AMPE19 RESERVOIR CHARACTERIZATION AND MODELING

UNIT-1 OVERVIEW OF RESERVOIR CHARACTERIZATION AND MODELING PROBLEMS

1.1 Reservoir mapping. 3D modeling.
1.2 Univariate, bivariate and multivariate statistics for geological data analysis.

UNIT-2 PATTERN RECOGNITION TECHNIQUES

2.1 Petrophysical predictions from well logs.
2.2 Introduction to petroleum geostatitsics. Variograms.
2.3 Kringin.
2.4 Uncertanity quantification.

UNIT-3 STOCHASTIC RESERVOIR MODELING

3.1 Sequential simulation. Gaussian simulation.
3.2 Indicator simulation.
3.3 Integrating seismic attributes, well tests and production data.
3.4 Constraining reservoir models with various sources of information.
3.5 Reservoir up girding and upscaling.

UNIT-4 RESERVOIR SIMULATION

4.1 Investigation of petroleum reservoir characteristics and behavior, including: pore volume, fluid distribution and movement, and recovery.
4.2 The result of simulation studies include optimized field development and management plans which maximize the value and/or reserves of producing properties.
4.3 Finite difference approximations to the diffusivity equation and the application of those approximations for reservoir simulations.
4.4 Practical use of reservoir simulation.

UNIT-5 PRESSURE TRANSIENT INTERPRETATION.

5.1 Seismic reservoir charactreisation.
5.2 Log management, correlation and petrophysical analysis.
5.3 Geology correlator probe – AVO Reservoir Characterization.
5.4 Software used in reservoir characterization and modeling.

References Book:

1. Standard Hand Book of Petroleum & Natural Gas Engineering" – 2nd Edition 2005-William C.Lyons & Gary J.Plisga-Gulf professional publishing comp (Elsevier).