COURSE STRUCTURE AND SYLLABI
(Based on AICTE Model Curriculum)
SRIT-R20

BACHELOR OF TECHNOLOGY IN

Electronics & Communication Engineering

B. Tech (Regular- Full time)
(Effective for the students admitted into I Year from the Academic year **2020- 2021**)

B. Tech (Lateral Entry Scheme)
(Effective for the students admitted into II Year from the Academic year **2021- 2022**)

SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY
(Autonomous)

Affiliated to JNTUA &Approved by AICTE Accredited by NAAC with 'A' Grade & NBA (CSE, ECE & EEE)
Rotarypuram Village, B K SamudramMandal, Ananthapuramu - 515701.

Course Structure

(Based on AICTE Model Curriculum)

SRIT-R20

Bachelor of Technology

In

Electronics and Communication Engineering

S. No	Category	AICTE	Proposed R19 ECE
1	Humanities and Social Sciences (HSMC), including Management.	12*	10.5
2	Basic Science Courses (BSC) including Mathematics, Physics and Chemistry.	25*	23
3	Engineering Science Courses (ESC), including Workshop, Drawing, Basics of Electrical / Electronics / Mechanical / Computer Engineering.	24*	22
4	Professional Core Courses (PCC)	48*	60
5	Professional Electives Courses (PEC), relevant to the chosen specialization / branch.	18*	18
6	Open Elective Courses (OEC), from other technical and/or Emerging subject areas.	18*	18
7	Project Work (PROJ) / SRP/ Internship in Industry or elsewhere	15*	13
8	Mandatory Courses/Audit Courses	-	-
9	Skill Oriented Courses	-	10
TOTAL		160	160

B. Tech Course Structure

Semester 0
(Common for all branches of Engineering)

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

I Semester-I B. Tech I Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA54101	Linear Algebra & Calculus	BSC	2	1	0	3	40	60	100
R204GA56101	Applied Physics	BSC	2	1	0	3	40	60	100
R204GA52101	Communicative English-I	HSMC	3	0	0	3	40	60	100
R204GA05101	Problem Solving & Programming	ESC	3	0	0	3	40	60	100
R204GA03101	Engineering Graphics	ESC	1	0	4	3	40	60	100
R204GA52102	Communicative English-I Lab	HSMC	0	0	3	1.5	40	60	100
R204GA56102	Applied Physics Lab	BSC	0	0	3	1.5	40	60	100
R204GA05102	Problem Solving & Programming Lab	ESC	0	0	3	1.5	40	60	100
					Total	**19.5**	**320**	**480**	**800**

II Semester-I B. Tech I Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA54201	Transforms & Partial Differential Equations	BSC	2	1	0	3	40	60	100
R204GA51102	Applied Chemistry	BSC	3	0	0	3	40	60	100
R204GA02201	Network Theory	ESC	2	1	0	3	40	60	100
R204GA05201	Data Structures	ESC	3	0	0	3	40	60	100
R204GA03104	Engineering Workshop Practice	ESC	1	0	4	3	40	60	100
R204GA02202	Electrical Networks Lab	ESC	0	0	3	1.5	40	60	100
R204GA51104	Applied Chemistry Lab	BSC	0	0	3	1.5	40	60	100
R204GA05202	Data Structures Lab	ESC	0	0	3	1.5	40	60	100
					Total	**19.5**	**320**	**480**	**800**

III Semester-II B. Tech I Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA54301	Multi variable Calculus and Numerical Methods	BSC	2	1	0	3	40	60	100
R204GA04301	Signals & Systems	PCC	2	1	0	3	40	60	100
R204GA04302	Electronic Devices & Circuits	PCC	2	1	0	3	40	60	100
R204GA52301	English language and Employability Skills for Engineers	HSMC	3	0	0	3	40	60	100
R204GA04303	Digital Circuit Design	PCC	2	1	0	3	40	60	100
R204GA04304	Skill Oriented Course - I	SOC	1	0	2	2	100	-	100
R204GA5MC01	Environmental Science	NCMC	2	0	0	0	40	-	40
R204GA04305	Electronic Devices & Circuits Lab	PCC	0	0	3	1.5	40	60	100
R204GA04306	Basic Simulation Lab	PCC	0	0	3	1.5	40	60	100
R204GA04307	Digital Circuit Design Lab	PCC	0	0	3	1.5	40	60	100
					Total	**21.5**	**460**	**480**	**940**

