
**COURSE STRUCTURE
AND
DETAILED SYLLABUS**

R19

**Computer Science
And Engineering**

B.TECH. FOUR YEAR DEGREE COURSE
(Applicable for the students admitted into Academic Year 2019-20)
(I – IV Years Syllabus)



RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES
Basar, Nirmal, Telangana - 504107

COURSE STRUCTURE (R19) FOR B.TECH.(REGULAR)
**Applicable for the students of B.Tech. (Regular) from the Academic
Year 2019-20 and onwards**

**General, Course Structure & Theme
&
Semester-wise credit distribution**

A. Definition of Credit:

| | | |
|---|----------------------------|------------|
| 1 | Hr. Lecture (L) per week | 1 credit |
| 1 | Hr. Tutorial (T) per week | 1 credit |
| 1 | Hr. Practical (P) per week | 0.5 credit |
| 2 | Hours Practical(Lab)/week | 1 credit |

B. Structure of Undergraduate Engineering program:

| S. No. | | Credit Breakup for CSE students |
|--------|---|---------------------------------|
| 1 | Humanities and Social Sciences including Management courses | 12 |
| 2 | Basic Science Courses | 27 |
| 3 | Engineering Science Courses like drawing, basics of electrical/ mechanical/ computer etc | 27.5 |
| 4 | Professional Core Courses | 51.5 |
| 5 | Professional Elective Courses relevant to chosen specialization/branch | 15 |
| 6 | Open subjects – Electives from other technical and /or emerging subjects | 12 |
| 7 | Project work, seminar and internship in industry or elsewhere | 15 |
| 8 | Mandatory Courses [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge] | (non-credit) |
| | Total | 160 |

C. Credit distribution in the First year:

| | Lecture | Tutorial | Laboratory/ Practical | Total Credits |
|--|---------|----------|--------------------------|---------------|
| Chemistry-I | 3 | 1 | 3 | 5.5 |
| Physics – I | 3 | 1 | 3 | 5.5 |
| Calculus | 2 | 0 | 0 | 2 |
| Linear Algebra | 3 | 0 | 0 | 3 |
| Differential Equations & Vector Calculus | 4 | 0 | 0 | 4 |
| Programming for Problem solving | 3 | 0 | 4 | 5 |
| English | 2 | 0 | 2 | 3 |
| Engineering Graphics | 0 | 0 | 6 | 3 |
| Engineering Workshop | 2 | 0 | 2 | 3 |
| Basic Electrical Engineering | 3 | 1 | 2 | 5 |

D. Course code and Definition:

| Course Category | Definitions |
|-----------------|---|
| BSC | Basic Science Courses |
| ESC | Engineering Science Courses |
| HSMC | Humanities and Social Sciences including Management Courses |
| PCC-CS | Professional core courses |
| PEC-CS | Professional Elective Courses |
| OEC-CS | Open Elective Courses |
| LC | Laboratory Courses |
| MC | Mandatory Courses |
| SI | Summer Industry Internship |
| PROJ-CS | Project |

HUMANITIES AND SOCIAL SCIENCES INCLUDING MANAGEMENT COURSES

| Sl. No. | Code No. | Course Title | House per week | | | | Total Credits | Semester |
|---------------|----------|--|----------------|----------|----------|-----------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | HS1102 | Communication Skills – I | 2 | 0 | 0 | 2 | 0 | 1 |
| 2 | HS1201 | English | 2 | 0 | 0 | 2 | 2 | 2 |
| 3 | HS1801 | English Lab | 0 | 0 | 2 | 2 | 1 | 2 |
| 4 | HS1202 | Communication Skills – II | 2 | 0 | 0 | 2 | 0 | 2 |
| 5 | BM0001 | Managerial Economics | 3 | 0 | 0 | 3 | 3 | 4 |
| 6 | HS3101 | Soft Skills | 2 | 0 | 0 | 2 | 0 | 5 |
| 7 | BM0002 | Humanities-II(Principles of Marketing) | 3 | 0 | 0 | 3 | 3 | 5 |
| 8 | BM0004 | Personality Development | 2 | 0 | 0 | 2 | 0 | 6 |
| 9 | BM0003 | Operational Research | 3 | 0 | 0 | 3 | 3 | |
| Total: | | | 19 | 0 | 2 | 21 | 12 | |

BASIC SCIENCE COURSES [BSC]

| Sl. No. | Code No. | Course Title | Hours per week | | | | Total Credits | Semester |
|---------------|----------|--|----------------|----------|----------|-----------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | CY1101 | Chemistry-I | 3 | 1 | 0 | 4 | 4 | 1 |
| 2 | CY1701 | Chemistry-I Lab | 0 | 0 | 3 | 3 | 1.5 | 1 |
| 3 | MA1102 | Calculus | 2 | 0 | 0 | 2 | 2 | 1 |
| 4 | MA1101 | Linear Algebra | 3 | 0 | 0 | 3 | 3 | 1 |
| 5 | PH1201 | Physics-I | 3 | 1 | 0 | 4 | 4 | 2 |
| 6 | PH1801 | Physics-I Lab | 0 | 0 | 3 | 3 | 1.5 | 2 |
| 7 | MA1201 | Differential Equations & Vector Calculus | 3 | 1 | 0 | 4 | 4 | 2 |
| 8 | MA2102 | Probability & Statistics | 4 | 0 | 0 | 4 | 4 | 3 |
| 9 | BSC701 | Bioinformatics | 3 | 0 | 0 | 3 | 3 | 7 |
| Total: | | | 21 | 3 | 6 | 30 | 27 | |

ENGINEERING SCIENCE COURSE [ESC]

| SI. No. | Code No. | Course Title | Hours per week | | | | Total Credits | Semester |
|---------------|----------|-------------------------------------|----------------|----------|-----------|-----------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | CS1101 | Programming for Problem Solving | 3 | 0 | 0 | 3 | 3 | 1 |
| 2 | CS1701 | Programming for Problem Solving Lab | 0 | 0 | 4 | 4 | 2 | 1 |
| 3 | ME1102 | Engineering Workshop | 2 | 0 | 2 | 4 | 3 | 1 |
| 4 | EE1202 | Basic Electrical Engineering | 3 | 1 | 0 | 4 | 4 | 2 |
| 5 | EE1802 | Basic Electrical Engineering Lab | 0 | 0 | 2 | 2 | 1 | 2 |
| 6 | CE1801 | Engineering Graphics | 0 | 0 | 6 | 6 | 3 | 2 |
| 7 | EC2105 | Analog Electronic Circuits | 4 | 0 | 0 | 4 | 3 | 3 |
| 8 | EC2703 | Analog Electronic Circuits Lab | 0 | 0 | 3 | 3 | 1.5 | 3 |
| 9 | EC2101 | Digital Electronic Circuits | 3 | 0 | 0 | 3 | 3 | 3 |
| 10 | EC2701 | Digital Electronic Circuits Lab | 0 | 0 | 2 | 2 | 1 | 3 |
| 11 | EC3106 | Signals and Systems | 3 | 0 | 0 | 3 | 3 | 5 |
| Total: | | | 18 | 1 | 19 | 38 | 27.5 | |

PROFESSIONAL CORE COURSES [PCC]

| SI. No. | Code No. | Course Title | Hours per week | | | | Total Credits | Semester |
|---------|----------|--|----------------|---|---|-------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | CS1802 | IT Workshop | 0 | 0 | 3 | 3 | 1.5 | 2 |
| 2 | CS2101 | Data Structure & Algorithms | 3 | 0 | 0 | 3 | 3 | 3 |
| 3 | CS2102 | Discrete Mathematics | 3 | 1 | 0 | 4 | 4 | 3 |
| 4 | CS2701 | Data Structure & Algorithms Lab | 0 | 0 | 4 | 4 | 2 | 3 |
| 5 | CS2201 | Computer Organization and Architecture | 3 | 0 | 0 | 3 | 3 | 4 |
| 6 | CS2801 | Computer Organization and Architecture Lab | 0 | 0 | 4 | 4 | 2 | 4 |
| 7 | CS2202 | Database Management Systems | 3 | 0 | 0 | 3 | 3 | 4 |
| 8 | CS2802 | Database Management Systems Lab | 0 | 0 | 4 | 4 | 2 | 4 |

| | | | | | | | | |
|---------------|--------|---------------------------------------|-----------|----------|-----------|-----------|-------------|---|
| 9 | CS2203 | Design and Analysis of Algorithms | 3 | 0 | 0 | 3 | 3 | 4 |
| 10 | CS2803 | Design and Analysis of Algorithms Lab | 0 | 0 | 4 | 4 | 2 | 4 |
| 11 | CS2204 | Data Analytics | 3 | 0 | 0 | 3 | 3 | 4 |
| 12 | CS3101 | Operating Systems | 3 | 0 | 0 | 3 | 3 | 5 |
| 13 | CS3701 | Operating Systems Lab | 0 | 0 | 4 | 4 | 2 | 5 |
| 14 | CS3102 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 | 5 |
| 15 | CS3702 | Object Oriented Programming Lab | 0 | 0 | 4 | 4 | 2 | 5 |
| 16 | CS3103 | Formal Languages & Automata Theory | 3 | 0 | 0 | 3 | 3 | 5 |
| 17 | CS3201 | Compiler Design | 3 | 0 | 0 | 3 | 3 | 6 |
| 18 | CS3801 | Compiler Design Lab | 0 | 0 | 4 | 4 | 2 | 6 |
| 19 | CS3202 | Computer Networks | 3 | 0 | 0 | 3 | 3 | 6 |
| 20 | CS3802 | Computer Networks Lab | 0 | 0 | 4 | 4 | 2 | 6 |
| Total: | | | 33 | 1 | 35 | 66 | 51.5 | |

PROFESSIONAL ELECTIVE COURSES [PEC]

| Sl. No. | Code No. | Course Title | Hours per week | | | | Total Credits | Semester |
|---------------|----------|----------------|----------------|----------|----------|-----------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | PEC | Elective – I | 3 | 0 | 0 | 3 | 3 | 5 |
| 2 | PEC | Elective – II | 3 | 0 | 0 | 3 | 3 | 6 |
| 3 | PEC | Elective – III | 3 | 0 | 0 | 3 | 3 | 6 |
| 4 | PEC | Elective – IV | 3 | 0 | 0 | 3 | 3 | 7 |
| 5 | PEC | Elective – V | 3 | 0 | 0 | 3 | 3 | 7 |
| 6 | PEC | Elective – VI | 3 | 0 | 0 | 3 | 3 | 8 |
| Total: | | | 18 | 0 | 0 | 18 | 18 | |

OPEN ELECTIVE COURSES [OEC]

| SI. No. | Code No. | Course Title | Hours per week | | | | Total Credits | Semester |
|---------------|----------|---------------------|----------------|----------|----------|-----------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | OEC | Open Elective – I | 3 | 0 | 0 | 3 | 3 | 6 |
| 2 | OEC | Open Elective – II | 3 | 0 | 0 | 3 | 3 | 7 |
| 3 | OEC | Open Elective – III | 3 | 0 | 0 | 3 | 3 | 8 |
| 4 | OEC | Open Elective- IV | 3 | 0 | 0 | 3 | 3 | 8 |
| Total: | | | 12 | 0 | 0 | 12 | 12 | |

MANDATORY COURSES (MC)

| SI. No. | Code No. | Course Title | Hours per week | | | | Total Credits | Semester |
|---------------|----------|---|----------------|----------|----------|----------|---------------|----------|
| | | | L | T | P | Total | | |
| 1 | BM0005 | Indian Constitution | 3 | 0 | 0 | 3 | 0 | 1 |
| 2 | HS2101 | Essence of Indian Traditional Knowledge | 2 | 0 | 0 | 2 | 0 | 3 |
| 3 | MC_ | Environmental Sciences | 3 | 0 | 0 | 3 | 0 | 4 |
| Total: | | | 8 | 0 | 0 | 8 | 0 | |

Branch / Course: Computer Science and Engineering

Total credits (4 years course): 160

I. Induction Program

| Induction program(mandatory) | 3 weeks duration |
|--|---|
| Induction program for students to be offered right at the start of the First year. | <ul style="list-style-type: none"> • Physical activity • Creative Arts • Universal Human Values • Literary • Proficiency Modules • Lectures by Eminent People • Visits to local Areas • Familiarization to Dept./Branch & Innovations |

II. Semester-wise structure of curriculum

[L= Lecture, T = Tutorials, P = Practical & C = Credits]

