DEPARTMENT OF CIVIL ENGINEERING

1.3.1 Institution integrates cross-cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

PROGRAMME EDUCATIONAL OBJECTIVES (PEO'S)

The programme educational objectives of civil engineering is designed to produce engineers who are ready to contribute to the civil engineering profession

PEO 1:	Apply fundamental and specialized technical knowledge and communication skills to find creative solution for technological challenges.
PEO 2:	Take up advanced education and to engage in research and development in Civil engineering
PEO 3:	Practice Civil engineering in a responsible, professional and ethical manner and implement eco-friendly sustainable technologies for the benefit of the industry and society.
PEO 4:	Enrich competence of graduates to implement emerging techniques for societal needs.

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Chikkasandra, Hesaraghatta Road,
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PROGRAMME SPECIFIC OUTCOMES (PSO)

The graduates of Civil Engineering program of Sapthagiri College of Engineering should be able to attain the following at the time of graduation.

PSO1	Expertise in Design and technical areas of Civil Engineering such as Design of RCC Structures, Design of Steel Structures, Design of Composite Structures Materials and pre-stressed concrete structures with a focus on research and innovation.
PSO2	Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact.
PSO3	To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues.
PSO4	To comprehend and apply the ideas of Construction the executives, quality and authority.

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PROGRAMME OUTCOMES

Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge and behaviour.

PO1.	**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2.	**Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3.	**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 environmental considerations.
PO4.	**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.
PO5.	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6.	**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.
PO7.	**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.
PO8.	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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PO9.	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10.	**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.
PO11.	**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.
PO12.	**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.

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Sl. No.	Subject	Subject Code	Curriculum	Deployment Strategy and Tool	PO's	PSO's	CO's	Cross Cutting Issues relevant to gender, Environment and sustainability, human values and professional ethics
1.	Environmental Engineering	15CIV18/28	Student should learn environmental features, pollution control, atmosphere, natural resources	Chalk and Talk method PPT	1,7,8,9 ,10,12	PSO 1 & PSO 2	1-5	Environmental and Sustainability
2.	Advance Surveying	15CV46	Student should learn the developed electronic terrain model using computer program and draw a scaled topographic map and proposed project site	Chalk and Talk method PPT	1,3,5,7 ,12	PSO 1 & PSO 2	1-5	Environmental and Sustainability
3.	Building Construction, Planning and Drawing	15CV35	Students should learn the properties and uses of different building materials in the present day construction, draw line diagrams plan elevation and sections of the structural building	Chalk and Talk method	1,2,4,5 ,7,8,12	PSO 1 & PSO 2	1-5	Environmental and Sustainability
4.	Concrete Technology	15CV44	Student should learn the ingredients of cement and chemical process, fresh concrete, hardened concrete mix design	Chalk and Talk method	1,2,4,9 ,11,12	PSO 2	1-5	Environmental, Professional ethics and Sustainability
5.	Applied Geotechnical Engineering	15CV53	Students able to learn the engineering properties of the soil and their characteristics	Chalk and Talk method	1,2,3,4 ,6,7,12	PSO 2	1-5	Environmental and Sustainability
6.	Water resource Engineering	15CV661	Students able to learn the hydrologic cycle, movement of water beneath the earth, basic requirement of the irrigation and apply the mathematics, science and technology in the field	Chalk and Talk method PPT	1,6,8,1 2	PSO 1	1-5	Human Values, Professional Ethics and Sustainability
7.	Transportation Engineering	15CV561	Students able to learn the geometric design of roads, traffic engineering, traffic regulation and railway engineering	Chalk and Talk method PPT	1,2,3,4 ,5,6,7, 12	PSO 2	1-5	Environmental and Sustainability

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8.	Air Pollution and Control	15CV551	Students should learn the sources of air pollutants, transportation, dispersion and transformation of pollutants in the atmosphere, measurement and control of air pollution	Chalk and Talk method	1,2,3,4 ,6,7,8, 12	PSO 2	1-5	Environment and sustainability, human values and professions ethics
9.	Design of RCC Structures elements	15CV51	Students learn the fundamental principles and procedure of reinforced concrete design	Chalk and Talk method	3,4,5,8 ,12	PSO 1	1-5	Sustainability, Professional Ethics
10.	Design of RCC and Steel Structures	15CV72	Students learn the fundamental principles and procedure of structural steel design	Chalk and Talk method	1,2,3,8 ,9,11	PSO 1	1-4	Sustainability, Professional Ethics
11.	Strength of Materials	15CV32	Helps students to understand effects of deformation of solids on nature and its impact on environment It empowers student through logical thinking ability, understanding, conceptual design methods, optimization and analyzing skills in stress and strain effects in real world	Chalk and Talk method PPT	1,2,4,5 ,7	PSO 1 and PSO 2	1-5	Environment and Sustainability, Human Values And Professions Ethics
12.	Fluid Mechanics	15CV33	It empowers student through logical thinking ability, understanding, conceptual methods and optimization technique. It enhances professional values and social responsibilities towards different groups while dealing with fluids. Inculcating professional ethics and human values in dealing with fluid applications	Chalk and Talk method	1,2,3,4 ,7	PSO 1	1-5	Environment and Sustainability

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13.	Hydraulics and Hydraulics Machinery	15CV43	It empowers student through logical thinking ability, understanding, conceptual methods and optimization technique. It enhances professional values and social responsibilities towards different groups while dealing with hydraulic applications Inculcating professional ethics and human values in dealing with hydraulic applications	Chalk and Talk method	1,2,3,4 ,7	PSO 1	1-5	Environment and Sustainability
14.	Urban Transportation and Planning	15CV751	Learn various procedure for travelled demand estimation and know various models and techniques for trip generation and trip distribution	Chalk and Talk method	6,7,8,1 0,12	PSO 1 and PSO 2	1-5	Environment and Sustainability, Human Values
15.	Engineering Geology	15CV35	Learn identify types of stones and minerals and geological aspects of earthquake and landslides	Chalk and Talk method PPT	7,8,10, 12	PSO 1	1-5	Environment and Sustainability, Human Values

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