**Program Specific Outcomes and Course Outcomes**

**for**

**Diploma in Engineering (Computer Engineering)**

**BATCH (2022 Onwards) BOS (2022)**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Program Specific Outcomes:**   * To analyse, design, develop, test and apply management principles, mathematical foundation and make them expert in designing computer software and hardware. * To develop their skills to solve problems in area of programming and simulation. * To demonstrate basic knowledge of computer applications and apply standard practices in software project development. * To understand, analyse and develop computer programs for efficient design of computer based systems of varying complexity. | |

**Diploma in Engineering (Computer Engineering)**

**1st Year 1st Semester**

**(Group-A)**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills - I | **Course Code**: CPED1101T/ECED1101T |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Understand the facts of literature from short stories and poetry. * Solve vocabulary Exercise Based on selective Reading. * Acquire the knowledge about kinds of communications, process and objectives of communications. * Use grammar, tenses, voice, Pair of speech. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics - I | **Course Code**: CPED1102T/ECED1102T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Acquire the knowledge about units and dimensions of physical quantities. * Understand the concept of scalar and vector product and the application of Newton’s law of motion. * Study different types of waves along with mathematical representations. * Get knowledge about Simple Harmonic Motion and its parameters. * Impart the basic concepts of work in various types of planes, power with numerical problems and derivations of energy. * Acquire knowledge about various properties of matter and pressure measuring devices. * Study about temperature measuring scales and modes of transfer of heat. | |
| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Mathematics - I | **Course Code**: CPED1103T/ECED1103T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Describe the important tools of mathematics for further study in B.Tech., M.Tech. * Learn to solve the problems of derivatives, integrals. * Learn various types of properties of tools to solve complex matrices and determinants to simple. * Get introduced to different types of tools to solve equations. * Practice on different tools to solve the real world problems. * Aquire much information about to convert derivatives into multiple domain variables. * Learn the students to view different functions in a different domain. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Chemistry | **Course Code**: CPED1104T/ECED1104T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Apply the fundamental principles of measurement, matter, atomic theory, chemical periodicity, chemical bonding, general chemical reactivity and solution chemistry to subsequent courses in science. * Acquire knowledge about the fundamental principles of bonding in materials. * Develop innovative methods to produce soft water for industrial use and potable water at cheaper cost. * Apply their knowledge for protection of different metals from corrosion. * Get basic knowledge of organic compounds and their common names. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Engineering Drawing - I | **Course Code**: CPED1105T/ECED1105T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand the basics of engineering drawing, lettering, scales and projections. * Learn to draw the projections of points, lines, planes and solids. * Learn to draw the projections of technical drawing of threads and hexagonal & square nuts. * Draw and understand the drawing of isometric and sectional views. * Learn the basic drawings of various mechanical components used in mechanical engineering. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills - I Lab | **Course Code**: CPED1108P/ECED1108P |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Locate books in library. * look up words in a dictionary meaning and pronunciation of words. * seek information from encyclopaedia. * Read Paper and unseen Passage. * Introduce oneself others and leave taking etc. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics Lab - I | **Course Code**: CPED1109P/ECED1109P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Make the students gain practical knowledge to corelate with the theoretical studies. * Understand the fundamentals of units and dimensions by using instruments. * Understand the Scalar and vector quantities of force and motion. * Understand the waves motion, vibrations and harmonics. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Chemistry Lab | **Course Code**: CPED1110P/ECED1110P |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Prepare various concentration solutions like molar, normal, ppm, etc. * Develop in the student the ability to record scientific experimental processes, analyze results, draw conclusions, write reports and present their work orally. * Learn the method to prepare iodoform from ethanol or acetone. * Acquire practical knowledge on the techniques for the preparation bakelite. * Prepare the Mohr’s salt from ferrous sulphate and ammonium sulphate. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basics of Information Technology Lab | **Course Code**: CPED1111P/ECED1111P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Make aware the students about basics of computer, electronics components and its measurement. * Provide knowledge of different units of computer like processing unit, I/O unit, and storage unit. * Operate windows OS and its features. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Workshop Practice-I | **Course Code**: CPED1112P/ECED1112P |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Develop the basic working knowledge required for the production of various engineering products. * Understand the Design different sheet metal working processes. * Demonstrate operation such as turning, facing, threading, knurling and grooving on centre lathe. * Understand the metal cutting and joining by the welding. * Develop the knowledge about wood working. | |

