



SRIT R19 COURSE STRUCTURE & SYLLABUS

B. Tech Regular Four-Year Degree Program
(Applied for the Batches admitted from 2019-2020)
&
B. Tech (LES) for the batches admitted from 2020-2021



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

www.srit.ac.in

COURSE STRUCTURE AND SYLLABI (Based on AICTE Model Curriculum) SRIT-R19

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 **2019-2020**) &

B. Tech (Lateral Entry Scheme)

(Effective for the students admitted into II Year from the Academic year **2020-2021**)



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Rotarypuram Village, B K Samudram Mandal,
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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 (4 Theory + 3 Labs)

Course Code	Course Name	Subject Area	Periods per week			Credits	Scheme of Examination Max.Marks		
			L	T	P		CIA	SEE	Total
194GA54101	Linear Algebra and Calculus	BSC	3	1	0	4	30	70	100
194GA56101	Applied Physics	BSC	3	0	0	3	30	70	100
194GA05101	Problem Solving & Programming	ESC	3	1	0	4	30	70	100
194GA03102	Engineering Graphics	ESC	1	0	4	3	30	70	100
194GA03104	Engineering Workshop Practices	ESC	0	0	2	1	30	70	100
194GA56102	Applied Physics Lab	BSC	0	0	3	1.5	30	70	100
194GA05102	Problem Solving & Programming Lab	ESC	0	0	4	2	30	70	100
Total						18.5	210	490	700

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
194GA02201	Basic Electrical & Electronics Engineering	ESC	3	0	0	3	30	70	100
194GA54201	Transforms & Partial Differential Equations	BSC	3	1	0	4	30	70	100
194GA51201	Chemistry	BSC	3	0	0	3	30	70	100
194GA05201	Data Structures	ESC	3	0	0	3	30	70	100
194GA52101	Communicative English-1	HSMC	2	0	0	2	30	70	100
194GA52102	Communicative English-1 Lab	HSMC	0	0	2	1	30	70	100
194GA05203	Computer Science & Engineering Workshop	ESC	0	0	2	1	30	70	100
194GA02202	Basic Electrical & Electronics Engineering Lab	ESC	0	0	3	1.5	30	70	100
194GA51202	Chemistry lab	BSC	0	0	3	1.5	30	70	100
194GA05202	Data Structures Lab	ESC	0	0	3	1.5	30	70	100
Total						21.5	300	700	1000

III Semester: II B.Tech -I -Semester: (6Theory + 2Labs+1NCMC)

Course No./Code	Name of the Course	Category	Periods per week			Credits	Scheme of examination max. marks		
			L	T	P		CIA	SEE	Total
194GA54301	Multi Variable Calculus and Numerical Methods	BSC	2	1	0	3	30	70	100
194GA05301	Discrete Mathematics	PCC	2	1	0	3	30	70	100
194GA51301	English Language & Employability Skills for Engineers	HSMC	3	0	0	3	30	70	100
194GA05302	Database Management Systems	PCC	3	0	0	3	30	70	100
194GA04307	Digital Logic Design	PCC	3	0	0	3	30	70	100
194GA05303	Object Oriented Programming through Java	PCC	3	0	0	3	30	70	100
194GA05304	Data Base Management Systems Lab	PCC	0	0	3	1.5	30	70	100
194GA05305	Object Oriented Programming through Java Lab	PCC	0	0	3	1.5	30	70	100
194GA5MC01	Environmental Science	NCMC	2	0	0	-	30	-	30
Total						21.0	270	560	830

L-Lecture, T- Tutorial, P – Practical

IV Semester: II B.Tech -II -Semester: (6Theory + 2Labs + 1NCMC + 1SRP)

