



# **UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA**

## **DEPARTMENT OF CHEMICAL ENGINEERING LESSON PLAN**

**Semester-3<sup>rd</sup>**

**SUBJECT- TH:1- INTRODUCTION TO CHEMICAL ENGINEERING**

**PREPARED BY- ER. RAJESH TRIPATHY**

	Topics covered
WEEK 1	Definition of Chemical Engineering and Chemical Industry
	Role of Physical Sciences (Physics & Chemistry),
	Life Sciences (Biology & Biochemistry),
WEEK 2	Student interaction
	Mathematics and Economics in Chemical Engineering
	Doubt Clear Class
WEEK 3	Duties and Responsibilities of Chemical Engineer
	Role Play about role and responsibilities
	Virtual Case study show and Video play
WEEK 4	Difference between Chemical Engineering and Chemistry
	Student interaction and Quiz
	Unit Operations: Definition and brief description of various unit operations
WEEK 5	Doubt Clear Class
	Unit Processes: Definition and brief description of various unit processes
	Student interaction
WEEK 6	Batch and Continuous Process; Block Diagram, Flowsheet, PFD, P&ID of process plants (Only concepts and example)
	Student interaction
	Role of Process Control Engineering and commonly used control systems in chemical plants like DCS, PLC, SCADA, etc



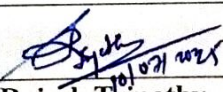
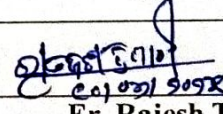
WEEK 7	Use cases of Model, Prototype and Pilot plant; Engineering,
	Procurement and Construction (EPC)
	Contract of an Industry (Concept)
WEEK 8	Role of Chemical Engineers in the area of Food, Pharmaceutical, Energy, Environmental, Biochemical, Electronics, etc.
	Student interaction demo
	Importance of Quality Check and Quality Control in Chemical and allied industries;
WEEK 9	Student interaction
	Simulation and Modeling: Definition, Importance, Applications and use of different software like ASPEN, ANSYS, HYSYS, CHEMCAD, PRO/II, DWSIM
	Student interaction
WEEK 10	Role of IOT and AI in Chemical Engineering
	Traditional vs Modern Chemical Engineering;
	Student interaction
WEEK 11	Opportunities for a Chemical Engineer;
	Scope and Future of Chemical Engineering
	Student interaction
WEEK 12	Greatest achievements in Chemical Engineering
	Student interaction
	Doubt Clear Class
WEEK 13	Role of Professional bodies/societies in Chemical Engineering (AIChE, ACS, IChE, etc)
	Doubt Clear Class
	Pannel Discussion
WEEK 14	Chemical Engineering Industries in India; Chemical Engineering Industries in Odisha
	Doubt Clear Class
	Group Discussion



WEEK 15	Raw Materials, Products and End uses
	Doubt Clear Class
	Presentation on all concepts

#### BOOKS FOR REFERENCE:

1. S. K. Ghosal, S. K., Sanyal and S. Datta, "Introduction to Chemical Engineering", Tata McGraw Hill Education Pvt. Ltd., New Delhi.
2. Pushpavanam.S., "Introduction to Chemical Engineering", PHI Learning Pvt. Ltd., New Delhi,
3. Badger W. L. and Banchero J. T., "Introduction to Chemical Engineering", 6 Edition, Tata McGraw Hill, 1997.
4. Dryden, C. E., "Outlines of Chemicals Technology", Edited and Revised by Gopala Rao, M. and M. Sittig, 2nd Edition, Affiliated East-West press, 1993.

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