



Course Description

College/Institute: Maritime Postgraduate Studies Institute

Program: M.Sc in Hydrographic Surveying

1- Course Data		
Course Code: MPI 713	Marine Geophysics	Academic Year:2015-2016
Specialization:	Hydrographic Surveying	

2- Course Aim	The aim of this course is to enhance the student's scope of knowledge related to Geophysics and develop his master of data collection analysis before performing hydrographic survey operation. However, this course aims at enabling students to Master fundamentals and methods of research in order to produce their thesis in accordance to the academic final degree research requirements.
3- Intended Learning Outcome:	
a- Knowledge and Understanding, students will be able to:	<ol style="list-style-type: none"> 1. Explain the main techniques used in multi-channel seismic reflection data processing; 2. Interpret and report on seismic reflection profiles; 3. Describe limits on the resolution of seismic and potential field data and design a data acquisition and processing strategy for a given target; 4. Explain aspects of how seismic reflection methods and electromagnetic methods are used to identify and optimize hydrocarbon plays; 5. Understand the core theory and practice underlying electromagnetic exploration methods; 6. Process, analyze and interpret potential field and electromagnetic data to infer subsurface structure
b- Intellectual Skills, students will be able to:	<ol style="list-style-type: none"> 1. Identify and critically analyze issues involved in Marine Geophysics uses and other Branches and uses of Marine Geophysics sciences 2. Understand Detailed knowledge regarding geophysics surveys include magnetic, seismic, gravity should widen the scope of surveying operation.



c- Professional Skills, students will be able to:	<ol style="list-style-type: none"> 1. Earth magnetic field, core field, international geomagnetic reference. 2. Magnetic anomalies caused by geology. 3. Declination, deviation, variation, dip, magnetic storms. 4. Gravity Formula, Gravity anomalies. 5. Practical Surveys.:
d- General Skills, students will be able to:	<ol style="list-style-type: none"> 1. Digital seismic techniques, reflection, refraction. 2. Multiple fold 3D. 3. Digital data acquisition, acoustic sources. 4. Digital seismic data processing 5. Analogue equipment, boomers, sparker. 6. Side scan - sector scan, theory, resolution. 7. Sonar data interpretation, plotting, positioning
4- Course Content	<p>Week (1) Earth magnetic field, core field, international geomagnetic reference.</p> <p>Week (2) Magnetic anomalies caused by geology.</p> <p>Week (3) Declination, deviation, variation, dip, magnetic storms.</p> <p>Week (4) Practical Surveys.</p> <p>Week (5) Gravity Formula, Gravity anomalies.</p> <p>Week (6) Practical Surveys.</p> <p>Week (7) 7th week.</p> <p>Week (8) Digital seismic techniques, reflection, refraction.</p> <p>Week (9) Multiple fold 3D.</p> <p>Week (10) Digital data acquisition, acoustic sources.</p> <p>Week (11) Digital seismic data processing</p> <p>Week (12) 12th week exam.</p> <p>Week (13) Analogue equipment, boomers, sparker.</p> <p>Week (14) Side scan - sector scan, theory, resolution.</p> <p>Week (15) Sonar data interpretation, plotting, positioning.</p> <p>Week (16) Final exam.</p>
5- Teaching and Learning Methods	<p>A mixture of lectures, tutorials, exercises, and case studies are used to deliver the various topics in this subject, some of which are covered in a problem-based format, thereby enhancing the learning objectives by using Office hours and Additional Follow up.</p>
6- Teaching and Learning Methods for Students with Special Needs	



7- Student Assessment:	1.Participation 2.Assignments 3.Presentations 4.Case Study 5.Quiz 6.Written Exams 7.Workshop
a- Procedures used:	
b- Schedule:	Assessment(1) Mid Assessment(2) 12 th Assessment(3) 15 th .
c- Weighing of Assessment:	7 th Week Examination , 12 th Week Examination , Final-term Report Writing , Oral seminar exam , Practical Examination , Semester Work , Total 100%
8- List of References:	Firth, Antony (2011). Marine Geophysics: integrated approaches to sensing the seabed. Europae Archaeologia Consilium (EAC), Belgium. http://www.fjodr.com/uploads/3/0/0/2/3002891/eac5_firth_11_-_ajf.pdf
a- Course Notes	
b- Required Books (Textbooks)	
c- Recommended Books	Plets, Ruth. Dix, Justin & Bates, Richard (2013). Marine Geophysics Data Acquisition, Processing and Interpretation, Guidance Notes. http://uir.ulster.ac.uk/26229/1/MGDAPAI-guidance-notes.pdf
d- Periodicals, Web Sites, ..., etc.	

Vice Dean for Educational Affairs
Affairs Name & Signature:
Date:

College/Institute Dean
Name & Signature:
Date: