

CURRICULUM

REGULATION 2025

B.E - ELECTRICAL AND ELECTRONICS ENGINEERING
(Regular Degree Programme - Working Professionals)

SEMESTER

I TO VI

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VI**A. Foundation Courses (9)****Humanities and Social Sciences – Credits (3)**

| SL. NO | COURSE CODDE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|--------------|---------------------------------------------------|----------------|----------|---|---|---|---|--------------|
| 1 | 34125H03 | BUSINESS ENGLISH | ENG | FC-HS | 2 | 0 | 0 | 2 | NIL |
| 2 | 34125H05 | PROFESSIONAL ENGLISH COMMUNICATION | ENG | FC-HS | 2 | 0 | 0 | 2 | NIL |
| 3 | 34125H02 | UNIVERSAL HUMAN VALUES II - UNDERSTANDING HARMONY | ENG | FC-HS | 2 | 1 | 0 | 3 | NIL |

Basic Science Courses – Credits (6)

| | | | | | | | | | |
|----|----------|--------------------------------------------------------------|-------|-------|---|---|---|---|------------------------------------------------|
| 1. | 34125B02 | MATRICES AND CALCULAS | MATH | FC-BS | 2 | 1 | 0 | 3 | NIL |
| 2. | 34125B20 | PARTIAL DIFFERENTIAL EQUATIONS AND TRANSFORMS | MATH | FC-BS | 2 | 1 | 0 | 3 | MATRICES AND CALCULAS |
| 3. | 34125B04 | SMART MATERIALS AND NANO TECHNOLOGY | PHY | FC-BS | 3 | 0 | 0 | 3 | PHYSICAL SCIENCES – PART A ENGINEERING PHYSICS |
| 4. | 34125B12 | COMPLEX VARIABLE AND LINEAR ALGEBRA | MATHS | FC-BS | 2 | 1 | 0 | 3 | MATRICES AND CALCULAS |
| 5 | 35025E03 | PYTHON PROGRAMMING (THEORY AND PRACTICALS) | CSE | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 6 | 35025E01 | ARTIFICIAL INTELLIGENCE IN SCIENTIFIC RESEARCH AND EDUCATION | CSE | FC-ES | 3 | 0 | 0 | 3 | NIL |
| 7 | 34625E82 | INTRODUCTION TO SCILAB | EEE | FC-ES | 0 | 0 | 4 | 2 | NIL |

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VI**B. Professional Courses****Core Courses – Credits (62)**