**Diploma in Engineering (Computer Engineering)**

**1st Year 1st Semester**

**(Group-B)**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills - I | **Course Code**: CPED1101T/ECED1101T |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Understand the facts of literature from short stories and poetry. * Solve vocabulary exercise based on selective reading. * Acquire the knowledge about kinds of communications, process and objectives of communications. * Use grammar, tenses, voice, pair of speech. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics - I | **Course Code**: CPED1102T/ECED1102T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Acquire the knowledge about units and dimensions of physical quantities. * Understand the concept of scalar and vector product and the application of Newton’s law of motion. * Study different types of waves along with mathematical representations. * Get knowledge about Simple Harmonic Motion and its parameters. * Impart the basic concepts of work in various types of planes, power with numerical problems and derivations of energy. * Acquire knowledge about various properties of matter and pressure measuring devices. * Study about temperature measuring scales and modes of transfer of heat. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Mathematics - I | **Course Code**: CPED1103T/ECED1103T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Learn the important tools of mathematics for further study in B.Tech., M.Tech. * Learn to solve the problems of derivatives, integrals. * Learn various types of properties of tools to solve complex matrices/determinants to simple. * Get introduced to different types of tools to solve equations. * Practice on different tools to solve the real world problems. * Get much information about to convert derivatives into multiple domain variables. * Learn to view different functions in a different domain. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electrical Engineering | **Course Code**: CPED1106T/ECED1106T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Study the electrical quantities and various electrical circuits. * Application of Kirchhoff’s Law’s and star delta conversions. * Analyze the concept of AC and DC circuits. * Understand various Voltage and Current Source. * Understand the Concept of electro-magnetic, AC Fundamentals. * Apply the basic concepts and theorems in solving the electrical networks. * Understand the applications of electrical engineering. * Evaluate the results of varoius electrical networks. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electronics | **Course Code**: CPED1107T/ECED1107T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand basic concepts of various materials specially semiconductors, their characteristics and applications. * Learn to analyze the PN junction behavior at the circuit level and its role in the operation of diodes and active device. * Develop design competence in signal and power amplifiers using BJT and FET. * Understand the working principles of different semiconductor devices and circuits. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills - I Lab | **Course Code**: CPED1108P/ECED1108P |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Locate books in library. * Look up words in a dictionary meaning and pronunciation of words. * To seek information from encyclopaedia. * Read paper and unseen passage. * Introduce oneself others and leave taking etc. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics Lab - I | **Course Code**: CPED1109P/ECED1109P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Make the students gain practical knowledge to co-relate with the theoretical studies. * Understand the fundamentals of units and dimensions by using instruments. * Understand the scalar and vector quantities of force and motion. * Understand the waves motion, vibrations and harmonics. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electrical Engineering Lab | **Course Code**: CPED1113P/ECED1113P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Study the electrical quantities and various electrical circuits. * Application of Kirchhoff’s Law’s and star delta conversions. * Analyze the concept of AC and DC circuits. * Understand various voltage and current source. * Understand the Concept of electro-magnetic, AC fundamentals. * Apply the basic concepts and theorems in solving the electrical networks. * Understand the applications of electrical engineering. * Evaluate the results of various electrical networks. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electronics Lab | **Course Code**: CPED1114P/ECED1114P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Dain the basic knowledge of electronic instruments such as multimeter, cathode ray oscilloscope (CRO), function generator etc. * Familiarize about operating characteristics and applications of the PN junction diode. * Gain the knowledge about the operating characteristics of transistor and field effect transistor (FET). * Study about the applications of various transistors as an amplifier. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Workshop Practice-I | **Course Code**: CPED1112P/ECED1112P |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Develop the basic working knowledge required for the production of various engineering products. * Understand the design different sheet metal working processes * Demonstrate operation such as turning, facing, threading, knurling and grooving on centre lathe. * Understand the metal cutting and joining by the welding * Develop the knowledge about wood working. | |

