COURSE STRUCTURE

Definition of Credit (C)

1 Hour Lecture (L) per week	1 Credit
1 Hour Tutorial (T) per week	1 Credit
1 Hour Practical (P) per week	0.5 Credit

Structure of B. Tech program Regulation R20

S.No.	Category	Code	Suggested Breakup of Credits by AICTE	Suggested Breakup of Credits by APSCHE	Breakup of Credits
1	Humanities and Social Sciences including Management courses	HS	12	10.5	10.5
2	Basic Science courses	BS	25	21	21
3	Engineering Science courses including workshop, drawing, basics of electrical/ mechanical/ computer etc.	ES	24	24	22.5
4	Professional core courses	PC	48	51	52.5
5	Professional Elective courses relevant to chosen specialization/ branch	PE	18	15	15
6	Open subjects – Electives from other technical and /or emerging subjects	OE	18	12	12
7	Project work, seminar and internship in industry or elsewhere	PR	15	16.5	16.5
8	Mandatory Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Traditional Knowledge]	NC	Non-Credit	Non-Credit	Non-Credit
9	Skill Oriented Courses	SC	--	10	10
Total			**160**	**160**	**160**

SEMESTER-WISE STRUCTURE OF CURRICULUM

Course structure for eight semesters during four years of study is as follows

I Year I Semester (Semester-1)

S No.	Course Code	Course Name	L	T	P	C
1	BS1101	Mathematics-I	2	1	0	3
2	BS1102	Applied Chemistry	3	0	0	3
3	ES1101	Basic Electrical and Electronics Engineering	2	1	0	3
4	ES1102	Computer Engineering Workshop	1	0	4	3
5	ES1103	Problem Solving using C	2	1	0	3
6	BS1102L	Applied Chemistry Lab	0	0	3	1.5
7	ES1101L	Basic Electrical and Electronics Engineering Lab	0	0	3	1.5
8	ES1102L	Problem Solving using C Lab	0	0	3	1.5
					Total Credits	19.5

	Category	Credits
BS	Basic Science Courses	3+3+1.5=7.5
ES	Engineering Science Courses	3+3+3+1.5+1.5=12
	Total Credits	19.5

I Year II Semester (Semester-2)

S.No.	Course Code	Course Name	L	T	P	C
1	BS1201	Mathematics – II	2	1	0	3
2	BS1202	Applied Physics	2	1	0	3
3	HS1201	Communicative English	2	1	0	3
4	ES1201	Problem Solving using Python	2	1	0	3
5	ES1202	Digital Logic Design	2	1	0	3
6	BS1202L	Applied Physics and Virtual Lab	0	0	3	1.5
7	HS1201L	Communicative English Lab	0	0	3	1.5
8	ES1201L	Problem Solving using Python Lab	0	0	3	1.5
9	MC1201	Environmental Science	2	0	0	0
					Total	19.5

	Category	Credits
BS	Basic Science Courses	3+3+1.5=7.5
HS	Humanities and Social Science Courses	3+1.5=4.5
ES	Engineering Science Courses	3+3+1.5=7.5
	Total Credits	19.5

II Year I Semester (Semester-3)

S.No.	Course Code	Course Name	L	T	P	C
1	BS2101	Mathematics – III	2	1	0	3
2	PC2101	Mathematical Foundations of Computer Science	2	1	0	3
3	PC2102	Data Structures	2	1	0	3
4	PC2103	Java Programming	2	1	0	3
5	PC2104	Software Engineering	3	0	0	3
6	PC2101L	Data Structures Lab	0	0	3	1.5
7	PC2102L	Java Programming Lab	0	0	3	1.5
8	PC2103L	Software Engineering Lab	0	0	3	1.5
9	SOC2101	Advanced Python Programming	1	0	2	2
10	MC2101	Essence of Indian Tradition and Knowledge	2	0	0	0
					Total	21.5

