M.E Semester: 3 Mechanical Engineering (Thermal Engineering)
Subject Name: EXERGY ANALYSIS OF THERMAL SYSTEMS

A. **Course Objective**

- To present a problem oriented in depth knowledge of Exergy Analysis Of Thermal Systems
- To address the underlying concepts and methods behind Exergy Analysis Of Thermal Systems.

B. **Teaching / Examination Scheme**

SUBJECT		Teaching Scheme				Total Credit	Evaluation Scheme					Total Marks
		L	T	P	Total		THEORY		IE	CIA	PR. / VIVO	
CODE	NAME	Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
MET303-C	Exergy Analysis of thermal System	3	0	0	3	3	3	70	30	20	0	120

C. **Detailed Syllabus**

1. Basic exergy concepts: classification of forms of exergy, concepts of exergy, exergy concepts for control volume, physical exergy, exergy concepts for closed systems analysis, non flow analysis
2. Elements of Plant Analysis: Control volume analysis, criterion for performance, pictorial representation of exergy balance, exergy based property diagram.
3. Exergy Analysis in Process: Expansion process, compression process, heat transfer process, mixing process, separation process, and combustion processes.
4. Energy and Exergy Analysis of gas turbine, steam power plant, captive power plant, combined cycle power plant, refrigeration plant, heat exchanger.
5. Tutorials: This shall consists of solution of examples based on above topics

D. **Lesson Planning**

Sr.No.	Date/Week	Unit No.	% Weightage	Topic No:
1	1^{st} ,2^{ed} ,3^{ed}	Unit 1	20 % .	1
2	4^{th} ,5^{th} ,6^{th}	Unit 2	20 %	2
3	7^{th} ,8^{th} ,9^{th}	Unit 3	20 %	3
4	19^{th} ,11^{th} ,12^{th}	Unit 4	20 %	4
5	13^{th} ,14^{th} ,15^{th}	Unit 5	20 %	5

E. **Instructional Method & Pedagogy**

1. At the start of course, the course delivery pattern , prerequisite of the subject will be discussed
2. Lecture may be conducted with the aid of multi-media projector, black board, OHP etc. & equal weightage should be given to all topics while teaching and conduction of all examinations.
3. Attendance is compulsory in lectures and laboratory, which may carries five marks in overall evaluation.
4. One/Two internal exams may be conducted and total/average/best of the same may be converted to equivalent of 30 marks as a part of internal theory evaluation.
5. Assignment based on course content will be given to the student for each unit/topic and will be evaluated at regular interval. It may carry an importance of five marks in the overall internal evaluation.
6. Surprise tests/Quizzes/Seminar/Tutorial may be conducted and having share of five marks in the overall internal evaluation.

F. **Students Learning Outcomes**

- The student can identify different areas of Exergy Analysis Of Thermal Systems
  . Can find the applications of all the areas in day to day life.