**Diploma in Engineering (Computer Engineering)**

**1st Year 2nd Semester**

**(Group-A)**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills - II | **Course Code**: CPED1201T/ECED1201T |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Learn effective communication- verbal & nonverbal communication, barriers to communication. * Learn the listening skills: kinds of listening, skills for effective listening and barriers to listening * Learn the speaking skills: effective talk, oral presentation and role of audio-visual aids * Learn the writing skills: précis writing and business letters * Learn the grammar: using a word as different parts of speech, prefixes and suffixes (english and hindi) * Learn the reading skills: purposes, kinds of reading * Long and short questions (from short stories & prose) summary/central idea(from poetry) vocabulary exercises based on following selective readings | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics - II | **Course Code**: CPED1202T/ECED1202T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Deal with phenomena related to reflection, refraction, lasers and fiber optics. * Learn basic concepts of semiconductor physics. * Apply the laws of physics to various engineering problems. * Implement their scientific knowledge to solve real world problems. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Mathematics - II | **Course Code**: CPED1203T/ECED1203T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Learn mathematics fundamental necessary to formulate, solve and analyze engineering problems. * Deal with functions of several variables, matrices, system of linear equations, improper integrals and functions of complex variables. * Understand the statistics and probability. * Solve series solution of differential equations. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electrical Engineering | **Course Code**: CPED1204T/ECED1204T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Study the electrical quantities and various electrical circuits. * Application of Kirchhoff’s Law’s and star delta conversions. * Analyze the concept of AC and DC circuits. * Understand various voltage and current source. * Understand the concept of electro-magnetic, AC fundamentals. * Apply the basic concepts and theorems in solving the electrical networks. * Understand the applications of electrical engineering. * Evaluate the results of various electrical networks. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electronics | **Course Code**: CPED1205T/ECED1205T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand basic concepts of various materials specially semiconductors, their characteristics and applications. * Learn to analyze the PN junction behavior at the circuit level and its role in the operation of diodes and active device. * Develop design competence in signal and power amplifiers using BJT and FET. * Understand the working principles of different semiconductor devices and circuits. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills – II Lab | **Course Code**: CPED1208P/ECED1208P |
| **Course Outcomes:**At the end of this course, the student will be able to:  **Listening Practical:**   * Using pre-recorded CDs/DVDs with pre-listening exercise to prepare students about what they are going to hear and comprehension based on the audio. * Listening for the main ideas. * Assessing listening proficiency.   **Speaking Practical:**   * Pronunciation of common words as given in the standard dictionary using symbols of phonetics * Greetings for different occasions. * Introducing oneself, others and leave taking(talking about yourself). * Paper reading before an audience (reading unseen passages). * Reading aloud of Newspaper headlines and important articles. * Improving pronunciation through tongue twisters.   **Reading Practical:**   * Paper reading. * Poetry recitation. * Reading newspaper headlines.   **Writing Practical:**   * Exercise on spellings. * Group exercise on writing paragraphs on given topics. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics – II Lab | **Course Code**: CPED1209P/ECED1209P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Verify ohm’s law, laws of resistances in series and parallel. * Analyze basic experimental techniques required to find fundamentals parameters in physics. * Find resistance of a galvanometer by half deflection method and measure low and high resistance using Wheat Stone bridge * Draw characteristics of a p-n junction diode, use of CRO and study of zener diode characteristics. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electrical Engineering Lab | **Course Code**: CPED1210P/ECED1210P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Study the working principles and operation of different instruments. * VerifY Kirchhoff’s current and voltage laws in a DC circuit. * Understand the basic concepts and principles of dc and ac fundamental, ac circuits, batteries, electromagnetic induction, voltage and current sources etc. * Apply the basic concepts and theorems in solving the electrical networks. * Evaluate the results through the parameters obtained after working on the electrical networks. * Measureme power and power factor in a single phase RLC circuit. * Understand the applications of electrical engineering | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basic Electronics Lab | **Course Code**: CPED1211P/ECED1211P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Gain the basic knowledge of electronic instruments such as multimeter, cathode ray oscilloscope (CRO), function generator etc. * Familiarize about operating characteristics and applications of the PN junction diode. * Gain the knowledge about the operating characteristics of transistor and field effect transistor (FET). * Study about the applications of various transistors as an amplifier. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Workshop practice-II | **Course Code**: CPED1212P/ECED1212P |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Gain knowledge about the construction, function, use and application of different working tools, equipment, machines as well as the technique of manufacturing a product from its raw material. * Understand the various welding techniques. * Gain a broad knowledge of sand casting, Pattern making, requirement of pattern materials, different pattern materials and designing of the pattern, Molding and core making. * Gain knowledge about the various machining techniques and wood working techniques. | |