	Category	Credits
BS	Basic Science Courses	3
PC	Professional core courses	3+3+3+3+1.5+1.5+1.5=16.5
SOC	Skill Oriented Course	2
	Total Credits	**21.5**

II Year II Semester (Semester-4)

S No.	Course Code	Course Name	L	T	P	C
1	BS2201	Probability and Statistics	2	1	0	3
2	ES2201	Computer Organization	2	1	0	3
3	PC2201	Artificial Intelligence	2	1	0	3
4	PC2202	Database Management Systems	2	1	0	3
5	PC2203	Operating Systems	2	1	0	3
6	PC2201L	Operating Systems Lab	0	0	3	1.5
7	PC2202L	Database Management Systems Lab	0	0	3	1.5
8	PC2203L	Artificial Intelligence Lab	0	0	3	1.5
9	SOC2201	R-Programming	1	0	2	2
10	VVIT	Life Skills	2	0	0	0
					Total	21.5
		Internship/Community Service Project 2 Months (Mandatory) during summer vacation				
		Honors/Minor courses	3	1	0	4

	Category	Credits
BS	Basic Science Courses	3
ES	Engineering Science Courses	3
PC	Professional core courses	3+3+3+1.5+1.5+1.5=13.5
SOC	Skill Oriented Course	2
	Total Credits	**21.5**

III Year I Semester (Semester-5)

S.No.	Course Code	Course Name	L	T	P	C
1	PS3101	Automata and Compiler Design	3	0	0	3
2	PC3102	Machine Learning	2	1	0	3
3	PC3103	Computer Networks	3	0	0	3
4	PE3101	Professional Elective-1	2	0	2	3
5	OE3101	Open Elective-1	2	0	2	3
6	PC3101L	Unix & Shell Programming Lab	0	0	3	1.5
7	PC3102L	Machine Learning Lab	0	0	3	1.5
8	SAC3101	.Net Programming	1	0	2	2
9	MC3101	Indian Constitution	2	0	0	0
10	PR/INTERN	Summer Internship / Community Service Project 2 Months (Mandatory) after second year (to be evaluated during V semester)	0	0	0	1.5
		Total				21.5
		Honors/Minor courses	3	1	0	4

	Category	Credits
PC	Professional Core Courses	3+3+1.5+1.5=9
PE	Professional Elective Courses	3
OE	Open Elective Courses/Job Oriented Elective Courses	3
SAC	Skill Advanced Course/Soft Skills Course	2
HS	Humanities and Social Sciences Courses	3
INTERN	Summer Internship	1.5
	Total Credits	21.5

III Year II Semester (Semester-6)

S No.	Course Code	Course Name	L	T	P	C
1	PC3201	Deep Learning	3	0	0	3
2	PC3202	Natural Language Processing	3	0	0	3
3	HS3101	Engineering Economics & Management	2	1	0	3
4	PE3201	Professional Elective-2	0	0	3	3
5	OE3201	Open Elective-2	2	0	2	3
6	PC3201L	Deep Learning Lab	0	0	3	1.5
7	PC3202L	Cloud Computing Lab	0	0	3	1.5
8	PC3203L	Full Stack Lab	0	0	3	1.5
9	SAC3201	Soft Skills	1	0	2	2
10	MC3201	Entrepreneurial Skill Development	2	0	0	0
		Total				21.5
		Industrial/Research Internship 2 Months (Mandatory) during summer vacation				

		Honors/Minor courses	3	0	2	4

Category		Credits
HS	Humanities and Social Science Courses	3
PC	Professional Core Courses	3+3+3+1.5+1.5+1.5=13.5
PE	Professional Elective Courses	3
OE	Open Elective Courses/Job Oriented Elective Courses	3
SAC	Skill Advanced Course/Soft Skills Course	2
	Total Credits	**21.5**

IV Year I Semester (Semester-7)

