GUIDE BOOK

2008/09

Program Specifications
for
Bachelor Degree in Petroleum Engineering

Department of Petroleum Engineering,
Faculty of Chemical & Natural Resources Engineering,
Universiti Teknologi Malaysia,
Skudai.

Program Specifications for Bachelor in Engineering (Petroleum)

1. Awarding Institution	Universiti Teknologi Malaysia
2. Teaching Institution	Universiti Teknologi Malaysia
3. Programme Name	Bachelor in Petroleum Engineering
4. Final Award	Bachelor of Engineering (Petroleum)
5. Programme Code	TK31 (SKP)
6. Professional or Statutory Body of Accreditation	Board of Engineers Malaysia (BEM)
7. Language(s) of Instruction	English and Malay
8. Mode of Study (Conventional, Distance Learning, etc.)	Conventional
9. Mode of Operation (Franchise, Self-govern, etc.)	Self-govern
10. Study Scheme (Full Time/Part Time)	Full Time
11. Study Duration	Minimum : 4 yrs Maximum : 6 yrs

Type of Semester	No. of Semesters		No. of Weeks	
	Full Time	Part Time	Full Time	Part Time
Regular	8		14	
Short	4		8	

12. Entry Requirement	Matriculation or STPM with minimum of B- in Mathematics, Chemistry and Physics/Biology and CPA 2.75 and not color blind.

13. Programme Objectives

The objectives of the programme are to produce graduates who are:
(1) Ability to apply knowledge of basic science and engineering fundamental;
(2) Ability to apply their knowledge and skills in the planning, analysis, and design of works related to petroleum engineering projects;
(3) Competent in solving problems creatively and critically;
(4) Ability to function effectively as an individual and on multi-disciplinary teams;
(5) Ability to pursue lifelong learning through continuing education or post-graduate education;
(6) Responsible to the Creator and society and have good professional and ethical conducts.

Program Specifications for Bachelor in Engineering (Petroleum)

14. Programme Learning Outcomes

Intended Learning Outcomes	Teaching and Learning Methods	Assessment
(a) Technical Knowledge and Competencies		
LO1. Have in-depth technical competence in Petroleum Engineering discipline		
Ability to apply and practice knowledge of petroleum engineering principles.	Lectures, tutorials, seminars, laboratory works, directed reading, independent research, and problem-based learning.	Examinations, laboratory reports, seminar presentations, discussions, problem-based exercises, group projects, independent projects.
LO2. Ability to design, conduct experiments, gather, organize, analyze and interpret data		
Ability to undertake problems identification, formulation and solution through the integration of knowledge in science, mathematics, and engineering.	lectures, tutorials, computer practical classes, laboratory works, final year individual project, field development project.	Examinations, laboratory reports, seminar presentations, reports of group projects and individual projects.
LO3. Ability to make use of computers and relevant softwares necessary for modern Petroleum Engineering practice		
Ability to utilize appropriate mathematical, computational and modern petroleum engineering tools in order to understand, analyze, evaluate, and solve operational problems related to petroleum engineering.	Project supervision, lectures, tutorials, seminars, laboratory works, directed reading, simulation exercises, computer-based exercises, independent research, problem-based learning.	problem-based examinations, laboratory reports, seminar presentations, design project, individual research project.

14. Programme Learning Outcomes

Intended Learning Outcomes	Teaching and Learning Methods	Assessment
(b) Generic Skills		
LO4. Ability to communicate effectively in writing and verbally		
Ability to communicate effectively and confidently over technical and non-technical issues to all types of audience.	Group projects, independent research, tutorials, and presentation.	Oral presentations, and technical report.
LO5. Ability to function effectively individually and as a team member. Possess good inter-personal relationship, organizing, and leadership skills		
Ability to contribute effectively whether as an individual, team member or leader.	Tutorials, laboratory works, and group field development project.	Group reports, log book, presentations of final year project and field development project.
LO6. Demonstrate professional and ethical responsibility		
Ability to demonstrate the roles and responsibility of a professional engineer and a responsible citizen.	Undergraduate research projects, group field development projects, industrial training, and industrial visits.	Industrial training report, final year project report, learning portfolios, and industrial visit reports.
LO.7 Have capacity to work in challenging environments		
Ability to respond and adapt readily to new environments. Interact well with people from different backgrounds and cultures.	Industrial training, laboratory works, study trips, and final year field development project.	Industrial training report, project reports, and geology field trip report.
LO.8 Engage in life-long learning		
Ability to seek and acquire new knowledge, concept, and technology in Petroleum Engineering and other disciplines.	Independent research projects, group research projects, industrial training, and industrial visits.	Industrial training report, industrial visit and technical reports, Seminar and conference reports.
LO.9 Apply entrepreneurial skills		
Ability to incorporate knowledge into business thinking/entrepreneurship for decision making.	Lectures, class projects, field development project, independent research project	Reports, presentations, examinations, assignments.