Course No./Code	Name of the Course	Category	Periods per week			Credits	Scheme of examination max. marks		
			L	T	P		CIA	SEE	Total
194GA54402	Probability & Statistics	BSC	3	0	0	3	30	70	100
194GA05401	Python Programming	PCC	3	0	0	3	30	70	100
194GA05402	Formal Languages and Automata Theory	PCC	3	0	0	3	30	70	100
194GA05403	Software Engineering	PCC	3	0	0	3	30	70	100
194GA05404	Computer Organization	PCC	3	0	0	3	30	70	100
194GA05405	Design and Analysis of Algorithms	PCC	3	0	0	3	30	70	100
194GA05406	Python Programming Lab	PCC	0	0	2	1	30	70	100
194GA05407	Software Engineering Lab	PCC	0	0	2	1	30	70	100
194GA0MC04	Life Sciences for Engineers	NCMC	2	0	0	-	30	-	30
194GA05408	Socially Relevant Project	PROJ	-	-	-	1	100	-	100
Total						21.0	370	560	930

L-Lecture, T- Tutorial, P – Practical, **PROJ**-Project

V Semester: III B.Tech -I Semester: (6Theory + 2Labs+1NCMC)

Course No./ Code	Name of the Course	Category	Periods per week			Credits	Scheme of examination max.marks		
			L	T	P		CIA	SEE	Total
194GA05501	Compiler Design	PCC	3	0	0	3	30	70	100
194GA05502	Computer Networks	PCC	3	0	0	3	30	70	100
194GA05503	Operating Systems	PCC	3	0	0	3	30	70	100
194GA05504	Web Development Technologies	PCC	3	0	0	3	30	70	100
194GA05505	Professional Elective-I 1. Artificial Intelligence 2. Internetworking with TCP/IP 3. Software Requirements & Estimation	PEC	3	0	0	3	30	70	100
194GA05506									
194GA05507									
	Open Elective-I	OEC	3	0	0	3	30	70	100
194GA0MC02	Indian Constitution	NCMC	2	0	0	-	30	-	30
194GA05510	Computer Networks and OS Lab	PCC	0	0	3	1.5	30	70	100
194GA05511	Web Development Technologies Lab	PCC	0	0	3	1.5	30	70	100
Total						21	270	560	830

L-Lecture, T- Tutorial, P – Practical

Open Elective-I (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
194GA01508	Air Pollution and Control Construction	OEC	3	0	0	3	30	70	100
194GA01509	Technology & Project Management	OEC	3	0	0	3	30	70	100
194GA02506	System Reliability Concepts	OEC	3	0	0	3	30	70	100
194GA02507	Soft Computing Techniques	OEC	3	0	0	3	30	70	100
194GA03509	Entrepreneurship	OEC	3	0	0	3	30	70	100
194GA03510	Additive manufacturing	OEC	3	0	0	3	30	70	100
194GA04508	Analog Electronics	OEC	3	0	0	3	30	70	100
194GA04509	Digital Electronics	OEC	3	0	0	3	30	70	100
194GA05508	Computer Organization & Operating System	OEC	3	0	0	3	30	70	100
194GA05509	Computer Graphics and Multimedia Animation	OEC	3	0	0	3	30	70	100
194GA02501	Business environment and policies	OEC	3	0	0	3	30	70	100
194GA52502	Managerial Economics and Financial Analysis	OEC	3	0	0	3	30	70	100

VI Semester: III B.Tech –II Semester: (6Theory + 2Labs +1NCCM + 1SRP)

Course No./Code	Name of the Course	Category	Periods per week			Credits	Scheme of examination max.marks		
			L	T	P		CIA	SEE	Total
194GA05601	Data Warehousing &Data Mining	PCC	3	0	0	3	30	70	100
194GA05602	Android Application Development	PCC	3	0	0	3	30	70	100
194GA05603	Professional Elective-II: AI Tools, Techniques and Applications	PEC	3	0	0	3	30	70	100
194GA05604	Mobile Computing								
194GA05605	Design Patterns								
194GA05606	Professional Elective-III Natural Language Processing	PEC	3	0	0	3	30	70	100
194GA05607	Mobile and Adhoc Networks								
194GA05608	Software Project Management								
	Open Elective-II	OEC	3	0	0	3	30	70	100
	Open Elective-III	OEC	3	0	0	3	30	70	100
194GA0MC03	Essence of Indian Traditional Knowledge	NCCM	2	0	0	-	30	-	30
194GA05613	Data Warehousing & Data Mining Lab	PCC	0	0	3	1.5	30	70	100
194GA05614	Android Application Development Lab	PCC	0	0	3	1.5	30	70	100
194GA05615	Socially Relevant Project	PROJ	-	-	-	1	100	-	100
Total						22.0	370	560	930