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|----------------------------------------------------------------------------------------|----------------|----------|---|---|---|---|------------------------------------|
| 1. | 34625C01 | ELECTRIC CIRCUIT ANALYSIS (THEORY AND PRACTICALS) | EEE | CC - C | 3 | 0 | 2 | 4 | NIL |
| 2. | 34725C05 | SEMICONDUCTOR DEVICES AND CIRCUITS (THEORY AND PRACTICALS) | ECE | CC - C | 3 | 0 | 2 | 4 | NIL |
| 3. | 34625C04 | ELECTRICAL MACHINES – I | EEE | CC - C | 3 | 0 | 0 | 3 | NIL |
| 4. | 34625C05 | ELECTRICAL MACHINES – II | EEE | CC - C | 3 | 0 | 0 | 3 | ELECTRICAL MACHINES – I |
| 5. | 34625C06 | ELECTROMAGNETIC THEORY | EEE | CC - C | 3 | 0 | 0 | 3 | NIL |
| 6. | 34625C08 | MEASUREMENTS AND INSTRUMENTATION (THEORY AND PRACTICALS) | EEE | CC - C | 3 | 0 | 2 | 4 | NIL |
| 7. | 34725C07 | ANALOG AND DIGITAL CIRCUITS (THEORY AND PRACTICALS) | ECE | CC - C | 3 | 0 | 2 | 4 | SEMICONDUCTOR DEVICES AND CIRCUITS |
| 8. | 34625C09 | POWER ELECTRONICS AND DRIVES (THEORY AND PRACTICALS) | EEE | CC - C | 3 | 0 | 2 | 4 | SEMICONDUCTOR DEVICES AND CIRCUITS |
| 9. | 34625C14 | TRANSMISSION AND DISTRIBUTION | EEE | CC - C | 3 | 0 | 0 | 3 | ELECTROMAGNETIC THEORY |
| 10. | 34625C03 | CONTROL SYSTEMS (THEORY AND PRACTICALS) | EEE | CC - C | 3 | 0 | 2 | 4 | NIL |
| 11. | 34625C10 | POWER SYSTEM ANALYSIS | EEE | CC - C | 3 | 0 | 0 | 3 | TRANSMISSION & DISTRIBUTION |
| 12. | 34725C17 | MICROCONTROLLER BASED SYSTEM DESIGN AND EMBEDDED SYSTEM DESIGN (THEORY AND PRACTICALS) | ECE | CC - C | 3 | 0 | 2 | 4 | ANALOG AND DIGITAL CIRCUITS |
| 13. | 34625C13 | RENEWABLE ENERGY SOURCES (THEORY AND PRACTICALS) | EEE | CC - C | 3 | 0 | 2 | 4 | NIL |
| 14. | 34625C12 | POWER SYSTEM PROTECTION AND SWITCHGEAR | EEE | CC - C | 3 | 0 | 0 | 3 | NIL |
| 15. | 34625C07 | HIGH VOLTAGE ENGINEERING | EEE | CC - C | 3 | 0 | 0 | 3 | NIL |
| 16. | 34625C11 | POWER SYSTEM OPERATION AND CONTROL | EEE | CC - C | 3 | 0 | 0 | 3 | POWER SYSTEM ANALYSIS |
| 17. | 34625C81 | ELECTRICAL MACHINES – I LAB | EEE | CC - C | 0 | 0 | 4 | 2 | NIL |
| 18. | 34625C82 | ELECTRICAL MACHINES – II LAB | EEE | CC - C | 0 | 0 | 4 | 2 | NIL |
| 19. | 34625C83 | POWER SYSTEM SIMULATION LAB | EEE | CC - C | 0 | 0 | 4 | 2 | NIL |

B.E. – ELECTRICAL AND ELECTRONICS ENGINEERING – SEMESTER I TO VI**C. Elective Courses****Professional Electives - Credits(12 - 15)**

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|-------------------------------------------------------------|----------------|----------|---|---|---|---|--------------|
| 1. | 34625P10 | POWER QUALITY AND FACTS | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 2. | 34625P12 | SPECIAL ELECTRICAL MACHINES | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 3. | 34625P13 | SUBSTATION ENGINEERING AND AUTOMATION | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 4. | 34625P04 | DISTRIBUTED GENERATION AND MICROGRIDS | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 5. | 34625P09 | POWER CONVERTERS ANALYSIS AND DESIGN | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 6. | 34625P07 | ENERGY CONVERSION AND STORAGE TECHNOLOGIES | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 7. | 34625P11 | POWER SYSTEM AND SMART GRID | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 8. | 34625P03 | DIGITAL SIGNAL PROTECTION FOR POWER SYSTEMS | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 9. | 34625P14 | SUSTAINABLE AND ENVIRONMENTAL FRIENDLY HV INSULATION SYSTEM | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 10. | 34625P02 | DESIGN OF ELECTRICAL APPARATUS | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 11. | 34625P08 | HVDC TRANSMISSION SYSTEMS | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 12. | 34625P06 | ENERGY AUDIT AND CONSERVATION | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 13. | 34625P05 | ELECTRIC VEHICLE AND BATTERY MANAGEMENT SYSTEM | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 14. | 34625P01 | SOLAR RADIATION AND ENERGY CONVERSION | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |
| 15. | 34625P15 | WIND ENERGY CONVERSION SYSTEMS | EEE | EC-PS | 3 | 0 | 0 | 3 | NIL |