IV Semester-II B. Tech II Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA02302	Linear Control Systems	ESC	2	1	0	3	40	60	100
R204GA04401	Electromagnetic Theory & Transmission Lines	PCC	2	1	0	3	40	60	100
R204GA04402	Analog Electronic Circuits	PCC	2	1	0	3	40	60	100
R204GA04403	Analog Communications	PCC	2	1	0	3	40	60	100
R204GA05403	Python programming	ESC	3	0	0	3	40	60	100
R204GA04404	Skill Oriented Course – II	SOC	1	0	2	2	100	-	100
R204GA5MC02	Indian Constitution	NCMC	2	0	0	0	40	-	40
R204GA05405	Python Programming Lab	ESC	0	0	3	1.5	40	60	100
R204GA04405	Analog Electronic Circuits Lab	PCC	0	0	3	1.5	40	60	100
R204GA04406	Analog Communications Lab	PCC	0	0	3	1.5	40	60	100
					Total	**21.5**	**460**	**480**	**940**

V Semester-III B. Tech I Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA04501	Linear & Digital Integrated Circuits And Applications	PCC	2	1	0	3	40	60	100
R204GA04502	Digital Signal Processing	PCC	2	1	0	3	40	60	100
R204GA04503	Digital Communications	PCC	2	1	0	3	40	60	100
R204GA04504 **R204GA04505** **R204GA04506**	Professional Elective-I 1. Antennas & Wave Propagation 2. Electronic Measurement and Instrumentation 3. Information Theory & Coding	PEC	2	1	0	3	40	60	100
	Open Elective-I	OEC	2	1	0	3	40	60	100
R204GA04509	Skill advanced course / soft skill course - III	SOC	1	0	2	2	100	-	100
R204GA5MC03	Essence of Indian Traditional Knowledge	NCMC	2	0	0	0	40	-	40
R204GA04510	Digital Communication & Signal Processing lab	PCC	0	0	3	1.5	40	60	100
R204GA04511	Integrated Circuits and Applications Lab	PCC	0	0	3	1.5	40	60	100
R204GA04512	Summer Internship - I 2 months (Mandatory)after second year (to be evaluated during V Semester)		0	0	0	1.5	-	-	100
					Total	**21.5**	**420**	**420**	**940**

VI Semester-III B. Tech II Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA04601	Microprocessors and Microcontrollers	PCC	2	1	0	3	40	60	100
R204GA04602	Microwave Engineering and Optical Communications	PCC	2	1	0	3	40	60	100
R204GA04603	VLSI Design	PCC	2	1	0	3	40	60	100
R204GA04604 **R204GA04605** **R204GA04606**	Professional Elective-II 1. Linux Programming and Scripting 2.Data Communications and Networks 3.Audio and Speech signal processing	PEC	2	1	0	3	40	60	100
	Open Elective-II	OEC	2	1	0	3	40	60	100
R204GA04609	Skill advanced course / soft skill course – IV	SAC	1	0	2	2	100	-	100
R204GA5MC04	Mandatory Non-Credit Course:Life science for Engineers	NCMC	2	0	0	-	40	-	40
R204GA04610	Microprocessors and Microcontrollers Lab	PCC	0	0	3	1.5	40	60	100
R204GA04611	Microwave Engineering and Optical Communications Lab	PCC	0	0	3	1.5	40	60	100
R204GA04612	VLSI Design Lab	PCC	0	0	0	1.5	40	60	100
					Total	**21.5**	**460**	**480**	**940**

VII Semester-IV B.Tech I Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA04701 **R204GA04702** **R204GA04703**	Professional Elective-III: 1.Cellular and Mobile Communications 2.Embedded Systems 3.Adaptive Signal Processing	PEC	2	1	0	3	40	60	100
R204GA04704 **R204GA04705** **R204GA04706**	Professional Elective-IV: 1.Radar Systems 2. Low Power VLSI Circuits & Systems 3. Advanced Digital Signal processing – Multirate & Wavelet	PEC	2	1	0	3	40	60	100
R204GA04707 **R204GA04708** **R204GA04709**	Professional Elective – V: 1.FPGA based system Design 2.Digital Image Processing 3.Real time operating system	PEC	2	1	0	3	40	60	100
R204GA52702 **R204GA52703** **R204GA52704**	Humanities and Social Science Elective 1.Soft Skills 2.Entrepreneurship Development 3.Effective Professional Communication	HSMC	3	0	0	3	40	60	100
	Open Elective-III	OEC	2	1	0	3	40	60	100
	Open Elective-IV	OEC	2	1	0	3	40	60	100
R204GA04714	Skill advanced course / soft skill course – V	SAC	1	0	2	2	100	-	100
R204GA04715	Summer Internship - II 2 months (Mandatory)after third year (to be evaluated during VII Semester)		0	0	0	3	-	-	100
					Total	**23.0**	**340**	**360**	**800**

VIII Semester-IV B.Tech II Semester

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA04801	Project Project Work, Seminar and internship in industry	Major Project	0	0	0	12	80	120	200
					Total	**12.0**	**80**	**120**	**200**

