

Academic Regulations, Curriculum and Syllabi
2016

B. Tech.
Electronics & Communication Engineering



Department of Electronics & Communication Engineering
GMR Institute of Technology
Rajam, Andhra Pradesh
(An Autonomous Institute Affiliated to JNTU Kakinada, AP)
NBA Accredited and NAAC Accredited



B.Tech –ECE-Course Structure

[Minimum Credits to be earned: 174 (for regular students)/132(for Lateral entry students)]

First Semester							
No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16HSX01	English Communication Skills –I	10	3	1	-	3
2	16MAX01	Engineering Mathematics –I	1,2	3	1	-	3
3	16PYX01	Engineering Physics	1,2	3	1	-	3
4	16MEX01	Engineering Mechanics	1,2,3	3	1	-	3
5	16CSX01	Problem solving using C	1,2,3	3	1	-	3
6	16PYX02	Engineering Physics Lab	4	-	-	3	2
7	16CSX02	Problem solving using C Lab	4	-	-	3	2
8	16MEX02	Engineering Drawing	4,9,10	-	-	3	2
Total				15	5	9	21
Second Semester							
1	16HSX03	English Communication Skills –II	10	3	1	-	3
2	16MAX02	Engineering Mathematics –II	1,2	3	1	-	3
3	16CYX01	Engineering Chemistry	1,2	3	1	-	3
4	16EEX01	Basic Electrical Engineering	1,3	3	1	-	3
5	16CHX01	Environmental Studies	1,3,6,7	3	1	-	3
6	16HSX02	English Communication Skills Lab	10	-	-	3	2
7	16CYX02	Engineering Chemistry Lab	4	-	-	3	2
8	16MEX03	Engineering Workshop	1,2,10,12	-	-	3	2
Total				15	5	9	21
Third Semester							
No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16MA304	Complex Variables	1,PSO ₂	3	1	-	3
2	16EC302	Digital Electronics	1,2, PSO ₁	3	1	-	3
3	16EC303	Electronic Devices and Circuits	1,2, PSO ₁	3	1	-	3
4	16EC304	Linear Circuit Analysis	1,2,4,5, PSO ₁	3	-	2	4
5	16EC305	Random Variables & Stochastic Processes	1,2, PSO ₂	3	1	-	3
6	16EC306	Signals & Systems	1,2, PSO ₂	3	1	-	3
7	16EC307	Digital Electronics lab	1,2,4, PSO ₁	-	-	3	2
8	16EC308	Electronic Devices and Circuits Lab	1,2,4, PSO ₁	-	-	3	2
9	16EC309	Signals and Systems Lab	1,2,4,5, PSO ₂	-	-	3	2
10	16HSX05	CCEC Activities I	6,7,9,10	-	-	3	-
11	16ESX1A	Employability Skills I	1,6,8,10,12	-	2	-	-
Total				18	7	14	25
Fourth Semester							
1	16EE410	Linear Control Systems	1,2, PSO ₁ , PSO ₂	3	1	-	3
2	16IT306	Object Oriented Programming through java	1,2,5	3	1	-	3
3	16EC403	Analog Communications	1,2, PSO ₂	3	1	-	3
4	16EC404	Electromagnetic Fields and Waves	1,2, PSO ₂	3	1	-	3
5	16EC405	Electronic Circuit Analysis	1,2, PSO ₁	3	1	-	3
6	16EC406	Pulse and Digital Circuits	1,2,4,5, PSO ₁	3	-	2	4
7	16IT309	Java Lab	2,3,4,5	-	-	3	2
8	16EC408	Analog Communications lab	1,2,4,5, PSO ₂	-	-	3	2
9	16EC409	Electronic Circuits Lab	1,2,4, PSO ₁	-	-	3	2
10	16HSX05	CCEC Activities I	6,7,9,10	-	-	3	1
11	16ESX1B	Employability Skills II	1,6,8,10,12	-	2	-	1
Total				18	7	14	27

