1.3.1 Institution integrate cross cutting issues related to Professional Ethics, Gender, Human Values, Environmental Sustainability into the curriculum

Table 1.3.1 Cross Cutting Issues in Curriculum

Core Course	Course No	Cross Cutting Issue	Description of Course
SE Civil Engineering	Architecture Planning and Design of Building 201001	Professional Ethics	This course enables the students to understand the concept of types of building and basic requirements of building components.
		Environmental sustainability	This course creates awareness regarding eco friendly materials and safety in construction.
		Human Values	While designing the building principle of planning are follows.
SE Civil Engineering	Strength of Material: 201002	Professional Ethics	Material quality control by understanding by experimental investigation in laboratory as safety, Environmental impact and health. For the technological alternative it is essential to determine the physical properties of materials like, strength, toughness and, malleable, ductile, good conductors of heat and electricity. And other parameter to do the comparison.
		Environmental sustainability	Use materials in the most productive way with an emphasis on using less. Reduce Environmental impacts throughout the material life cycle. Assure we have sufficient resources to meet today's needs and those of the future. Norms of practice e.g IS codes
SE Civil Engineering	Geotechnical Engineering : 201003	Environmental Sustainability	The course highlights the causes and remedial measures of landslide. It also enables the students to understand evil effect of subsurface contamination on subsoil and various methods to control subsurface contamination.
SE Civil Engineering	Fluid Mechanics I 201004	Professional Ethics	In this subject student get idea about various properties of fluid and how to measure the pressure using various gauges. Also students get idea about energy losses in pipes and remedial measure to avoid friction losses.
SE Civil Engineering	Architectural Planning and Design	Environmental Sustainability	From this course students learn- How to Development plan gives proper land use

	of Buildings 201005		planning, utilization of resources, how to use building byelaws, Green building concept for sustainable planning. Rain water harvesting and waste management system for Environmental friendly planning point of view.
		Professional Ethics	Students can understand some town planning aspects, Building byelaws, Safety aspects of building, how to plan residential and public building,
		Human Values	While designing the building principle of planning are follows.
SE Civil Engineering	Surveying : 201006	Professional Ethics	This course deals with the study of different types of surveying instruments and methods of surveying. This involves the survey for different types of works such as road work, building work, tunnel work, dam work etc. This course gives what are the different professional ethics we should follow while doing work in team.
		Environmental Sustainability	In this course while doing the survey for different work, we should follow the different guidelines which will takes into consideration effect of future work on the Environmental. This course creates the awareness among the students regarding the sustainability by following the guidelines which will reuse the different natural materials for the proposed work.
SE Civil Engineering	Concrete Technology : 201007	Professional Ethics	This course highlights the importance of concrete in the field of construction. Understanding the various properties of construction materials, testing of materials, different types of cement and concrete used for the construction work. Concrete mix design helps for selecting the proper proportion of ingredients.
SE Civil Engineering	Structural Analysis-I: 201008	Environmental Sustainability	In this course students get aware about safety requirements of various structure.
TE Civil Engineering	Hydrology and Water Recourses	Professional Ethics	Students learn the rainfall, runoff and flood hydrograph related study; also study related

	301001		to Irrigation, water management planning, regulating, designing, construction, operation, maintenance and cost allocation of cannel. Apportionment of total cost.
		Environmental Sustainability	After finding duty and delta for particular crop saving of water can be done. Study of water logging and drainage problem can be solved.
TE Civil Engineering	Infrastructure Engineering and Construction Techniques: 301002	Professional Ethics	This course enables the students to understand the component parts of railway, Tunnel construction Methods and component parts Docks & Harbours
		Environmental Sustainability	Create awareness about Public transport systems such as railway, concept of smart city.
TE Civil Engineering	Structural Design I 301003	Professional Ethics	In this course students get aware about safety requirements of various steel structures.
		Environmental Sustainability	Saving of material after designing the steel member from IS 800:2007
TE Civil Engineering	Fluid Mechanics II 201004	Professional Ethics	This course get detail idea about most efficient channel, Energy decapitation in hydraulic jump, and practical uses of hydraulic jump, head and efficiencies of centrifugal pump. Information about hydropower plant.
		Environmental Sustainability	Students get aware about electricity generation through hydroelectric power plant.
TE Civil Engineering	Advanced Surveying: 301007	Professional Ethics	This course highlights the importance of Objects, Methods of Geodetic Surveying, Introduction to triangulation, Classification of triangulation systems.
		Environmental Sustainability	In this course while doing the advance survey for different work, we should follow the different guideline which will takes into consideration effect of future work on the Environmental. This course create the awareness among the students regarding the sustainability by following guidelines which will reused the different natural materials for the proposed work.