**Diploma in Engineering (Computer Engineering)**

**1st Year 2nd Semester**

**(Group-B)**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills - II | **Course Code**: CPED1201T/ECED1201T |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Learn effective communication- verbal & non-verbal communication, barriers to communication. * Learn the listening skills: kinds of listening, skills for effective listening and barriers to listening. * Learn the speaking skills: effective talk, oral presentation and role of audio-visual aids. * Learn the writing skills: précis writing and business letters. * Learn the grammar: using a word as different parts of speech, prefixes and suffixes (english and hindi) * Learn the reading skills: purposes, kinds of reading. * Long and short questions(from short stories & prose) summary/central idea (from poetry) vocabulary exercises based on following selective readings. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics - II | **Course Code**: CPED1202T/ECED1202T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Deal with phenomena related to reflection, refraction, lasers and fiber optics. * Learn basic concepts of semiconductor physics. * Apply the laws of physics to various engineering problems. * Implement their scientific knowledge to solve real world problems. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Mathematics - II | **Course Code**: CPED1203T/ECED1203T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Mathematics fundamental necessary to formulate, solve and analyze engineering problems. * Deal with functions of several variables, matrices, system of linear equations, improper integrals and functions of complex variables. * Understand of statistics and probability. * Solve series solution of differential equations. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Chemistry | **Course Code**: CPED1206T/ECED1206T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Apply the fundamental principles of measurement, matter, atomic theory, chemical periodicity, chemical bonding, general chemical reactivity and solution chemistry to subsequent courses in science. * Acquire knowledge about the fundamental principles of bonding in materials. * Develop innovative methods to produce soft water for industrial use and potable water at cheaper cost. * Apply their knowledge for protection of different metals from corrosion. * Basic knowledge of organic compounds and their common names. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Engineering Drawing - I | **Course Code**: CPED1203T/ECED1203T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand the basics of engineering drawing, lettering, scales and projections. * Learn to draw the projections of points, lines, planes and solids. * Learn to draw the projections of technical drawing of threads and hexagonal & square nuts. * Draw and understand the drawing of isometric and sectional views. * Learn the basic drawings of various mechanical components used in mechanical engineering. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** English and Communication Skills – II Lab | **Course Code**: CPED1207P/ECED1207P |
| **Course Outcomes:**At the end of this course, the student will be able to:  **Listening Practical:**   * Using pre-recorded CDs/DVDs with pre-listening exercise to prepare students about what they are going to hear and comprehension based on the audio. * Listening for the main ideas. * Assessing listening proficiency.   **Speaking Practical:**   * Pronunciation of common words as given in the standard dictionary using symbols of phonetics. * Greetings for different occasions. * Introducing oneself, others and leave taking(talking about yourself). * Paper reading before an audience (reading unseen passages). * Reading aloud of Newspaper headlines and important articles. * Improving pronunciation through tongue twisters.   **Reading Practical:**   * Paper reading. * Poetry recitation. * Reading newspaper headlines.   **Writing Practical:**   * Exercises on spellings. * Group exercises on writing paragraphs on given topics. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Physics – II Lab | **Course Code**: CPED1209P/ECED1209P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Verify ohm’s law, Laws of resistances in series and parallel. * Analyze basic experimental techniques required to find fundamentals parameters in physics. * Find resistance of a galvanometer by half deflection method and measure low and high resistance using wheat stone bridge. * Draw characteristics of a p-n junction diode, use of CRO and study of zener diode characteristics. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Applied Chemistry Lab | **Course Code**: CPED1213P/ECED1213P |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Prepare various concentration solutions like molar, normal, ppm, etc. * Develop in the student the ability to record scientific experimental processes, analyze results, draw conclusions, write reports and present their work orally. * Learn the method to prepare iodoform from ethanol or acetone. * Acquire practical knowledge on the techniques for the preparation bakelite. * Prepare the Mohr’s salt from ferrous sulphate and ammonium sulphate. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Basics of Information Technology Lab | **Course Code**: CPED1214P/ECED1214P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Make aware the students about basics of computer, electronics components and its measurement. * Provide knowledge of different units of computer like processing unit, I/O unit, and storage unit. * Operate windows OS and its features. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Workshop practice-II | **Course Code**: CPED1212P/ECED1212P |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Gain knowledge about the construction, function, use and application of different working tools, equipment, machines as well as the technique of manufacturing a product from its raw material. * Understand the various welding techniques. * Gain a broad knowledge of sand casting, Pattern making, requirement of pattern materials, different pattern materials and designing of the pattern, Molding and core making. * Gain knowledge about the various machining techniques and wood working techniques. | |

