



# Course Specifications

<b>Course Title:</b>	<b>Plate tectonics</b>
<b>Course Code:</b>	<b>Geo 380</b>
<b>Program:</b>	<b>Geology</b>
<b>Department:</b>	<b>Geology and Geophysics</b>
<b>College:</b>	<b>Science</b>
<b>Institution:</b>	<b>King Saud University</b>

## Table of Contents

<b>A. Course Identification</b> .....	<b>3</b>
6. Mode of Instruction (mark all that apply) .....	3
<b>B. Course Objectives and Learning Outcomes</b> .....	<b>4</b>
1. Course Description .....	4
2. Course Main Objective.....	4
3. Course Learning Outcomes .....	4
<b>C. Course Content</b> .....	<b>5</b>
<b>D. Teaching and Assessment</b> .....	<b>5</b>
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods .....	5
2. Assessment Tasks for Students .....	6
<b>E. Student Academic Counseling and Support</b> .....	<b>6</b>
<b>F. Learning Resources and Facilities</b> .....	<b>7</b>
1. Learning Resources .....	7
2. Facilities Required.....	7
<b>G. Course Quality Evaluation</b> .....	<b>7</b>
<b>H. Specification Approval Data</b> .....	<b>8</b>

## A. Course Identification

<b>1. Credit hours:</b> 2 (2+0+0)
<b>2. Course type</b>
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b>
<b>4. Pre-requisites for this course (if any):</b> Geo 236
<b>5. Co-requisites for this course (if any):</b>

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	% 75
2	Blended		%10
3	E-learning		%10
4	Correspondence		%05
5	Other		

### 7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
<b>Contact Hours</b>		
1	Lecture	30
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	30
<b>Other Learning Hours*</b>		
1	Study	2
2	Assignments	2
3	Library	
4	Projects/Research Essays/Theses	2
5	Others (specify)	
	<b>Total</b>	6

\* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

## B. Course Objectives and Learning Outcomes

### 1. Course Description

Geophysical and geological observations related to plate tectonic theory - marine magnetic and paleomagnetic measurements - seismicity and volcanism of plate boundaries - reference frames and absolute plate motions - Interpretations of geologic phenomena in the context of plate tectonics – ocean trenches and island arcs - plate tectonic evolution of the ocean basins and continents.

### 2. Course Main Objective

- The main purpose of course Geo 380 is to provide students with an understanding of how the Earth 'works' in terms of the dynamic processes that have led to the development of the Earth's more important tectonic environments.
- To develop the students' understanding of the distribution of the major tectonic features (e.g. mountain belts, continental rifts, ophiolite belts, trenches, mid-ocean ridges,...) on earth.
- To familiarize students with basic knowledge of geological and geophysical methods in the field.
- Students will also be introduced to the Arabian plate and its tectonic boundaries.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge:</b>	
1.1	Knowledge and understanding of behavior and characteristics of different tectonic elements to understand the principles of Plate tectonics.	Acquire general knowledge about Geology
1.2	Knowledge of the different methods and techniques used in collecting field samples, analysis and interpretation of tectonic data.	
1.3	Knowledge of the origins of earthquakes, volcanoes and magma.	
2	<b>Skills :</b>	
2.1	Students will be able to apply the knowledge of behavior and properties of tectonic elements that they have learnt in this course in practical and field work.	Acquire skills about application, differentiation and analysis of different geological materials.
2.2	Students will be able to apply the knowledge of the different geological structures to 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 and shear zone and their relationships to plate tectonics.	
2.4	Practicing skills in speaking/presenting in class, and working collaboratively in groups.	
3	<b>Competence:</b>	
3.1	Punctual attendance of classes and laboratory session is required of the students.	Communicate appropriately, oral and written as individual and team-work.
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.	

## C. Course Content

No	List of Topics	Contact Hours
1	Definition and methods of study	2
2	Major tectonic features on earth	4
3	Continental Drift theory	2
4	Geophysical and geological observations related to plate tectonic theory	2
5	Sea-floor spreading and paleomagnetism	2
6	Seismicity and volcanism of plate boundaries	4
7	Types of plate boundaries and plate motion	4
8	Interpretations of geologic phenomena in the context of plate tectonics	2
9	Trenches and island arcs	2
10	Plate tectonic evolution of the ocean basins and continents	4
<b>Total</b>		

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	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 assignments 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	Knowledge of the different methods and techniques used in collecting field samples, analysis and interpretation of tectonic data.		
1.3	Knowledge of the origins of earthquakes, volcanoes and magma.		
<b>2.0</b>	<b>Skills</b>		
2.1	Students will be able to apply the knowledge of behavior 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>Laboratory work is planned to teach the student how to recognize easily and to distinguish between the different rocks, in the field, in hand specimen and</li> </ul>	<ul style="list-style-type: none"> <li>Exams and homework will be emphasized on the deformation resulted from the plate motion.</li> </ul>
2.2	Students will be able to apply the knowledge of the different geological structures to 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 and shear zone and their relationships to plate tectonics.		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.4	Practicing skills in speaking/presenting in class, and working collaboratively in groups.	under the microscope as well. • Engage students in laboratory discussions with questions and answers.	
<b>3.0</b>	<b>Competence</b>		
3.1	Punctual attendance of classes and laboratory 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>• Laboratory reports are to be written in the prescribed format and are to be submitted on time.</li> <li>• Field trip attendance is required for the course. Some questions about the field are given at least in one of the exams..</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 assessed and 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.		

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
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%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Student's consultations 3hrs/day.

Office hours 3hrs/day

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	Frisch, W., Meschede, M., and Blakey, R., 2011. Plate tectonics: Continental drift and mountain building. Springer-Verlag Berlin Heidelberg, 212 p.
<b>Essential References Materials</b>	Van der Pluijm, B. M. and Marshak, S. 2004. Earth Structure: An introduction to Structural Geology and Tectonics (2nd edition). W. W. Norton and Company, Inc. New York, 656 pp.
<b>Electronic Materials</b>	<ul style="list-style-type: none"> <li>• Search through Google for related topics.</li> <li>• To be given in class.</li> </ul>
<b>Other Learning Materials</b>	The instructor may provide some relevant materials and learning aids.

### 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	<ul style="list-style-type: none"> <li>• Lecture room equipped with a blackboard, overhead projector, computer and internet connection.</li> <li>• The laboratory will have a blackboard, overhead projector with computer connection and seating arrangement for the students.</li> </ul>
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Data show and smart board.
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student course evaluation	Students	Direct
Peer-to-peer review	Faculty member	Direct
Periodic self- assessment of the program	Program coordinator	Direct
Faculty assessment of the course and effectiveness of teaching delivery	Instructor	Direct

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## **H. Specification Approval Data**

<b>Council / Committee</b>	Department of Geology and Geophysics
<b>Reference No.</b>	
<b>Date</b>	28th of August 2019