



GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY:
NELLORE
(AUTONOMOUS)

NELLORE-524317 (A.P) INDIA

B.TECH IN ELECTRICAL AND ELECTRONICS ENGINEERING
(ACCREDITED BY NBA)
COURSE STRUCTURE AND SYLLABI
UNDER RG 22 REGULATIONS



B.TECH Electrical and Electronics Engineering

Course Structure (RG22)

Semester 0

Induction Program: 3weeks
(Common for All Branches of Engineering)

S.No	CourseNo	CourseName	Category	L-T-P-C
1		Physical Activities--Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2		Career Counseling	MC	2-0-2-0
3		Orientation to all branches—career options, tools, etc.	MC	3-0-0-0
4		Orientation on admitted Branch – corresponding labs, tools and platforms	EC	2-0-3-0
5		Proficiency Units & Productivity Tools	ES	2-1-2-0
6		Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7		Remedial Training in Foundation Courses	MC	2-1-2-0
8		Human Values & Professional Ethics	MC	3-0-0-0
9		Communication Skills—focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10		Concepts of Programming	ES	2-0-2-0



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B.TECH Electrical and Electronics Engineering

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Semester - 1 (Theory-4, Lab-5)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	BSC	22A0001T	Linear Algebra and Calculus	3	0	0	3
2	BSC	22A0006T	Chemistry	3	0	0	3
3	ESC	22A0201T	Fundamentals of Electrical Circuits	3	0	0	3
4	ESC	22A0518T	C Programming & Data Structures	3	0	0	3
5	BSC (Lab)	22A0011P	Chemistry Lab	0	0	3	1.5
6	ESC (Lab)	22A0202P	Fundamentals of Electrical Circuits Lab	0	0	3	1.5
7	ESC (Lab)	22A0519P	C Programming & Data Structures Lab	0	0	3	1.5
8	ESC (Lab)	22A0304P	Engineering Workshop	0	0	3	1.5
9	ESC (Lab)	22A0502P	IT Workshop	0	0	3	1.5
Total credits							19.5

Category	Credits
Basic Science Course (BSC)	7.5
Engineering Science Course (ESC)	12
Total	19.5

Semester - 2 (Theory-5, Lab-3)							
Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	BSC	22A0002 T	Differential Equations and Vector Calculus	3	0	0	3
2	BSC	22A0003 T	Applied Physics	3	0	0	3
3	HSC	22A0013 T	Communicative English	3	0	0	3
4	ESC	22A0401 T	Electronic Devices & Circuits	3	0	0	3
5	ESC	22A0302 T	Engineering Drawing	1	0	4	3
6	HSC (Lab)	22A0014 P	Communicative English Lab	0	0	3	1.5
7	BSC (Lab)	22A0008 P	Applied Physics Lab	0	0	3	1.5
8	ESC (Lab)	22A0402 P	Electronic Devices & Circuits Lab	0	0	3	1.5
Total credits							19.5
Category			Credits				
Basic Science Course (BSC)			7.5				
Engineering Science Course (ESC)			7.5				
Humanities and Social Science Course (HSC)			4.5				
Total			19.5				

**B.TECH Electrical and Electronics Engineering**
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Semester-3(Theory-5,Lab-3, SC -1, MC-1)							
Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	BSC	22A0015T	Complex Variables & Numerical methods	2	1	0	3
2	HSC	22A0021T	Universal Human Values	3	0	0	3
3	PCC	22A0207T	Electrical Circuit Analysis & Synthesis	2	1	0	3
4	ESC	22A0412T	Analog & Digital Electronics	2	1	0	3
5	PCC	22A0208T	DC Machines & Transformers	2	1	0	3
6	PCC	22A0219T	Electrical Power Generating Systems	2	1	0	3
7	PCC (Lab)	22A0209P	Electrical Circuits &Simulation Lab	0	0	3	1.5
8	ESC (Lab)	22A0413P	Analog & Digital Electronics Lab	0	0	3	1.5
9	PCC (Lab)	22A0210P	DC Machines & Transformers Lab	0	0	3	1.5
10	SC	22A0517P	Skill Oriented Course: Electrical work shop	1	0	2	2
11	MC	22A0027M	Mandatory Course: Environmental Science	2	0	0	0
Total credits							27.5