Engineering I - Semester I [First Year-First Semester] Curriculum

| SI. No | Course Type | Course Code | Course Title | Hours per week | | | | Total Credits |
|---------------|-------------|-------------|-------------------------------------|----------------|----------|----------|-----------|---------------|
| | | | | L | T | P | Total | |
| 1 | ESC | CS1101 | Programming for Problem Solving | 3 | 0 | 0 | 3 | 3 |
| 2 | ESC | ME1102 | Engineering Workshop | 2 | 0 | 2 | 4 | 3 |
| 3 | BSC | CY1101 | Chemistry-I | 4 | 0 | 0 | 4 | 4 |
| 4 | BSC | MA1102 | Calculus | 2 | 0 | 0 | 2 | 2 |
| 5 | BSC | MA1101 | Linear Algebra | 3 | 0 | 0 | 3 | 3 |
| 6 | HSMC | HS1102 | Communication Skills-I | 2 | 0 | 0 | 2 | 0 |
| 7 | MC | BM0005 | Indian Constitution | 3 | 0 | 0 | 3 | 0 |
| 8 | ESC | CS1701 | Programming for Problem Solving Lab | 0 | 0 | 4 | 4 | 2 |
| 9 | BSC | CY1701 | Chemistry-I Lab | 0 | 0 | 3 | 3 | 1.5 |
| Total: | | | | 19 | 0 | 9 | 28 | 18.5 |

Engineering I - Semester II [First Year-Second Semester] Curriculum

| SI. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|---------------|-------------|-------------|--|----------------|----------|-----------|-----------|-----------|
| | | | | L | T | P | Total | |
| 1 | PCC | CS1802 | IT Workshop | 0 | 0 | 3 | 3 | 1.5 |
| 2 | ESC | EE1202 | Basic Electrical Engineering | 4 | 0 | 0 | 4 | 4 |
| 3 | ESC | CE1801 | Engineering Graphics | 0 | 0 | 6 | 6 | 3 |
| 4 | BSC | PH1201 | Physics-I | 4 | 0 | 0 | 4 | 4 |
| 5 | BSC | MA1201 | Differential Equations & Vector Calculus | 4 | 0 | 0 | 4 | 4 |
| 6 | HSMC | HS1201 | English | 2 | 0 | 0 | 2 | 2 |
| 7 | HSMC | HS1202 | Communication Skills-II | 2 | 0 | 0 | 2 | 0 |
| 8 | ESC | EE1802 | Basic Electrical Engineering Lab | 0 | 0 | 2 | 2 | 1 |
| 9 | BSC | PH1801 | Physics-I Lab | 0 | 0 | 3 | 3 | 1.5 |
| 10 | HSMC | HS1801 | English Language Lab | 0 | 0 | 2 | 2 | 1 |
| Total: | | | | 16 | 0 | 16 | 32 | 22 |

Engineering II - Semester I [Second Year-First Semester] Curriculum
Branch/Course: Computer Science Engineering

| Sl. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|---------------|-------------|-------------|---|----------------|----------|----------|-----------|-------------|
| | | | | L | T | P | Total | |
| 1 | PCC | CS2101 | Data structure & Algorithms | 3 | 0 | 0 | 3 | 3 |
| 2 | PCC | CS2102 | Discrete Mathematics | 4 | 0 | 0 | 4 | 4 |
| 3 | ESC | EC2105 | Analog Electronic Circuits | 4 | 0 | 0 | 4 | 3 |
| 4 | ESC | EC2101 | Digital Electronic Circuits | 3 | 0 | 0 | 3 | 3 |
| 5 | BSC | MA2102 | Probability and Statistics | 4 | 0 | 0 | 4 | 4 |
| 6 | MC | HS2101 | Essence of Indian Traditional Knowledge | 2 | 0 | 0 | 2 | 0 |
| 7 | PCC | CS2701 | Data structure & Algorithms Lab | 0 | 0 | 4 | 4 | 2 |
| 8 | ESC | EC2703 | Analog Electronics Circuits Lab | 0 | 0 | 3 | 3 | 1.5 |
| 9 | ESC | EC2701 | Digital Electronic Circuits Lab | 0 | 0 | 2 | 2 | 1 |
| Total: | | | | 20 | 0 | 9 | 29 | 21.5 |

