

1.	Title of the course	Engineering Economics and Sustainability
2.	Course number	CH520L
3.	Structure of credits (L-T-P-C)	3-0-0-3
4.	New course/modification to	New
5.	To be offered by	Chemical Engineering
6.	Prerequisite	CoT
7.	Course Objective(s): To discuss the fundamental concepts and strategies for economic and sustainability assessments of industrial processes. To discuss the methodology and available software tools for techno-economic and life cycle analysis.	
8.	Course Content: Engineering economics: estimation of capital and operating expenses, time value of money, present and future worth, depreciation, amortization, taxes, cash flow analysis, techno-economic analysis (TEA); Sustainability: definitions, challenges and principles, economics and the environment; Sustainability Assessment: goal and scope, inventory analysis, carbon and water footprint, exergy and energy analysis, life cycle analysis (LCA); Introduction to circular economy.	
9.	Textbook(s): 1. Park C S, Fundamentals of Engineering Economics, 3rd Edition, Pearson Education (2017). 2. Bakshi B R, Sustainable Engineering: Principles and Practice, Cambridge University Press (2019).	
10.	Reference(s): 1. Panneerselvam R, Engineering Economics, 2nd Edition, Prentice Hall India (2013). 2. Boumann H and Tillman A M, The Hitch Hiker's Guide to LCA, Studentlitteratur (2004). 3. Matthews H S, Hendrickson C T, and Matthews D, Life Cycle Assessment: Quantitative Approaches for Decisions that Matter, Open Access Textbook (2014). 4. Cooper J R, Process Engineering Economics, CRC Press (2003).	