Specialization Electives- Credits - (15)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|------------------------------------------|-------------|------------------------------------------------------|----------------|----------|---|---|---|---|--------------|
| SPECIALISATION – ELECTRIC VEHICLE | | | | | | | | | |
| 1 | 34625EV01 | ARCHITECTURE OF ELECTRIC AND HYBRID ELECTRIC VEHICLE | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 2 | 34625EV02 | BATTERY MANAGEMENT SYSTEM | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |

| | | | | | | | | | |
|---|-----------|---------------------------------------------|-----|-------|---|---|---|---|-----|
| 3 | 34625EV06 | MODERN DRIVES FOR ELECTRIC VEHICLE | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 4 | 34625EV07 | POWER CONVERTERS FOR ELECTRIC VEHICLE | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 5 | 34625EV08 | TESTING OF ELECTRIC AND HYBRID VEHICLE | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 6 | 34625EV05 | DESIGN OF HYBRID ELECTRIC VEHICLE | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 7 | 34625EV04 | CONTROL SYSTEMS FOR HYBRID ELECTRIC VEHICLE | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 8 | 34625EV03 | BRAKE SYSTEM OF EV AND HEV | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |

SPECIALISATION – ARTIFICIAL INTELLIGENCE IN ELECTRICAL SYSTEMS

| | | | | | | | | | |
|----|------------|--------------------------------------------------------------|-----|-------|---|---|---|---|-----|
| 1 | 34625AES04 | APPLIED STATISTICS FOR INTELLIGENT ELECTRICAL SYSTEMS | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 2 | 34625AES01 | AI FUNDAMENTALS FOR ELECTRICAL ENGINEERING USING SIMULATIONS | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 3 | 34625AES05 | ARTIFICIAL NEURAL NETWORKS IN POWER AND CONTROL SYSTEMS | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 4 | 34625AES06 | DEEP LEARNING FOR SMART GRID AND ELECTRICAL APPLICATIONS | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 5 | 35025AES07 | MACHINE LEARNING ALGORITHMS | CSE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 6 | 35025AES08 | OPTIMIZATION FOR MACHINE LEARNING | CSE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 7 | 34625AES02 | APPLICATIONS OF AI AND ML IN ELECTRICAL ENGINEERING | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 8 | 34625AES03 | APPLICATIONS OF AI AND ML IN INDUSTRY | EEE | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 9 | 35025AES81 | ARTIFICIAL INTELLIGENCE LAB USING PYTHON | CSE | EC-SE | 0 | 0 | 4 | 2 | NIL |
| 10 | 34625AES82 | MACHINE LEARNING LABORATORY | EEE | EC-SE | 0 | 0 | 4 | 2 | NIL |

Industry Designed/ Industry Supported/ Industry Offered/ Industry Sponsored Courses – Credits (3 - 9)

| SL. NO | COURSE CODE | COURSE | OFFERING INDUSTRY | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|--------------------------------------------|-------------------|----------|---|---|---|---|--------------|
| 1. | 34125I04 | BUSINESS INTELLIGENCE AND ITS APPLICATIONS | INFOSYS | EC-IE | 3 | 0 | 0 | 3 | NIL |
| 2. | 34125I20 | LEARNING IT ESSENTIALS BY DOING | INFOSYS | EC-IE | 3 | 0 | 0 | 3 | NIL |
| 3 | 34125I03 | BUILDING ENTERPRISE APPLICATIONS | INFOSYS | EC-IE | 3 | 0 | 0 | 3 | NIL |

Vocational Skill Development Courses - Credits (2)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|--------|----------------|----------|---|---|---|---|--------------|
|--------|-------------|--------|----------------|----------|---|---|---|---|--------------|

| | | | | | | | | | |
|---|----------|---------------------------------------|-----|--------|---|---|---|---|-----|
| 1 | 34625V82 | EV CHARGING STATION BUSINESS | EEE | EC-VSD | 0 | 0 | 2 | 1 | NIL |
| 2 | 34625V84 | SOLAR PANEL INSTALLATION | EEE | EC-VSD | 0 | 0 | 2 | 1 | NIL |
| 3 | 34625V83 | LIGHTING SYSTEM DESIGN USING SOFTWARE | EEE | EC-VSD | 0 | 0 | 2 | 1 | NIL |
| 4 | 34625V81 | ELECTRICAL WIRING AND MAINTENANCE | EEE | EC-VSD | 0 | 0 | 2 | 1 | NIL |