**Diploma in Engg. (CE)**

**2nd Year 3rd Semester**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Digital Electronics | **Course Code**: CPED2301T/ECED2301T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Learn about the various number systems used in the computer-based systems and their arithmetic and logic operations. * Demonstrate the use of logic gates, basic boolean laws, minimization techniques for the designing of various combinational circuits. * Describe the use of logic gates to design various logic circuits such as adder, subtractor, encoders, decoders, mux, demux etc. * Describe operation, characteristic equations, excitation table of various flip flops. * Learn about the applications of flip-flops as counters and shift registers. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Computer Programming Using ‘C’ | **Course Code**: CPED2302T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Demonstrate programs with the program structure and control structure. * Demonstrate the concept various functions of ‘C’. * Demonstrate the concept of single and multidimensional arrays and pointers. * Declare the structures, arrays of structures and union. * Demonstrate the concept of string and files for reading and writing. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Operating Systems | **Course Code**: CPED2303T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Describe the basic concepts of operating systems, including development and achievements, functionalities and objectives. * Explain how memory, I/O devices, files, processes and threads are managed. * Analyze memory management schemes. * Understand deadlock, prevention and avoidance algorithms. * Understand I/O management and file systems. * Make familiar with the basics of Linux system. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Computer Architecture | **Course Code**: CPED2304T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand the structure, function and characteristics of computer systems. * Understand the design of the various functional units and components of computers. * Explain the function of each element of a memory hierarchy. * Identify and compare different methods for computer I/O. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** System Analysis and Design | **Course Code**: CPED2305T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand the life cycle of a systems development project. * Understand the ways in which an analyst’s interaction with system sponsors and users play a part in information systems development. * Experience in developing information systems models. * Experience in developing systems project documentation. * Understand of the object-oriented methods models as covered by the unified modelling language. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Digital Electronics Lab | **Course Code**: CPED2351P/ECED2351P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Realize the basic logic gates AND, OR, NOR, NOT using ICs. * Realize AND, OR, NOR, NOT functions using NAND/NOR gates. * Implement EX-OR, EX-NOR using basic and universal gates. * Realize and verify circuits of binary adders and subtractors. * Construct and verify different types of flip-flops. * Implement and verify multiplexers, shift registers, counters. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Computer Programming Using ‘C’ Lab | **Course Code**: CPED2352P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Execute and edit a C program., define variables and assign values to variables. * Write programs using arithmetic and relational operators. * Format input/output using printf and scanf * Write programs using if, if – else, switch, do – while & for statements. * Write programs using one and two dimensional array & strings. * Write programs using structures and pointers, and reading and writing from a file. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Operating Systems Lab | **Course Code**: CPED2353P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc. * Able to analyse important algorithms e.g process scheduling and memory management. * Categorize the operating system’s resource management techniques. * Demonstrate the ability to perform OS tasks in different operating systems e.g windows, Unix and Linux. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Computer Workshop Lab | **Course Code**: CPED2350P |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Understand the meaning and basic components of computer system. * Define and distinguish between hardware and software components and working of each. * Familiarize the concepts of assembling and dissembling of PCs. * Install the various operating systems and device drivers. * Understand the basics of detection and prevention of various attacks. * Learn the installation and un-installation of Antivirus software. | |

