



**VINAYAKA MISSION'S
RESEARCH FOUNDATION**

(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology

Department of Computer Science and Engineering

Programme: B.E/B.Tech – Computer Science and

Engineering (Cloud Computing)

Full Time (4 Years)

**AARUPADAI VEEDU INSTITUTE OF
TECHNOLOGY, PAIYANOOR**

&

**VINAYAKA MISSION'S KIRUPANANDA VARIYAR
ENGINEERING COLLEGE, SALEM**

(Constituent Colleges of Vinayaka Mission's Research Foundation Deemed to be University)

NAAC ACCREDITED

STRUCTURED CHOICE BASED CREDIT SYSTEM (SCBCS)

Curriculum & Syllabus

(Semester I to VIII)

Regulations 2017

VMKV ENGINEERING COLLEGE, SALEM 636 308

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION

“To establish a centre of excellence in computer education and research and to create a platform for professionals thereby reaching a pinnacle of glory”

MISSION

Computer Science and Engineering is committed

- To develop innovative , competent and quality computer engineers by imparting the state-of the –art technology
- To enrich the knowledge of students through value based education
- To develop consultancy activities for industrial sectors
- To endeavour for constant up gradation of technical expertise of students to cater to the needs of the society

- **PROGRAMME OUTCOMES: (POS)**

- **PO1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **PO2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **PO3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **PO4. Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

- **PO5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **PO8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **PO9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **PO10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **PO11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **PO12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO)

The student will be able to:-

1. Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems.
2. Understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics and networking for efficient design of computer-based systems of varying complexity.

3. Apply standard Software Engineering practices and strategies in software project development using open-source programming environment to deliver a quality product for business success and to be acquainted with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing problems.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

- **PEO1:** Technical Expertise: Implement fundamental domain knowledge of core courses for developing effective computing solutions by incorporating creativity and logical reasoning.
- **PEO2:** Graduate will establish effective professionals by solving real world problems using investigative and analytical skills along with the knowledge acquired in the field of Computer Science and Engineering.
- **PEO3:** Graduate will prove a ability to work and communicate effectively as a team member and /or leader to complete the task with minimal resources, meeting deadlines.
- **PEO4:** Graduate will demonstrate his/her ability to adapt to rapidly changing environment in advanced areas of Computer Science and scale new height in their profession through lifelong learning.

PEO - PO Mapping

PEO/PO	1	2	3	4	5	6	7	8	9	10	11
1	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
2	Strong	Strong	Strong	Strong	Strong	Medium	Medium	Strong	Medium	Strong	Medium
3	Strong	Strong	Strong	Strong	Strong	Medium	Medium	Medium	Strong	Strong	Strong
4	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong



Strong Correlation



Medium Correlation



Low Correlation

Credit Requirement for Course Categories

Sl. No.	Category of Courses	Credits
01	A. Foundation Courses (FC)	54 - 63
	i. Humanities and Sciences (English and Management Subjects)	12 – 21
	ii. Basic Sciences (Maths, Physics and Chemistry Subjects)	24 – 33
	iii. Engineering Sciences (Basic Engineering Courses)	18 - 27
02	B. Core courses (CC) relevant to the chosen programme of study.	81
03	C. Elective Courses (EC)	18 - 27
	i. Programme Specific (Class Room or Online)	12 – 15
	ii. Open (Class Room or Online)	6 - 9
04	D. Project + Internship + Industry Electives (P + I + I)	18
	i. Project	9
	ii. Internship / Industry Supported Courses	9
05	E. Employability Enhancement Courses + Co - Curricular Courses + Extra Curricular Courses (EEC)**	9 - 18
Minimum Credits to be earned		180
<p>** - Mandatory, Credits would be mentioned in Mark sheets but not included for CGPA Calculations.</p>		

B.E/ B.TECH. – COMPUTERSCIENCE AND ENGINEERING- SEMESTER I TO VIII**CATEGORY A – FOUNDATION COURSES - HSS, BS AND ES COURSES - CREDITS (54-63)****(i) HUMANITIES AND SCIENCES (ENGLISH AND MANAGEMENT SUBJECTS) - CREDITS (12 - 21)**

SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17EGHS01	TECHNICAL ENGLISH	ENGLISH	FC (HSS)	3	0	0	3	NIL
2.	17EGHS02	BUSINESS ENGLISH	ENGLISH	FC (HSS)	3	0	0	3	NIL
3.	17EGHS81	ENGLISH LANGUAGE LAB	ENGLISH	FC (HSS)	0	0	4	2	NIL
4.	17MBHS01	ENGINEERING STARTUPS AND ENTREPRENEURIAL MANAGEMENT	MANAGEMENT	FC (HSS)	3	0	0	3	NIL
5.	17EGHS82	PROFESSIONAL COMMUNICATION AND PERSONALITY DEVELOPMENT	ENGLISH	FC (HSS)	0	0	2	1	NIL
6.	17YMHS82	YOGA AND MEDITATION	PHYSICAL EDUCATION	FC (HSS)	0	0	4	2	NIL

(ii) BASIC SCIENCES (MATHS, PHYSICS AND CHEMISTRY SUBJECTS) - CREDITS (24 - 33)

1.	17MABS01	ENGINEERING MATHEMATICS	MATHEMATICS	FC (BS)	2	2	0	3	NIL
2.	17MABS09	MATHEMATICS FOR COMPUTER ENGINEERS	MATHEMATICS	FC (BS)	2	2	0	3	NIL
3.	17MABS14	NUMERICAL METHODS AND NUMBER THEORY	MATHEMATICS	FC (BS)	2	2	0	3	NIL
4.	17MABS15	PROBABILITY AND QUEUING THEORY	MATHEMATICS	FC (BS)	2	2	0	3	NIL
5.	17PCBS02	PHYSICAL SCIENCES	PHYSICS & CHEMISTRY	FC (BS)	4	0	0	4	NIL
6.	17CHBS01	ENVIRONMENTAL SCIENCE AND ENGINEERING	CHEMISTRY	FC (BS)	3	0	0	3	NIL
7.	17PHBS05	SMART MATERIALS	PHYSICS	FC (BS)	3	0	0	3	NIL
8.	17PCBS81	PHYSICAL SCIENCES LAB	PHYSICS & CHEMISTRY	FC (BS)	0	0	4	2	NIL

(iii) ENGINEERING SCIENCES (BASIC ENGINEERING COURSES) - CREDITS (18 - 27)

1.	17EEES03	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	EEE & ECE	FC(ES)	4	0	0	4	NIL
2.	17CMES02	BASICS OF CIVIL AND MECHANICAL ENGINEERING	CIVIL & MECH	FC(ES)	4	0	0	4	NIL
3.	17CSES01	ESSENTIALS OF COMPUTING	CSE	FC(ES)	3	0	0	3	NIL
4.	17CSES05	PROGRAMMING IN PYTHON	CSE	FC(ES)	3	0	0	3	NIL
5.	17EEES82	ENGINEERING SKILLS PRACTICES LAB A. BASIC ELECTRICAL ENGINEERING B. BASIC ELECTRONICS ENGINEERING	EEE & ECE	FC(ES)	0	0	4	2	NIL

6.	17CMES81	ENGINEERING SKILLS PRACTICE LAB A.BASIC CIVIL ENGINEERING B.BASIC MECHANICAL ENGINEERING	CIVIL & MECH	FC(ES)	0	0	4	2	NIL
7.	17MEES84	ENGINEERING GRAPHICS (THEORY + PRACTICE)	MECH	FC(ES)	1	0	4	3	NIL
8.	17CSES83	PROGRAMMING IN PYTHON LAB	CSE	FC(ES)	0	0	4	2	NIL
9.	17CSES06	PROGRAMMING IN C	CSE	FC(ES)	3	0	0	3	NIL
10.	17CSES85	PROGRAMMING IN C LAB	CSE	FC(ES)	0	0	4	2	NIL
11.	17CSES07	DATA STRUCTURES AND OBJECT ORIENTED PROGRAMMING	CSE	FC(ES)	3	0	0	3	NIL
12.	17CSES86	DATA STRUCTURES AND OBJECT ORIENTED PROGRAMMING LAB	CSE	FC(ES)	0	0	4	2	NIL

B.E/ B.TECH. – COMPUTER SCIENCE AND ENGINEERING - SEMESTER I TO VIII**CATEGORY B – CORE COURSES RELEVANT TO THE PROGRAMME - CREDITS (81)**

SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17CSCC01	DATA STRUCTURES	CSE	CC	3	0	0	3	NIL
2.	17CSCC02	OBJECT ORIENTED PROGRAMMING	CSE	CC	3	0	0	3	NIL
3.	17CSCC03	DATABASE MANAGEMENT SYSTEM	CSE	CC	3	0	0	3	NIL
4.	17CSCC04	COMPUTER ARCHITECTURE	CSE	CC	3	0	0	3	NIL
5.	17CSCC05	SOFTWARE ENGINEERING	CSE	CC	3	0	0	3	NIL
6.	17CSCC06	DESIGN AND ANALYSIS OF ALGORITHMS	CSE	CC	3	0	0	3	DATA STRUCTURES (17CSCC01) or PROBLEM SOLVING USING COMPUTERS (17CSCC33)
7.	17CSCC07	OPERATING SYSTEM	CSE	CC	3	0	0	3	NIL
8.	17CSCC08	COMPUTER NETWORKS	CSE	CC	3	0	0	3	NIL
9.	17CSCC09	JAVA PROGRAMMING	CSE	CC	3	0	0	3	NIL
10.	17CSCC10	OBJECT ORIENTED ANALYSIS AND DESIGN	CSE	CC	3	0	0	3	OBJECT ORIENTED PROGRAMMING (17CSCC02)
11.	17CSCC11	COMPILER DESIGN	CSE	CC	3	0	0	3	NIL
12.	17CSCC12	ADVANCED JAVA PROGRAMMING	CSE	CC	3	0	0	3	JAVA PROGRAMMING (17CSCC09)
13.	17CSCC13	DATA WAREHOUSING AND DATA MINING	CSE	CC	3	0	0	3	DATABASE MANAGEMENT SYSTEM (17CSCC03)
14.	17CSCC14	ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM	CSE	CC	3	0	0	3	NIL
15.	17CSCC15	C# AND .NET APPLICATION DEVELOPMENT	CSE	CC	3	0	0	3	JAVA PROGRAMMING (17CSCC09)
16.	17CSCC16	CLOUD COMPUTING	CSE	CC	3	0	0	3	NIL
17.	17CSCC17	CYBER SECURITY	CSE	CC	3	0	0	3	NIL
18.	17CSCC18	RICH INTERNET APPLICATION	CSE	CC	3	0	0	3	JAVA PROGRAMMING (17CSCC09)
19.	17CSCC19	INTERNET OF THINGS	CSE	CC	3	0	0	3	NIL
20.	17CSCC20	DATA STRUCTURES LAB	CSE	CC	0	0	4	2	NIL
21.	17CSCC21	OBJECT ORIENTED PROGRAMMING LAB	CSE	CC	0	0	4	2	NIL
22.	17CSCC22	DATABASE MANAGEMENT SYSTEM LAB	CSE	CC	0	0	4	2	NIL
23.	17CSCC23	ALGORITHM LAB	CSE	CC	0	0	4	2	DATA STRUCTURE LAB (17CSCC20)
24.	17CSCC24	OPERATING SYSTEM LAB	CSE	CC	0	0	4	2	NIL

25.	17CSCC25	NETWORKING LAB	CSE	CC	0	0	4	2	NIL
26.	17CSCC26	JAVA PROGRAMMING LAB	CSE	CC	0	0	4	2	OBJECT ORIENTED PROGRAMMING LAB (17CSCC02)
27.	17CSCC27	CASE TOOLS LAB	CSEs	CC	0	0	4	2	OBJECT ORIENTED ANALYSIS AND DESIGN (17CSCC10)
28.	17CSCC28	COMPILER DESIGN LAB	CSE	CC	0	0	4	2	DATA STRUCTURES LAB (17CSCC20)
29.	17CSCC29	ADVANCED JAVA PROGRAMMING LAB	CSE	CC	0	0	4	2	JAVA PROGRAMMING LAB (17CSCC26)
30.	17CSCC30	C# AND .NET APPLICATION DEVELOPMENT LAB	CSE	CC	0	0	4	2	JAVA PROGRAMMING LAB (17CSCC26)
31.	17CSCC31	RICH INTERNET APPLICATION DEVELOPMENT LAB	CSE	CC	0	0	4	2	JAVA PROGRAMMING LAB (17CSCC26)
32.	17CSCC32	DESIGN PATTERN	CSE	CC	3	0	0	3	NIL
33.	17CSCC33	PROBLEM SOLVING USING COMPUTERS	CSE	CC	3	0	0	3	NIL
34.	17CSCC84	COMPUTER PROGRAMMING LAB	CSE	CC	0	0	4	2	NIL