Engineering II - Semester II [Second Year-Second Semester] Curriculum
Branch/Course: Computer Science Engineering

| Sl. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|--------------|-------------|-------------|--|----------------|----------|-----------|-----------|-----------|
| | | | | L | T | P | Total | |
| 1 | PCC | CS2201 | Computer Organization & Architecture | 3 | 0 | 0 | 3 | 3 |
| 2 | PCC | CS2202 | Database Management Systems | 3 | 0 | 0 | 3 | 3 |
| 3 | PCC | CS2203 | Design & Analysis of Algorithms | 3 | 0 | 0 | 3 | 3 |
| 4 | PCC | CS2204 | Data Analytics | 3 | 0 | 0 | 3 | 3 |
| 5 | HSMC | BM0001 | Managerial Economics | 3 | 0 | 0 | 3 | 3 |
| 6 | MC | | Environmental Sciences | 3 | 0 | 0 | 3 | 0 |
| 7 | PCC | CS2801 | Computer Organization & Architecture Lab | 0 | 0 | 4 | 4 | 2 |
| 8 | PCC | CS2802 | Database Management Systems Lab | 0 | 0 | 4 | 4 | 2 |
| 9 | PCC | CS2803 | Design & Analysis of Algorithms Lab | 0 | 0 | 4 | 4 | 2 |
| Total | | | | 18 | 0 | 12 | 30 | 21 |

Engineering III - Semester I [Third Year-First Semester] Curriculum
Branch/Course: Computer Science Engineering

| Sl. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|---------------|-------------|-------------|---|----------------|----------|----------|-----------|-----------|
| | | | | L | T | P | Total | |
| 1 | PCC | CS3101 | Operating Systems | 3 | 0 | 0 | 3 | 3 |
| 2 | PCC | CS3102 | Object Oriented Programming | 3 | 0 | 0 | 3 | 3 |
| 3 | PCC | CS3103 | Formal Language & Automata Theory | 3 | 0 | 0 | 3 | 3 |
| 4 | PEC | CS_ | Elective-I | 3 | 0 | 0 | 3 | 3 |
| 5 | ESC | EC3106 | Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 6 | HSMC | BM0002 | Humanities – II (Principles of Marketing) | 3 | 0 | 0 | 3 | 3 |
| 7 | HSMC | HS3101 | Soft Skills | 2 | 0 | 0 | 2 | 0 |
| 8 | PCC | CS3701 | Operating Systems Lab | 0 | 0 | 4 | 4 | 2 |
| 9 | PCC | CS3702 | Object Oriented Programming Lab | 0 | 0 | 4 | 4 | 2 |
| Total: | | | | 20 | 0 | 8 | 28 | 22 |

Engineering III - Semester II [Third Year-Second Semester] Curriculum
Branch/Course: Computer Science Engineering

| Sl. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|---------------|-------------|-------------|---|----------------|----------|-----------|-----------|-----------|
| | | | | L | T | P | Total | |
| 1 | PCC | CS3201 | Compiler Design | 3 | 0 | 0 | 3 | 3 |
| 2 | PCC | CS3202 | Computer Networks | 3 | 0 | 0 | 3 | 3 |
| 3 | PEC | CS_ | Elective-II | 3 | 0 | 0 | 3 | 3 |
| 4 | PEC | CS_ | Elective-III | 3 | 0 | 0 | 3 | 3 |
| 5 | PCC | CS3801 | Compiler Design Lab | 0 | 0 | 4 | 4 | 2 |
| 6 | PCC | CS3802 | Computer Networks Lab | 0 | 0 | 4 | 4 | 2 |
| 7 | PROJ | PROJCS60 | Project-I(SE&WT) | 0 | 0 | 6 | 6 | 3 |
| 8 | PEC | CS_ | Elective-IV(Graph Theory & Combinatorics) | 3 | 0 | 0 | 3 | 3 |
| 9 | HSMC | BM0004 | Personality Development | 2 | 0 | 0 | 2 | 0 |
| Total: | | | | 17 | 0 | 14 | 31 | 22 |

