



**SRM**  
UNIVERSITY AP  
—Amaravati

School of Engineering and Applied Sciences

B. Tech Computer Science and Engineering

Syllabus

AY: 2019-2023

Department of Computer Science Engineering  
SRM University-AP, Amaravati

### Semester I

CODE	COURSE NAME	CREDIT	L - T - P
ENL101 (HS)	Communicative English (Minerva course)	3	3-0-0
MAT112 (BS)	Single Variable Calculus	3	3-0-0
BS	Physics / Chemistry	2	2-0-0
BS	Physics /Chemistry/Lab	1	0-0-2
BS	Biology	2	2-0-0
BS	Biology Lab	1	0-0-2
ES	Introduction to Computer Science and Programming	3	3-0-0
ES	Introduction to Computer Science and Programming Lab	1	0-0-2
CDC	Soft Skills: Behavioral/ Interpersonal Skills	P/F	1-0-0
	Total	16	14-0-6

### Semester-II

CODE	COURSE NAME	CREDIT	L - T - P
BS	Multi variable Calculus	3	3-0-0
ES	Basic Electronics	3	3-0-0
ES	Basic Electronics Lab	1	0-0-2
ES	Probability and Statistics	3	3-0-0
<b>HS</b>	<b>Critical Thinking</b>	<b>3</b>	<b>3-0-0</b>
CSE102	Data Structures and Algorithms	3	3-0-0
CSE 102L	Data Structures and Algorithms – Lab	1	0-0-2
BS	Physics / Chemistry	2	2-0-0
BS	Physics /Chemistry Lab	1	0-0-2
CDC	Soft Skills : Behavioral/Interpersonal skills	P/F	1-0-0
	Total	20	18-0-6

### Semester – III

CODE	COURSE NAME	CREDIT	L - T – P
BS	Differential Equations	3	3-0-0
ES	Environmental Science	3	3-0-0
CSEC	Design and Analysis of Algorithms	3	3-0-0
CSEC	Design and Analysis of Algorithms-Lab	1	0-0-2
CSEC	Digital Systems	3	3-0-0
CSEC	Digital Systems-Lab	1	0-0-2
CSEC	Object oriented programming with Java	3	3-0-0
CSEC	Object oriented programming with Java-Lab	1	0-0-2
CDC	Soft Skill : Quantitative Aptitude/Verbal Ability	P/F	1-0-0
	Total	18	17-0-6

### Semester – IV

CODE	COURSE NAME	CREDIT	L - T – P
OE	Open Elective – 1	3	3-0-0
BS	Linear Algebra	3	3-0-0
CSEC	Formal Languages and Automata Theory	3	3-0-0
CSEC	Computer Organization and Architecture	3	3-0-0
CSEC	Database Management System	3	3-0-0
CSEC	Database Management System-Lab	1	0-0-2
CSEC	Web Technology	3	3-0-0
CSEC	Web Technology-Lab	1	0-0-2
CDC	Soft Skills : Quantitative Aptitude/Verbal Ability	P/F	1-0-0
CDC	Industry Standard Coding Practice -2	2	0-0-4
	Total	22	19-0-4

### Semester – V

CODE	COURSE NAME	CREDIT	L - T - P
OE	Open Elective – 2	3	3-0-0
PR	UROP	3	0-0-6
CSEC	Discrete Mathematics	3	3-0-0
CSEC	Operating System	3	3-0-0
CSEC	Operating System-Lab	1	0-0-2
CSEC	Computer Networks	3	3-0-0
CSEC	Computer Networks-Lab	1	0-0-2
CSESE	CS Stream Elective 1	3	3-0-0
CSESE	CS Stream Elective 1-Lab	1	0-0-2
CCC	Industry Standard Coding Practice -3	2	0-0-4
CDC	Soft Skills : Interview Handling/Presentation Skills	P/F	1-0-0
	Total	23	16-0-16

### Semester VI

CODE	COURSE NAME	CREDIT	L - T - P
OE	Open Elective – 3	3	3-0-0
ECO121 HS	Principles of Economics	3	3-0-0
CSETE	CS Technical Elective – 1	3	3-0-0
CSEC	Compiler Design	3	3-0-0
CSEC	Compiler Design –Lab	1	0-0-2
CSESE	CS Stream Elective 2	3	3-0-0
CSESE	CS Stream Elective 2-Lab	1	0-0-2
CSEC	Software Engineering	3	3-0-0
CSEC	Software Engineering-Lab	1	0-0-2
CCC	Industry Standard Coding Practice -4	P/F	1-0-0
CDC	Soft Skills : Interview Handling/Presentation Skills	P/F	1-0-0
	Total	21	20-0-6

### Semester VII

CODE	COURSE NAME	CREDIT	L - T - P
HSE	Humanities Electives	3	3-0-0
CSESE	CS Stream Elective 3	3	3-0-0
CSESE	CS Stream Elective 3-Lab	1	0-0-2
CSETE	CS Technical Elective 2	3	3-0-0
OE	Open Elective-4	3	3-0-0
PR	Capstone Project Phase – I	6	0-0-12
	Total	19	12-0-14

### Semester VIII

CODE	COURSE NAME	CREDIT	L - T - P
CSESE	CS Stream Elective – 4	3	3-0-0
CSESE	CS Stream Elective – 4-Lab	1	0-0-2
OE	Open Elective – 5	3	3-0-0
OE	Open Elective - 6	3	3-0-0
PR	Capstone Project – Phase II	6	0-0-12
	Total	16	9-0-14

## **Specialization Streams**

### **1. Artificial Intelligence and Machine Learning**

- a. Introduction to Machine Learning
- b. Principle of Soft Computing
- c. Visual Information Processing
- d. Artificial Intelligence

### **2. Cyber Security**

- a. Network Security
- b. Mobile and Wireless Security
- c. Internet Protocols and Networking
- d. Introduction to Cryptography

### **3. Big Data Analytics**

- a. Introduction to Data Science
- b. Big Data
- c. Machine Learning
- d. Inference and Representation

### **4. IoT**

- a. Internet of Things: Sensing and Actuator Devices
- b. IoT Architecture and Protocols
- c. Privacy and Security in IoT
- d. Data Management in IoT

### **5. Distributed and Cloud Computing**

- a. Distributed Systems
- b. Introduction to Cloud and Fog Computing
- c. Data Storage and Management in Cloud
- d. Application Development in Cloud

### **General Computer Science Electives**

1. Data and Web Mining
2. Natural Language Processing
3. Image Processing
4. Human Computer Interaction

5. Advanced Computer Architecture
6. Distributed Operating Systems
7. Fog Computing
8. Parallel Algorithms
9. Web Services
10. Advanced Database Management Systems
11. Complexity Theory
12. Computer Graphics and Multimedia
13. Advanced Data Structures and Algorithms
14. High Performance Computing
15. Numerical Methods

## **Minor Programme**

CSE Dept. offers Minor in Computer Science and curriculum is given below.

	L-T-P
1. Object oriented programing with Java	3-0-2 (4 credits)
2. Algorithm Analysis and Design	3-0-2 (4 credits)
3. Web Technology	3-0-2 (4 credits)
4. Database Management Systems	3-0-2 (4 credits)
5. Software Engineering	3-0-2 (4 credits)