CH452: PROCESS EQUIPMENT DESIGN & DRAWING – I

CREDITS = 6 (L = 2, T=4, P = 0)

1.	Classification and fabrication of pressure vessels	2 Hour
2.	**PRESSURE VESSEL CODES AND STANDARDS AND DESIGN OF PRESSURE VESSELS UNDER INTERNAL PRESSURE:** Design pressure, design temperature, materials of construction, design stress (nominal design strength), welded joint efficiency, and construction categories, corrosion allowance, design loads minimum practical wall thickness, the design of thin-walled vessels under internal pressure, cylinders and spherical shells, heads and closures, design of flat ends, design of domed ends, conical sections and end closures Compensation for openings and branches	8 Hours
3.	**DESIGN OF VESSELS SUBJECT TO EXTERNAL PRESSURE:** Cylindrical shells, design of stiffness rings, vessel heads	4 Hours
4.	**NON-PRESSURE STORAGE TANKS:** type and design	4 Hours
5.	**DESIGN OF VESSELS SUBJECT TO COMBINED LOADING:** weight loads, wind loads (tall vessels), earthquake loading, eccentric loads (tall vessels), torque, design of tall vertical vessels;	3Hours
6.	**VESSELS SUPPORTS:** type, selection and design.	4 Hours
7.	**FLANGES AND GASKETS:** types, selection and design	3 Hours
8.	**DESIGN OF EQUIPMENT PARTS**: agitated vessels, heat exchanger, and distillation columns.	3 Hours
9.	**HIGH-PRESSURE VESSELS**- theories of elastic failure, mono-block and multi-layer construction, and materials of construction, and enclosures for high-pressure vessels.	3 Hours
10.	**PRESSURE RELIEF DEVICES**: Types, selection and sizing	4 Hours
11.	**PRESSURE VESSEL TESTINGS:** pressure tests and non destructive tests.	2 Hours

REFERENCE BOOKS

Title: Process Equipment Design
Author: Brownell and Young
Publisher: John Willey

Title: Process Equipment Design
Author: B. C. Bhattacharya
Publisher: CBS Publications

Title: Process Equipment Design
Author: M. V. Joshi & V.V.Mahajani
Publisher: MacMillan

TUTORIAL

1. Total 20 to 25 tutorials for problem solving covering course contents.

2. Home Assignment