

**Course Code: ET-6035**

**Course Title: Data Analytics and Machine Learning in Energy Engineering**

**Course Content:**

Review on renewable, conventional and unconventional energy resources; the basic concept on data analysis; regression modeling and analysis; multivariate data analysis; model assessment and selection; uncertainty quantification and feature ranking; data-driven modeling and performance predictions; concept of supervised and unsupervised machine learning techniques; mathematical formulation of artificial neural networks, least-square support vector machine, random forest and gene expression programming etc., including their application in oil/gas (conventional/ unconventional) operations and renewable energy systems using real field data.