B.E / B.TECH. – COMPUTER SCIENCE AND ENGINEERING - SEMESTER I TO VIII**CATEGORY C – ELECTIVE COURSES - CREDITS (18 - 27)****(i) PROGRAMME SPECIFIC (CLASS ROOM OR ONLINE) - CREDITS (12 - 15)**

SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17CSEC01	ADHOC AND SENSOR NETWORKS	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
2.	17CSEC02	AGILE METHODOLOGIES	CSE	EC(PS)	3	0	0	3	SOFTWARE ENGINEERING (17CSCC05)
3.	17CSEC03	BIG DATA AND ANALYTICS	CSE	EC(PS)	3	0	0	3	DATABASE MANAGEMENT SYSTEM (17CSCC03), DATA WAREHOUSING AND DATA MINING (17CSCC13)
4.	17CSEC04	BIO METRICS	CSE	EC(PS)	3	0	0	3	INFORMATION SECURITY & COMPUTER FORENSICS (17CSEC15)
5.	17CSEC05	CLOUD COMPUTING SECURITY	CSE	EC(PS)	3	0	0	3	CLOUD COMPUTING (17CSCC16), CYBER SECURITY (17CSCC17)
6.	17CSEC06	CRYPTOGRAPHY AND NETWORK SECURITY	CSE	EC(PS)	3	0	0	3	NIL
7.	17CSEC07	DATA CENTRE VIRTUALIZATION	CSE	EC(PS)	3	0	0	3	DATABASE MANAGEMENT SYSTEM (17CSCC03)
8.	17CSEC08	DISTRIBUTED COMPUTING	CSE	EC(PS)	3	0	0	3	OPERATING SYSTEM (17CSCC07), COMPUTER NETWORKS (17CSCC08), DATABASE MANAGEMENT SYSTEM (17CSCC03)
9.	17CSEC09	ETHICAL HACKING	CSE	EC(PS)	3	0	0	3	NIL
10.	17CSEC10	GAME THEORY	CSE	EC(PS)	3	0	0	3	ENGINEERING MATHEMATICS (17MABS01)
11.	17CSEC11	GREEN COMPUTING	CSE	EC(PS)	3	0	0	3	NIL
12.	17CSEC12	GRID COMPUTING	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
13.	17CSEC13	HUMAN COMPUTER INTERACTION	CSE	EC(PS)	3	0	0	3	ARTIFICIAL INTELLIGENCE AND EXPETS SYSTEM (17CSCC14)
14.	17CSEC14	INFORMATION RETRIEVAL TECHNIQUES	CSE	EC(PS)	3	0	0	3	DATA MINING AND DATA WAREHOUSING (17CSCC13)
15.	17CSEC15	INTERNET SECURITY & COMPUTER FORENSICS	CSE	EC(PS)	3	0	0	3	CYBER SECURITY (17CSCC17)

