

<b>7<sup>th</sup> Semester</b>	<b>RPP7D002</b>	<b>Reservoir Characterization and Modelling</b>	<b>L-T-P 3-0-0</b>	<b>3 Credits</b>
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**Module I:****(10 Hours)**

Overview of reservoir characterization and modeling problems. Reservoir mapping. 3D modeling. Univariate, bivariate and multivariate statistics for geological data analysis. Pattern recognition techniques. Petrophysical predictions from well logs. Introduction to petroleum geostatistics. Variograms. Kriging. Uncertainty quantification.

**Module II:****(10 Hours)**

Stochastic reservoir modeling. Sequential simulation. Gaussian simulation. Indicator simulation. Integrating seismic attributes, well tests and production data. Constraining reservoir models with various sources of information. Reservoir up gridding and upscaling.

**Module III:****(12 Hours)**

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

**Module IV:****(6 Hours)**

Pressure transient interpretation. Seismic reservoir characterisation. Log management, correlation and petrophysical analysis. Geology correlator probe – AVO Reservoir Characterization. Software used in reservoir characterization and modeling.

**Books:**

- [1] Petroleum Exploration Hand Book by Moody, G.B.
- [2] Wellsite Geological Techniques for petroleum Exploration by Shay's et al.
- [3] Standard Hand Book of Petroleum & Natural Gas Engineering” – 2nd Edition 2005-WilliamC.Lyons& Gary J.Plisga-Gulf professional publishing comp (Elsevier).