



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Electronics Engineering (SENSE)

B.Tech (Electronics & Communication Engineering)

CURRICULUM

[Curriculum for Applied Learning (CAL)]

(2019 – 20 onwards)

Sl. No	Category	Total number of Credits
1	University Core (UC)	53
2	Program Core (PC)	59
3	Program Elective (PE)	36
4	University Elective (UE)	12
Total Number of Credits		160

University Core- 53 Credits

L- Lecture

T – Tutorial

P – Practical

J – Project

C - Credits

No	Course Code	Course Title	L	T	P	J	C	Category
	ENG1000	Foundation English-I	0	0	4	0	2 (0)*	Humanities
	ENG2000	Foundation English-II	0	0	4	0	2 (0)*	Humanities
1	PHY1701	Engineering Physics	3	0	2	0	4	Science
2	PHY1901	Introduction to Innovative Projects	1	0	0	0	1	Science
3	ENG1901/ ENG1902	Technical English-I / Technical English-II	0	0	4	0	2	Humanities
4	CHY1701	Engineering Chemistry	3	0	2	0	4	Science
5	CHY1002	Environmental Science	3	0	0	0	3 (0)*	Science
6	MAT1011	Calculus for Engineers	3	0	2	0	4	Science
7	MAT2001	Statistics for Engineers	3	0	2	0	4	Science
8	CSE1001	Problem solving and programming	0	0	6	0	3	Engineering
9	CSE1002	Problem solving with Object Oriented Programming	0	0	6	0	3	Engineering
10	HUM1021	Ethics and Values	2	0	0	0	2	Humanities
11	MGT1022	Lean Start-up Management	1	0	0	4	2	Management
12		Soft Skills (Each Semester 1 credits)	0	0	0	0	6	Humanities
13		Foreign Language Course basket	2	0	0	0	2	Humanities
14		Personality Development(extra & co - curricular activities)	0	0	0	0	2 (0)*	Management
15	ECE1901	Tech Answers for Real world Problems (TARP)	1	0	0	4	2	Engineering
16	ECE1902	Industrial Internship	0	0	0	0	1	Engineering
17	ECE1903	Comprehensive Examination	0	0	0	0	1	Engineering
18	ECE1904	Co-op / Capstone Project	0	0	0	0	12	Engineering
		TOTAL					53	

Program Core- 59 Credits

L- Lecture

T – Tutorial

P – Practical

J – Project

C - Credits

No.	Course Code	Course Title	L	T	P	J	C	Category	Pre-Requisite
1.	ECE1001	Fundamentals of Electrical Circuits	2	0	2	0	3	Engineering	None
2.	ECE1002	Semiconductor Devices and Circuits	3	0	2	0	4	Engineering	None
3.	ECE1003	Electromagnetic Field Theory	3	0	0	0	3	Science	PHY1001 / PHY1701
4.	ECE1004	Signals and Systems	2	0	0	4	3	Science	MAT1011
5.	ECE1005	Sensors and Instrumentation	1	0	0	4	2	Engineering	PHY1001 / PHY1701
6.	ECE2001	Network Theory	3	0	0	0	3	Engineering	ECE1001
7.	ECE2002	Analog Electronic Circuits	2	0	2	4	4	Engineering	ECE1002
8.	ECE2003	Digital Logic Design	2	0	2	0	3	Engineering	ECE1002
9	ECE2004	Transmission lines and Waveguides	3	0	0	0	3	Engineering	ECE1003
10.	ECE2005	Probability Theory and Random Processes	3	0	0	0	3	Science	ECE1004
11.	ECE2006	Digital Signal Processing	2	0	2	4	4	Engineering	ECE1004
12.	ECE3001	Analog Communication Systems	3	0	2	0	4	Engineering	ECE2002
13.	ECE3002	VLSI System Design	3	0	2	0	4	Engineering	ECE2003
14.	ECE3003	Microcontroller and its applications	2	0	2	4	4	Engineering	ECE2003
15.	ECE4001	Digital Communication Systems	3	0	2	0	4	Engineering	ECE3001
16.	MAT2002	Applications of Differential and Difference Equations	3	0	2	0	4	Science	MAT1011
17.	MAT3004	Applied Linear Algebra	3	1	0	0	4	Science	MAT2002
		TOTAL					59		