16.	17CSEC16	IT INFRASTRUCTURE MANAGEMENT	CSE	EC(PS)	3	0	0	3	NIL
17.	17CSEC17	KNOWLEDGE BASED DECISION SUPPORT SYSTEM	CSE	EC(PS)	3	0	0	3	SOFTWARE ENGINEERING (17CSCC05)
18.	17CSEC18	MOBILE ADHOC NETWORK	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
19.	17CSEC19	MOBILE COMPUTING	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
20.	17CSEC20	MULTIMEDIA DATABASE MANAGEMENT SYSTEM	CSE	EC(PS)	3	0	0	3	DATABASE MANAGEMENT SYSTEM (17CSCC03)
21.	17CSEC21	NANO TECHNOLOGY	CSE	EC(PS)	3	0	0	3	PHYSICAL SCIENCES (17PCBS02)
22.	17CSEC22	NETWORK DESIGN AND MANAGEMENT	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
23.	17CSEC23	NETWORK ROUTING ALGORITHMS	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
24.	17CSEC24	OPEN SOURCE SYSTEMS	CSE	EC(PS)	3	0	0	3	NIL
25.	17CSEC25	OPTIMIZATION TECHNIQUES	CSE	EC(PS)	3	0	0	3	NIL
26.	17CSEC26	SERVICE ORIENTED ARCHITECTURE	CSE	EC(PS)	3	0	0	3	NIL
27.	17CSEC27	SOFT COMPUTING	CSE	EC(PS)	3	0	0	3	ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEM (17CSCC14)
28.	17CSEC28	SOFTWARE QUALITY MANAGEMENT	CSE	EC(PS)	3	0	0	3	SOFTWARE ENGINEERING (17CSCC05)
29.	17CSEC29	TCP / IP TECHNOLOGY	CSE	EC(PS)	3	0	0	3	NIL
30.	17CSEC30	UNIX INTERNALS	CSE	EC(PS)	3	0	0	3	NIL
31.	17CSEC31	USER INTERFACE DESIGN	CSE	EC(PS)	3	0	0	3	NIL
32.	17CSEC32	VIRTUAL REALITY	CSE	EC(PS)	3	0	0	3	NIL
33.	17CSEC33	VIRTUALIZATION TECHNIQUES	CSE	EC(PS)	3	0	0	3	NIL
34.	17CSEC34	WEB DESIGN AND MANAGEMENT	CSE	EC(PS)	3	0	0	3	NIL
35.	17CSEC35	WIRELESS AND SENSOR NETWORK	CSE	EC(PS)	3	0	0	3	COMPUTER NETWORKS (17CSCC08)
36.	17CSEC36	SOFTWARE TESTING	CSE	EC(PS)	3	0	0	3	SOFTWARE ENGINEERING (17CSCC05)

B.E / B.TECH. – COMPUTER SCIENCE AND ENGINEERING - SEMESTER I TO VIII**(ii) OPEN ELECTIVE CREDITS - (6 – 9)**

SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17MBHS04	TOTAL QUALITY MANAGEMENT	MANAGEMENT	EC(OE)	3	0	0	3	NIL
2.	17MBHS03	ENGINEERING MANAGEMENT AND ETHICS	MANAGEMENT	EC(OE)	3	0	0	3	NIL
3.	17MBHS05	MARKETING TECHNIQUES FOR ENGINEERS	MANAGEMENT	EC(OE)	3	0	0	3	NIL
4.	17CVEC07	DISASTER MITIGATION AND MANAGEMENT	CIVIL	EC(OE)	3	0	0	3	NIL
5.	17EEEC22	SCADA	EEE	EC(OE)	3	0	0	3	NIL
6.	17EEEC03	COMPUTER AIDED DESIGN OF ELECTRICAL APPARATUS	EEE	EC(OE)	3	0	0	3	NIL
7.	17EEEC21	NON CONVENTIONAL ENERGY SOURCES	EEE	EC(OE)	3	0	0	3	NIL
8.	17MEPI04	NON DESTRUCTIVE TESTING	MECHANICAL	EC(OE)	3	0	0	3	NIL
9.	17MESE17	MODERN MANUFACTURING METHODS	MECHANICAL	EC(OE)	3	0	0	3	NIL
10.	17ECCC07	MICROCONTROLLERS & ITS APPLICATIONS	ECE	EC(OE)	3	0	0	3	NIL
11.	17MBHS02	FINANCE AND ACCOUNTING FOR ENGINEERS	MANAGEMENT	EC(OE)	3	0	0	3	NIL
12.	17MBHS09	INTELLECTUAL PROPERTY RIGHTS AND ALTERNATE DISPUTE RESOLUTION	MANAGEMENT	EC(OE)	3	0	0	3	NIL
13.	17ATEC14	COMPUTER CONTROLLED VEHICLE SYSTEMS	AUTOMOBILE	EC(OE)	3	0	0	3	NIL
14.	17CVSE55	REMOTE SENSING AND GIS FOR ENVIRONMENTAL APPLICATION	CIVIL	EC(OE)	3	0	0	3	Nil
15.	17CVEC03	GEOGRAPHICAL INFORMATION SYSTEM	CIVIL	EC(OE)	3	0	0	3	NIL
16.	17CVSE02	ENTERPRISE WIDE INFORMATION SYSTEMS	CIVIL	EC(OE)	3	0	0	3	NIL
17.	17CVSE47	ICT BASED CITY AND INFRASTRUCTURE PLANNING	CIVIL	EC(OE)	3	0	0	3	Nil
18.	17EESE03	ARTIFICIAL INTELLIGENCE APPLICATION	EEE	EC(OE)	3	0	0	3	NIL
19.	17BMCC03	BIOSENSORS AND TRANSDUCERS	BME	EC(OE)	3	0	0	3	NIL
20.	17BMEC06	APPLIED NEURAL NETWORKS AND FUZZY LOGIC SYSTEMS IN MEDICINE	BME	EC(OE)	3	0	0	3	NIL

