Module code	SG-5302			
Module Title	Petroleum Structural Geology			
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 basin dynamics and local scale structural deformation to generate topographic, bathymetric, structural and stratigraphic subsurface maps for hydrocarbon exploration.

Learning Outcomes

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

Lower order:	30%	- describe the reservoir scale structural features within large scale structure - identify the advanced applications of structural geology
Middle order:	50%	- analyse the structural architecture of a petroleum reservoir - perform qualitative and quantitative interpretations of structural data
Higher order:	20%	- develop 3D structural models with fault seal integrity analysis in order to generate static reservoir modal - work in an exploration team and play a significant role in decision making process

Module Contents

- Introduction to strain, deformation processes, progressive deformation, stress analysis, rheology and natural flow of rocks in the Earth.
- Stereographic projection techniques, Mohr circles and brittle failure
- Fault zone initiation and development, fault system evolution, analysis of a shear zone, kinematic analysis. Microstructures, superimposed deformations, fold mechanisms, controls on fold style, geologic map interpretation, geometric analysis of faults and folds
- Fault system geometry and evolution with local and regional case studies, fault system evolution based on case studies, cross-section reconstruction
- Fault seal/stratigraphic juxtaposition analysis, rift history analysis, fractured reservoir analysis

Assessment	Formative assessment	Weekly discussion, practical tests and feedback
		Examination: 50%

	Summative assessment	Coursework: 50% - 5 individual written assignments (30%) - 1 fieldwork group report (10%) - 1 class test (10%)