



(Autonomous)

Department of Computer Science and Engineering

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						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	3	0	0	3
4	ES1201	Problem Solving using Python	3	0	0	3
5	ES1202	Digital Logic Design	2	1	0	3
6	BS1202L	Applied Physics Lab 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	3	0	0	3
4	PC2103	Java Programming	3	0	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 Traditional 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	3	0	0	3
3	PC2201	Operating Systems	3	0	0	3
4	PC2202	Database Management Systems	3	0	0	3
5	PC2203	Advanced Java Programming	3	0	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	Advanced Java Programming Lab	0	0	3	1.5
9	SOC2201	Mobile App Development	1	0	2	2
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	PC3101	Computer Networks	3	0	0	3
2	PC3102	Artificial Intelligence	3	0	0	3
3	PC3103	Formal Languages and Automata Theory	3	0	0	3
4	PE3101	Professional Elective-1	2	0	2	3
5	OE3101	Open Elective-1	2	0	2	3
6	PC3101L	Computer Networks Lab	0	0	3	1.5
7	PC3102L	Artificial Intelligence Tools and Techniques Lab	0	0	3	1.5
8	SAC3101	Power BI	1	0	2	2
9	MC3101	Indian Constitution	2	0	0	0
10	PR	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+3+1.5+1.5=12
PE	Professional Elective Courses	3
OE	Open Elective Courses/Job Oriented Elective Courses	3
SAC	Skill Advanced Course/Soft Skills Course	2
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	HS3201	Engineering Economics and Management	3	0	0	3
2	PC3201	Design and Analysis of Algorithms	3	0	0	3
3	PC3202	Compiler Design	3	0	0	3
4	PE3201	Professional Elective-2 (MOOCS)	2	0	2	3
5	OE3201	Open Elective-2	2	0	2	3
6	PC3201L	Design and Analysis of Algorithms Lab	0	0	3	1.5
7	PC3202L	Compiler Design 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+1.5+1.5+1.5=10.5
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	HS4101	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	Mongo DB	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/Soft Skills 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						12

Open Elective Courses (from Other Departments)

Open Elective I (3-1)	Open Elective2 (3-2)	Open Elective3 (4-1)	Open Elective4(4-1)
Cloud Computing	Data Science	Cryptography and Network Security	Machine Learning
Embedded Systems	Full Stack Development	Block chain Technologies	High Performance Computing
Green Buildings	Fuzzy Sets, Logic and Systems	E-Waste Management	Soft Computing
Optimization Techniques	MATLAB for Engineers	Disaster Management	Robotics
Introduction to IOT and Networking	IoT Malware Analysis	IoT Privacy and Security	Advanced tools for IoT

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)
Data Warehousing and Data Mining	MOOCS/ NPTEL/ SWAYAM	Design Patterns	Big Data Analytics	Distributed Systems
Software Testing Methodologies		Software Project Management	NO SQL Databases	Mean Stack Technologies
Social Networks		Wireless Sensor Networks	Deep Learning	Information Retrieval Systems
Computer Graphics		Image Processing	Computer Vision	Human Computer Interaction
Unix & Shell Programming		Cyber security	Cyber Forensics	Mobile Computing

Open Elective Courses (To other Departments)

Open Elective I (3-1)	Open Elective2 (3-2)	Open Elective3 (4-1)	Open Elective4(4-1)
Object Oriented Programming through C++	Design and Analysis of Algorithms	Artificial Intelligence	Data Science
Web Development Tools	Computer Networks	System Software	Cryptography and Network Security
Advanced Python Programming	Distributed Databases	Software Project Management	Distributed Systems
Cloud Computing	Unix & Shell Programming	Human Computer Interaction	Software Engineering

Courses for Honors Degree

POOL-1	POOL-2	POOL-3	POOL-4
Advanced Python Programming	Advanced Database Systems	Advanced Operating Systems	Database Security
Script Programming	Introduction to MongoDB & Node JS	Web Programming in React JS	Cloud Essentials
Semantic Web & Social Networks	FOG Computing	Network Programming	High Performance Computing
Natural Language Processing	Information Retrieval Systems	TCP/IP Protocol Suite	Distributed Computing
Sentiment Analysis	Data Modelling and Visualization	Storage Area Networks	Quantum Computing
MOOC-1* (NPTEL/SWAYAM) Duration: 12 Weeks minimum			
MOOC-2* (NPTEL/SWAYAM) Duration: 12 Weeks minimum			

*Course/subject title can't be repeated

Note:

1. Students has to acquire 16 credits with minimum one subject from each pool
2. Compulsory MOOC/NPTEL course for 4 credits (2 course, each 2 credited)

General Minor degree courses offered by CSE department

1. Database Management Systems
2. Java Programming
3. Operating Systems
4. Computer Networks
5. Software Engineering
6. Advanced Java Programming
7. Artificial Intelligence & Machine Learning
8. Cloud Computing
9. Data Science
10. Big Data Analytics

Note:

- i. A Student can select four subjects from the above 15 subjects @ 3-0-2-4 credits per subject.
- ii. Compulsory MOOC/NPTEL courses for 04 credits (02 courses @ 02 credits each)

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