21.	17BMSE17	BRAIN COMPUTER INTERFACE	BME	EC(OE)	3	0	0	3	NIL
22.	17BMSE18	ROBOTICS & AUTOMATION IN MEDICINE	BME	EC(OE)	3	0	0	3	NIL
23.	17ECCC04	SIGNALS AND SYSTEMS	ECE	EC(OE)	3	0	0	3	NIL
24.	17ECCC01	SEMICONDUCTOR DEVICES	ECE	EC(OE)	3	0	0	3	NIL
25.	17ECCC15	ANALOG & DIGITAL COMMUNICATION	ECE	EC(OE)	3	0	0	3	NIL
26.	17EEEC20	MATHEMATICAL MODELLING AND SIMULATION	EEE	EC(OE)	3	0	0	3	NIL
27.	17BMSE16	WEARABLE TECHNOLOGY	BME	BM(OE)	3	0	0	3	NIL
28.	17ECSE21	WIRELESS SENSOR NETWORKS AND IOT	ECE	EC(OE)	3	0	0	3	NIL
29.	17ECSE22	WIRELESS TECHNOLOGIES FOR IOT	ECE	EC(OE)	3	0	0	3	NIL
30.	17ECSE07	SOFTWARE TECHNOLOGY FOR EMBEDDED SYSTEMS	ECE	EC(OE)	3	0	0	3	NIL
31.	17MECC12	COMPUTER INTEGRATED MANUFACTURING	MECH	EC(OE)	3	0	0	3	NIL
32.	17BTSE05	INDUSTRIAL WASTE MANAGEMENT	BTE	EC(OE)	3	0	0	3	NIL
33.	17BMEC04	MEMS AND ITS BIOMEDICAL APPLICATIONS	BME	EC(OE)	3	0	0	3	NIL
34.	17CVEC14	AIR POLLUTION MANAGEMENT	CIVIL	EC(OE)	3	0	0	3	NIL
35.	17BTPI05	INDUSTRIAL BIOSAFETY	BTE	EC(OE)	3	0	0	3	NIL
36.	17BTEC29	GREEN BUILDING AND SUSTAINABLE ENVIRONMENT	BTE	EC(OE)	3	0	0	3	NIL

B.E/B.TECH. – COMPUTER SCIENCE ENGINEERING - SEMESTER I TO VIII**DETAILS OF ELECTIVE COURSES FOR DEGREE WITH SPECIALISATION****CATEGORY C – ELECTIVE COURSES - CREDITS (18 - 27)****(i) PROGRAMME SPECIFIC (CLASS ROOM OR ONLINE) - CREDITS (12 - 15)****(i) SPECIALIZATION – CLOUD COMPUTING**

SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17CCSE01	CLOUD ARCHITECTURES	CSE	SE	3	0	0	3	CLOUD COMPUTING (17CSCC16)
2.	17CCSE02	CLOUD STORAGE INFRASTRUCTURES	CSE	SE	3	0	0	3	CLOUD COMPUTING (17CSCC16)
3.	17CCSE03	CLOUD SECURITY	CSE	SE	3	0	0	3	CLOUD COMPUTING (17CSCC16)
4.	17CCSE04	CLOUD APPLICATION DEVELOPMENT	CSE	SE	3	0	0	3	CLOUD COMPUTING (17CSCC16)
5.	17CCSE06	STRATEGY PLANNING	CSE	SE	3	0	0	3	CLOUD COMPUTING (17CSCC16)
LAB									
6	17CCSE07	CLOUD COMPUTING LAB	CSE	SE	0	0	4	2	NIL

