Course Type	Course Code	Name of Course	L	T	P	Credit
DC5	PEC207	**Petroleum Formation Evaluation**	3	0	0	9

Course Objective
The objective of the course is to provide the basic knowledge of well logging and its requirement.
Learning Outcomes
Proficiency in well logging tools and interpretation of well log data.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1.	**Formation Evaluation Overview:** Direct and Indirect Methods, classification and logging tools. Mud Logging and cutting analysis log, Coring and Core analysis log.	5	Student will be explained about different well logging method and role of mud logging in formation evaluation
2.	**Petrophysical Measurements**: Rock-Fluid interaction, Bore hole environment and basic concepts of well log analysis and application	3	The borehole environment and their effect on log measurement will be explained to student.
3.	**Openhole Well Logging**: Principle, Logging tools, application & Limitations Spontaneous Potential Log, Gamma Ray Log, Resistivity Measurement: Electrical, induction logging and micro-resistivity log Porosity Logs: Density & Litho-density log, neutron log, sonic (acoustic) log, Electromagnetic Propagation tools**.** Nuclear Magnetic Resonance log	10	The different openhole well log and their principle, and application in reservoir characterization will be explained to student.
4.	**Cased Hole Logging**: introduction, objectives and methods Well Integrity evaluation: CBL and VDL logs, Ultrasonic Imaging tools Casing inspection tools: Electromagnetic and acoustic CIT log Reservoir fluid Saturation Determination: tool principle and application	5	The different openhole well log and their principle, and application various capacity will be explained to student.
5.	**Production Logging**: Introduction, type of tools, principles, limitations and applications	6	Different production logging tool and their application will be explained to student.
6.	**Log Interpretation and Analysis Techniques:** Standard log interpretation methods. Quick-Look Interpretation: Crossplots, and Overlays Lithology/ Minerology Identification Porosity Determination Water saturation and Resistivity Determination Clean sand & Shaly sand interpretation	6	Student will learn how to interpretate openhole well log to get the desired information
7.	**Bore hole Imaging Devices:** Tool type and principle: Ultrasonic, Electrical & Optical scanning. Formation micro scanner (FMS)Dip hole Shear Sonic Imager(DSI)	3	Different imaging technique of well bore and their application will be explained to student
8.	Advancements in Formation Evaluation, new logging devices.	2	Advanced logging method will be explained to student.
	Total contact hours	**42**	

Text Books:

Formation Evaluation: Edward Lynch

Fundamental of Formation Evaluation: Donald P Helander

Reference Books:

Theory Measurement & Interpretation of Well Logs: ZakiBassiouni

Cased-Hole Log Analysis & Reservoir: Richard M Bateman