-3	3	2
U	PWS	EE1U49B	Project Phase I	0-0-6	6	2
R/M/H	VAC		Remedial/Minor/Honours Course	0-1-6/ 3-1-0/ 4-0-0	7/4	4
TOTAL					24/(31/28)	15/19

PROGRAMME ELECTIVE II

Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
B	PEC	EE1U41A	Electric Drives	2-1-0	3	3
		EE1U41B	Digital Control Systems	2-1-0	3	3
		EE1U41C	Modern Operating Systems	3-0-0	3	3
		EE1U41D	Data Structures	2-1-0	3	3
		EE1U41E	Digital Signal Processing	2-1-0	3	3
		EE1U41F	Illumination Technology	2-1-0	3	3
		EE1U41G	Digital Protection of Power Systems	3-0-0	3	3



OPEN ELECTIVE

Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
C	OEC	EE0U41A	Control Systems Engineering	2-1-0	3	3
		EE0U41B	Introduction to Power Processing	2-1-0	3	3
		EE0U41C	Renewable Energy Systems	3-0-0	3	3
		EE0U41D	Electric Vehicles	2-1-0	3	3
		EE0U41E	Energy Management	3-0-0	3	3

SEMESTER VIII						
Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
A	PCC	EE1U40B	Electrical System Design and Estimation	2-1-0	3	3
B	PEC	EE1UXXX	Program Elective III	2-1-0/ 3-0-0	3	3
C	PEC	EE1UXXX	Program Elective IV	2-1-0/ 3-0-0	3	3
D	PEC	EE1UXXX	Program Elective V	2-1-0/ 3-0-0	3	3
T	PCC	EE1U40C	Comprehensive Course Viva	1-0-0	1	1
U	PWS	EE1U49C	Project Phase II	0-0-12	12	4
R/M/H	VAC		Remedial/Minor/Honours Course	0-1-6	7	4
TOTAL					25/32	17/21

PROGRAMME ELECTIVE III

Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
B	PEC	EE1U42A	Robotics	2-1-0	3	3
		EE1U42B	Energy Management	3-0-0	3	3
		EE1U42C	Smart Grid Technologies	2-1-0	3	3
		EE1U42D	Electrical Machine Design	2-1-0	3	3
		EE1U42E	Switch Mode Power Converters	3-0-0	3	3
		EE1U42F	Computer Aided Power System Analysis	2-1-0	3	3
		EE1U42G	Machine Learning	3-0-0	3	3

**PROGRAMME ELECTIVE IV**

Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
C	PEC	EE1U43A	Nonlinear Systems	2-1-0	3	3
		EE1U43B	Special Electric Machines	3-0-0	3	3
		EE1U43C	Power Quality	3-0-0	3	3
		EE1U43D	Computer Networks	3-0-0	3	3
		EE1U43E	Design of Power Electronic Systems	2-1-0	3	3
		EE1U43F	HVDC & FACTS	3-0-0	3	3
		EE1U43G	Advanced Electronic Design	2-1-0	3	3

PROGRAMME ELECTIVE V

Slot	Category Code	Course Number	Courses	L-T-P	Hours	Credit
D	PEC	EE1U44A	Electric and Hybrid Vehicles	3-0-0	3	3
		EE1U44B	Internet of Things	3-0-0	3	3
		EE1U44C	Energy Storage Systems	3-0-0	3	3
		EE1U44D	Robust and Adaptive Control	2-1-0	3	3
		EE1U44E	Solar PV Systems	2-1-0	3	3
		EE1U44F	Industrial Instrumentation and Automation	3-0-0	3	3
		EE1U44G	Big Data Analytics	3-0-0	3	3



B.Tech (MINOR)

Semester	BASKET I Electrical Machines and Drives				BASKET II Power Systems				BASKET III Control Systems				BASKET IV Architectural Lighting and Electrical System Design			
	Course Number	Course	L-T-P	Credit	Course Number	Course	L-T-P	Credit	Course Number	Course	L-T-P	Credit	Course Number	Course	L-T-P	Credit
S3	EE0M 20A	Electric Circuits	3-1-0	4	EE0M 20B	Introduction to Power Engineering	3-1-0	4	EE0M 20C	Dynamic Circuits and Systems	4-0-0	4	EE0M 20D	Basics of Illumination Science and Lighting Design	4-0-0	4
S4	EE0M 20E	Electrical Machines	3-1-0	4	EE0M 20F	Energy Systems	4-0-0	4	EE0M 20G	Principles of Instrumentation	4-0-0	4	EE0M 20H	Electric Power Supply and Distribution Systems	4-0-0	4
S5	EE0M 30A	Solid State Power Conversion	3-1-0	4	EE0M 30B	Solar and Wind Energy Conversion Systems	3-1-0	4	EE0M 30C	Control Systems	3-1-0	4	EE0M 30D	Energy efficiency in Buildings	4-0-0	4
S6	EE0M 30E	Power Semiconductor Drives	3-1-0	4	EE0M 30F	Instrumentation and Automation of Power Plants	4-0-0	4	EE0M 30G	Digital Control	4-0-0	4	EE0M 30H	Electrical System Design and Building services	3-1-0	4
S7	EE0M 49A	Mini Project	0-1-6	4	EE0M 49A	Mini Project	0-1-6	4	EE0M 49A	Mini Project	0-1-6	4	EE0M 49A	Mini Project	0-1-6	4
S8	EE0M 49B	Mini Project	0-1-6	4	EE0M 49B	Mini Project	0-1-6	4	EE0M 49B	Mini Project	0-1-6	4	EE0M 49B	Mini Project	0-1-6	4



B.Tech (HONOURS)

Semester	GROUP I				GROUP II				GROUP III				GROUP IV			
	Course Number	Course	L-T-P	Credit	Course Number	Course	L-T-P	Credit	Course Number	Course	L-T-P	Credit	Course Number	Course	L-T-P	Credit
S4	EE1H20A	Network Analysis and Synthesis	3-1-0	4	EE1H20A	Network Analysis and Synthesis	3-1-0	4	EE1H20A	Network Analysis and Synthesis	3-1-0	4	EE1H20A	Network Analysis and Synthesis	3-1-0	4
S5	EE1H30A	Digital Simulation	4-0-0	4	EE1H30A	Digital Simulation	4-0-0	4	EE1H30A	Digital Simulation	4-0-0	4	EE1H30A	Digital Simulation	4-0-0	4
S6	EE1H30B	Generalized Machine Theory	3-1-0	4	EE1H30C	Analysis of Power Electronic Circuits	3-1-0	4	EE1H30D	Operation and Control of Power Systems	3-1-0	4	EE1H30E	Electric Vehicle Technology	4-0-0	4
S7	EE1H40A	Operation and Control of Generators	4-0-0	4	EE1H40B	Dynamics of Power Converters	3-1-0	4	EE1H40C	Control and Dynamics of Micro grids	4-0-0	4	EE1H40D	Smart Grid and Interfacing	4-0-0	4
S8	EE1H49A	Mini Project	0-1-6	4	EE1H49A	Mini Project	0-1-6	4	EE1H49A	Mini Project	0-1-6	4	EE1H49A	Mini Project	0-1-6	4