L-Lecture, **T**- Tutorial, **P** – Practical, **PROJ**-Project

Open Elective-II (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
194GA01609	Low-Cost Housing Techniques	OEC	3	0	0	3	30	70	100
194GA01610	Sustainable Development and Environment Management.	OEC	3	0	0	3	30	70	100
194GA02608	Wind Energy Conversion Systems	OEC	3	0	0	3	30	70	100
194GA02609	Intelligent Control Techniques	OEC	3	0	0	3	30	70	100
194GA03608	Non-Destructive Testing and Evaluation	OEC	3	0	0	3	30	70	100
194GA03609	Alternative Sources of Energy	OEC	3	0	0	3	30	70	100
194GA04609	Principles of Communication Systems	OEC	3	0	0	3	30	70	100
194GA04610	Basics of VLSI	OEC	3	0	0	3	30	70	100
194GA05609	Data Visualization	OEC	3	0	0	3	30	70	100
194GA05610	Mean Stack Technology	OEC	3	0	0	3	30	70	100
194GA52601	Management Science	OEC	3	0	0	3	30	70	100
194GA52602	Entrepreneurship Development	OEC	3	0	0	3	30	70	100

Open Elective-III (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
194GA01611	Disaster Management & Mitigation	OEC	3	0	0	3	30	70	100
194GA01612	Architecture and Town Planning	OEC	3	0	0	3	30	70	100
194GA02610	Electrical Engineering Materials	OEC	3	0	0	3	30	70	100
194GA02611	Solar Energy Conversion Systems	OEC	3	0	0	3	30	70	100
194GA03610	Total Quality Management	OEC	3	0	0	3	30	70	100
194GA03611	Industrial Robotics	OEC	3	0	0	3	30	70	100
194GA04611	Introduction to Microcontrollers & Applications	OEC	3	0	0	3	30	70	100
194GA04612	Principles of Digital Signal Processing	OEC	3	0	0	3	30	70	100
194GA05611	Fundamentals of Virtual Reality (VR) / Augmented Reality (AR)	OEC	3	0	0	3	30	70	100
194GA05612	Relational Database Management Systems	OEC	3	0	0	3	30	70	100
194GA51601	Global Warming and Climate Changes	OEC	3	0	0	3	30	70	100
194GA51603	Soft Skills	OEC	3	0	0	3	30	70	100

VII Semester: IV B.Tech –I Semester: (5Theory +2Labs+Project Stage-I + Internship)

Course No./Code	Name of the Course	Category	Periods per week			Credits	Scheme of examination max.marks		
			L	T	P		CIA	SEE	Total
194GA05701	Machine learning	PCC	3	0	0	3	30	70	100
194GA05702	Professional Elective-IV: Data Analytics	PEC							
194GA05703	Wireless Sensor Networks		3	0	0	3	30	70	100
194GA05704	Software Testing Methodologies								
194GA05705	Professional Elective-V: Artificial Neural Networks	OEC							
194GA05706	Blockchain Fundamentals		3	0	0	3	30	70	100
194GA05707	Software Quality Assurance								
	Open Elective-IV	OEC	3	0	0	3	30	70	100
	Open Elective-V	OEC	3	0	0	3	30	70	100
194GA05712	Machine learning Lab	PCC	0	0	3	1.5	30	70	100
194GA05713	Internet of Things Lab	PCC	0	0	3	1.5	30	70	100
194GA05714	Project Stage-I	PROJ	0	0	4	2	50	-	50
194GA05715	Industrial Training/Internship/Research Projects in National Laboratories/Academic Institutions	PROJ	-	-	-	2	100	-	100
Total						22.0	360	490	850