CURICULLUM FOR BACHELOR OF ENGINEERING (PETROLEUM)
4 YEAR PROGRAMME, INTAKE 2008/09

		SUBJECTS	CREDIT	PRE-REQUISITES
		SEMESTER 1		
	SEU 2003	Electrical Technology	3	
	UHB 1412	English for Academic Communications	2	
Y	SSE 1792	Calculus	2	
	SKF 1023	Introduction to Engineering	3	
E	SKM 1013	Statics	3	
	SSC 1293	Analytical Chemistry I	3	
A		**Sub total**	**16**	
R				

		SUBJECTS	CREDIT	PRE-REQUISITES
1		**SEMESTER 2**		
	ULT 1022	Asian and Islamic Civilisation I	2	
	SSE 1893	Engineering Mathematics	3	
	SKM 1043	Fluid Mechanics	3	
	SKM 1711	Fluid Mechanics Lab.	1	
	SKM 1022	Dynamics	2	
	SKM 1033	Engineering Drawing	3	
	SKM 1312	Fundamentals of Petroleum Engineering	2	
	U** ***1	Co-curriculum	1	
		Sub total	**17**	

		SUBJECTS	CREDIT	PRE-REQUISITES
		SEMESTER 1		
	UHB 2422	Advanced English for Academic Com.	2	
	UHS 1152	Ethnic Relations	2	
	SSE 1793	Differential Equations	3	
	SKF 1013	Thermodynamics	3	
	SKV 1013	Materials Engineering	3	
Y	SKF 2711	Thermodynamics & Materials Eng. Lab.	1	
	SKM 2112	Engineering Economics	2	
E		**Sub total**	**16**	
A				

		SUBJECTS	CREDIT	PRE-REQUISITES
R		**SEMESTER 2**		
	SSE 2193	Engineering Statistics	3	
2	DCP 2**3	Programming Techniques	3	
	SKM 2213	Basic Geoscience	3	
	SKM 2721	Geoscience Lab.	1	
	SKM#2313	Reservoir Rock and Fluids Properties	3	
	SKM 2731	Reservoir Engineering Lab.	1	
	ULT 2122@	Islamic Institution@	2	
	ULT 2132	Current Issues		
	U** ***1	Co-curriculum	1	
		Sub total	**17**	

CURICULLUM FOR BACHELOR OF ENGINEERING (PETROLEUM)
4 YEAR PROGRAMME, INTAKE 2008/09

		SUBJECTS	CREDIT	PRE-REQUISITES
		SEMESTER 1		
Y	SSE 2393	Numerical Methods	3	
	UHS 2**2	Elective	2	
	SKM 3413	Drilling Engineering	3	SKM 1312
	SKM 3471	Drilling Engineering Lab.	1	
E	SKM 3213	Formation Evaluation	3	
	SKM 3313	Reservoir Engineering	3	
A	SKM 3921#	Geology Field Work	1	SKM2213
		Sub total	**16**	
R				

		SUBJECTS	CREDIT	PRE-REQUISITES
3		**SEMESTER 2**		
	UHB 3**2	Elective	2	
	SKM 3423	Well Completion	3	
	SKM 3223	Petroleum Geology	3	
	SKM 3113	Evaluation & Management of Petroleum Projects	3	
	SKM 3513	Petroleum Production Engineering	3	
	SKM 3523	Gas Engineering	3	
	SKM 3915*	Industrial Training (Compulsory)	5	
		Sub total	**22**	

		SUBJECTS	CREDIT	PRE-REQUISITES
		SEMESTER 1		
	SKM 4812	Undergraduate Project I	2	
	SKM 4804	Field Development Project	4	SKM 3413, 3513,
	SKM 4313	Reservoir Simulation	3	3223, SKM 3313
	SKM 4513	Well Diagnosis & Treatments	3	SKM 3313
Y	SKM 4**3	Petroleum Eng. Elective	3	
		Sub total	**15**	
E				

		SUBJECTS	CREDIT	PRE-REQUISITES
A		**SEMESTER 2**		
R	SKM 4824	Undergraduate Project II	4	
	SKM 4323	Well Testing	3	SKM3313
4	UHS 3102	Entrepreneurship & Business Development	2	
	SKM 4**3	Petroleum Eng. Elective	3	
	SKM 4**3	Petroleum Eng. Elective	3	
		Sub total	**15**	
		Total credit	**134**	

\# SKM 3921 (Geology Field Work) is done during the semester holiday after the 4th semester (May Semester)

* SKM 3915 (Industrial Training) has 5 credits. It is compulsory and should be done during the semester break, after the 6th semester. The evaluation is only pass or fail.