Engineering IV - Semester I [Fourth Year-First Semester] Curriculum
Branch/Course: Computer Science Engineering

| Sl. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|---------------|-------------|-------------|------------------|----------------|----------|-----------|-----------|-----------|
| | | | | L | T | P | Total | |
| 1 | PEC | CS_ | Elective-V | 3 | 0 | 0 | 3 | 3 |
| 2 | PEC | CS_ | Elective-VI | 3 | 0 | 0 | 3 | 3 |
| 3 | OEC | OEC_ | Open Elective- I | 3 | 0 | 0 | 3 | 3 |
| 4 | BSC | BSC701 | Bioinformatics | 3 | 0 | 0 | 3 | 3 |
| 5 | PROJ | CSP02 | Project-II | 0 | 0 | 12 | 12 | 6 |
| Total: | | | | 12 | 0 | 12 | 24 | 18 |

Engineering IV - Semester II [Fourth Year-Second Semester] Curriculum
Branch/Course: Computer Science Engineering

| Sl. No. | Course Type | Course Code | Course Title | Hours per week | | | | Credits |
|---------------|-------------|-------------|-------------------|----------------|----------|-----------|-----------|-----------|
| | | | | L | T | P | Total | |
| 1 | OEC | | Open Elective-II | 3 | 0 | 0 | 3 | 3 |
| 2 | OEC | OEC_ | Open Elective-III | 3 | 0 | 0 | 3 | 3 |
| 3 | OEC | OEC_ | Open Elective-IV | 3 | 0 | 0 | 3 | 3 |
| 4 | PROJ | CSP03 | Project-III | 0 | 0 | 12 | 12 | 6 |
| Total: | | | | 9 | 0 | 12 | 21 | 15 |

PROFESSIONAL ELECTIVE COURSES

Electives will be introduced in 4 threads besides the Open Elective. There are 6 slots for Electives and 4 slots for Open Electives. The department may permit students to take 50% of these (electives + open electives) from other disciplines, based on the choices of the students and consent of course advisors.

A. Theory B. Systems C. Data Science D. Applications E. Open Electives

The students will have options of selecting the electives from the different threads depending on the specialization they wish to acquire. **There should be at least two electives from the open elective choices; the rest two can be taken from the other threads, if intended.**

| Theory and Algorithms | Systems | Data Science and Machine Intelligence | Applications | Open Electives |
|-------------------------------------|-------------------------------------|--|--|--|
| Code: PEC-CS-T<number> | Code: PEC-CS-S<number> | Code: PEC-CS-D <number> | Code: PEC-CS-A<number> | OEC-CS<number> |
| Theory of Computation | Advanced Computer Architecture | Artificial Intelligence | Image Processing | Soft Skills and Interpersonal Communication |
| Graph Theory | Software Engineering | Data Analytics | Cryptography and Network Security | Economic Policies in India |
| Advanced Algorithms | Distributed Systems | Machine Learning | Introduction to Block Chain Technology | Human Resource Development and Organizational Behavior |
| Parallel and Distributed Algorithms | Embedded Systems | Data Mining | Cloud Computing | Cyber Law and Ethics |
| Computational Complexity | Advanced Operating Systems | Soft Computing | Digital Signal Processing | |
| Computational Geometry | Low Power Circuits & Systems | Speech and Natural Language Processing | Electronic Design Automation | Comparative Study |
| Queuing Theory and Modeling | Fault Tolerant Computing | | Computer Graphics | Indian Music System |
| Computational Number Theory | Real Time Systems | Information Retrieval | VLSI System Design | History of Science |
| Quantum Computing | Ad-Hoc & Sensor Networks | Neural Networks & Deep Learning | Optimization Techniques | Introduction to Art & Aesthetics |
| Information Theory & Coding | Signals & Networks | Multi-agent Intelligent Systems | Web & Internet Technology | |

| | | | | |
|--|--------------------|--|--|--|
| | Internet of Things | | | |
|--|--------------------|--|--|--|

Total Number of Credits Semester –wise report:

| SEMESTER | CREDITS |
|-------------------|----------------|
| E1S1 | 18.5 |
| E1S2 | 22 |
| E2S1 | 21.5 |
| E2S2 | 21 |
| E3S1 | 22 |
| E3S2 | 22 |
| E4S1 | 18 |
| E4S2 | 15 |
| TOTAL: 160 | |