Program Elective- 36 Credits

		L- Lecture	T – Tutorial		P – Practical		J – Project		C - Credits		
No.	Course Code	Course Title			L	T	P	J	C	Category	Pre- Requisite
1	CSE2003	Data Structures and Algorithms			2	0	2	4	4	Engineering	None
2	CSE2005	Operating Systems			2	0	2	4	4	Engineering	None
3	ECE1006	Introduction to Nano Science and Nano Technology			2	0	0	4	3	Engineering	PHY1001 / PHY1701
4	ECE1007	Optoelectronics			3	0	0	0	3	Engineering	PHY1001 / PHY1701
5	ECE1008	Electronics Hardware Trouble Shooting			0	0	2	0	1	Engineering	None
6	ECE2008	Robotics and Automation			2	0	0	4	3	Engineering	ECE1005
7	ECE2010	Control Systems			3	0	0	4	4	Engineering	ECE1004
8	ECE3004	Computer Organization and Architectures			3	0	0	0	3	Engineering	ECE2003
9	ECE3005	Digital Image Processing			3	0	2	0	4	Engineering	ECE2006
10	ECE3009	Neural Networks and Fuzzy Control			3	0	0	4	4	Engineering	ECE2006
11	ECE3010	Antennas and wave propagation			3	0	0	0	3	Engineering	ECE2004
12	ECE3011	Microwave Engineering			3	0	2	4	5	Engineering	ECE2004
13	ECE3013	Linear Integrated Circuits			3	0	2	0	4	Engineering	ECE2002
14	ECE4002	Advanced Microcontrollers			3	0	0	4	4	Engineering	ECE3003
15	ECE4003	Embedded System Design			2	0	2	4	4	Engineering	ECE3003
16	ECE4004	Embedded C and Linux			3	0	2	4	5	Engineering	ECE3003
17	ECE4005	Optical Communication and Networks			2	0	2	4	4	Engineering	ECE4001
18	ECE4007	Information Theory and Coding			3	0	0	4	4	Engineering	ECE4001
19	ECE4008	Computer Communication			3	0	2	0	4	Engineering	ECE4001
20	ECE4009	Wireless and Mobile communication			3	0	2	4	5	Engineering	ECE4001
21	ECE4010	Satellite Communication			3	0	0	0	3	Engineering	ECE4001
22	ECE4011	Wireless Sensor Networks			2	0	2	4	4	Engineering	ECE4001
23	ECE4013	Cryptography and Network Security			3	0	0	0	3	Engineering	ECE2005
24	MAT3005	Applied Numerical Methods			3	1	0	0	4	Science	MAT2002
25	PHY1002	Material Science			3	0	2	0	4	Science	PHY1001 / PHY1701
26	ECEXXXX	IoT System Design and Applications			3	0	2	0	4	Engineering	ECE3003

27	ECEXXXX	Computer Vision and Pattern Recognition	3	0	0	0	3	Engineering	ECE2006
28	ECEXXXX	Machine Learning Fundamentals	3	0	2	0	4	Engineering	MAT3004
29	ECEXXXX	Deep Learning	3	0	0	0	3	Engineering	MAT3004

University Electives- 12 Credits

University Electives are meant to develop interdisciplinary skills among the students. So the students can take any courses other than their University and Program core courses as their University elective courses. Student should have completed minimum of 12 credits under university electives to fulfill their requirements to complete their B.Tech Degree.

B. Tech - ECE (Honors) – (15 Credits)

(Choose any five courses from the list)

No	Course Code	Course Title	L	T	P	J	C	Category	Prerequisite
1	ECE2008	Robotics and Automation	2	0	0	4	3	Engineering	ECE1005
2	ECE3005	Digital Image Processing	3	0	2	0	4	Engineering	ECE2006
3	ECE3009	Neural Networks and Fuzzy Control	3	0	0	4	4	Engineering	ECE2006
4	ECE4010	Satellite Communication	3	0	0	0	3	Engineering	ECE4001
5	ECE4011	Wireless Sensor Networks	2	0	2	4	4	Engineering	ECE4001
6	ECE4013	Cryptography and Network Security	3	0	0	0	3	Engineering	ECE2005

Program Migration Requirements

No	Course Code	Course Title	L	T	P	J	C	Category	Prerequisite
1	ECE1001	Fundamentals of Electrical Circuits	2	0	2	0	3	Engineering	None
2	ECE1002	Semiconductor Devices and Circuits	3	0	2	0	4	Engineering	None

Minor in Electronics Engineering – (15 Credits)

(Choose any five courses from the list)

No	Course Code	Course Title	L	T	P	J	C	Category	Prerequisite
1	ECE1002	Semiconductor Devices and Circuits	3	0	2	0	4	Engineering	None
2	ECE2002	Analog Electronic Circuits	2	0	2	4	4	Engineering	ECE1002
3	ECE2003	Digital Logic Design	2	0	2	0	3	Engineering	ECE1002
4	ECE3013	Linear Integrated Circuits	3	0	2	0	4	Engineering	ECE2002
5	ECE3003	Microcontroller and its Applications	2	0	2	4	4	Engineering	ECE2003
6	ECE3002	VLSI System Design	3	0	2	0	4	Engineering	ECE2003

Minor in Communication Engineering – (15 Credits)

(Choose any five courses from the list)

No	Course Code	Course Title	L	T	P	J	C	Category	Prerequisite
1	ECE1002	Semiconductor Devices and Circuits	3	0	2	0	4	Engineering	None
2	ECE2002	Analog Electronic Circuits	2	0	2	4	4	Engineering	ECE1002
3	ECE3001	Analog Communication Systems	3	0	2	0	4	Engineering	ECE2002
4	ECE4001	Digital Communication Systems	3	0	2	0	4	Engineering	ECE3001
5	ECE4007	Information Theory and Coding	3	0	0	4	4	Engineering	ECE4001
6	ECE4008	Computer Communication	3	0	2	0	4	Engineering	ECE4001
7	ECE4009	Wireless and Mobile communication	3	0	2	4	5	Engineering	ECE4001