Open Electives

Electives Innovation, Entrepreneurship, Skill Development etc. - Credits (3 - 9)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|-------------------------------------------|----------------|----------|---|---|---|---|--------------|
| 1. | 34125O05 | CREATIVITY AND INNOVATION MANAGEMENT | MANAG | OE-IE | 3 | 0 | 0 | 3 | NIL |
| 2. | 34125O08 | INTELLECTUAL PROPERTY RIGHTS | MANAG | OE-IE | 3 | 0 | 0 | 3 | NIL |
| 3. | 34125O09 | PRODUCT DESIGN & DEVELOPMENT | MANAG | OE-IE | 3 | 0 | 0 | 3 | NIL |
| 4. | 34125O07 | ENTREPRENEURSHIP AND NEW VENTURE CREATION | MANAG | OE-IE | 3 | 0 | 0 | 3 | NIL |

Interdepartmental Open Electives, Management courses - Credits (3 - 9)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|----------------------------------------|----------------|----------|---|---|---|---|--------------|
| 1 | 35325O03 | TELEHEALTH TECHNOLOGY | BME | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 2 | 35325O02 | FUNDAMENTALS OF BIOMEDICAL ENGINEERING | BME | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 3 | 35325O01 | BODY AREA NETWORKS | BME | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 4 | 38125O01 | BIOFERTILIZER TECHNOLOGY | BTE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 5 | 38125O02 | FOOD SCIENCE AND INDUSTRY4.0 | BTE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 6 | 38125O03 | INTRODUCTION TO BIOFUELS | BTE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 7 | 34225O02 | INDUSTRIAL PLANT DESIGN & ENGINEERING | CIVIL | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 8 | 34225O03 | SUSTAINABLE WASTE MANAGEMENT PRACTICES | CIVIL | OE-EA | 3 | 0 | 0 | 3 | NIL |

| | | | | | | | | | |
|----|----------|-------------------------------------------------|-------|-------|---|---|---|---|-----|
| 9 | 34225001 | DISASTER MANAGEMENT AND MITIGATION STRATEGIES | CIVIL | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 10 | 35025001 | CYBER SECURITY | CSE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 11 | 35025003 | FUNDAMENTALS OF MACHINE LEARNING | CSE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 12 | 35025002 | DATA SCIENCE FOR PROFESSIONALS | CSE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 13 | 34725002 | DIGITAL IMAGE PROCESSING & PATTERN GENERATION | ECE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 14 | 34725004 | PRINCIPLES OF RADAR AND SATELLITE COMMUNICATION | ECE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 15 | 34725003 | EVOLUTION OF MOBILE COMMUNICATION: 1G TO 5G | ECE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 16 | 34425001 | 3D PRINTING AND ITS APPLICATIONS | MECH | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 17 | 34425002 | ENERGY HARVESTING AND RENEWABLE ENERGY SYSTEMS | MECH | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 18 | 34425003 | INDUSTRIAL ROBOTICS | MECH | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 19 | 36925003 | FUNCTIONAL FOODS AND NUTRACEUTICALS | PE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 20 | 36925001 | BIOMOLECULES | PE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 21 | 36925002 | BIOPHARMACEUTICS | PE | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 22 | 34125002 | TOTAL QUALITY MANAGEMENT | MANAG | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 23 | 34125001 | ENGINEERING MANAGEMENT AND ETHICS | MANAG | OE-EA | 3 | 0 | 0 | 3 | NIL |
| 24 | 34125003 | MANAGEMENT PRINCIPLES FOR ENGINEERS | MANAG | OE-EA | 3 | 0 | 0 | 3 | NIL |

Special Elective – Credits (3)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|----------------------------------|----------------|----------|---|---|---|---|--------------|
| 1 | 34125L01 | LEAN SIX SIGMA | MANAG | OE - SP | 3 | 0 | 0 | 3 | NIL |
| 2 | 34125L02 | PROJECT MANAGEMENT AND TEAM WORK | MANAG | OE - SP | 3 | 0 | 0 | 3 | NIL |

