

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
GE434	PHOTOGRAMMETRIC LASER SCANNER SYSTEMS	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	: To introduce laser scanning technology and principles. To learn about laser scanners and their applications. Learning data processing methods with application projects					
Course Contents	: Laser scanners, basic principles of laser scanners, different laser scanners, physical principles, geometric principles, receivers used, auxiliary tools, terrestrial laser scanners, basic problems, triangulation algorithms, point multiplicity elimination, geometric transformation, integration of terrestrial laser scanners and photogrammetry, photogrammetry. Comparison of laser technology, laser scanning technique application areas, current systems, future expectations					
Recommended or Required Reading	: Vosselmann, G., Maas, H.G., Airborne And Terrestrial Laser Scanning, ISBN-10: 1439827982, 2010. Kraus, K., Photogrammetry: Geometry from images and laser scans, ISBN-10: 3110190079, 2007. Shan, J., Toth, C.K., Topographic Laser Ranging and Scanning: Principles and Processing ,ISBN-10: 1420051423, 2008 Reshetyuk, Y., Terrestrial laser scanning: Error sources, self-calibration and direct georeferencing,2009					
Planned Learning Activities and Teaching Methods	: Active presentations and projects					
Recommended Optional Programme Components	: Attendance is important.					
Instructors	: Dr. Öğr. Üyesi Müge Ağca					
Instructor's Assistants	: N/A					
Presentation Of Course	: Powerpoint presentation - visual materials					
En Son Güncelleme Tarihi:	:					

Course Outcomes

Upon the completion of this course a student :

- 1 Learns laser scanning technologies closely
- 2 Learns the working principles of different laser scanning systems.
- 3 Learns how to collect laser data from different laser platforms and the data format.
- 4 Learns the processing of laser data obtained from different systems.
- 5 Learns how to make the right laser system in projects and applications.

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Laser scanning technology and laser physics					
2.Week	*Basic principles of laser scanners					
3.Week	*Different laser scanner platforms and application areas					
4.Week	*Recipients and data types used					
5.Week	*Data collection, data processing, and software from my systems					
7.Week	*Physical and geometric principles					
8.Week	*Midterm exam					
9.Week	*Triangulation algorithm, elimination of point multiples					
10.Week	*Geometric conversion photogrammetric products					
11.Week	*Integration of laser data with other data types					
12.Week	*Integration of laser data with other data types					
13.Week	*Application 1					
14.Week	*Application 2					

Assesment Methods %

- 1 Final : 60.000

2 Midterms : 40.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize / Midterms	1	2.00	2.00
Final / Final	1	2.00	2.00
Derse Katılım / Attending lectures	15	3.00	45.00
Ders Öncesi Biresysel Çalışma / Individual study before lecture	15	2.00	30.00
Ders Sonrası Biresysel Çalışma / Individual study after lecture	15	4.00	60.00
Ara Sınav Hazırlık / Preparation for midterm	1	16.00	16.00
Final Sınavı Hazırlık / Preparation for final	1	18.00	18.00
Uygulama / Pratik Sonrası Biresysel Çalışma / Individual study after Application / Practice	15	1.00	15.00
			Total : 188.00
			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	0	0	4	0	5	0	0	0	0	0
L.O. 2	5	0	0	5	0	4	0	0	0	0	0
L.O. 3	5	0	0	4	0	4	0	0	0	0	0
L.O. 4	5	0	0	4	0	4	0	0	0	0	0
L.O. 5	5	0	0	5	0	4	0	0	0	0	0