**Diploma Environmental Engineering**

*Program Educational Objectives (PEOs)*

**PEO 1: Knowledge:** Provide graduates with a strong foundation in mathematics, science and engineering fundamentals to enable them to devise and deliver efficient solutions to challenging problems in environment and allied disciplines.

**PEO 2: Core Competence:** Impart analytic and thinking skills to develop initiatives and innovative ideas for R&D, Industry and societal requirements.

**PEO 3: Breadth:** Provide sound theoretical and practical knowledge of Environment Engineering, managerial and entrepreneurial skills to enable students to contribute to the well-being of society with a global outlook.

**PEO 4: Preparation:** Inculcate qualities of teamwork as well as social, interpersonal and leadership skills and an ability to adapt to evolving professional environments in the domains of engineering and technology.

**PEO 5: Professionalism:** To inculcate in students professional values, effective research communication skills, prioritizing problems and solutions and an ability to view electrical engineering issues in broader context.

**PEO 6: Evaluation:** Motivate graduates to become good human beings and responsible citizens for the overall welfare of the society.

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**Programme Outcomes**

1. Diploma engineers will be able to demonstrate knowledge of Environment Engineering.
2. Diploma engineers will demonstrate an ability to identify, formulate and solve Industrial, community & research problems.
3. Diploma engineers will demonstrate an ability to analyze and interpret experiments related to Environment Engineering.
4. Diploma engineers to Design & Conduct Experiments.
5. Diploma engineers ability to design a System, Component, or Process to meet desired needs with in realistic constraints such as Economic, Environmental, Social, Ethical, Manufacturability, and Sustainability.
6. Diploma engineers will demonstrate skills to use modern devices, software and equipment to analyse & solve problems.

7. Diploma engineers an understanding of Professional and Ethical responsibility.

8. Diploma engineers will be able to communicate effectively both verbally and in writing.

9. Diploma engineers will be able to understand impact of Environmental Engineering on the societal and contemporary issues.

10. Diploma engineers will demonstrate confidence to learn by self and exhibit ability for life-long learning.

11. Diploma engineers will be able to take interest in research & development in all disciplines of environmental engineering.

12. Diploma engineers will be able to participate and succeed in competitive examinations.
COURSE OUTCOMES OF DIPLOMA ENVIRONMENTAL ENGINEERING

COURSE OBJECTIVES & OUTCOMES OF 1ST SEMESTER

Subject: Environment Conservation and Hazard Management
Code: 020060101
Learning Objective:
1) To improve the quality of life of the local community through management and conservation of natural resources.
2) To ensure that the natural environment is used wisely and continues to be available for the benefit and enjoyment of future generations.
3) To decrease vulnerability and improve adaptation capacity among poor local communities associated with climate change.

Program Outcome:
After successful completion of this course students will be able to
1) Enhance the use of recycled material for construction work and optimize the use of conventional energy sources.
2) Take care of issues related to conservation and hazard management while working as chemical engineer.
3) Assess the effects of pollution on resources.
4) Justified need of renewable energy for sustainable development.
5) Identify concept of waste management and methods of recycling.
6) Prepare list of use of do’s and don’ts applicable during disasters.

Subject: Engineering Physics
Code: 020060102
Learning Objective:
1) Student shall be able to find rigorous sequence in physics and engineering.
2) Student shall be able to identify, formulate the basic concept of physics.
3) To develop problem solving skills.

Program Outcome:
After successful completion of this course students will be able to
1) Identify general properties of matters.
2) Use and application of different measuring instruments.
3) Apply principles and concept of physics for solving engineering problems.
4) Use the concept of wave, sound, light and nanotechnology.

Subject: Engineering Drawing
Code: 020060103
Learning Objective:
1) The language of engineering graphics can be effectively used if its ‘grammar’ is mastered. This grammar refers to the use of standard conventions, notations and the methods used in technical drawing.
2) To get the primary concept of engineering drawing.
3) To know about the equipment in Engineering Drawing.
4) To know various signs, lines and dimensions.
5) To know about sectional view.

Program Outcome:
After successful completion of this course students will able to
6) To understand the fundamental concepts of engineering graphics which are important for schematic drawing of the components.
1) Identify and use differing drawing tools/instruments.
2) Use the concept of projection for Engineering Drawings.
3) Prepare Engineering Drawings manually with given geometrical dimensions using prevailing drawing standards using proper scale.
4) Visualize and draw the shape of simple object from orthographic view to vice versa.

Subject: Mathematics-I
Code: 020060104
Learning Objective:
1) To understand the basic and application of logarithm, determinant, matrices.
2) To understand trigonometry, coordinate geometry.
3) To understand vectors to impart their knowledge in particular area of branches.
4) Comprehensive knowledge of basic mathematics.