**Qualifying Subjects**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Environment Studies | **Course Code**: **\*** |
| **Course Outcomes:** At the end of this course, the student will be able to:   * State and explain the basics of ecology, eco system and sustainable development. * Read and identify different types of environmental pollution and control measures. * Visualize the energy efficient techniques in day-to-day life. * Introduction to clean technology and green buildings. * Discuss and analyze the impact of human activities on the environment. * Analyze and comprehend the role of non-conventional sources of energy in environmental Protection | |

**Diploma in Engg. (CE)**

**2nd Year 4th Semester**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Data Structures using ‘ C’ | **Course Code**: CPED2401T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Learn the concept of Arrays and operation of Arrays with Algorithms. * Understand the Linked lists with its representation in memory, application of Linked lists. * Study the representation and implementation of stacks, introduction to queues with algorithm. * Understand the concept of representation of binary trees (Preorder, Post order and In order). * Study concept of sorting algorithms (bubble, insertion, quick, selection, merge & heap sort). | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Object Oriented Programming Using C++ | **Course Code**: CPED2402T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Identify the importance of object-oriented programming and difference between structured and object oriented programming features. * Use various object-oriented concepts to solve different problems. * Describe and use software tools along with the way to compile, load, save, and debug a ‘C++’ program. * Apply upright programming principles to the design and implementation of ‘C++’ programs along with the understanding of algorithms in the problem-solving process. * Illustrate the process of virtual functions data file manipulations using ‘C++’. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Relational Database Management System (RDBMS) | **Course Code**: CPED2403T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Study the concepts of database systems and architecture with data models, its levels & independence. * Understand data base management system and various types including their advantages/disadvantages. * Understand the concepts of data modeling using entity relationships. * Study and understand the concepts of relational models, their attributes, tuples and relations including various relational and domain constraints and relational database schemes. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Internet and Web Technologies | **Course Code**: CPED2404T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Build the fundamental concepts of computer networking. * Learn basics of Internet and its various applications. * Familiarize the students with basic taxonomy and terminologies of internet protocols. * Learn technical background to establish the internet connections. * Understand network security issues and solutions with technical details. * Develop web pages by using HTML-5 and CSS. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Data Structure using ‘C’ Lab | **Course Code**: CPED2451P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand the implementation of insertion and deletion of elements in an array and in linked list. * Study stack implementation & queue implementation using arrays and pointers. * Study and implement linear search and binary search in a given list. * Understand the Implementation of bubble sort algorithm and insertion sort algorithm. * Understand the Implementation of factorial of a number using recursion and fibonacci series using recursion. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Object Oriented Programming Using C++ Lab | **Course Code**: CPED2452P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Develop solutions for a range of problems using objects and classes. * Programs to demonstrate the implementation of constructors, destructors and operator overloading. * Apply fundamental algorithmic problems including type casting, inheritance, and polymorphism. * Understand functional overloading. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Relational Database Management System (RDBMS) Lab | **Course Code**: CPED2453P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand the concepts of database technologies. * Design and implement database schema for a given problem-domain. * Normalize the database. * Populate and query a database using SQL DML/DDL commands. * Declare and enforce integrity constraints on database using state-of-the-art RDBMS. * Programming PL/SQL including stored procedures, functions, joins etc | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Internet and Web Technologies Lab | **Course Code**: CPED2454P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Be able to configure computer system to access internet , manage social networking profile and e-mail account and Use WWW for accessing relevant information. * Demonstrate the use of TELNET, FTP, IRC , e-commerce transactions and audio-video conferencing. * Learn to create Web pages using HTML ,web pages using Dream Weaver , Homepage with frames, animation, background sound and hyperlinks. * Designing simple server side program which accept some request from the client and respond and establishing sessions between servers and clients. * Design fill-out form with text, check box, radio buttons and embed Java script to validate users input. * Learn to create interface with database (MYSQL etc) for online retrieval . | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Generic Skills and Entrepreneurship | **Course Code**: **\***CPED2405T/ECED2306T |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Enhance Generic skills among students. * Self control in difficult situation such as anxiety, depression and stress. * Cooperate with culturally diverse team members. * Enhance task management skills for better performance. * Develop problem solving mind in every difficult situation. * Increase entrepreneurship competencies and qualities among future entrepreneurs. | |