S.No.	Course Code	Course Name	L	T	P	C
1	HSE4101	Universal Human Values -2: Understanding Harmony	3	0	0	3
2	PE4101	Professional Elective-3	2	0	2	3
3	PE4102	Professional Elective-4	2	0	2	3
4	PE4103	Professional Elective-5	2	0	2	3
5	OE4101	Open Elective-3	2	0	2	3
6	OE4102	Open Elective-4	2	0	2	3
7	SAC4101	Skill Advancement Course	1	0	2	2
8	PR	Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)	0	0	3	3
					Total	**23**
		Honors/Minor courses	3	0	2	4

Category		Credits
HS	Humanities and Social Science Courses	3
PE	Professional Elective Courses	3+3+3=9
OE	Open Elective Courses/Job Oriented Elective Courses	3+3=6
SAC	Skill Advanced Course/Skill Oriented Course	2
INTERN	Summer Internship	3
	Total Credits	**23**

IV Year II Semester (Semester-8)

S. No	Subject code	Course Name	L	T	P	C
1	PROJ4201	Major Project - Viva Voce	0	0	0	12
		Internship (6 months)				
					Total Credits	12

Open Elective Courses

Open Elective I (3-1)	Open Elective2 (3-2)	Open Elective3(4-1)	Open Elective4(4-1)
Image Processing usingpython	Network simulation usingmat lab	Cloud Foundations	High Performance Computing
Internet of Things	Embedded Systems	Network Programming	Block ChainTechnologies

Professional Elective Courses

Professional Elective- I (3-1)	Professional Elective- II(3-2)	Professional Elective- III(4-1)	Professional Elective- IV(4-1)	Professional Elective- V(4-1)
Artificial Neural Networks	Cloud Computing	Predictive Analysis	Statistical Machine Learning	Cloud DevOps
Software Project Management	Distributed Systems	Spatial Temporal Data Analysis	Computer Vision	Pattern Recognition Algorithms
Computer Graphics	Unix & Shell Programming	Big Data Analytics	Cyber Security	Speech Processing
MOOCS	Design and Analysis of Algorithms	Software Architecture and Design Patterns	Software Testing Methodologies	Human Computer Interaction
	MOOCS	Concurrent and Parallel Programming	Soft Computing	Design of AI Products

General Minor degree courses offered by CS department:

1) Python Programming
2) Database Management Systems
3) Deep Learning
4) Big Data Analytics
5) Data Science
6) Artificial Intelligence and Machine Learning
7) Digital Image Processing
8) No-SQL
9) Design of Artificial Intelligence Products
10) Dimensionality Reduction and Model Validation Techniques

Note:

i. A Student can select four subjects from the above six subjects @ 3-0-2-4 credits per subject.
ii. Taking MOOC/NPTEL courses for 04 credits (02 courses @ 02 credits each) is optional and student can submit completion certificate at the end of the corresponding semester

Courses for Honors degree

POOL-1	POOL-2	POOL-3	POOL-4
Node JS	Social Mobile Analytics & Cloud	Information Assurance & Security	FOG Computing
Advanced OS	Security Governance, Risk and Compliance	UI and Security Frameworks	Network Security
Robotics and Intelligent Systems	Network Programming	Storage Area Networks	Open Source Software Systems
Database Security	Software Design & System Integration	Software Defined Networking	Mobile Computing 4G
MOOC-1* (NPTEL/SWAYAM) Duration: 12 Weeks minimum			
MOOC-2* (NPTEL/SWAYAM) Duration: 12 Weeks minimum			

VVIT Life skill courses

The following courses are admitted to be the **courses beyond curriculum** to improve individual life skills. These courses and will be demonstrated in the class room and will be having an internal assessment for satisfactory.

S. No	Year and Semester	Course Name
1	I Year I Semester (Semester-1)	Quantitative Aptitude
2	I Year II Semester (Semester-2)	Verbal Ability
3	II Year I Semester (Semester-3)	Understanding Self for Effectiveness
4	II Year II Semester (Semester-4)	Design Thinking
5	III Year I Semester (Semester-5)	Stress and Coping Strategies
6	III Year II Semester (Semester-6)	Research Skills