

1.1.3 Average percentage of courses having focus on employability/ entrepreneurship/ skill development (10)

Name of the Course	Course Code	Name of the Programme	Activities with direct bearing on Employability/ Entrepreneurship/ Skill development
Solar Energy: Fundamentals, Devices and Systems	EN7A-701 ,EN7C -701	M.Tech (Energy Management) ,M.Tech (Executive) in Energy Management	Understanding basics of solar energy demand areas of economy. Design criterions of solar thermal and power generating systems for appropriate use.Application mechanisms as technical, legal or financial that influence energy consumption. Recognizing opportunities for increasing rational use of solar energy.
New & Renewable Energy, Sources and Technologies	EN7A-702 ,EN7C -710	M.Tech (Energy Management) ,M.Tech (Executive) in Energy Management	Understanding basics of Renewable energy sources, their need and design criterions of appropriate use. The application and selection mechanisms of the systems to meet the needful demand with
Water and Waste Water: Pollution & Control Technologies	EN7A-703 ,EN7C -703,EN6A -402	M.Tech (Energy Management) ,M.Tech (Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering, Waste water Engineering	Students will be able to understand an overview of water and waste water with the understanding of design, development and evaluation methods.The application of use of appropriate technologies will also be done by students to apply them for prevention, control, measures and management of the pollution.
Energy & Environment Software Application	EN7A-705,EN6A -506	M.Tech(Energy Management),Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Develop knowledge and skills for preparation of EIA and EA reports for any organization/industry
Design Of Photovoltaic Systems (Elective course)	EN7C -811	M.Tech (Executive) in Energy Management	Understand the working of real solar thermal and PV systems, Students will be able to analyze problems related to solar thermal and electrical systems.
Minor Project-I	EN7C -706,EN6A -413	M.Tech(Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	The skills to prepare of technical reports on energy audits and conservation, environmental audit, resource like water audit.Conversion of existing energy devices/system to more efficient designs. Solve real-life problems related Energy and environmental issues by research and development.
Air and Noise Pollution: Effects and Control Technologies	EN7A-711, EN7C -708,EN6A -401	M.Tech(Energy Management) ,M.Tech (Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	The application of use of appropriate technologies will also be done by students to apply them for prevention, control, measures and management of the pollution.
Bio and Solid Waste Management	EN7A-712 ,EN7C -802	M.Tech (Energy Management) ,M.Tech (Executive) in Energy Management	Understand the use of assessment methods of availability and potential of biomass/waste generation from local bodies/state/national level. Understand Thermo-chemical, Biochemical and Agrochemical processes for energy conversion or fertilizer production or both from biomass/waste.Select the appropriate methodologies, systems and technologies to provide the fuels or fertilizers or both for energy generation for an organization/industry/village/other sectors.Develop knowledge and skills for Design, Development and Installation of biomass/waste conversion types of energy or fertilizer or both systems for any organization/industry/rural areas/other applications

Green Building Technologies	EN7A-713 ,EN7C - 801,EN6A - 412	M.Tech (Energy Management) ,M.Tech (Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	☑ Understanding basics of Thermal and Visual comfort and design criterions of appropriate green systems and technologies.The integration with building components to create Thermal and Visual comfort conditions by using the sustainable materials and systems to make affinity with natural environment.The knowledge and skills will be developed in green building designs with techno-economic
Solar Thermal and Photo - Voltaic Laboratory	EN7A- 714.EN6A - 313	M.Tech (Energy Management),Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Understand the working of real-solar thermal and PV systems.Design the small to large systems on the basis of parametric study of real models of laboratory.Students will be able to analyze problems related to solar thermal and electrical systems.
Energy Modeling and Project Management	EN7A-715, EN7C - 808,EN6A - 314	M.Tech (Energy Management) ,M.Tech (Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Understand the use of assessment methods of energy planning and suggesting the good Policies based on mathematical modeling.Learn the application of financial methods and techno-economic analysis for feasibility and viability assessment of energy projects.Select the appropriate planning models with best option of cost benefit to implement the energy projects in rescannable time frame.Develop creativity, knowledge and skills for Development of planning, financial and project management models for the small to large local/regional/national projects.
Energy Management (Thermal & Electrical)	EN7C -709	M.Tech(Executive) in Energy Management	Obtain knowledge about energy conservation policy, regulations and business practices.Analyze energy systems for Thermal energy management on the basis of techno-economic criterions.Develop innovative energy efficiency and energy conservation solutions and demand management plans.Develop innovative energy efficiency and energy conservation solutions and demand management plans for electrical establishments/networks/other applications.
Minor Project-II	EN7C - 713,EN6A - 505	M.Tech (Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	The skills to prepare of technical reports on energy audits and conservation, environmental audit, resource like water audit.Conversion of existing energy devices/system to more efficient designs. Solve real-life problems related Energy and environmental issues by research and development.