**Qualifying Subjects**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Punjabi | **Course Code**: \*\* |
| **Course Outcomes:** At the end of this course, the student will be able to:   * ਵਿਦਿਆਰਥੀਆ ਨੂੰ ਪੰਜਾਬੀ ਕਹਾਣੀ, ਕਹਾਣੀਕਾਰ ਤੇ ਕਹਾਣੀ ਦਾ ਬਣਤਰ ਬਾਰੇ ਦੱਸਿਆ ਗਿਆ। * ਕਹਾਣੀ ਅਤੇ ਸਮਾਜ ਦੇ ਆਪਸੀ ਰਿਸ਼ਤੇ ਬਾਰੇ ਜਾਗਰੂਕ ਹੋਏ। * ਕਵਿਤਾ ਦੇ ਪਾਠ, ਉਸਦਾ ਉਚਾਰਣ, ਕਵਿਤਾ ਦੀ ਬਣਤਰ ਬਾਰੇ ਵਿਦਿਆਰਥੀ ਜਾਗਰੂਕ ਹੋਏ। * ਪੰਜਾਬੀ ਦੇ ਪ੍ਰਸਿੱਧ ਕਵੀ ਤੇ ਕਵਿਤਾ ਦੀ ਮਨੁੱਖੀ ਜੀਵਨ ਵਿੱਚ ਮਹੱਤਤਾ ਬਾਰੇ ਜਾਗਰੂਕ ਹੋਏ। * ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਤੇ ਸ਼ੁੱਧ ਉਚਾਰਣ ਦਾ ਵਿਦਿਆਰਥੀ ਨੂੰ ਗਿਆਨ ਹੋਇਆ। * ਵਿਦਿਆਰਥੀਆ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਸ਼ੁੱਧ ਲਿਖਾਈ ਤੇ ਵਿਆਕਰਣ ਬਾਰੇ ਭਰਪੂਰ ਜਾਣਕਾਰੀ ਪ੍ਰਾਪਤ ਹੋਈ। | |

**Diploma in Engg. (CE)**

**3rd Year 5th Semester**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Industrial Training Semester  (One Semester Training in Industry) | **Course Code**: CPED3101P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Participate in the projects in industries during his or her industrial training. * Describe use of advanced tools and techniques encountered during industrial training and visit. * Interact with industrial personnel and follow engineering practices and discipline prescribed in industry. * Develop awareness about general workplace behaviour and build interpersonal and team skills. * Prepare professional work reports and presentations. | |

