1.	Title of the course	Advanced Thermodynamics
2.	Course number	ME601L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME6021/20
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	January 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To discuss thermodynamic principles and their relevance to the practical problems. To apply thermodynamic principles to solve wide range of engineering problems.	
10.	**Course Content:** Recapitulation of fundamentals: Laws of thermodynamics, Entropy and concept of irreversibility, mechanism of entropy generation; Second law analysis of closed and open systems; Exergy analysis: concepts, exergy balance, exergy transfer, exergetic efficiency, exergy analysis of power and refrigeration cycles; Single and multi-phase systems: Maxwell's relations, Clausius-Clapeyron equation, phase diagrams, equation of state; Chemically reacting system: chemical reactions, irreversible reactions; Entropy generation minimization and application to practical problems; Kinetic theory of gasses.	
11.	**Textbook(s):** 1. Bejan A, *Advanced Engineering Thermodynamics*, 4th Edition, Wiley Interscience (2016). 2. Cengel Y A and Boles M A, *Thermodynamics: An Engineering Approach*, 9th Edition, McGraw Hill (2019).	
12.	**Reference(s):** 1. Sonntag R E and Borgnakke C, *Fundamentals of Thermodynamics*, 10th Edition, Wiley (2020).	