Syllabus for B.Tech – Energy Engineering

Course Number & Title: EN310 Energy Economics, and Auditing	
L-T-P-C: 3-0-0-6	
Offered in (Odd/ Even / Any): Semester VI	
Pre-Requisite: Nil	
Preamble / Objectives (Optional): To provide comprehensive knowledge on economics of energy systems, energy conservation and role of auditing in industries and institutions.	
Course Content/ Syllabus: Economic aspects and financial analysis: the economics of energy savings schemes: costs, interest, depreciation; investment in energy-saving projects: rate of return, payback, discounted cash flow methods, net present value; activity charts; factors affecting project appraisal; inflation; case studies: energy production and conversion. energy measuring instruments: digital energy meter; data loggers; thermocouples; pyranometer; lux meters; tong testers; power analyzers. energy auditing: energy consumption, policies, standards; energy conservation schemes; energy use in various sectors; representation of energy consumption: pie charts, Sankey diagrams, load profile. concepts, need, and types of energy auditing; power-factor correction; energy auditing in electrical, mechanical, and thermal equipment, energy savings in lighting, case studies on energy auditing in residential, industrial, and commercial sectors.	
Books (In case UG compulsory courses, please give it as "Text books" and "Reference books". Otherwise give it as "References".	
Text Books: (Format: Authors, *Book Title in Italics font,* Volume/Series, Edition Number, Publisher, Year.)	
1.	T C Kandpal and H P Garg, *Financial Evaluation of Renewable Energy Technologies,* MacMillan Indian LTD., 2003.
2.	B K De, *Energy Management, Audit and Conservation,* 2nd Edition*, Vrinda Publications Private LTD-Delhi*, , 2014
Reference Books: (Format: Authors, *Book Title in Italics font,* Volume/Series, Edition Number, Publisher, Year.)	
1.	S Desai, *Hand Book of Energy Audit*, Tata McGraw-Hill, 2015.
2.	S Doty, W C Turner, *Energy Management Handbook, 8th Edition*, Fairmont Press, 2012.
3.	F Kreith, R E West, *Handbook of Energy Efficiency, 1st Edition*, CRC Press, 1996.
4.	A Thumann, D P Mehta, *Handbook of Energy Engineering*, 6th Edition, Fairmont Press, 2001.