Module code	SG-5312			
Module Title	Basin Analysis			
Degree/Diploma	Master of Science in Petroleum Geosciences by Coursework			
Type of Module	Option			
Modular Credits	4	**Total student Workload**	8	hours/week
		Contact hours	4	hours/week
Prerequisite	None			
Anti-requisite	None			

Aims

To provide understanding of different sedimentary basin types in a plate tectonic framework, formation mechanisms, such as lithospheric stretching (Mckenzie model) and flexure, the development of basins in space and time, and their subsidence and thermal history. To provide skills to calculate the backstripped subsidence and thermal history in case of 1D, 2D and 3D basin modelling using Petromod or similar software. Finally they will learn resource quantification or evaluation of a particular basin.

Learning Outcomes

On successful completion of this module, a student will be able to:

Lower order:	30%	- recognise the basic principles and applications of Basin Analysis
Middle order:	50%	- identify how different basins forms and evolve through time - define the petroleum system elements that are related to basin formation and their geodynamic environment
Higher order:	20%	- carry out basin modelling and integrate regional database for further exploration of oil and gas - explore and interpret sedimentary basin dynamics

Module Contents

- Basins and their geodynamic environment
- The physical state of the lithosphere
- The mechanics of sedimentary basin formation
- Basins due to lithospheric stretching, basins due to flexure
- Effects of mantle dynamics. Basins associated with strike-slip deformation
- The sedimentary basin-fill; The sediment routing system
- Basin Stratigraphy, Subsidence History, Thermal History
- Basin analysis knowledge to petroleum play assessment

Assessment	Formative assessment	Weekly discussion, practical tests and feedback

	Summative assessment	Examination: 50%
		Coursework: 50% - 5 individual written assignments (35%) - 1 class test (15%)