

King Saud University
College of Sciences
Geology and Geophysics Department



جامعة الملك سعود
كلية العلوم
قسم الجيولوجيا والجيوفيزياء

Kingdom of Saudi Arabia

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

Form (O)

Course Specification

GEO 452: Petroleum Geology

Revised April 2011



Course Specification

Institution King Saud University
College/Department Science / Department of Geology and Geophysics

A. Course Identification and General Information

1. Course title and code: Petroleum geology/Geo 452
2. Credit hours: 3 (2+0+1)
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 Dr. Saleh Mohamed Okla & Dr. Osama E.A. Attia
5. Level/year at which this course is offered: Level 8
6. Pre-requisites for this course (if any) Geo 236, Geo 381
7. Co-requisites for this course (if any) None
8. Location if not on main campus

B. Objectives

1. Summary of the main learning outcomes for students enrolled in the course. <ul style="list-style-type: none"> ❖ Learning the occurrence of petroleum ❖ Learning properties of reservoir rocks ❖ Learning properties of petroleum ❖ How the petroleum is found ❖ How to differentiate sedimentary basins.
2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field) <ul style="list-style-type: none"> ❖ The course contents will be reviewed each semester and new findings are added

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		
Topic	No of Weeks	Contact hours
The occurrence of petroleum	2	4
Reservoir rocks	2	4
Reservoir pore space	2	4
Pore space fluids	4	8
Structural traps	2	4
Stratigraphic traps	1	2
Combination traps	1	2
Origin of petroleum	1	2

2. Course components (total contact hours per semester):			
Lecture: 30 hours	Tutorial:	Practical/Fieldwork/ Internship: One field trip	Other: Lab 30 hours

3. Additional private study/learning hours expected for students per week. (This should be an average: for the semester not a specific requirement in each week)-

4. Development of Learning Outcomes in Domains of Learning
For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired
<ul style="list-style-type: none"> ❖ Describe how the petroleum occurs ❖ Identify how the petroleum is found ❖ Identify how the petroleum originate ❖ Describe how the petroleum accumulate
(ii) Teaching strategies to be used to develop that knowledge
<ul style="list-style-type: none"> ❖ Course material in lecture ❖ Map and sections in lab ❖ Field trip to Aramco
(iii) Methods of assessment of knowledge acquired
<ul style="list-style-type: none"> ❖ Exams in lectures First and second mid term) ❖ Lab reports. ❖ Exams final laboratory ❖ Final exam

b. Cognitive Skills

(i) Cognitive skills to be developed
<ul style="list-style-type: none"> ❖ Gain knowledge of the hydrocarbon habitat ❖ Gain knowledge of well log analysis, seismic interpretation, and drilling techniques.
(ii) Teaching strategies to be used to develop these cognitive skills
<ul style="list-style-type: none"> ❖ Lecture are followed by number of examples ❖ Laboratory work with many maps ❖ Ross sections and well logs
(iii) Methods of assessment of students cognitive skills
<ul style="list-style-type: none"> ❖ Exam ❖ Laboratory homework and reports

c. Interpersonal Skills and Responsibility

(i) Description of the interpersonal skills and capacity to carry responsibility to be developed	<ul style="list-style-type: none"> ❖ Punctual attendance of classes and laboratory ❖ Students learn to identify structures & traps.
(ii) Teaching strategies to be used to develop these skills and abilities	<ul style="list-style-type: none"> ❖ Participation of students in classroom discussions ❖ Laboratory reports to be written
(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility	<ul style="list-style-type: none"> ❖ Class attendance of students at the beginning of the lectures is taken ❖ Recording of grade and lab reports ❖ Weekly essay about certain subject in petroleum geology
d. Communication, Information Technology and Numerical Skills	
(i) Description of the skills to be developed in this domain.	<ul style="list-style-type: none"> ❖ Ability of students to apply geologic concepts ❖ Ability to find and maps petroleum traps
(ii) Teaching strategies to be used to develop these skills	<ul style="list-style-type: none"> ❖ Questions of tests and lab assignments
(iii) Methods of assessment of students numerical and communication skills	<ul style="list-style-type: none"> ❖ Evaluation of constructing maps and sections ❖ Exams ❖ Weekly essay about certain subject in petroleum geology
e. Psychomotor Skills (if applicable)	
(i) Description of the psychomotor skills to be developed and the level of performance required	Not applicable
(ii) Teaching strategies to be used to develop these skills	Not applicable
(iii) Methods of assessment of students psychomotor skills	Not applicable

5. Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Labs, maps & sections	2	5%
2	First exam lecture	5	10%
3	First exam lab	6	10%
4	Final exam (lab)	15	15%
5	Final exam lecture	15	10%
6	Essay during the week as homework		10%
7	Final Exam As scheduled by the registrar		40%

D. Student Support

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

❖ **I will be available in my office for student consultation and academic advice**

E. Learning Resources

1. Required Text(s)

Levorsen, A.I. (1967) geology of petroleum 2nd ed. W.h. freeman

2. Essential References

Tissot, B.P.& D.H. Wellte (1984), petroleum formation and occurrence, springe, Berlin

3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)

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4-.Electronic Materials, Web Sites etc

5- Other learning material such as computer-based programs/CD, professional standards/regulations

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Lecture rooms, laboratories, etc.)

❖ **Lecture room with a blackboard and smartboard**

❖ **Laboratory with drawing tables, well log**

2. Computing resources

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3. Other resources (specify –eg. If specific laboratory equipment is required, list requirements or attach list)

G. Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching

❖ **Student course evaluation at the end of the course**

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

❖ **Periodic self-assessment of the course**

3 Processes for Improvement of Teaching

❖ **Review by the department**

4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)

❖ **Review by the department**

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

❖ **Self-assessment**