



## Course Syllabus (Academic Year 2021)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAGS 479 Environmental and Engineering Geophysics  
**Credit (study hours)** : 3 (3-0-6)
2. **Program Name** : Bachelor of Science in Geoscience
3. **Course Module** : Elective  
**Pre/co-requisite** : KAGS 351, KAGS 301, KAGS 308, KAGS 353  
**Class Semester** :  1<sup>st</sup> Semester       2<sup>nd</sup> Semester      Academic Year 2021
1. **Class Schedule & Venue** : Tuesday 13:30 – 16:30  Online (Webex /zoom) and Google classroom  
 Room for online and sit-in  
 Laboratory Room .....
4. **Class Coordinator** : Songkhun Boonchaisuk  
 Contact No. : 080-5997690 Email : songkhun.boo@mahidol.edu

5. **Course Description**

An introduction to field methods of geophysical exploration, especially as applied to environmental and engineering problems; ethic for working, critical thinking, life-long learning.

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

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	Understand the principles of geophysics	x	x	x	2
8.2	Understand the geophysics survey and data processing	x	x		3,4,5
8.3	Apply Geophysical technique to environmental and engineering problem	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	10/08/21	Introduction observations	1	ชี้แจงวิธีการเรียนการสอน และการวัดผล บรรยายแบบปฏิสัมพันธ์/online	Songkhun
2	17/08/21	Practical DC resistivity Sounding (VES)	1,2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
3	24/08/21	Practical DC resistivity survey (2D DCR)	1,2,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
4	31/08/21	IPI2WIN (1D and semi-2D VES processing) and RES1DINV	1,2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
5	7/09/21	Real data VES processing	3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
6	14/09/21	VES Data presentation	1,2,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
7	21/09/21	Electre II (2D DCR data acquisition)	1,2,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
8	28/09/21	Res2DMOD (how to)	1,2,3	บรรยายแบบปฏิสัมพันธ์/online ส่งงานนำเสนอ	Songkhun
9	05/10/21	Mid-term Examination			
10	12/10/21	Res2DMOD input file	1, 2	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
11	19/10/21	RES2DMOD for case studies	3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
12	26/10/21	Generate Synthetic data for RES2DINV	1,2,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
13	2/11/21	RES2DINV	1, 3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
14	9/11/21	RES2DINV : input and functions	1,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
15	16/11/21	RES2DINV : synthetic Tests	1,2,3	บรรยายแบบปฏิสัมพันธ์/online	Songkhun
16	23/11/21	Case studies	1,2,3	บรรยายแบบปฏิสัมพันธ์/online ส่งงานนำเสนอ	Songkhun
17	30/11/21	Final Examination			

## 11. Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	Paper base; online	all	9	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
				<b>Total</b>	<b>100</b>

## 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 Telford, W., Geldart, L., & Sheriff, R., (1990). Applied Geophysics. Cambridge: Cambridge University Press. doi:10.1017/CBO9781139167932

13.2 McCann, D. M., 1997, Modern Geophysics in Engineering Geology Geological Society Engineering Geology Special Publication ; No. 12.

13.3 Sharma, P. V., 2002, Environmental and Engineering Geophysics, Cambridge University Press, 477 p.