Fifth Semester							
No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16EC501	Antennas and Wave Propagation	1,2, PSO ₂	3	1	-	3
2	16EC502	Digital Communications	1,2, PSO ₂	3	1	-	3
3	16EC503	Linear IC Applications	1,2, PSO ₁	3	1	-	3
4	16EC504	Structured Digital Design	1,2,3,4,5, PSO ₁	3	-	2	4
5	16EC505	VLSI Design	1,2,3, PSO ₁	3	1	-	3
6		Elective I/CC		3	1	-	3
7	16EC507	Digital Communications Lab	1,2,4, PSO ₂	-	-	3	2
8	16EC508	Term Paper	1,4,10,12	-	-	3	2
9	16HSX06	CC & EC Activities II	6,7,9,10	-	-	3	-
10		Summer Internship	1,2,8,10,12	-	-	-	-
11	16ESX2A	Employability Skills III	1,6,8,10,12	-	2	-	-
Total				18	7	11	23
Sixth Semester							
1	16EC601	Cellular and Mobile Communications	1,2, PSO ₂	3	1	-	3
2	16EC602	Digital Signal Processing	1,2, PSO ₂	3	1	-	3
3	16EC603	Microprocessors and Microcontrollers	1,2,3,4,5, PSO ₁	3	-	2	4
4	16EC604	Microwave Engineering	1,2, PSO ₂	3	1	-	3
5		Elective II/CC		3	1	-	3
6		Elective III (Open Elective)		3	1	-	3
7	16EC607	Linear IC Applications Lab	1,2,3,4, PSO ₁	-	-	3	2
8	16EC509	Mini Project	All	-	-	3	2
9		Audit Course	12	-	-	-	-
10	16HSX06	CC & EC Activities II	6,7,9,10	-	-	3	1
11	16ESX2B	Employability Skills IV	1,6,8,10,12	-	2	-	1
Total				18	7	11	25
Seventh Semester							
No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16HSX04	Engineering Economics and Project Management	11	3	1	-	3
2		Elective IV/CC		3	1	-	3
3		Elective V/CC		3	1	-	3
4	16EC703	Digital Signal Processing Lab	1,2,4,5, PSO ₂	-	-	3	2
5	16EC704	Microwave Engineering Lab	1,2,4, PSO ₂	-	-	3	2
6	16EC705	Full Semester Internship*	1,2,5,8,9,10, PSO ₁ , PSO ₂	-	-	-	16
Total				9	3	6	13/16
Eighth Semester							
1	16EC801	Professional Ethics and Standards	6,7,8	3	1	-	3
2	16EC802	Wireless Sensor Networks	1,2, PSO ₁ , PSO ₂	3	1	-	3
3		Elective VI		3	1	-	3
4	16EC804	Project work	All	-	-	-	10
5	16EC706	Full Semester Internship**	1,2,5,8,9,10, PSO ₁ , PSO ₂	-	-	-	16
Total				9	3	-	19/16

*Student who opt for FSI-16EC705 during 7th semester, have to register one more additional elective and 16EC703 & 16EC704 as an additional lab courses during 8th semester

** Student the who opt for FSI-16EC705 during 8th semester, have to register an additional course in consultation with HoD during 7th semester

List of Elective Courses, Contemporary Courses, Audit Courses, Employability Skills and One Credit Courses