Program Outcome:
After successful completion of this course students will able to
1) Solve simple and identify engineering problems using logarithm, determinant, and matrices.
2) Calculate area and volume of different shape.
3) Solve simultaneous equations.
4) Develop simple graphs of sine and cosine function.

Subject: Applied Mechanics
Code: 020060105
Learning Objective:
1) To provide a comprehensive knowledge of force, work and energy to calculate work done, power and efficiency for machines.
2) To know the application of laws of mechanics.

Program Outcome:
After successful completion of this course students will able to
1) Explain the concept and principles of statics and dynamics of structure.
2) Use concept laws and principles of applied mechanics to design different component of structure.

Subject: Workshop Practice
Code: 020060106
Learning Objective:
1) To understand how different objects can be made from the given raw material by different mechanical tools.
2) To introduce students to the basic concept of manufacturing via shaping, forming, machining.
3) To develop knowledge of appropriate tools to be used for various machining operations.
4) To develop knowledge of workshop practice and use of machine tools.

Program Outcome:
After successful completion of this course students will be able to:
1) Acquire skill in basic engineering practice.
2) Identify the hand tools and instruments.
3) Gain measuring skills.
4) Obtain practical skills in the trades.
5) Read and use manufacturing drawing for the manufacturing of a part.
COURSE OUTCOMES OF DIPLOMA ENVIRONMENTAL ENGINEERING

COURSE OBJECTIVES & OUTCOMES OF 2nd SEMESTER

Subject: Communication skills
Code: 020060201
Learning Objective:
1) To develop communication and employability skills of the students to face the present competitive world.
2) To develop skills of listening, reading.
3) Develop skills of writing and speaking.
4) To study grammar, summary writing, dialogue writing.
Program Outcome:
After successful completion of this course students will able to
1) To have practical exposure to the basic language techniques in professional environment and develop skills of listening, reading, writing and speaking.
2) To develop skills of passages from comprehension, grammar such as tenses, voice, prepositions etc.
3) To develop skills of letter writing of different types like official letters.
4) Face oral examination and interviews.
5) Make sentence using connector for desire meaning for desire meaning.
6) Communicate effectively verbal as well as writing in English.

Subject: Engineering Chemistry
Code: 020060202
Learning Objective:
1) To understand the basic concepts of chemistry like, chemical bonding, corrosion and its prevention, treatment of water.
2) To understand ionization theory and electrolysis process.
3) To understand the concept of hybridization.
Program Outcome:
After successful completion of this course students will able to
1) To know the concept of chemical bonding and catalysis.
2) To know the concept of electro-chemistry, organic chemistry.
3) To study corrosion, its types and its prevention.
4) Study of different polymers, elastomers & insulating material.

Subject: Fundamentals of Mechanical Systems
Code: 020060203
Learning Objective:
1) To provide a comprehensive knowledge of basic mechanical systems.
2) Basic concepts from mechanical engineering sciences.
3) Modern engineering tools and related subjects to design mechanical engineering components.

Program Outcome:
After successful completion of this course students will be able to
1) To describe and use basic engineering concepts.
2) Study principles and components of mechanical equipment.
3) Study measuring and testing method of physical quantities.

Subject: Mathematics - II
Code: 020060204

Learning Objective:
1) Evaluate derivatives for complexly constructed elementary functions.
2) Evaluate definite and indefinite integrals.
3) Evaluate limits using algebra, geometry, analytic techniques.
4) Correctly incorporate specific examples.

Program Outcome:
After successful completion of this course students will be able to
1) Use mathematical tool to understand engineering principles and engineering.
2) Find the distance between points with the help of co-ordinate geometry.
3) Apply differentiation to velocity, acceleration maximum and minimum.
4) Apply basic knowledge of statistics for data collection, standard deviation.

Subject: Civil Engineering Drawing
Code: 020060205

Learning Objective:
1) To study the basic concepts about civil engineering.
2) To study drawing regarding residential and public building.

Program Outcome:
After successful completion of this course students will be able to
1) Explain building bye laws and planning of residential building and public buildings.
2) Prepare a detailed drawing for residential and public buildings.
3) Interpret conventional sign, symbols and working drawings of various civil engineering structures.
4) Use software to prepare detailed prepare detailed drawing for residential and public buildings.
5) Prepare perspective view of a given building.

Subject: Computer Applications
Code: 020060206

Learning objective:
1) The objective of this course is to study basic concepts of various computer applications and its usage.
2) Study of computer hardware and software.
3) Study of system software and application software.

Program Outcome:
After successful completion of this course students will able to
1) To understand and use word processor, spread sheet application and presentation tools effectively.
2) To study the table and its options, drawings and word art.
3) Study the concept of worksheet and workbook.