B.E / B.TECH. – COMPUTER SCIENCE AND ENGINEERING - SEMESTER I TO VIII									
CATEGORY D – PROJECT + INTERNSHIP + INDUSTRY ELECTIVES (P + I + D)- CREDITS (18)									
(i) PROJECT - CREDITS (9)									
(i) INTERNSHIP + INDUSTRY ELECTIVES - CREDITS (9)									
SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17CSPi01	PROJECT WORK	CSE	PI	0	0	18	9	NIL
2.	17CSPi02	MINI PROJECT	CSE	PI	0	0	6	3	NIL
3.	17CSPi03	INTERNSHIP	CSE	PI	0	0	0	3	NIL
4.	17CSPi04	BUSINESS INTELLIGENCE AND ITS APPLICATIONS	CSE	PI	3	0	0	3	NIL
5.	17CSPi05	BUILDING ENTERPRISE APPLICATIONS	CSE	PI	3	0	0	3	NIL
6.	17CSPi06	INTERNET AND WEB TECHNOLOGY	CSE	PI	3	0	0	3	RICH INTERNET APPLICATION (17CSCC18)
7.	17CSPi07	LEARNING IT ESSENTIALS BY DOING	CSE	PI	3	0	0	3	NIL
8.	17CSPi08	ESSENTIALS OF INFORMATION TECHNOLOGY	CSE	PI	3	0	0	3	NIL
9.	17CSPi09	INTRODUCTION TO MAIN FRAMES	CSE	PI	3	0	0	3	COMPUTER ARCHITECTURE (17CSCC04)
10.	17CSPi10	MOBILE APPLICATION DEVELOPMENT	CSE	PI	3	0	0	3	NIL

B.TECH. – COMPUTER SCIENCE ENGINEERING - SEMESTER I TO VIII**CATEGORY E – EMPLOYABILITY ENHANCEMENT COURSES, CO - CURRICULAR COURSES
AND EXTRA CURRICULAR COURSES (EEC)** - CREDITS (9 - 18)****(** - MANDATORY, CREDITS WOULD BE MENTIONED IN MARK SHEETS BUT NOT INCLUDED
FOR CGPA CALCULATIONS.)****(i) EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

SL. NO	CODE	COURSE	OFFERING DEPT.	CATEGORY	L	T	P	C	PREREQUISITE
1.	17APEE01	PERSONALITY SKILLS DEVELOPMENT - I	MATHS	EE	2 WEEKS OF TRAINING			1	NIL
2.	17APEE02	PERSONALITY SKILLS DEVELOPMENT - II	ENGLISH & MANAGEMENT	EE	2 WEEKS OF TRAINING			1	NIL
3.	17CSEE01	APPLICATION SOFTWARE AND SYSTEM SOFTWARE INSTALLATION	CSE	EE	3	0	0	3	NIL
4.	17CSEE02	WEB DESIGNING	CSE	EE	3	0	0	3	NIL
5.	17CSEE03	DIGITAL MARKETING	CSE	EE	3	0	0	3	NIL
6.	17CSEE04	MOBILE APPLICATION DEVELOPER	CSE	EE	3	0	0	3	NIL

(ii) CO - CURRICULAR COURSES (CCC)

1.	17APEE03	NCC	NCC	EE	2 WEEKS OF TRAINING IN NCC CAMP			1	NIL
2.	17APEE04	NSS	NSS	EE	2 WEEKS OF SOCIAL IN NSS CAMP			1	NIL
3.	17APEE05	SPORTS AND GAMES (INTER – UNIVERSITY LEVEL)	PHYSICAL EDUCATION	EE				1	NIL
4.	17APEE06	SPORTS AND GAMES (INTRA-UNIVERSITY LEVEL)	PHYSICAL EDUCATION	EE				2	NIL
5.	17APEE07	SPORTS AND GAMES (STATE AND NATIONAL LEVELS)	PHYSICAL EDUCATION	EE				2	NIL

(iii) EXTRA CURRICULAR COURSES (ECC)

1.	17CSEE05	EXTRA CURRICULAR COURSES – I	CSE	EE	15 HOURS			1	NIL
2.	17CSEE06	EXTRA CURRICULAR COURSES – II	CSE	EE	15 HOURS			1	NIL
3.	17CSEE07	EXTRA CURRICULAR COURSES – III	CSE	EE	15 HOURS			1	NIL
4.	17CSEE08	EXTRA CURRICULAR COURSES -IV	CSE	EE	15 HOURS			1	NIL
5.	17CSEE09	EXTRA CURRICULAR COURSES –V	CSE	EE	15 HOURS			1	NIL
6.	17CSEE10	EXTRA CURRICULAR COURSES – VI	CSE	EE	15 HOURS			1	NIL

