SRIT R20
COURSE STRUCTURE
&
SYLLABUS

B. Tech Regular Four Year Degree Program
(Applied for the Batches admitted from 2020-2021)
&
B. Tech (LES) for the batches admitted from 2021-2022

SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

[AUTONOMOUS]
Affiliated to JNTUA & Approved by AICTE
Accredited by NAAC with 'A' Grade & Accredited by NBA (CSE, ECE & EEE)
Rotarypuram Village, B K Samudram Mandal,
Ananthapuramu - 515701

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

Bachelor of Technology
In
Computer Science and 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**)

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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 (5 Theory + 3 Labs)

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA54101	Linear Algebra and 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 II Semester (4 Theory + 4 Labs)

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
R204GA02101	Basic Electrical & Electronics Engineering	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
R204GA02102	Basic Electrical & Electronics Engineering 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 (5 Theory + 3 Labs+1 NCMC+SOC)

Course Code	Course Name	subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA54302	Probability & Statistics	BSC	3	0	0	3	40	60	100
R204GA05301	Database Management Systems	PCC	3	0	0	3	40	60	100
R204GA52301	English Language & Employment Skills for Engineers	HSS	3	0	0	3	40	60	100
R204GA05302	Object Oriented Programming	PCC	3	0	0	3	40	60	100
R204GA05303	Software Engineering	PCC	3	0	0	3	40	60	100
R204GA05304	Data Base Management Systems Lab	PCC	0	0	3	1.5	40	60	100
R204GA05305	Object Oriented Programming Lab	PCC	0	0	3	1.5	40	60	100
R204GA05306	Software Engineering Lab	PCC	0	0	3	1.5	40	60	100
R204GA5MC01	Environmental Science	NCMC	2	0	0	0	40	-	40
R204GA05307	Skill Oriented Course-I	SOC	1	0	2	2	100	-	100
Total						21.5	460	480	940

IV Semester: II B. Tech II Semester (5 Theory + 3 Labs+1 NCMC+SOC)

Course Code	Course Name	subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA05401	Discrete Mathematics	BSC	3	0	0	3	40	60	100
R204GA05402	Formal Languages and Automata Theory	PCC	3	0	0	3	40	60	100
R204GA05403	Python Programming	PCC	3	0	0	3	40	60	100
R204GA05404	Design and Analysis of Algorithms	PCC	3	0	0	3	40	60	100
R204GA04407	Digital Logic Design	ESC	3	0	0	3	40	60	100
R204GA05405	Python Programming Lab	PCC	0	0	3	1.5	40	60	100
R204GA05406	Design and Analysis of Algorithms Lab	PCC	0	0	3	1.5	40	60	100
R204GA05407	Linux Programming Lab	PCC	0	0	3	1.5	40	60	100
R204GA5MC02	Indian Constitution	NCMC	2	0	0	0	40	-	40
R204GA05408	Skill Oriented Course-II	SOC	1	0	2	2	100	-	100
Total						21.5	460	480	940
Internship2 Months (Mandatory) during summer vacation									
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						4	0	0	4

V Semester: III B. Tech I Semester (5 Theory + 2 Labs+1NCMC+SAC+Internship)

Course Code	Course Name	subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA05501	Web Development Technologies	PCC	3	0	0	3	40	60	100
R204GA05502	Computer Networks	PCC	3	0	0	3	40	60	100
R204GA05503	Operating Systems	PCC	3	0	0	3	40	60	100
Professional Elective courses – I									
R204GA05504	1.Data Warehousing and Data Mining	PEC	3	0	0	3	40	60	100
R204GA05505	2. Wireless Sensor Networks								
R204GA05506	3. Software Testing Methodologies								
Open Elective-I		OEC	2	0	2	3	40	60	100
R204GA05509	Web Development Technologies Lab	PCC	0	0	3	1.5	40	60	100
R204GA05510	Computer Networks and Operating Systems Lab	PCC	0	0	3	1.5	40	60	100
R204GA05511	Skill Oriented Course-III	SOC	1	0	2	2	100	-	100
R204GA5MC03	Essence of Indian Traditional Knowledge	NCMC	2	0	0	0	40	-	40
R204GA05512	Summer Internship-I	SI	0	0	0	1.5	100	-	100
Total						21.5	520	420	940
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						4	0	0	4

VI Semester: III B. Tech II Semester (5 Theory + 3 Labs+1 NCMC+SAC)

Course Code	Course Name	subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA05513	Compiler Design	PCC	3	1	0	3	40	60	100
R204GA05601	Artificial Intelligence & Machine Learning	PCC	3	0	0	3	40	60	100
R204GA05602	Android Application Development	PCC	3	0	0	3	40	60	100
Professional Elective Courses –II									
R204GA05603	1.Introduction to Big data	PEC	3	0	0	3	40	60	100
R204GA05604	2. Cloud Computing								
R204GA05605	3. Software Project Management								
Open Elective – II		OEC	2	0	2	3	40	60	100
R204GA05608	Compiler Design Lab	PCC	0	0	3	1.5	40	60	100
R204GA05609	Artificial Intelligence & Machine Learning Lab	PCC	0	0	3	1.5	40	60	100
R204GA05610	Android Application Development Lab	PCC	0	0	3	1.5	40	60	100
R204GA05611	Skill Oriented Course-IV	SOC	1	0	2	2	100	-	100
R204GA5MC04	Life Sciences for Engineers	NCMC	2	0	0	0	40	-	40
Total						21.5	460	480	940
Honors/Minor courses (The hours distribution can be3-0-2 or 3-1-0 also)						4	0	0	4
Industrial/Research Internship (Mandatory) 2 Months during summer vacation									

VII Semester: IV B. Tech I Semester (5 Theory + SAC+ HSS+Internship)

Course Code	Course Name	subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
Professional Elective Courses – III									
R204GA05701	1.Data Analytics	PEC	3	0	0	3	40	60	100
R204GA05702	2. Mobile Computing								
R204GA05703	3. Software Requirements & Estimation								
Professional Elective Courses – IV									
R204GA05704	1. Artificial Neural Networks	PEC	3	0	0	3	40	60	100
R204GA05705	2. Cyber Security								
R204GA05706	3. Software Quality Assurance								
Professional Elective Courses – V									
R204GA32702	1. Deep Learning	PEC	3	0	0	3	40	60	100
R204GA05707	2. Block Chain Fundamentals								
R204GA05708	3. Agile Methodologies								
Open Elective – III		OEC	2	0	2	3	40	60	100
Open Elective – IV		OEC	2	0	2	3	40	60	100
	*Humanities and Social Science Elective	HSS	3	0	0	3	40	60	100
R204GA05713	Skill Oriented Course-V	SOC	1	0	2	2	100	-	100
R204GA05714	Summer Internship-II	SI	0	0	0	3	100	-	100
Total						23	440	360	800

VIII Semester: IV B. Tech II Semester (Project work, seminar and internship in industry)

Course Code	Course Name	subject Area	Periods per week			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
R204GA05801	Project work, seminar and internship in industry	Major Project	0	0	0	12	80	120	200
Total						12	80	120	200

Open Elective-I (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	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	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	OEC	3	0	0	3	40	60	100

Open Elective-II (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 Measurements	OEC	3	0	0	3	40	60	100
R204GA01609	Sustainable Development And Environment Management	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 and 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 &	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	3	0	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	3	0	0	3	40	60	100
R204GA51701	Global Warming and Climate Changes	OEC	3	0	0	3	40	60	100