University Multidisciplinary Open Electives - Credits (1)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|--------------------------------------------|----------------|----------|---|---|---|---|--------------|
| 1 | 40625U01 | DENTAL HYGIENE & QUALITY OF LIFE | DENTISTRY | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 2 | 40625U02 | NUTRITION FOR WELLNESS & SPECIFIC DISEASES | NURSING | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 3 | 40625U03 | FUNDAMENTALS OF HOMOEOPATHY | HOMOEOPATHY | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 4 | 40625U04 | ADVERTISING | ARTS & SCIENCE | OE - UOE | 1 | 0 | 0 | 1 | NIL |

| | | | | | | | | | |
|----|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------|---|---|---|---|-----|
| 5 | 40625U05 | TEAMWORK & COLLABORATION | ARTS & SCIENCE | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 6 | 40625U06 | EMOTIONAL INTELLIGENCE | ARTS & SCIENCE | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 7 | 40625U07 | MEDIA MANAGEMENT | ARTS & SCIENCE | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 8 | 40625U08 | EXERCISE ESSENTIALS FOR PHYSICAL FITNESS | PHYSIOTHERAPY | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 9 | 40625U09 | ESSENTIAL SKILLS FOR MEDICAL EMERGENCIES | MEDICINE | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 10 | 40625U10 | MEDICINE PLANTS IN DISEASE MANAGEMENT | PHARMACY | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 11 | 40625U11 | BASIC LIFE SUPPORT | ALLIED HEALTH SCIENCES | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 12 | 40625U12 | MALLARKHAMBAM | PHYSICAL EDUCATION | OE - UOE | 0 | 0 | 2 | 1 | NIL |
| 13 | 40625U13 | SILAMBAM | PHYSICAL EDUCATION | OE - UOE | 1 | 0 | 2 | 1 | NIL |
| 14 | 40625U14 | BASIC FITNESS TRAINING | PHYSICAL EDUCATION | OE - UOE | 1 | 0 | 2 | 1 | NIL |
| 15 | 40625U15 | RECREATIONAL GAMES | PHYSICAL EDUCATION | OE - UOE | 1 | 0 | 2 | 1 | NIL |
| 16 | 40625U16 | INTRODUCTION TO LAW | LAW | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 17 | 40625U17 | FUNDAMENTALS OF LAW IN TECHNOLOGY AND CYBER SPACE | LAW | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 18 | 40625U18 | FOUNDATION COURSE IN YOGA | REHABILITATION AND BEHAVIORAL SCIENCES | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 19 | 40625U19 | INTRODUCTION TO PSYCHOLOGY | REHABILITATION AND BEHAVIORAL SCIENCES | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 20 | 40625U20 | INTRODUCTION TO PUBLIC POLICY AND GOVERNANCE | LIBERAL ARTS | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 21 | 40625U21 | INDIAN ECONOMY AND DEVELOPMENT CHALLENGES | LIBERAL ARTS | OE - UOE | 1 | 0 | 0 | 1 | NIL |
| 22 | | ANY SWAYAM / MOOC / NPTEL COURSES WHICH ARE NOT RELATED TO THE DISCIPLINE OF STUDY OF THE STUDENT CAN BE CHOSEN AS AN OPEN ELECTIVE IN CONSULTATION WITH THE RESPECTIVE FACULTY ADVISOR OF THE INSTITUTION. | EEE | OE - UOE | 1 | 0 | 0 | 1 | NIL |

D. Indian Knowledge System - Credits (2)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|-------------------------|----------------|----------|---|---|---|---|--------------|
| 1. | 34625K01 | Indian Knowledge System | ENG | IKS | 2 | 0 | 0 | 2 | NIL |

E. Design Thinking - Credit (1)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|----------------------------------------------|----------------|----------|---|---|---|---|--------------|
| 1 | 34625D01 | DESIGN THINKING AND ADVANCED PROBLEM SOLVING | HCL | DT | 1 | 0 | 0 | 1 | NIL |

