1.	Title of the course	Hydrogen Production, Storage, and Safety
2.	Course number	ME532L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME5039/21
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To introduce importance of hydrogen economy, different hydrogen production methods. To discuss hydrogen storage and safety standards	
10.	**Course Content:** Importance of hydrogen economy; Hydrogen production: reforming of hydrocarbons, steam reforming, partial oxidation of coal, blue, grey and green hydrogen, hydrogen production from biomass, hydrogen production using nuclear energy and renewables- wind, biomass, solar; Hydrogen separation and purification; Hydrogen storage: compressed, liquid and solid state storage, metal hydrides, complex and chemical hydrides, high surface area materials; Hydrogen storage system: design and materials aspects; Hydrogen sensors: solid state sensor, working principle and industrial scale applications; Hydrogen safety: physiological, physical and chemical hazards; Hazard spotting, evaluation and safety guidelines; Hydrogen safety codes and standards.	
11.	**Textbook(s):** 1. Basile A and Iulianelli A, *Advances in Hydrogen Production, Storage and Distribution*, 1st Edition, Woodhead Publishers (2014).	
12.	**Reference(s):** 1. Zohuri B, *Challenges and Solutions for a Cleaner Future*, 1st Edition, Springer International Publishing (2019).	