L-Lecture, **T**- Tutorial, **P** – Practical, **PROJ**- Project

Open Elective-IV (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
194GA01706	Remote Sensing & GIS	OEC	3	0	0	3	30	70	100
194GA01707	Industrial Waste and Waste Water Management	OEC	3	0	0	3	30	70	100
194GA02707	Energy Storage Systems	OEC	3	0	0	3	30	70	100
194GA02708	Electrical Safety Measures	OEC	3	0	0	3	30	70	100
194GA03710	Industrial Automation	OEC	3	0	0	3	30	70	100
194GA03711	Supply chain management	OEC	3	0	0	3	30	70	100
194GA04708	Electronic Instrumentation	OEC	3	0	0	3	30	70	100
194GA04709	Design Thinking	OEC	3	0	0	3	30	70	100
194GA05708	Fundamentals of Security in Computing	OEC	3	0	0	3	30	70	100
194GA05709	Virtualization and Cloud Computing	OEC	3	0	0	3	30	70	100
194GA54701	Optimization Techniques	OEC	3	0	0	3	30	70	100
194GA56701	Thin Film Technology and its Applications	OEC	3	0	0	3	30	70	100

Open Elective-V (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
194GA01708	Airport, Docks and Harbor Engineering	OEC	3	0	0	3	30	70	100
194GA01709	Hydro Power Engineering	OEC	3	0	0	3	30	70	100
194GA02709	Design of PV systems	OEC	3	0	0	3	30	70	100
194GA02710	Advanced Power Electronics	OEC	3	0	0	3	30	70	100
194GA03712	Basics of Hybrid and Electric Vehicles	OEC	3	0	0	3	30	70	100
194GA03713	Instrumentation	OEC	3	0	0	3	30	70	100
194GA04710	Principles of Embedded Systems	OEC	3	0	0	3	30	70	100
194GA04711	Basics of ImageProcessing	OEC	3	0	0	3	30	70	100
194GA05710	Introduction to Artificial Intelligence	OEC	3	0	0	3	30	70	100
194GA05711	Mobile Adhoc Networks	OEC	3	0	0	3	30	70	100
194GA54702	Mathematical Modeling	OEC	3	0	0	3	30	70	100
194GA56702	Optical Physics and its Applications	OEC	3	0	0	3	30	70	100

VIII Semester: IV B.Tech-II Semester: (2Theory + Project Stage-II)

Course No./Code	Name of the Course	Category	Periods perweek			Credits	Scheme of examination max. marks		
			L	T	P		IM	EM	Total
194GA05801	Professional Elective-VI: Deep Learning	PEC	3	0	0	3	30	70	100
194GA05802	Computer Forensics and Cyber Laws								
194GA05803	Agile Methodologies								
194GA05804	Open Elective-VI: Data Science	OEC	3	0	0	3	30	70	100
194GA05805	Blockchain Technology and Applications								
194GA05806	Project Stage-II	PROJ	0	0	14	7	60	140	200
Total						13	120	280	400

L-Lecture, T- Tutorial, P – Practical, PROJ-Project

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

Course Code	Course Name	Subject Area	Periods perweek			Credits	Scheme of Examination Max. Marks		
			L	T	P		CIA	SEE	Total
194GA01804	Green buildings	OEC	3	0	0	3	30	70	100
194GA01805	Road safety and practices	OEC	3	0	0	3	30	70	100
194GA02803	DCMicrogrid and Control Systems	OEC	3	0	0	3	30	70	100
194GA02804	Fundamentals of Electric Vehicles Technology and Economics	OEC	3	0	0	3	30	70	100
194GA03805	Computer Integrated Manufacturing	OEC	3	0	0	3	30	70	100
194GA03806	Autotronics	OEC	3	0	0	3	30	70	100
194GA04804	Introduction to Internet of Things	OEC	3	0	0	3	30	70	100
194GA04805	Principles of modern CDMA/MIMO/OFDM Wireless communications	OEC	3	0	0	3	30	70	100
194GA05804	Data Science	OEC	3	0	0	3	30	70	100
194GA05805	Blockchain Technology and Applications	OEC	3	0	0	3	30	70	100
194GA51801	Chemical materials for Renewable Energy sources	OEC	3	0	0	3	30	70	100
194GA52801	Effective Professional communication	OEC	3	0	0	3	30	70	100