Department of Geomatics Engineering / Department of Geomatics Engineering / Department of Geomatics Engineering

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
GE410	DEFORMATION MEASUREMENTS AND ANALYSIS	3.00	0.00	0.00	4.00	6.00

Course Detail

Course Language	: English
Qualification Degree	: Bachelor
Course Type	: Optional
Preconditions	: Not
Objectives of the Course	: Teaching deformation measurements and analysis methods.
Course Contents	: Ground and Space Based Deformation Monitoring.
Recommended or Required Reading	: A. Ebeling, Ground-Based Deformation Monitoring, University of Calgary, 2014.
Planned Learning Activities and Teaching Methods	: Course, field practice, discussion, exam.
Recommended Optional Programme Components	: -
Instructors	: Prof. Dr. Mevlüt Yetkin
Instructor's Assistants	: Lecturer Omer BILGINER
Presentation Of Course	: Face to Face, Field Study
En Son Güncelleme Tarihi:	: 9/21/2023 3:42:06 PM

Course Outcomes

Upon the completion of this course a student :

1 Learning geodetic network definition and free network adjustment topics

2 Learning post-adjustment data analysis and reliability concepts and performing applications

3 Apprehending differences among geodetic, geotechnical and hybrid methods for deformation monitoring

4 Performing geometrical analysis of deformations

5 Preparing reports and making presentations about deformation monitoring applications

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Motivation and Purposes					Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5
2.Week	*Literature					Ö.Ç.3 Ö.Ç.1 Ö.Ç.2 Ö.Ç.4 Ö.Ç.5
3.Week	*Deformation monitoring using geodetic and non-geodetic methods					Ö.Ç.3
4.Week	*Deformation monitoring networks and datum definition					Ö.Ç.1
5.Week	*Free network adjustment I (ordinary minimal constraints)					Ö.Ç.1
6.Week	*Free network adjustment 2 (total trace minimization and partial trace minimization)					Ö.Ç.1
7.Week	*S Transformation					Ö.Ç.1
8.Week	*Global test, local tests (Baarda's approach and Pope's approach)					Ö.Ç.2
9.Week	*Various statistical tests					Ö.Ç.2
10.Week	*Pelzer's method					Ö.Ç.4
11.Week	*Pelzer's method II					Ö.Ç.4
12.Week	*Presentations I					Ö.Ç.5
13.Week	*Presentations II					Ö.Ç.5
14.Week	*Presentations III					Ö.Ç.5

Assesment Methods %

1 Midterms : 40.000

2 Final : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize / Midterms	1	2.00	2.00
Ödev / Assignment	1	10.00	10.00
Final / Final	1	2.00	2.00
Derse Katılım / Attending lectures	14	3.00	42.00
Ders Öncesi Biresysel Çalışma / Individual study before lecture	14	1.00	14.00
Ders Sonrası Biresysel Çalışma / Individual study after lecture	14	3.00	42.00
Ara Sınav Hazırlık / Preparation for midterm	1	16.00	16.00
Final Sınavı Hazırlık / Preparation for final	1	18.00	18.00
Araştırma Sunumu / Research presentation	1	1.00	1.00
Saha/Arazi Çalışması	2	9.00	18.00
		Total :	165.00
		Sum of Workload / 30 (Hour) :	6
		ECTS :	6.00

Program And OutcomeRelation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11
L.O. 1	0	5	0	0	0	0	0	0	0	0	0
L.O. 2	0	5	0	0	0	0	0	0	0	0	0
L.O. 3	0	0	0	5	0	0	0	0	0	0	0
L.O. 4	0	5	0	0	0	0	0	0	0	0	0
L.O. 5	0	0	0	0	0	0	0	0	0	0	5