Open Elective-I–R20- (V Semester, III B. Tech, I-Semester)

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA01504	Air Pollution and Control	OEC	3	0	0	3	40	60	100
R204GA01505	Construction Technology and Project Management	OEC	3	0	0	3	40	60	100
R204GA02504	System Reliability Concepts	OEC	3	0	0	3	40	60	100
R204GA02505	Design of PV Systems	OEC	3	0	0	3	40	60	100
R204GA03508	Entrepreneurship	OEC	3	0	0	3	40	60	100
R204GA03509	Additive Manufacturing	OEC	3	0	0	3	40	60	100
R204GA04507	Digital Electronics	OEC	2	1	0	3	40	60	100
R204GA04508	Principles of Communication Systems	OEC	2	1	0	3	40	60	100
R204GA05507	Essentials of Python Programming	OEC	3	0	0	3	40	60	100
R204GA05508	Computer Organization & Operating System	OEC	3	0	0	3	40	60	100
R204GA52501	Business Environment & Policies	OEC	3	0	0	3	40	60	100
R204GA52502	Managerial Economics and Financial Analysis	OEC	3	0	0	3	40	60	100

Open Elective-II-R20- (VI Semester, III B. Tech, II-Semester)

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA01608	Architecture and Town Planning	OEC	3	0	0	3	40	60	100
R204GA01609	Remote Sensing and Geographic Information System	OEC	3	0	0	3	40	60	100
R204GA02606	Energy Storage Systems	OEC	3	0	0	3	40	60	100
R204GA02607	Electrical Safety Measures	OEC	3	0	0	3	40	60	100
R204GA03608	Non Destructive Testing And Evaluation	OEC	3	0	0	3	40	60	100
R204GA03609	Total Quality Management	OEC	3	0	0	3	40	60	100
R204GA04607	Basics of VLSI	OEC	2	1	0	3	40	60	100
R204GA04608	Principles of Digital Signal Processing	OEC	2	1	0	3	40	60	100
R204GA05606	Mean Stack Technology	OEC	3	0	0	3	40	60	100
R204GA05607	Introduction to Artificial Intelligence	OEC	3	0	0	3	40	60	100
R204GA56601	Optical Physics and Its Applications	OEC	3	0	0	3	40	60	100
R204GA52503	Management Science	OEC	3	0	0	3	40	60	100

Open Elective-III (VII Semester, IV B. Tech, I-Semester)

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA01713	Disaster Management & Mitigation	OEC	3	0	0	3	40	60	100
R204GA01714	Sustainable Energy Efficient Building Materials & Technologies	OEC	3	0	0	3	40	60	100
R204GA02709	Electrical Engineering Materials	OEC	3	0	0	3	40	60	100
R204GA02710	Solar Energy Conversion Systems	OEC	3	0	0	3	40	60	100
R204GA03713	Basics of Electric Vehicles	OEC	3	0	0	3	40	60	100
R204GA03714	Supply Chain Management	OEC	3	0	0	3	40	60	100
R204GA04710	Principles of Microcontrollers & Applications	OEC	2	1	0	3	40	60	100
R204GA04711	Basics of Image Processing	OEC	2	1	0	3	40	60	100
R204GA05709	Data Science	OEC	3	0	0	3	40	60	100
R204GA05710	Fundamentals of Security in Computing	OEC	3	0	0	3	40	60	100
R204GA54701	Mathematical Modelling	OEC	2	1	0	3	40	60	100
R204GA56701	Thin Film Technology and Its Applications	OEC	3	0	0	3	40	60	100

Open Elective-IV (VII Semester, IV B. Tech, I-Semester)

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA01715	Low Cost Housing Techniques	OEC	3	0	0	3	40	60	100
R204GA01716	Green Buildings	OEC	3	0	0	3	40	60	100
R204GA02711	Wind Energy Conversion Systems	OEC	3	0	0	3	40	60	100
R204GA02712	Soft Computing Techniques	OEC	3	0	0	3	40	60	100
R204GA03715	Industrial Automation and Robotics	OEC	3	0	0	3	40	60	100
R204GA03716	Alternative Sources of Energy	OEC	3	0	0	3	40	60	100
R204GA04712	Principles of Embedded Systems	OEC	2	1	0	3	40	60	100
R204GA04713	Design Thinking	OEC	2	1	0	3	40	60	100
R204GA05711	Virtualization and Cloud Computing	OEC	3	0	0	3	40	60	100
R204GA05712	Blockchain Technology and Applications	OEC	3	0	0	3	40	60	100
R204GA54702	Optimization Techniques	OEC	2	1	0	3	40	60	100
R204GA51701	Global Warming and Climate Changes	OEC	3	0	0	3	40	60	100