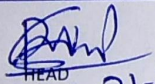
Energy Management (Thermal System)	EN7A-801,EN6A - 311	M.Tech (Energy Management),Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Obtain knowledge about energy conservation policy, regulations and business practices.Analyze energy systems for Thermal energy management on the basis of techno-economic criterions.Develop innovative energy efficiency and energy conservation solutions and demand management plans.Develop innovative energy efficiency and energy
Energy Management (Electrical System)	EN7A-802,EN6A - 404	M.Tech (Energy Management),Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Obtain knowledge about energy conservation policy, regulations and business practices.Develop innovative energy efficiency and energy conservation solutions and demand management plans.Develop innovative energy efficiency and energy conservation solutions and demand
Efficient Lighting: Sources, Systems and Design Aspects	EN7A-803, EN7C -810,	M.Tech (Energy Management) ,Master of Technology (Executive) in Energy Management,	Understanding basics of Artificial and Daylighting sources and design criterions of appropriate lighting systems.Their application and selection mechanisms of Artificial and Daylighting lighting systems to meet the recommended illumination levels with techno-economic
Biomass and Environmental laboratory	EN7A-804	M.Tech (Energy Management)	Characterize the biomass and organic waste materials with distinguishing different types of biomass suitable for energy or fertilizer of both production and utilization.possess knowledge of bioreactors engineering and systems for biofuels generation as producer gas, biogas, bioethanol and biodiesel production,Students will be able
Minor Project	EN7A-805	M.Tech (Energy Management)	The skills to prepare of technical reports on energy audits and conservation, environmental audit, resource like water audit.Conversion of existing energy devices/system to more efficient designs. Solve real-life problems related Energy and environmental issues by research and development.
Sustainable development, Environmental Auditing and Environmental Impact Assessment	EN7A-806, EN7C - 803,EN6A - 410	M.Tech(Energy Management),M.Tech (Executive) in Energy Management,Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Understand the sustainable development.Understand the basics of Elements of Environmental Impact Assessment, Concepts of the Environmental Audit, Methodologies and legislation.Select the appropriate EIA methodologies to assess the environmental impact on a organization/industry.Develop knowledge and skills for preparation of EIA and EA reports for any

Minor Project-III	EN7C -806,	M.Tech (Executive) in Energy Management	The skills to prepare of technical reports on energy audits and conservation, environmental audit, resource like water audit. Conversion of existing energy devices/system to more efficient designs. Solve real-life problems related Energy and environmental issues by research and development.
Major Project	EN7A-808, EN6A-509	M.Tech (Energy Management), Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	The real field projects on Design of a Renewable Energy Based Systems, Detailed Energy Audit of an Industry, Design, Fabrication and Testing of an Energy Related Gadget or Laboratory Experiment, DPR preparation of an Energy Related project, performance, Evaluation of Existing Renewable/ Non Renewable Energy Systems etc. The project work carried out with industry, consultancy organization of institutions to develop creativity, knowledge, and skills together for 6 months duration.
Minor Project-IV	EN7C -813	M.Tech(Executive) in Energy Management	The skills to prepare of technical reports on energy audits and conservation, environmental audit, resource like water audit. Conversion of existing energy devices/system to more efficient designs. Solve real-life problems related Energy and environmental issues by research and development.
Workshop Practices-I (Welding, Shredding, Cutting, threading, multi meter, Bernier, micrometer est.)	EN6A -105	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Identify and remediate unsafe work practices within a shop environment. Perform a variety of machining operations on both an engine lathe and vertical milling machine. Apply tolerances, fits, surfaces finish requirements, and material selection to a given part or assembly. Determine machine tool speeds, feeds, and depth of cuts for
Technical English and communication	EN6A -106	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives. Able to understand and evaluate key theoretical approaches used in the interdisciplinary field of communication. I.e., students will be able to explain major theoretical frameworks, constructs, and concepts for the study of
Computer Programming (C, C++, Python)	EN6A -111	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Understand programming basics. Begin using the Java, python programming language. Display output on the console. Explain the