18. Mapping of Programme Learning Outcomes to Subjects

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9
SEU 2003		b		1					
SSE 1792	c	b			1				
SKF 1023	a	b		1	2	2			
SSC 1293		b				1			
SKM 1013	c	b			1				
SSE 1893	c	b			1				
SKM 1043	b	a		2	1			2	
SKM 1711	b	b		1	2		2		
SKM 1022	c	b			1				
SKM 1033	b		a				1		
SKM 1312	b	b		2	2	2		1	
SSE 1793	c	b			1				
SKF 1013	b	a		2	1			2	
SKV 1013	b	a		2	1			2	
SKF 2711		a		1	2	2		2	
SKM 2112	a	b	b		2	2		2	1
SSE 2193	c	b	c		1	2			
DCP 2**3			a				1		
SKM 2213	a	b		1	2				
SKM 2721	a	b		1	2	2	2		
SKM 2313	a	a	b	1	2			2	
SKM 2731	a	a		2	1	2		2	
SSE 2393	b	b	a		2	1			
SKM 3413	a	b		2			1	2	
SKM 3471	a	b		1	2	2		2	
SKM 3921	a	b		2	2	2	1		
SKM 3213	a	b	b	1	2			2	
SKM 3513	a	b		1		2		2	
SKM 3423	a	b			1			2	
SKM 3223	a	b		1	2			2	
SKM 3113	a	b	c	2		2		2	1
SKM 3313	a	a	b	1	2			2	
SKM 3523	a	b		1	2			2	
SKM 4812	a	a	b	1	1	1	1	1	1
SKM 4804	a	a	b	1	1	1	1	1	1
SKM 4313	a	a	a	1	2			2	
SKM 4513	a	b		1	2			2	
SKM 4**3	a	b		1	2			2	

Petroleum Engineering Department

18. Mapping of Programme Learning Outcomes to Subjects

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9
SKM 4824	a	a	b	1	1	1	1	1	1
SKM 4323	a	a	b	1	2			2	
SKM 4**3	a	b		1	2			2	
SKM 4**3	a	b		1	2			2	
SKP 5153	a	b		2				1	
SKP 5253	a	b			2			1	
SKP 5333	a	b			2			1	
SKP 5413	a	b			2			1	
SKP 5573	a	b			2			1	
UHB 1412				1	2				
ULT 1022					1	2			
UHB 2422				1	2				
UHS 1152					1	2			
ULT 2122						2	1		
ULT 2132						2	1		
UHS 2**2					1	2			
UHB 3**2				1	2	2			
UHS 3102						2			1
U___ _1				1			2		
U___ _1				1			2		
SKM 3915	a	a	a	1	1	1	1	1	1

Key:

Technical Skills: a = major contribution to outcome;
b = moderate contribution to outcome;
c = minor contribution to outcome

Generic Skills: 1 = Substantial (with assessment);
2 = not substantial (introduce)

Petroleum Engineering Department

18. Mapping of Programme Learning Outcomes to Subjects									
	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9
SKM 4824	a	a	b	1	1	1	1	1	1
SKM 4323	a	a	b	1	2			2	
SKM 4**3	a	b		1	2			2	
SKM 4**3	a	b		1	2			2	
SKP 5153	a	b		2				1	
SKP 5253	a	b			2			1	
SKP 5333	a	b			2			1	
SKP 5413	a	b			2			1	
SKP 5573	a	b			2			1	
UHB 1412				1	2				
ULT 1022					1	2			
UHB 2422				1	2				
UHS 1152					1	2			
ULT 2122						2		1	
ULT 2132						2		1	
UHS 2**2					1	2			
UHB 3**2				1	2	2			
UHS 3102						2			1
U___1				1			2		
U___1				1			2		
SKM 3915	a	a	a	1	1	1	1	1	1

Key:

Technical Skills: a = major contribution to outcome;
b = moderate contribution to outcome;
c = minor contribution to outcome

Generic Skills: 1 = Substantial (with assessment);
2 = not substantial (introduce)