Category	Credits
Basic Science Course (BSC)	3
Engineering Science Course (ESC)	4.5
Professional Core Courses(PCC)	15
Humanities & Social Sciences Elective (HSSC)	3
Skill oriented Course (SC)	2
Total	27.5



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Course Structure (RG22)

Semester- 4(Theory-5,Lab-3, SC -1, MC-1)							
Sl.No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	BSC	22A0019T	Transforms & Probability Distributions	2	1	0	3
2	PCC	22A0211T	Engineering Electromagnetic	2	1	0	3
3	PCC	22A0212T	AC Motors & Synchronous machines	2	1	0	3
4	PCC	22A0213T	Control Systems Engineering	2	1	0	3
5	PCC	22A0214T	Power Electronics	2	1	0	3
6	PCC (Lab)	22A0215P	AC Motors & Synchronous Machines Lab	0	0	3	1.5
7	PCC (Lab)	22A0216P	Control Systems & Simulation Lab	0	0	3	1.5
8	PCC (Lab)	22A0217P	Power Electronics & Simulation Lab	0	0	3	1.5
9	SC	22A0029P	Skill Oriented Course: Python programming	1	0	2	2
10	MC	22A0030T	Mandatory Course: Constitution of India	2	0	0	0
			Total credits				21.5
Community Service 6-8 Weeks(Mandatory) during summer vacation							

Category	Credits
Basic Science Course (BSC)	3
Professional Core Courses(PCC)	16.5
Skill Oriented Course (SC)	2
Total	21.5



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Semester-5 (Theory-5, Lab-2, SC -1, MC-1)							
Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	PCC	22A0218T	Electrical Measurement & Instrumentation	2	1	0	3
2	PCC	22A0435T	Digital Signal Processing	2	1	0	3
3	PCC	22A0222T	Electrical Power Transmission System	2	1	0	3
4	PEC	22A0223T 22A0221T 22A0220T	Professional Elective-I: 1. Power Electronics & Drives 2. Renewable Energy Sources 3. Programmable Logic Controller & Its Applications	3	0	0	3
5	OEC		Open Elective-I :	3	0	0	3
6	PCC (Lab)	22A0224P	Electrical Measurement & Instrumentation Lab	0	0	3	1.5
7	PCC (Lab)	22A0442P	Digital Signal Processing Lab	0	0	3	1.5
8	SC	22A0242P	Skill Advaned Course: Mat lab applications in electrical engineering Lab	1	0	2	2
9	MC	22A0031M	Mandatory Course: Intellectual Property Rights & Patents	2	0	0	0
Community Service 2 Months (Mandatory) after second year (to be evaluated during Semester - 5)				0	0	0	1.5
Total credits							21.5

Open Elective Course – I

S.No	Course Code	Course Name	Offered by the Dept.
1	22A0149T	Building Materials	CE
2	22A0430T	Principles Of Communication Systems	ECE
3	22A0512T	Database Management Systems	CSE
4	22A0321Ta	Automobile Engineering	ME
5	22A0321Tb	Fundamentals Of Drone Technology	



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Semester-6 (Theory-5, Lab-3, SC -1, MC-1)

Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	HSC	22A0022T	Managerial Economics and Financial Analysis	3	0	0	3
2	PCC	22A0225T	Power System Analysis	2	1	0	3
3	PCC	22A0427T	Digital Computing Platforms	2	1	0	3
4	PEC	22A0228T 22A0229T 22A0226T	Professional Elective-II: 1 Fundamentals of HVDC & FACTS 2. Power Quality 3. Neutral Networks & Fuzzy Logic	2	1	0	3
5	OEC		Open Elective-II :	3	0	0	3
6	PCC (Lab)	22A0230P	Power System & Simulation Lab	0	0	3	1.5
7	PCC (Lab)	22A0428P	Digital Computing Platforms Lab	0	0	3	1.5
8	PCC (Lab)	22A0231P	Soft skills	0	0	3	1.5
8	SC	22A0511P	Skill Advanced Course: HTML and JAVA Script	1	0	2	2
9	MC	22A0031T	Mandatory Course: Design Thinking and Innovation	2	0	0	0
Total credits							21.5
Industrial/ Research Internship (Mandatory) 2months during summer vacation							

