Course Title:	Course Code:	Credit Hrs:
Reverse Engineering and Inspection Techniques	ME-472	2+1

Textbooks:

* Product Design: Techniques in Reverse Engineering and New Product Development by K. Otto and K. Wood Prentice Hall, 2001.

Reference books:

* Reverse Engineering: An Industrial Perspective by Raja and Fernandes. Springer-Verlag 2008
* Reverse Engineering in Computer Applications. MIT Lecture Notes 2001
* RE as necessary phase by rapid product development by Sokovic and Kopac. Journal of Materials Processing Technology 2005
* A Rapid Prototyping Methodology for Reverse Engineering of Legacy Electronic Systems by Deno, Landis, Hulina, and Sanjay IEEE International Workshop on Rapid System Prototyping, 1999
* Reverse Engineering A Complete Guide - 2021 Edition by Emereo

Course Objective:

Reverse Engineering and Inspection Techniques involve analyzing existing products to understand their design, function, and manufacturing process, using methods like 3D scanning and nondestructive testing to replicate or improve components and systems.

Course Outline:

* Introduction
* Forward Engineering Design: Design Thought and Process, Design Steps, Mechatronic Systems Design
* System RE: RE Methodology, RE Steps, System level Design, and Examples • Product Development
* Product Functions
* Product Teardown
* Engineering Specifications • Product Architecture
* Mechanical RE: Computer-Aided RE, Rapid Prototyping
* Electronic RE: Identify electronic components, PCB RE, Schematic Drawings and Analysis, Verilog and VHDL

- S/W RE: Intro to Formal Methods & Software Engineering Methods, Reverse Engineering in Computer Applications, Re-engineering of PLC programs

Description	Percentage Weightage (%)
Assignments	05-10%
Quizzes	10-15%
Mid Semester Exams	30-40%
End Semester **ASSESSMENTS** Exam	40-50%