

**ATTACHMENT 2 (e)**

**Course Specifications**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**GEO 380: PLATE TECTONICS  
COURSE SPECIFICATIONS  
(CS)**

## Course Specifications

Institution	Date of Report
King Saud University	2-17-2014
College/Department	Geology and Geophysics

### A. Course Identification and General Information

1. Course title and code: Spatial Information Systems-GEO 380		
2. Credit hours 2 (2+0)		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Geology		
4. Name of faculty member responsible for the course Prof. Essam Abd El-Motaal Mohamed		
5. Level/year at which this course is offered		
6. Pre-requisites for this course (if any) Geo 236		
7. Co-requisites for this course (if any)		
8. Location if not on main campus		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="75 %"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="10%"/>
c. e-learning	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="10%"/>
d. Correspondence	<input checked="" type="checkbox"/> What percentage?	<input type="text" value="5%"/>
f. Other	<input type="checkbox"/> What percentage?	<input type="text"/>
Comments:		

## B. Objectives

<p>1. What is the main purpose for this course?</p> <ul style="list-style-type: none"> <li>To familiarize students with basic knowledge of geology methods in the field.</li> <li>To develop the students' understanding of the properties of different types of rocks and deformation.</li> <li>To understand the different concepts, properties and mechanical behavior of rocks during structural deformations and tectonic movements.</li> <li>To increase the ability of the student to imagine and visualize the real link between the theoretical background and the field practical experience.</li> </ul>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <ul style="list-style-type: none"> <li>To motivate the ability of the students to collect and orient field samples and take measurements in the field.</li> <li>Increase the ability of the students to use up-to-date computer softwares related to the course.</li> <li>Train the student in the field on using some survey and field tools.</li> </ul>

## C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Geophysical and geological observations related to plate tectonic theory	1	2
Marine magnetic	1	2
Paleomagnetic measurements	1	2
Seismicity and volcanism of plate boundaries	1	2
Reference frames and absolute plate motions	2	4
Interpretations of geologic phenomena in the context of plate tectonics	2	4
Ocean trenches	1	2
Island arcs	1	2
Plate tectonic evolution of the ocean basins	2	4
Plate tectonic evolution of the continents	2	4
Arabian plate	1	2

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30			0		30
Credit	2			0		2

3. Additional private study/learning hours expected for students per week.	<input type="text"/>
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Knowledge and understanding of behavior and characteristics of different tectonic elements to understand the principles of Plate tectonics.	<ul style="list-style-type: none"> <li>• Course materials are delivered through a sequential delivery of lectures.</li> <li>• Interactive learning process through questions and answers in class.</li> </ul>	<ul style="list-style-type: none"> <li>• Exams, homework and assignment are used to assess the acquired knowledge on the subject.</li> <li>• Oral presentation is given to examine the students' ability to perform and to show their knowledge of the subject.</li> </ul>
1.2	Know the different field work techniques.		
1.3	Knowledge of the different methods and techniques used in collecting field samples, analysis and interpretation of tectonic data.		
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Students will be able to apply the knowledge of behaviour and properties of tectonic elements that they have learnt in this course in practical and field work.	<ul style="list-style-type: none"> <li>• Lectures are supported by illustration, handouts and sometimes with presentation. Lectures are followed by numerous examples, some of which are practical in nature, to illustrate the application and use.</li> <li>• Engage students in class discussions with questions and answers</li> </ul>	<ul style="list-style-type: none"> <li>• Exams and homework will be emphasized on the rocks which contain important resources.</li> </ul>
2.2	Students will be able to apply the knowledge of the different geological structures and realize the applied stresses that formed them as well as their tectonic setting.		
2.3	Students will be able to use and apply the gain knowledge to differentiate and nominate the different structural elements such as folds, Faults, shear zone, lineation and foliation in the field and lab.		
2.4	Practicing skills in speaking/presenting in class, and working collaboratively in groups		
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	Punctual attendance of classes session is required of the students.	<ul style="list-style-type: none"> <li>• Assignments are given to the students at regular intervals to give them time to accomplish and submit on time. Late or no submission of assignments carries penalties or loss of part of the grade points.</li> <li>• Participation of students in classroom discussion is encouraged.</li> </ul>	<ul style="list-style-type: none"> <li>• Class attendance of students at the beginning of the lecture is recorded.</li> <li>• Submission of assignment and home work is also recorded.</li> </ul>
3.2	Students will take the responsibility to accomplish any given assignment or home work on their own and submit them on time.		
3.3	Students learn to manage their time in self study of the course material.		

