

<b>Module code</b>	SG-4306		
<b>Module Title</b>	Seismic Methods		
<b>Degree/Diploma</b>	Bachelor of Science (Geology)		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	4	<b>Total student Workload</b>	10 hours/week
		<b>Contact hours</b>	6 hours/week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>	None		
<b>Aims</b>			
<p>Seismic data analysis is the backbone of hydrocarbon exploration and field development planning. The students should acquire a basic understanding of seismic waves, seismic survey design and seismic data processing work flows. The students will get hands on training on seismic interpretation, enabling them to perform structural and stratigraphic interpretation of 2-D and 3-D seismic data. Seismic attributes will be introduced and used to aid structural and stratigraphic interpretation and determination of the reservoir properties. Volumetric estimation of oil and gas will be a key focus during this module.</p>			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	<ul style="list-style-type: none"> <li>- understand the basic principles of seismic methods</li> <li>- understand the basic applications of seismic methods</li> </ul>	
Middle order :	50%	<ul style="list-style-type: none"> <li>- acquire and analyse seismic data for oil and gas exploration</li> <li>- interpret seismic data both qualitative and quantitative point of view</li> <li>- interpret stratigraphic sections and depositional environments</li> <li>- identify structural style to understand trapping mechanism and tectonics</li> <li>- identify hydrocarbon indicators and calculate volume of hydrocarbon</li> </ul>	
Higher order:	20%	<ul style="list-style-type: none"> <li>- develop skills to use state of art seismic interpretation workstation</li> <li>- develop skills to link geology and seismic response</li> </ul>	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- Seismic waves, signal analysis, and seismic ray path geometrics</li> <li>- Seismic 2D and 3D survey designs, seismic data processing, AGC, sorting, gathering, static and dynamic corrections, deconvolutions, velocity analysis, migration and stacking of seismic traces</li> <li>- Seismic interpretation</li> </ul>			
<b>Assessment</b>	Formative assessment	Practical tests, assignments and feedback	
	Summative assessment	Examination: 50% Coursework: 50% <ul style="list-style-type: none"> <li>- 5 written assignments (15%)</li> <li>- 1 project (20%)</li> <li>- 1 class test (15%)</li> </ul>	