

Department of Electrical and Electronics Engineering

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

Vision

To become a centre of excellence in electrical and electronics engineering through high quality technical education with emphasis on holistic excellence

Mission

To inculcate ethical professionalism through value based quality education so as to equip the students with appropriate skills for a meaningful career and holistic excellence and promote creative engineering ideas for the benefit of the society

Programme Specific Objectives

Graduates possess

PSO 1 Ability to have good foundation in theoretical and practical aspects of Electrical & Electronics Engineering.

PSO 2 Ability to model, analyze, design and realize physical systems, components or processes thereby adapt themselves to the latest research and developments in the field of Electrical & Electronics Engineering.

PSO 3 Ability to communicate and work professionally as well as take up entrepreneurial endeavors in the field of Electrical Engineering and allied areas for the benefit of the society.

Programme Educational Objectives

PEO 1. Graduates shall have a good foundation in the fundamental and practical aspects of Mathematics and Engineering Sciences so as to build successful and enriching careers in the field of Electrical Engineering and allied areas.

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PEO 2. Graduates shall learn and adapt themselves to the latest technological developments in the field of Electrical & Electronics Engineering which will in turn motivate them to excel in their domains and shall pursue higher education and research

PEO 3. Graduates shall have professional ethics and good communication ability along with entrepreneurial skills and leadership skills, so that they can succeed in multidisciplinary and diverse fields.

Programme Outcomes

Engineering Graduates will be able to:

PO 1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 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.

PO 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 environmental considerations.


PO 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.

PO 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.

PO 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.

PO 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.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.


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PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 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.

PO 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.

PO 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.

List of courses that integrates cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum

Sl.no	Subject	Subject code	Course objective	Deployment strategy and tool	Crosscutting issues integrated
1	Design and engineering	BE 102	<ul style="list-style-type: none"> To understand the engineering aspects of design with reference to simple products To foster innovation in design of products, processes or systems To develop design that add value to products and solve technical problems 	Chalk and talk method and PPT	Environment and Sustainability, Human Values and Professional Ethics
2	Introduction to Sustainable Engineering	BE 103	<ul style="list-style-type: none"> To have an increased awareness among students on issues in areas of sustainability To understand the role of engineering 	Chalk and talk method, PPT, video	Environment and Sustainability

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			<p>and technology within sustainable development</p> <ul style="list-style-type: none"> • To know the methods, tools, and incentives for sustainable product-service system development • To establish a clear understanding of the role and impact of various aspects of engineering and • engineering decisions on environmental, societal, and economic problems. 		
3	Engineering Chemistry	CY100	<ul style="list-style-type: none"> • To enable the students to acquire knowledge in the concepts of chemistry for Environment and Sustainability engineering applications and to familiarize the students with different application oriented topics like new generation engineering materials, storage devices, different instrumental methods etc. And to develop abilities and skills that are relevant to the study and practice of chemistry. 	Chalk and talk method, PPT	Environment and Sustainability
4	Engineering physics	PH 100	<ul style="list-style-type: none"> • Most of the engineering disciplines are rooted in Physics. In fact a good engineer is more or less an applied physicist. This course is designed to provide a bridge to the world of technology from the basics of science and to equip the students with skills in 	Chalk and talk method and PPT	Environment and Sustainability

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			scientific inquiry, problem solving, and laboratory techniques.		
5	Business economics	HS 200	<ul style="list-style-type: none"> To familiarize the prospective engineers with elementary Principles of Economics and Business Economics. To acquaint the students with tools and techniques that are useful in their profession in Business Decision Making which will enhance their employability. To apply business analysis to the firm under different market conditions. To apply economic models to examine current economic scenario and evaluate policy options for addressing economic issues. To gain understanding of some Macroeconomic concepts to improve their ability to understand the business climate. To prepare and analyse various business tools like balance 	Chalk and talk method and PPT	Human Values and Professional Ethics
6	Life skill	HS 210	<ul style="list-style-type: none"> To develop communication competence in prospective engineers. To enable them to convey thoughts and ideas with clarity and focus. To develop report writing skills. To equip them to face interview & Group Discussion. To inculcate critical thinking process. 	Chalk and talk method, PPT	cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum


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			<ul style="list-style-type: none"> • To prepare them on problem solving skills. To provide symbolic, verbal, and graphical interpretations of statements in a problem description. To understand team dynamics & effectiveness. • To create an awareness on Engineering Ethics and Human Values. • To instill Moral and Social Values, Loyalty and also to learn to appreciate the rights of others. • To learn leadership qualities and practice them. 		
7	Design project	EE 341	<ul style="list-style-type: none"> • To understand the engineering aspects of design with reference to simple products, • To foster innovation in design of products, processes or systems, • To develop design that add value to products and solve technical problems 	Presentation & implementation	Gender, Environment and Sustainability, Human Values and Professional Ethics
8	New & renewable energy system	EE 367	<ul style="list-style-type: none"> • To Provide Sufficient knowledge about promising new and renewable source of Energy • To equip student in working with Projects and to take up the project work in connected areas 	Chalk and talk method , PPT	Gender, Environment and Sustainability, Human Values and Professional Ethics

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9	Electric & hybrid vehicle	EE 469	<ul style="list-style-type: none"> To present a comprehensive overview of Electric and Hybrid Electric Vehicles 	Chalk and talk method , PPT	Environment and Sustainability, Human Values and Professional Ethics
10	Principles of Management	HS300	<ul style="list-style-type: none"> To develop ability to critically analyze and evaluate a variety of management practices in the contemporary context; To understand and apply a variety of management and organizational theories in practice; To be able to mirror existing practices or to generate their own innovative management competencies, required for today's complex and global workplace; To be able to critically reflect on ethical theories and social responsibility ideologies to create sustainable organizations 	Chalk and talk method and PPT	Environment and Sustainability, Human Values and Professional Ethics
11	Seminar	EE 451	<ul style="list-style-type: none"> To develop skills in doing literature survey, technical presentation and report preparation. To enable project identification and execution of preliminary works on final semester project 	Chalk and talk method and PPT	Environment and Sustainability, Human Values and Professional Ethics


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12	Project	EE492	<ul style="list-style-type: none"> • To apply engineering knowledge in practical problem solving. • To foster innovation in design of products, processes or systems. • To develop creative thinking in finding viable solutions to engineering problems 	Presentation and implementation	cross cutting issues relevant to Gender, Environment and Sustainability, Human Values and Professional Ethics into the Curriculum
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