<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Ability of students to use computer software related to the course topics.	<ul style="list-style-type: none"> <li>• Questions of tests and assignments require students' knowledge of important subjects.</li> <li>• Questions include important English terms to familiarize the students to the foreign language.</li> <li>• Some assignments include some computer search.</li> </ul>	<ul style="list-style-type: none"> <li>• Assigned grades for each assignment, report, exam are recorded.</li> <li>• Extra grades might be added for good participation in class.</li> <li>• All grades are added and the total is given after the finals.</li> </ul>
4.2	Use of computer in producing reports and assignments		
4.3	Ability to write reports in English		
<b>5.0</b>	<b>Psychomotor</b>		

#### Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

<b>NQF Learning Domains</b>	<b>Suggested Verbs</b>
<b>Knowledge</b>	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
<b>Cognitive Skills</b>	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
<b>Interpersonal Skills &amp; Responsibility</b>	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
<b>Communication, Information Technology, Numerical</b>	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
<b>Psychomotor</b>	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct

Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

**Suggested assessment methods and teaching strategies are:**

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

**5. Schedule of Assessment Tasks for Students During the Semester**

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Home works	5-9- 12	10 %
2	Assignment	7	10 %
3	First Test	6	10 %
4	Second Test	14	30%
5	Final Exam	15	40%

#### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Student's consultations 3hrs/day.  
Office hours 3hrs/day

#### E. Learning Resources

##### 1. List Required Textbooks

Moores, E.M., and Twiss, R.J., 1995, Tectonics: W. H. Freeman & Company, New York, 415 p.

Kearey, P and. Vine, F. J, 1996, Global Tectonics, 2nd Edition, Blackwell Scientific Publications, Oxford, 302 p.

##### 2. List Essential References Materials (Journals, Reports, etc.)

- Cox, A. and Hart, R.B., 1991, Plate Tectonics: How it Works. Blackwell Scientific Publications, 416 p.
- Ramsay, J. G. and Huber, M. I. 1983/1987. The Techniques of Modern Structural Geology, volume 1 and 2. Academic press, New York, 700 pp.
- Twiss, R. J. and Moores, E. M. 1992. Structural Geology. Freeman and Company, New York

##### 3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

Journal of King Saud University( Science); Journal of Geodynamics; Journal of Tectonophysics; Geological Society of America; American Association of Petroleum Geologists; Geo-Arabia; Journal of Petroleum Geology; Arabian Journal of Geosciences.

##### 4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

- [http://www.bbc.co.uk/schools/gcsebitesize/science/21c\\_pre\\_2011/earth\\_and\\_space/continentaldriftrev1.shtml](http://www.bbc.co.uk/schools/gcsebitesize/science/21c_pre_2011/earth_and_space/continentaldriftrev1.shtml)
- <http://www.ucmp.berkeley.edu/geology/tectonics.html>
- [http://www.classzone.com/books/earth\\_science/terc/content/investigations/es0802/es0802page06.cfm?chapter\\_no=investigation](http://www.classzone.com/books/earth_science/terc/content/investigations/es0802/es0802page06.cfm?chapter_no=investigation)
- <http://pubs.usgs.gov/gip/dynamic/dynamic.html#anchor19978839>
- Search through Google for related topics.
- To be given in class.

##### 5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

The instructor may provide some relevant materials and learning aids.

#### F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in



classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- Lecture room equipped with a blackboard, overhead projector, computer and internet connection.
- The laboratory will have a blackboard, overhead projector with computer connection and seating arrangement for the students.

<p>2. Computing resources (AV, data show, Smart Board, software, etc.)</p> <p>An easily accessible computer lab.</p>
<p>3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)</p> <p>Printer – Scanner – data show</p>

## G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <ul style="list-style-type: none"> <li>• Student questionnaire for evaluation of the conclusion of the course.</li> <li>• Meeting and discussion between faculty and students.</li> </ul>
<p>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor</p> <ul style="list-style-type: none"> <li>• Faculty assessment of the course and effectiveness of teaching delivery.</li> <li>• Periodic self- assessment of the program.</li> </ul>
<p>3 Processes for Improvement of Teaching</p> <ul style="list-style-type: none"> <li>• Undergraduate Committee will review deficiencies based on the student evaluation, faculty input, course file, and program assessment.</li> <li>• Feedback from employers and alumni surveys and graduating students' input are used to identify any deficiencies in students' ability in applying knowledge of properties and the use of structural materials.</li> <li>• Organize workshop on effective teaching methods to enable instructors to improve their teaching skill.</li> <li>• The teaching method will focus on students' learning and on course learning outcomes.</li> </ul>
<p>4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)</p> <ul style="list-style-type: none"> <li>• Undergraduate Committee will review samples of student work in this course to check on the standard of grades and achievements.</li> <li>• A faculty member from a reputable university will evaluate the course material and the students' work to compare the standard of grades and achievements with those at his university. This evaluator will also comment on the laboratory facilities and the adequacy of the equipment used in the lab.</li> </ul>

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Self- assessment at every two years and the external assessment by the invited faculty member at every four years will be carried out. The feedback received from these assessments will be used to plan for further improvement in the course syllabus, teaching method, and delivery of course materials.

Faculty or Teaching Staff: Prof. Essam Abd El-Motaal Mohamed \_\_\_\_\_

Signature: \_\_\_\_\_ Date Report completed: \_\_2/17/2014\_\_

Received by: \_\_\_\_\_ Dean/Department Head

Signature: \_\_\_\_\_ Date: \_\_\_\_\_