



# UPSTREAM LNG TECHNOLOGY

## PROF.PAVITRA SANDILYA

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IIT Kharagpur

**INTENDED AUDIENCE :** Mechanical/ Chemical/ Ocean/ Cryogenic/ Marine/ Naval/ Energy/  
Petroleum/ Environmental/ Geological Engineering

**INDUSTRIES APPLICABLE TO :** IOCL, BPCL, GAIL, Reliance Petrochemicals, HPCL, SHELL etc

### COURSE OUTLINE :

This course discusses in depth the various processes related to upstream LNG technology. The importance, sources and types of natural gases, properties and phase behavior of natural gas, dehydration of natural gas, removal of natural gas hydrates, nitrogen gas and acid gas. Natural gas liquid, sulphur and trace component recovery, Compression of natural gas and Liquefaction of natural gas will be explained to a good extent.

### ABOUT INSTRUCTOR :

Prof. Pavitra Sandilya have been teaching at the cryogenic engineering centre of IIT Kharagpur since 2002. I have been offering both core and elective courses on mass transfer, separation processes, LNG, CFD etc. to both UGs and PGs. His research area encompasses process intensification, unconventional energy, carbon capture, cryogenic storage, catalyst development, hydrogen separation etc.

### COURSE PLAN :

**Week 1:** Importance, sources and classification of natural gas

**Week 2:** Estimation of physical properties and phase behavior of natural gas

**Week 3:** Estimation of thermophysical properties of natural gas

**Week 4:** Dehydration of natural gas

**Week 5:** Natural gas hydrates and their removal

**Week 6:** Nitrogen gas removal

**Week 7:** Acid gas removal

**Week 8:** Natural gas liquid, sulphur and trace component recovery

**Week 9:** Compression of natural gas

**Week 10:** Flow measurement of natural gas

**Week 11:** Liquefaction of natural gas

**Week 12:** Tutorials