

**SARDAR PATEL UNIVERSITY**  
**Programme & Subject: M.Sc (Industrial Chemistry)**  
**Semester: III**  
**Syllabus with Effect from: June - 2015**

<b>Paper Code: PS03CICH08</b>	<b>Total Credit: 4</b>
<b>Title Of Paper: Process Safety Management &amp; Transportation of Fluids</b>	

<b>Unit</b>	<b>Description in Detail</b>	<b>Weightage (%)</b>
I	Objective of PSM, Lethal dose, Flash point, Auto ignition point, Fire triangle, Fire Extinguishing systems, Pressure Relief valves & rupture discs, Colour Codes, OSHA & WISHA rules & regulations, Various types of Hazards, handling and Storage of flammable & combustible Chemicals, 5S of house keeping, Safety in unit operations and chemical reactors	25%
II	Process Safety Information, Process Hazard Analysis, Process Risk Management, Training & Performance, Contractors, Process & Equipment Integrity, Management of Change, Incident Investigation, Compliance Audits, Trade Secrets, Employee Participation, Pre-startup Safety Review, Emergency Planning and Response, Audits & Corrective actions	25%
III	Boundary layer concept, Reciprocating and Centrifugal pumps, Use of air vessels in pumps, Vapour locking and NPSH. Design of flow meters, Hagen Poiseuille equation & its applications	25%
IV	Motion of particles through fluids: Terminal settling velocity of particles settling under Stokes, Intermediate and Newton's range in free & hindered settling, Mechanism of fluidization, Design of fluidized bed columns	25%

**Basic Text & Reference Books:-**

- "Plant Guidelines for Technical Management of Chemical Process Safety", by the Center for
- Chemical Process Safety (CCPS) of the American Institute of Chemical Engineers ISBN 0-8169-0499-5
- "Chemical Process Safety, Fundamentals with Applications", Second Edition by
- Daniel A. Crowl & Joseph F. Louvar, Published by Prentice Hall, Inc. ISBN 0-13-018176-5
- Safety and accident prevention in chemical operation, 2<sup>nd</sup> edition, Howard H.,
- Handbook of occupational safety and health, Lawrence S
- Practical Process Management,
- Process Systems Analysis and Control, Coughanowr, Donald R., 3<sup>rd</sup> edition, McGraw Hill
- Process Control, Peter Harriot, McGraw Hill