F. Courses for Presentation of technical Skills related to the specialization

Project work, Seminar and Internship in Industry or elsewhere - Credits (11)

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|--------------|----------------|----------|---|---|----|---|--------------|
| 1 | 34625R01 | PROJECT WORK | EEE | PI - P | 0 | 0 | 16 | 8 | NIL |
| 2 | 34625M01 | MINI PROJECT | EEE | PI - M | 0 | 0 | 6 | 3 | NIL |

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G.MANDATORY COURSES

(NOT INCLUDED FOR CGPA CALCULATIONS - Credits (5))

| SL. NO | COURSE CODE | COURSE | OFFERING DEPT. | CATEGORY | L | T | P | C | PREREQUISITE |
|--------|-------------|------------------------|----------------|----------|---|---|---|---|--------------|
| 1. | 34625Z82 | RESEARCH METHODOLOGY | EEE | MC | 0 | 0 | 2 | 1 | NIL |
| 2 | 34125Z01 | ENVIRONMENTAL SCIENCES | CHEM | MC | 0 | 0 | 2 | 1 | NIL |
| 3 | 34125Z81 | INDIAN CONSTITUTION | LAW | MC | 0 | 0 | 2 | 1 | NIL |
| 4 | 34125Z82 | YOGA AND MEDITATION | PHED | MC | 0 | 0 | 2 | 1 | NIL |

INDUSTRY INTEGRATED COURSES

INTEL - NEC - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

| | | | | | | | | | |
|---|-----------|-----------------------------------------------------------------------------|-------------------|-------|---|---|---|---|-----|
| 1 | I37025E01 | FUNDAMENTALS OF C PROGRAMMING USING INTEL LIBRARIES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 2 | I35025E06 | PYTHON PROGRAMMING AND RASPBERRY PI FUNDAMENTALS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 3 | I35025P29 | FOUNDATION OF ARTIFICIAL INTELLIGENCE (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |

| | | | | | | | | | |
|---|-----------|-------------------------------------------------------------------------------------------------|----------------------|-------|---|---|---|---|-----|
| 4 | I35025P37 | MACHINE INTELLIGENCE: UNLEASHING THE POWER OF LEARNING SYSTEMS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 5 | I35025P23 | DEEP LEARNING TECHNIQUES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 6 | I35025I21 | HIGH PERFORMANCE COMPUTING (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-IE | 3 | 0 | 2 | 4 | NIL |
| 7 | I35025I04 | APPLIED AI AND IOT (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-IE | 3 | 0 | 2 | 4 | NIL |

INTEL - NEC - CYBER SECURITY

| | | | | | | | | | |
|---|-----------|--------------------------------------------------------------------------------------|----------------------|-------|---|---|---|---|-----|
| 1 | I37025E01 | FUNDAMENTALS OF C PROGRAMMING USING INTEL LIBRARIES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 2 | I35025E06 | PYTHON PROGRAMMING AND RASPBERY PI FUNDAMENTALS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 3 | I35025P16 | CYBER SECURITY TOOLS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 4 | I35025P28 | ETHICAL HACKING TECHNIQUES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 5 | I35025P12 | CRYPTOGRAPHY TECHNIQUES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 6 | I35025I26 | SECURE NETWORKING AND INFRASTRUCTURE (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-IE | 3 | 0 | 2 | 4 | NIL |
| 7 | I35025I10 | CYBER SECURITY IN PUBLIC CLOUD PLATFORMS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-IE | 3 | 0 | 2 | 4 | NIL |

INTEL - NEC - INTERNET OF THINGS

| | | | | | | | | | |
|---|-----------|-----------------------------------------------------------------------------|-------------------|-------|---|---|---|---|-----|
| 1 | I37025E01 | FUNDAMENTALS OF C PROGRAMMING USING INTEL LIBRARIES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 2 | I35025E06 | PYTHON PROGRAMMING AND RASPBERRY PI FUNDAMENTALS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | FC-ES | 3 | 0 | 2 | 4 | NIL |
| 3 | I35025P08 | BUILDING INTERNET OF THINGS (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 4 | I35025P09 | COMMUNICATION PROTOCOLS FOR IOT (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 5 | I35025P26 | EMBEDDED SYSTEM DESIGN (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 6 | I35025I16 | EMBEDDED IOT (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-IE | 3 | 0 | 2 | 4 | NIL |
| 7 | I35025I27 | SENSOR CONCEPTS AND TECHNIQUES (THEORY AND PRACTICALS) | CSE / INTEL - NEC | EC-IE | 3 | 0 | 2 | 4 | NIL |

