



Course Syllabus (Academic Year 2020)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title:** KAGS455 Petroleum Geophysics
Credit (study hours) : 3(3-0-6)
2. **Program Name** : Bachelor of Science in Geoscience
3. **Course Module** : Elective
Pre/co-requisite : KAGS351
4. **Class Semester** : 1st Semester 2nd Semester Academic Year 2020
5. **Class Schedule & Venue** : Tuesday 13:30 – 16:30 Online (Webex /zoom) and Google classroom
 Room for online and sit-in
 Laboratory Room
6. **Class Coordinator** : Songkhun Boonchaisuk
 Contact No.: 080-5997690 Email: songkhun.boo@mahidol.edu

7. **Course Description**

Integrated geophysical methods for petroleum exploration. Fundamentals of subsurface imaging by multi-channel seismic reflection techniques as used in oil exploration. Covers survey design, acquisition, processing, and interpretation in both 2-D and 3-D seismic reflection data and wire-line logging.

8. **Course Objectives / Course Learning Outcomes (CLOs)**

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	Understand seismic reflection technique	x	x	x	2
8.2	Understand the seismic data processing	x	x	x	3,4,5
8.3	Understand the seismic interpretation	x	x	x	2,3,4,5

9. **Class Instructor List**

9.1. Name: Songkhun Boonchaisuk Contact No. : 080-5997690 Email : songkhun.boo@mahidol.edu

10. **Course Outline**

Week	Date	Contents	CLOs	Teaching & Learning	Instructor's Names
1	14/07/20	Introduction	1	ชี้แจงวิธีการเรียนการสอน บรรยายแบบปฏิสัมพันธ์/online	Songkhun
2	21/07/20	Petroleum Occurrence	1	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
3	04/08/20	Seismic data acquisition	2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
4	11/08/20	Seismic data acquisition	2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
5	18/08/20	Seismic data processing procedure	2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
6	25/08/20	Seismic data processing procedure	2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
7	01/09/20	Seismic data processing	2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
8	08/09/20	Mid-term Examination			
9	15/09/20	Seismic data processing	2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
10	22/09/20	Seismic data interpretation	3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
11	29/09/20	Seismic data interpretation	3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
12	06/10/20	Wire-Line Logging	3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
13	13/10/20	Sedimentary environment for petroleum source and reservoir	1, 3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
14	20/10/20	Rock Physics	1,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
15	27/10/20	Integrated Geophysics methods for petroleum exploration	1,2,3	บรรยายแบบปฏิสัมพันธ์/online ส่งงาน/นำเสนอ	Songkhun
16	03/11/20	Case Study	1,2,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun

17	10/11/20	Final Examination
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11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	Paper base; online	all	8	30
11.2	Final exam	Paper base; online	all	17	30
11.3	Quiz	Online; kahoot; google form	all	2,4,6,8,10,12,14	10
11.4	Reports / Assignments	Homework; Report and PPT presentation	all	16	20
11.5	Class participation	Must be greater than 80%			10
				Total	100

12. Grading System

✓ Criterion-referenced evaluation

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	≥ 80 %	B	70 – 74.99%	C	60 – 64.99%	D	50 – 54.99%
B+	75 – 79.99%	C+	65 – 69.99%	D+	55 – 59.99%	F	< 50 %

✓ Norm-referenced evaluation

*If use both criterion and norm-referenced evaluation, please tick two boxes.

13. References

13.1 Alistair R. Brown, 2011, Interpretation of Three-Dimensional Seismic Data. AAPG Memoir 42, SEG Investigation in Geophysics, No.9, 7th edition 646 p.

13.2 Burger, H. R., A. F. Sheehan, and C. H. Jones, 2006, Introduction to Applied Geophysics: Exploring the Shallow Subsurface, W. W. Norton Publishers, London, 554 p.

13.3 Darling, T., 2005, Well Logging and Formation Evaluation, Elsevier Science, Amsterdam, 326 p.

13.4 Tiab, D., and E. C. Donaldson, 2004, Petrophysics Theory and practice of measuring reservoir rock and fluid transport properties, Elsevier, Amsterdam, 889 p.