Elective I							
No	Course Code	Course	POs	Periods			
				L	T	P	C
1	16CS303	Computer Organization and Architecture	2,3	3	1	-	3
2	16EC001	Electronic Measurements and Instrumentation	1,2, PSO ₁	3	1	-	3
3	16EC002	Transmission Lines and Waveguides	1,2, PSO ₂	3	1	-	3
4		MOOCs		-	-	-	3
Elective II							
1	16IT404	Computer Networks	1,2	3	1	-	3
2	16CS304	Database Management Systems	1,2,3	3	1	-	3
3	16EC003	Optical Communication and Networks	1,2, PSO ₂	3	1	-	3
4				-	-	-	3
Elective III(Open Electives –Mathematics, Chemistry, Entrepreneurship Skills, Industrial Safety and Engineering & Technology)							
1	16CE007	Disaster Management	2	3	1	-	3
2	16EE004	Renewable Energy Sources	2,7	3	1	-	3
3	16ME009	Principles of Entrepreneurship	1,5,8,11	3	1	-	3
4	16EC004	Fundamentals of Global Positioning System	1,2, PSO ₂	3	1	-	3
5	16CS006	Computational Intelligence	3,5,6	3	1	-	3
6	16CS007	IoT Engineering Applications	1,5	3	1	-	3
7	16CH007	Industrial Safety and Hazard Management	1,2,3,6,8	3	1	-	3
8	16IT005	Fundamentals of Cloud Computing	2,5,6	3	1	-	3
9	16PE007	Smart Grid Technology	3,5	3	1	-	3
10	16MA001	Computational Mathematics	1,2	3	1	-	3
11	16CY001	Nanoscience & Technology	1,12	3	1	-	3
Elective IV							
1	16EC005	Digital Image Processing	1,2, PSO ₂	3	1	-	3
2	16EC006	Radar Engineering	1,2, PSO ₂	3	1	-	3
3	16EC007	Speech Processing	1,2, PSO ₂	3	1	-	3
4	16EC008	Wavelet Theory and its Applications	1,2, PSO ₂	3	1	-	3
5		MOOCs		-	-	-	3
Elective V							
1	16EC009	Biomedical Signal Processing	1,2, PSO ₂	3	1	-	3
2	16EC010	Electromagnetic Interference and Compatibility	1,2,7, PSO ₂	3	1	-	3
3	16EC011	Embedded Systems	1,2, PSO ₁	3	1	-	3
4	16EC012	RF Circuit Design	1,2, PSO ₁ , PSO ₂	3	1	-	3
5		MOOCs		-	-	-	3
Elective VI							
1	16EE502	Power Electronics	1,2,3	3	1	-	3
2	16CS004	Real Time Operating Systems	1,2, PSO ₁	3	1	-	3
3	16EC013	Adaptive Signal Processing	1,2, PSO ₂	3	1	-	3
4	16EC014	Analog and Mixed Signal Design	1,2, PSO ₁	3	1	-	3
5	16EC015	Neural Networks and Fuzzy Logic	1,2, PSO ₁ , PSO ₂	3	1	-	3
6	16EC016	Satellite Communications	1,2, PSO ₂	3	1	-	3
7		MOOCs		-	-	-	3
Contemporary Courses (CC)							
1	16EC017	ARM Processor Architecture and Applications	1,2, PSO ₁	3	1	-	3
2	16EC018	ASIC Design	1,2,3, PSO ₁	3	1	-	3
3	16EC019	Software Defined Radio	1,2, PSO ₂	3	1	-	3
4	16EC020	Testing of VLSI Circuits	1,2, PSO ₁	3	1	-	3
5	16CSX16	Digital Marketing (Self Study Mode)	1,2,3,4,5,12, PSO ₂	-	-	-	1

One Credit Course (s)3							
1	16ECI01	Modelling and Simulation of Basic Electronic System		1	-	-	1
2	16ECI02	Efficient Design of RF Transceiver		1	-	-	1
3	16ECI03	Antenna Design		1	-	-	1
4	16ECI04	Internet of Things		1	-	-	1
5	16ECI05	Full Custom VLSI Design		1	-	-	1
Audit Courses							
1	16AT001	Contemporary India: Economy, Polity & society (ME)	-----				
2	16AT002	Indian Heritage and Culture (EEE)					
3	16AT003	Intellectual Property Rights and Patents (ECE)					
4	16AT004	Introduction to Journalism (CSE)					
5	16AT005	Professional Ethics and Morals (CE)					
6	16AT006	Science, Technology and Development (Chem)					
7	16AT007	Industrial sociology (PE)					
8	16AT008	Organizational Behavior (IT)					
9	16AT009	Communication Etiquette in workplaces(BSH)					