DEPARTMENT OF CIVIL ENGINEERING

DEPARTMENT VISION

To emerge as a Centre of Excellence in Civil Engineering through quality professional education and to create eminent leaders with values committed to the profession and society.

DEPARTMENT MISSION

To impart state of the art education and to provide industry exposure to students

To create civil engineers who successfully adapt and innovate solutions for the built environment

To inspire and transform the students to hard core professionals and academicians with ethical values.

PROGRAMME EDUCATIONAL OBJECTIVES

The program educational objectives of B.Tech in Civil Engineering are

1. Graduates will have concrete knowledge in the application of necessary mathematical tools, scientific theories and modern developments in civil engineering.
2. Graduates will understand the societal needs and will be committed in developing optimal solutions.
3. Graduates will pursue higher education, research or entrepreneurship apart from being employable.
4. Graduates will be competent to face challenges in civil engineering through lifelong learning process and will have high ethical values, honesty and responsibilities.

PROGRAMME OUTCOMES

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and

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environmental considerations.

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

sl no	Code	subject	Course objective	Development strategy and tool	Cross cutting issues integrated
1	CE405	Environmental engineering- I	To study the significance of water resources and the factors affecting the quality and quantity of water · To study the various types of treatment techniques adopted for a public water supply system	Chalk and board, PPT, Student Seminar	environmental and sustainability

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2	CE409	Quantity Surveying and valuation	To have an awareness regarding specifications, analysis of rates, valuation etc. in connection with construction	Chalk and board, PPT, Student Seminar	environmental and sustainability and professional ethics
3	CE474	Municipal solid waste management	To create an awareness of different types of solid waste generated in our environment and their ill effects . To study the various methods of collection, processing and disposal of solid wastes	Chalk and board, PPT, Student Seminar	environmental and sustainability
4	**CE302**	Design of Hydraulic Structures	To impart knowledge regarding the design of the various minor irrigation structures · To convey the knowledge on the causes of failure, design criteria and stability analysis of different types of dams	Chalk and board, PPT,Student Seminar	environmental and sustainability
5	CE407	transportation Engineering	To introduce the principles and practice of Highway Engineering and Airport Engineering. · To enable students to have a strong analytical and practical knowledge of geometric design of highways. · To introduce pavement design concepts, material properties, construction methods and to design highway pavements. · To understand the principles of traffic engineering and apply this for efficient management of transportation facilities.	Chalk and board, PPT,Student Seminar	environmental and sustainability
6	CE469	Environment Impact Assessment	To study the various types of environmental pollution · To study the impact due to various types of pollutants and their assessment techniques	Chalk and board, PPT, Student Seminar	environmental and sustainability

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7	CE204	Construction Technology	To study details regarding properties and testing of building materials, · To study details regarding the construction of building components · To study properties of concrete and concrete mix design · To impart the basic concepts in functional requirements of building and building services. · To develop understanding about framed construction and building failures	Chalk and board, PPT, Student Seminar	environmental and sustainability
8	CE208	Geotechnical engineering	To impart to the fundamentals of Soil Mechanics principles; · To provide knowledge about the basic, index and engineering properties of soils.	Chalk and board, PPT,Student Seminar	environmental and sustainability
9	CE371	Environmenta Pollution and control	To understand the various types of environmental and industrial pollution, pollutants, related diseases and their causes · To impart the various management techniques available for pollution abatemen	Chalk and board, PPT,Student Seminar	environmental and sustainability
10	CE365	Advanced Concrete Technology	To understand the behaviour of fresh and hardened concrete. · To make aware the recent developments in concrete technology · To understand factors affecting the strength, workability and durability of concrete · To impart the methods of proportioning of concrete mixtures	Chalk and board, PPT,Student Seminar	environmental and sustainability

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11	CE207	Surveying	is to impart an awareness on the principles of surveying, various methods and instruments of surveying, errors associated with field measurements and advanced surveying techniques.	Chalk and board, PPT,Student Seminar	environmental and sustainability
12	CE309	Water resource Engineering	To impart knowledge regarding the availability of water on hydrosphere, its distribution and quantification · To convey the knowledge on the scientific methods for computing irrigation water requirements · To communicate fundamental knowledge on reservoir engineering and river engineering	Chalk and board, PPT, Student Seminar	environmental and sustainability
13	CE203	Fluid Mechanics	Is to expose the students to the fundamental concepts of fluid mechanics, hydraulics of pipes and open channels and to enhance the problem-solving skills. The concepts learned will help in applying them for the design of hydraulic structures and to real world fluid flow problems.	Chalk and board, PPT,	environmental and sustainability
14	CE201	Mechanics of solids	Students to develop their analytical and problem solving skills. The course introduces students to the various internal effects induced in structural members as well as their deformations due to different types of loading. After this course students will be able to determine the stress, strain and deformation of loaded structural elements.	Chalk and board, PPT	environmental and sustainability

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15	CE205	Engineering Geology	Awareness about earth resources and processes to be considered in various facets of civil engineering 1. Appreciation of surface of earth as the fundamental foundation structure and the natural phenomena that influence its stability	Chalk and board, PPT,Student Seminar	environmental and sustainability
16	HS210	Life skill	To develop communication competence in prospective engineers. · To enable them to convey thoughts and ideas with clarity and focus. · To understand team dynamics & effectiveness. · To create an awareness on Engineering Ethics and Human Values.	Chalk and board, PPT, Student Seminar	environmental and sustainability

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