HCL TECH - DATA ENGINEERING AND VISUALIZATION

| | | | | | | | | | |
|---|-----------|------------------------------------------------------------------------------------------|----------------|-------|---|---|---|---|-----|
| 1 | I35025P17 | DATA ENGINEERING AND PYTHON PROGRAMMING FUNDAMENTALS (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 2 | I35025P02 | ADVANCED PYTHON LIBRARIES, WORKING WITH SQL AND NOSQL (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 3 | I35025P46 | DATA WAREHOUSE AND MODELLING (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 4 | I35025I12 | DATA VISUALIZATION CONCEPTS AND WORKING WITH VISUALIZATION TOOLS (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-IE | 3 | 0 | 2 | 4 | NIL |

HCL TECH - ESSENTIALS OF EMBEDDED AND IOT DEVELOPMENT

| | | | | | | | | | |
|---|-----------|----------------------------------------------------------------------------------------|----------------|-------|---|---|---|---|-----|
| 1 | I35025P35 | IOT NETWORKING, DATA MANAGEMENT & SECURITY IN IOT APPLICATIONS (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 2 | I35025P27 | EMBEDDED SYSTEMS PROGRAMMING USING ARM CORTEX (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 3 | I35025P25 | EMBEDDED SYSTEM ARCHITECTURE AND PIC PROGRAMMING (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 4 | I35025I19 | FUNDAMENTALS OF IOT: ARCHITECTURE, HARDWARE & CONNECTIVITY (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-IE | 3 | 0 | 2 | 4 | NIL |

HCL TECH - FULL STACK JAVA DEVELOPMENT WITH AI

| | | | | | | | | | |
|---|-----------|-------------------------------------------------------------------------|----------------|-------|---|---|---|---|-----|
| 1 | I35025P07 | BASICS OF JAVA, AGILE AND GEN AI (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 2 | I35025P31 | FRONT-END USER INTERFACE DESIGN AND DEVELOPMENT (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 3 | I35025P45 | WORKING WITH SPRING FRAMEWORK (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-PS | 3 | 0 | 2 | 4 | NIL |
| 4 | I35025I15 | DEVOPS AND ITS TOOLS (THEORY AND PRACTICALS) | CSE / HCL TECH | EC-IE | 3 | 0 | 2 | 4 | NIL |

HCL TECH - FUNDAMENTALS OF AI AND WORK PRODUCTIVITY TOOLS

| | | | | | | | | | |
|---|-----------|----------------------------------------|------------------|-------|---|---|---|---|-----|
| 1 | I35025P38 | POWER OF TRUCTURED QUESTIONS | CSE / HCL TECH | EC-PS | 2 | 0 | 0 | 2 | NIL |
| 2 | I35025P03 | AI AND GEN AI | CSE / HCL TECH | EC-PS | 2 | 0 | 0 | 2 | NIL |
| 3 | I35025P01 | ADOPTION OF AI IN CAREERS | CSE / HCL TECH | EC-PS | 2 | 0 | 0 | 2 | NIL |
| 4 | I35025P36 | M365 COLLABORATIVE TOOLS | CSE / HCL TECH | EC-PS | 2 | 0 | 0 | 2 | NIL |
| 5 | I35025P44 | UNDERSTANDING DATA AND ANALYTICS TOOLS | CSE / HCL TECH H | EC-PS | 2 | 0 | 4 | 4 | NIL |
| 6 | I35025I09 | CYBER AND DATA SECURITY AT WORK | CSE / HCL TECH | EC-IE | 2 | 0 | 4 | 4 | NIL |

