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

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
GE436	Coordinate Systems in Geodesy	3.00	0.00	0.00	3.00	6.00

Course Detail

Course Language	:	English
Qualification Degree	:	Bachelor
Course Type	:	Optional
Preconditions	:	Not
Objectives of the Course	:	The aim of this course is to teach student the coordinate systems, which are essential in the composition of the geodetic infrastructure and defined for expressing the precision position of a point on or outside the Earth, and the transformations between these coordinate systems.
Course Contents	:	In this course, coordinate systems and accordingly Geodetic Reference Systems will be handled. Terrestrial, Celestial and Orbital coordinate systems, transformations between them and time systems constitute the main subject of this course.
Recommended or Required Reading	:	1. Jekeli, C. (2006) Geometric Reference Systems in Geodesy. 2. Krakiwsky, E. J. and Wells, O. E. (1971) Coordinate Systems in Geodesy, Lecture Notes, Reprinting 1998. 3. Kahveci, M., Tuşat, E., Doğanalp S. (2021) Jeodezik Koordinat Sistemleri, Teori – Uygulama, Nobel Akademi Yayıncılık, Ankara. 4. Kurt, O. (2007) Temel Koordinat Sistemleri Ders Notları, Kocaeli Univ, Harita Müh. Bölümü.
Planned Learning Activities and Teaching Methods	:	Research Presentation
Recommended Optional Programme Components	:	-
Instructors	:	Dr. Öğr. Üyesi Nevin Betül Avşar
Instructor's Assistants	:	-
Presentation Of Course	:	Face to face
En Son Güncelleme Tarihi:	:	3/3/2024 9:12:02 PM

Course Outcomes

Upon the completion of this course a student :

1 Understand the geodetic coordinate term.

2 An ability to understand and utilization the average and the instantaneous coordinate.

3 Comprehend the terrestrial and the celestial coordinate systems.

4 Comprehend the transformations between the coordinate systems.

5 Carry out geodetic calculations on the reference surface.

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Introduction					Ö.Ç.1
2.Week	*Motions of the Earth (Precession, Notation, Polar motion)					Ö.Ç.1 Ö.Ç.2
3.Week	*Reference surfaces and Datum					Ö.Ç.1
4.Week	*Basic coordinate systems (Cartesian, Spherical, Polar, Cylindrical) and transformations between them					Ö.Ç.1 Ö.Ç.2 Ö.Ç.4
5.Week	*Terrestrial Coordinate Systems					Ö.Ç.1 Ö.Ç.3
6.Week	*International Earth Rotation Service (IERS) and International Terrestrial Reference Frame (ITRF)					Ö.Ç.1 Ö.Ç.2 Ö.Ç.3
7.Week	*Celestial Coordinate Systems, International Celestial Reference Frame (ICRF)					Ö.Ç.1 Ö.Ç.2 Ö.Ç.3
8.Week					*Midterm Exam	Ö.Ç.1 Ö.Ç.2 Ö.Ç.3
9.Week	*Transformations between the terrestrial systems and the celestial systems.					Ö.Ç.4
10.Week	*Orbital Coordinate System					Ö.Ç.1
11.Week	*Transformations between the orbital system and the terrestrial systems					Ö.Ç.4
12.Week	*Datum transformations (Helmert etc.)					Ö.Ç.4 Ö.Ç.5
13.Week	*Time systems in geodesy					Ö.Ç.1 Ö.Ç.2
14.Week	*National geodetic networks in Turkey					Ö.Ç.5
15.Week	*Final Exam				*Final Sınavı	Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 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	1.50	1.50
Final / Final	1	1.50	1.50
Derse Katılım / Attending lectures	13	3.00	39.00
Ders Sonrası Biresysel Çalışma / Individual study after lecture	13	2.00	26.00
Ara Sınav Hazırlık / Preparation for midterm	1	20.00	20.00
Final Sınavı Hazırlık / Preparation for final	1	25.00	25.00
Araştırma Sunumu / Research presentation	1	1.00	1.00
Ders Öncesi Biresysel Çalışma / Individual study before lecture	13	1.00	13.00
Teorik Ders Anlatım / Theoretical Lecturing	13	3.00	39.00
		Total :	166.00
		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	5	4	0	4	5	0	0	0	4	0	0
L.O. 2	4	5	0	0	5	0	0	4	4	0	0
L.O. 3	5	4	4	4	4	0	0	4	0	0	0
L.O. 4	5	5	4	0	5	0	0	4	0	0	0
L.O. 5	5	5	4	0	4	0	0	4	0	0	0