Workshop Practices-II (Labs on Physics & Chemistry)	EN6A -113	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	A firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries. Majors to be certified by the American Chemical Society will have extensive laboratory work and knowledge of Biological Chemistry. appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in
Workshop Practices-III (AUTOCAD)	EN6A -205	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Apply basic concepts to develop construction (drawing) techniques. Ability to manipulate drawings through editing and
Workshop Practices-IV (Mat lab)	EN6A -212	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Use of MATLAB and MathWorks Statistics and Machine Learning Toolbox. Create and troubleshoot basic m scripts. Create publishable,
Industrial Training during Summer vacation	EN6A -213	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	To provide comprehensive learning platform to students where they can enhance their employ ability skills and become job ready along with real corporate exposure. To enhance students' knowledge in one particular technology. To cultivate student's leadership ability and
Engineering Economics	EN6A -214	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	To make fundamentally strong base for decision making skills by applying the concepts of economics. Educate the students on how to systematically evaluate the various cost elements of a typical manufactured product, an engineering project or service, with a view to
Natural Resource Management	EN6A -211	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Analyze the working and layout of steam power plants and the different systems comprising the plant and discuss about its economic and safety impacts. Combine concepts of previously learnt courses to define the working principle of diesel power plant, its layout, safety principles and compare it with plants of
Basics of RCC Structure	EN6A -210	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	The student will be able to design various types of reinforced cement concrete structures.
Workshop Practices-V (Heat Transfer Lab)	EN6A -305	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Understand the working principles of real heat transfer systems and practical approach to evaluate heat transfer performance of energy systems. Select the energy
Fundamentals of Solar Engineering	EN6A -303	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Illustrate the different methods for the measurement of length and angle. explicate the construction and working of various industrial devices used to measure temperature, level, vibration, viscosity and humidity. ability to analyze, formulate and select suitable sensor for the
Electric and Hybrid Electric Vehicle Technology	EN6A -416	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Entrepreneurship and Innovation minors will be able to find problems worth solving. Students advance their skills in customer development, customer validation, competitive analysis, and iteration while utilizing
Workshop Practices-VII (Environment Lab)	EN6A -406	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	The application of use of appropriate technologies will also be done by students to apply them for prevention, control, measures and

Bio-fuel Technology	EN6A -403	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Students will be able to identify the differences between biofuel and fossil fuels.Students will be able to explain the differences between various forms of biomass energy and how algae biofuels compare. Students will be able to explain the trade-off involved with the use of biodiesel.
Waste Water Engineering	EN6A -402	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Working knowledge of water quality characteristics of water sources including: Groundwater sources, Aquifers, Surface Water sources, Reservoir characteristics, Watersheds, Wells, Raw Water and Clear Well Storage.Ability to describe the purpose and operational steps of key water treatment processes used to improve water quality including: Coagulation, Flocculation,Sedimentation, Filtration, Disinfection, Corrosion Control, Taste and Odor Control, Iron and Manganese removal, Fluoridation, and BATs (Best Available Technologies) used for specific water quality challenges.
Industrial Training/ Educational Tour (minimum 4 weeks)	EN6A -414	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Educational Tours for students provide them with an opportunity to collaborate with teachers, and integrate new perspectives with informal environments to enhance learning initiatives. Among the many educational tour benefits, skill development is the most important. In order to meet several educational tour objectives, students need to apply skills, values and general knowledge in new
Workshop Practices-VIII (Biomass Laboratory)	EN6A -415	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Characterize the biomass and organic waste materials with distinguishing different types of biomass suitable for energy or fertilizer of both production and utilization.possess knowledge of bioreactors engineering and systems for biofuels generation as producer
Operations Research	EN6A -507	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	Understand the physical basis of the natural greenhouse effect, including the meaning of the term radiative forcing.Know something of the way various human activities are increasing emmissions of the natural greenhouse gases, and are also contributing to sulphate aerosols in the troposphere.Demonstrate an awareness of the difficulties involved in the detection of any unusual global warming 'signal' above the 'background noise' of natural variability in the Eath's climate and of attributing (in whole or in part) any such signal
Solid Waste Management	EN6A -501	Dual Degree (B Tech- M Tech) In Energy and Environment Engineering	possess knowledge of bioreactors engineering and systems for biofuels generation as producer gas, biogas, bioethanol and biodiesel production.Develop knowledge and skills for Design, Development and Installation of biomass/waste
Research Methodology	Ph.D-701	PhD in Energy & Environment (Regular)	Students should know why educational research is undertaken, and the audiences that profit from research studies.Students should be familiar with ethical issues in educational research, including those issues that arise in using quantitative and qualitative research.Students should understand the

Computer Applications	Ph.D -703	PhD in Energy & Environment (Regular)	Work effectively with a range of current, standard, Office Productivity software applications. Operate a variety of advanced spreadsheet, operating system and word processing functions. Solve a range of problems using office productivity applications, and adapt quickly to
Advancement in Energy & Environment Systems & Technologies	Ph.D -704	PhD in Energy & Environment (Regular)	Understanding basics of Renewable energy sources, their need and design criterions of appropriate use. The application and selection mechanisms of the systems to meet the needful demand with techno-economic analysis. Select the appropriate methodologies, systems and technologies to provide the fuels or fertilizers or both for energy generation for an organization/industry/village/other sectors. Possess knowledge of bioreactors engineering and systems for biofuels generation as producer gas, biogas, bioethanol and biodiesel production.



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