**Diploma in Engg. (CE)**

**3rd Year 6th Semester**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Java Programming | **Course Code**: CPED3601T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Able to write programs for solving real world problems using java collection frame work. * Able to write programs using abstract classes. * Able to write multithreaded programs. * Able to write GUI programs using swing controls in Java. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Computer Networks | **Course Code**: CPED3602T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Build an understanding of the fundamental concepts of computer networking. * Familiarize the student with the basic taxonomy and terminology of the computer networking area. * Introduce the student to networking concepts. * Provide practical environment in the design and maintenance of networks. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Visual Programming (using VB.net) | **Course Code**: CPED3603T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Understand an overview of computers and computer programming. * Understand visual basic applications. * Understand how to perform operations and store results. * Understand the concept of data-driven program execution flow control in Visual Basic programming. * Understand additional visual basic controls. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Software Engineering | **Course Code**: CPED3604T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Apply software engineering principles and techniques. * Develop, maintain and evaluate large-scale software systems. * Produce efficient, reliable, robust and cost-effective software solutions. * Perform independent research and analysis. * Work as an effective member or leader of software engineering teams. * Manage time, processes and resources effectively by prioritising competing demands to achieve personal and team goals Identify and analyses the common threats in each domain. * Understand and meet ethical standards and legal responsibilities. | |

**ELECTIVE#**

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Microprocessor | **Course Code**: CPED3605T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Analyze the functional block diagram of 8085. * Write assembly language program for given problem. * Use instructions in different addressing modes. * Develop an assembly language program using assembler. * Develop assembly language programs using programming approach. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Computer Peripheral and Interfacing | **Course Code**: CPED3606T |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Provide the knowledge and skills regarding working construction and interfacing aspects of peripherals. * Get to know how various peripherals communicate with central processing unit of the computer system and pattern their respective operations. * Be able to maintain keyboard, printer, monitors and Power Supplies along with computer system. * Provide the required skill and background of computer installation, maintenance and testing of peripheral with computers. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Network Security | **Course Code**: CPED3607T/ECED3608T |
| **Course Outcomes:**At the end of this course, the student will be able to:   * Understand the concept of various threats like viruses, worms , trojan horses etc. * Do research in the emerging areas of cryptography and network security. * Understand the concept of public key cryptography and digital and signature. * Protect any network from the threats. * Study about message authentication and hash functions. * Implement various networking protocols using IPsec and Secure DNS. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Java Programming Lab | **Course Code**: CPED3651P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Able to write programs using Object Oriented Methodology in java. * Able to write multithreaded programs and exception handling mechanism. * Develop programs for handling I/O and file streams. * Able to write Applets in java. * Able to write GUI programs using AWT controls in Java. * Able to write programs using JDBC concepts and JSP. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name**: Computer Networks Lab | **Course Code**: CPED3652P |
| **Course Outcomes**: At the end of this course, the student will be able to:   * Be able to understand fundamental underlying principles of computer networking. * Be able to recognise the physical topology, cabling and various types of connectors of a network. * Be able to identify the IP address and setup IP subnetting for network. * Be able to diagnose &amp; solve network connectivity problems. * Exposure to industrial practices in installation and maintenance of latest computer networking techniques. | |

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| **Program Name: Diploma in Engg. (CE) (3 Years)** | **Program Code**: CPED3PUP |
| **Course Name:** Visual Programming (using VB.net) Lab | **Course Code**: CPED3653P |
| **Course Outcomes:** At the end of this course, the student will be able to:   * Design, formulate, and construct applications with VB.NET. * Integrate variables and constants into calculations applying VB.NET. * Determine logical alternatives with VB.NET decision structures. * Implement lists and loops with VB.NET controls and iteration. * Separate operations into appropriate VB.NET procedures and functions. * Assemble multiple forms, modules, and menus into working VB.NET solutions. * Create VB.NET programs using multiple array techniques. * Build integrated VB.NET solutions using files and structures with printing capabilities. * Translate general requirements into data-related solutions using database concepts. | |