Open Elective Course – II

S.No	Course Code	Course Name	Offered by the Dept.
1	22A0150T	Environmental Economics	CE
2	22A0431T	Microcontrollers & Applications	ECE
3	22A0528T	Machine Learning	CSE
4	22A0327Ta	Introduction to Composites	ME
5	22A0327Tc	Introduction to Robotics (For other Departments)	



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Semester-7 (Theory-6, Lab-1, SC -1)							
Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	PEC	22A0234T 22A0235T 22A0232T	Professional Elective-III: 1. Utilization of Electrical Energy 2. Energy Auditing & Demand side Management 3. Hybrid electric vehicles	2	1	0	3
2	PEC	22A0236T 22A0237T 22A0238T	Professional Elective-IV: 1. Electrical Distribution Systems 2. Power System Operation & Control 3. Advanced Control Theory	2	1	0	3
3	PEC	22A0242T 22A0241T 22A0243T	Professional Elective-V: 1. Power System Protection 2. Smart grid 3. Switched Mode Power Converters	2	1	0	3
4	OEC		Open Elective-III :	3	0	0	3
5	OEC		Open Elective-IV :	3	0	0	3
6	HSSE	22A0023T 22A0024T 22A0025T 22A0026T	Humanities and Social Science Elective 1. Management Science 2. Entrepreneurship & Innovation 3. Business Environment 4. Human Resource Management	2	1	0	3
7	SC	22A0520P	Object Oriented Programming through JAVA	1	0	2	2
Industrial/Research Internship 6-8 Weeks (Mandatory) after third year (to be evaluated during Semester -7)				0	0	0	3
Total credits							23

Open Elective Course – III

S.No	Course Code	Course Name	Offered by the Dept.
1	22A0151T	Disaster Management	CE
2	22A0432T	Basic VLSI Design	ECE
3	22A0529T	Cloud Computing	CSE
4	22A0330Ta	Measurements and Mecatronics	ME
5	22A0330Tb	Unconventional Machining Processes	

Open Elective Course – IV

S.No	Course Code	Course Name	Offered by the Dept.
1	22A0152T	Construction Management	CE
2	22A0433T	Industrial Electronics	ECE
3	22A0534T	Cyber Security	CSE
4	22A0332Ta	Non-Destructive Evaluation	ME
5	22A0332Tb	Renewable Energy Sources	

Category	Credits
Professional Elective Courses(PEC)	9
Humanities and Social Science Course (HSC)	3
Open Elective Courses (OEC)	6
Skil Advanced Course (SC)	2
Industrial/Research Internship	3
Total	23



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Semester-8							
Sl. No.	Category	Course Code	Course Title	Hours per week			Credits
				L	T	P	C
1	Major Project	22A0243P	Project Work and Internship in Industry	0	0	24	12
Total credits							12

COURSES OFFERED FOR HONOURS DEGREE IN EEE

Note: 1. The honor subject are having a total of 20 additional credits.

2. The students should acquire 4 credits through MOOCs compulsory to award the honor degree

S.No.	Course Code	Course Name	Contact Hours per week		Credits
			L	T	
1	22A0251H	Electric Vehicle Technology & Mobility	3	1	4
2	22A0252H	Battery Management Systems	3	1	4
3	22A0253H	Special Machines for Electric Vehicles	3	1	4
4	22A0254H	Grid Interface of Electric Vehicles	3	1	4
5	22A0255H	Special Electrical Machines	3	1	4
6	22A0256H	Power System Dynamics and Control	3	1	4
7	22A0257H	Advance Power System Protection	3	1	4
8	22A0258H	Industrial Automation & Control	3	1	4
9	22A0259H	Introduction to Hybrid and Electric Vehicles	3	1	4
10	22A0260H	Electric Vehicles and Renewable Energy	3	1	4