TE Civil Engineering	Foundation Engineering 3010009	Professional Ethics	This course gives the information about safe and economical design of shallow pile foundation
		Environmental Sustainability	This course gives information about geo synthesis which are used for strengthen the soil and help to reduce pollution.
TE Civil Engineering	Structural Design II 301010	Professional Ethics	In this course students get aware about safety requirements of various RCC structure.
		Environmental Sustainability	Saving of material after designing the RCC member from IS 456:2000
TE Civil Engineering	Environmental Engineering I : 301011	Professional Ethics	This course illustrates the data collection for water supply schemes, estimation of quantity of water and its study of its characteristics. It also includes design of various units of WTP such as aerators, sedimentation tank and filters. In addition it also emphasizes on importance of proper water distribution through distribution system.
		Environmental Sustainability	This course highlights the aspects related to air pollution, noise pollution, solid waste management and water treatment. It also includes importance of rainwater harvesting system.
BE Civil Engineering	Environment Engineering II : 401001	Professional Ethics	This course illustrates the data collection for waste water supply schemes, estimation of quantity of waste water and its study of its characteristics. It also includes design of various units of STP such as primary sedimentation tank, Secondary Sedimentation tank and filters. In addition it also emphasizes on importance of modern waste water treatment system.
		Environmental Sustainability	This course highlights the aspects related to waste water pollution, solid waste management and waste water treatment. It also includes importance of low cost waste water treatment systems. It also covers the reuse and recycle of treated waste water.

BE Civil Engineering	Transportation Engineering 401002	Professional Ethics	This course cover the road development plan in India also Vision 2021 & rural development Vision 2025, also it cover the design of highways as per IRC 37-2012 and IRC 58-2015, design of traffic signals and new trends in highway construction.
		Environmental Sustainability	Transportation Engineering covers the vision 2021 and rural development vision 2025 also
BE Civil Engineering	Structural Design and Drawing III	Professional Ethics	In this course students get aware about safety requirements of various Prestress & RCC structure.
		Environmental Sustainability	Saving of material after designing the PRCC member from IS 875,IS1343,IS456 etc
.BE Civil Engineering	Architecture and Town Planning :401004 D	Environmental Sustainability	This course highlights – Qualities of an Architecture in terms of ecofriendly, future growth of area. Role of urban planner and architect in terms of demand and supply of area, utility of area. Landscaping regarding knowledge of green areas, fresh and healthy atmosphere. Sustainable architecture highlight on Environmental friendly and sustainable planning. Role of different planning agencies according to sustainable and Environmental friendly strategies. How to use modern tools for sustainable planning.
		Professional Ethics	Students understand the different types of plants, their features etc. How to convert any parcel of land into planable form (Plan), Traffic and Transportation strategies, and different road pattern. Understand legislation and planning strategy of ACT, Semi government organization etc.
B.E. Civil Engineering	Elective II TQM and MIS in Civil Engineering : 401005	Professional Ethics	To create awareness amongst students to follow professional ethics. Good ethical practices are an essential part of a construction company's reputation. Frequently contractors knowingly hide mistakes and poor quality work. In some cases these defects have resulted in buildings collapsing, even killing people. Contractors

			have signed a contract which binds them to delivering particular quality requirements and specifications.
B.E. Civil Engineering	Dams and Hydraulics Structures 401007	Professional Ethics	This Course include, design and stability analysis of Dams, design of spillway, design of channels and channel linings.
		Environmental Sustainability	This course include dam safety, cannel lining from environmental sustainability point.
TE Civil	301008 : Project Management & Engineering Economics	Professional Ethics	This course highlights importance of organizational Structure in Management, Authority & Responsibility Relation. The course enables to understand Construction Safety norms i.e. measures and precautions & implementation of safety programs
		Environment Sustainability	The course enables to understand how to conduct Appraisals such as social & environmental so as to select best suitable project
BE Civil Engineering	Elective III Air pollution and Control: 401009	Environmental Sustainability	This course contains Environmental issues related to air pollution problem. It involves importance of atmosphere, balance of ecosystem, control of all types of air pollution. The course helps in developing knowledge about control equipment's of air pollution, rule and regulation for emission control.
		Professional Ethics	This course enables the students to under the composition of air, investigation of air quality problems, use of various control equipment's, legislation and regulation in air pollution control, Environmental impact assessment and management.
BE Civil Engineering	Elective IV Ferrocement Technology: 401010	Professional Ethics	This course enables the students to understand the concept of ferrocement its properties, design methods, applications and use in construction industry.
BE Civil Engineering	Elective IV Construction Management 401010	Professional Ethics	This subject gives detailed idea about project scheduling, risk management, risk mitigation and value engineering.
		Environmental Sustainability	Under this course students will learn about energy resources and their consumption pattern also energy cost escalation and its impact.
		Human values	This course cover the need and importance

			of labour law, also it cover workman compensation act 1923, building and other construction worker act 1966 and child labour act.

HOD

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