AMTZ

| | | | | | | | | | |
|---|-----------|-------------------------------------------------------|------------|-------|---|---|---|---|-----|
| 1 | I35325P04 | MEDICAL EQUIPMENT TROUBLESHOOTING - CRITICAL CARE | BME / AMTZ | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 2 | I35325P05 | MEDICAL EQUIPMENT TROUBLESHOOTING - OPERATION THEATER | BME / AMTZ | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 3 | I35325P06 | MEDICAL EQUIPMENT TROUBLESHOOTING - RADIOLOGY | BME / AMTZ | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 4 | I35325P01 | CLINICAL LABORATORY EQUIPMENT | BME / AMTZ | EC-SE | 3 | 0 | 0 | 3 | NIL |

| | | | | | | | | | |
|---|-----------|-----------------------------------|------------|-------|---|---|---|---|-----|
| 5 | I35325102 | HEALTH CARE SAFETY AND STANDARDS | BME / AMTZ | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 5 | I35325103 | NABH & NABL& JCI ACCREDITATIONS | BME / AMTZ | EC-IE | 3 | 0 | 0 | 3 | NIL |
| 7 | I35325101 | FACILITIES AND GENERAL MANAGEMENT | BME / AMTZ | EC-IE | 3 | 0 | 0 | 3 | NIL |

EXPERIENTIAL TECHNOLOGY INNOVATION CENTER (XTIC) AT IITM

| | | | | | | | | | |
|----|-----------|--------------------------------------------|------------|-------|---|---|----|---|-----|
| 1 | I35025B01 | MATHEMATICS AND PHYSICS FOR XR | CSE / XTIC | FC-BS | 3 | 0 | 0 | 3 | NIL |
| 2 | I37025E02 | PROGRAMMING FUNDAMENTALS FOR XR | CSE / XTIC | FC-ES | 3 | 0 | 0 | 3 | NIL |
| 3 | I35025P19 | DATA STRUCTURES AND ALGORITHMS FOR XR | CSE / XTIC | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 4 | I35025P11 | COMPUTER VISION, IOT, ROBOTICS | CSE / XTIC | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 5 | I35025P10 | COMPUTER GRAPHICS AND 3D MODELING FOR XR | CSE / XTIC | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 6 | I35025P04 | AI AND MACHINE LEARNING FOR XR | CSE / XTIC | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 7 | I35025I18 | FOUNDATION OF VIRTUAL REALITY | CSE / XTIC | EC-SE | 3 | 0 | 0 | 3 | NIL |
| 8 | I35025I22 | HUMAN COMPUTER INTERACTION FOR XR | CSE / XTIC | EC-IE | 3 | 0 | 0 | 3 | NIL |
| 9 | I35025I20 | INTRODUCTION TO GAME DESIGN THINKING IN XR | CSE / XTIC | EC-IE | 3 | 0 | 0 | 3 | NIL |
| 10 | I35025R02 | CAPSTONE PROJECT WORK | CSE / XTIC | PI-P | 0 | 0 | 16 | 8 | NIL |

MICRO CREDENTIAL COURSES

| | | | | | | | | | |
|---|----------|-------------------------------------------------------------------------|-----|-----|---|---|---|---|-----|
| 1 | 34625J85 | RPTO (REMOTE PILOT TRAINING ORGANIZATION) LICENSE – DRONE PILOT LICENSE | EEE | MCC | 0 | 0 | 2 | 1 | NIL |
| 2 | 34625J84 | MATLAB OR SIMULINK BASICS | EEE | MCC | 0 | 0 | 4 | 2 | NIL |
| 3 | 34625J83 | LEAN STARTUP & BUSINESS MODEL CANVAS | EEE | MCC | 0 | 0 | 2 | 1 | NIL |
| 4 | 34625J82 | EXCEL FOR ENGINEERS: DATA HANDLING & VISUALIZATION | EEE | MCC | 0 | 0 | 2 | 1 | NIL |
| 5 | 34625J81 | ENTREPRENEURSHIP & STARTUP FUNDAMENTALS | EEE | MCC | 0 | 0 | 2 | 1 | NIL |