

| Course Code   | Course Name   | Teorical | Practice | Laboratory | Credits | ECTS |
|---|---|----------|----------|------------|---------|------|
| GE306   | REMOTE SENSING  | 2.00     | 1.00     | 0.00       | 3.00    | 5.00 |
| Course Detail   |   |          |          |            |         |      |
| <b>Course Language</b>                                  | : English   |          |          |            |         |      |
| <b>Qualification Degree</b>                             | : Bachelor  |          |          |            |         |      |
| <b>Course Type</b>                                      | : Compulsory  |          |          |            |         |      |
| <b>Preconditions</b>                                    | : Not   |          |          |            |         |      |
| <b>Objectives of the Course</b>                         | : The objective of this course is to give the basic concepts and analytical methods of satellite remote sensing systems. In this course ,the methods and approaches about land use/cover mapping, land-use/land-cover change analysis, environmental pollution, deformation monitoring, urban change detection and mapping and the hazard management etc will be given. The primary objective of the course is to provide students with the skills and knowledge to apply remote sensing to solve the problems about urban and earth. |          |          |            |         |      |
| <b>Course Contents</b>                                  | : The fundamentals of remote sensing, application areas, remote sensing platforms and sensors, data acquisition, storage and processing, pre-processing of satellite images, atmospheric, radiometric and geometric correction of satellite images, The approaches and methods for land use/cover mapping, change detection analysis, pollution monitoring, hazard management.  |          |          |            |         |      |
| <b>Recommended or Required Reading</b>                  | : Campbell, J. B., 2007, Introduction to Remote Sensing, The Guilford Press, New York, London<br>Thomas Lillesand, Ralph W. Kiefer, Jonathan Chipman, Remote Sensing and Image Interpretation, 2008<br>John R. Jensen, Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall, New Jersey, 2007   |          |          |            |         |      |
| <b>Planned Learning Activities and Teaching Methods</b> | : face to face  |          |          |            |         |      |
| <b>Recommended Optional Programme Components</b>        | : -   |          |          |            |         |      |
| <b>Instructors</b>                                      | : Dr. Öğr. Üyesi Müge Ağca  |          |          |            |         |      |
| <b>Instructor's Assistants</b>                          | : -   |          |          |            |         |      |
| <b>Presentation Of Course</b>                           | : slayt presentetion  |          |          |            |         |      |
| <b>En Son Güncelleme Tarihi:</b>                        | :   |          |          |            |         |      |

Course Outcomes

Upon the completion of this course a student :

- 1 knowledge on the key concepts and terms used in the field of remote sensing
- 2 They will be capable of advising on the best types of remote sensing data for solving geospatial problems
- 3 They will be capable of suggesting scales and analysis procedures to solve any remote sensing related problems.
- 4 the knowledge on the problem of how satellite data and data products can be integrated with other spatial data for various types of spatial data analysis.
- 5 How to deal with remote sensing images for RS applications

Preconditions

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Weekly Contents

|         | Teorical   | Practice | Laboratory | Preparation Info | Teaching Methods | Course Learning Outcomes |
|---------|--|----------|------------|------------------|------------------|--------------------------|
| 1.Week  | *Introduction to remote sensing                                  |          |            |                  |                  |                          |
| 2.Week  | *Remote sensing applications                                     |          |            |                  |                  |                          |
| 3.Week  | *Electromagnetic energy radiation, spectrum                      |          |            |                  |                  |                          |
| 4.Week  | *Electromagnetic radiation sources                               |          |            |                  |                  |                          |
| 5.Week  | *Light, normal, true and false color concept, coloring RS images |          |            |                  |                  |                          |
| 6.Week  | *Energy of EMR, EME and matter interaction                       |          |            |                  |                  |                          |
| 7.Week  | *EMR and atmospheric interaction, atmospheric windows            |          |            |                  |                  |                          |
| 8.Week  | *Midterm Exam  |          |            |                  |                  |                          |
| 9.Week  | *Radiant flux and irradiance, radiance                           |          |            |                  |                  |                          |
| 10.Week | *Spectral reflectance of earth surface materials                 |          |            |                  |                  |                          |
| 11.Week | *reflected energy, reflection factor, refence targets            |          |            |                  |                  |                          |
| 12.Week | *Data acquisition system   |          |            |                  |                  |                          |
| 13.Week | *Earth observing satellites and orbits                           |          |            |                  |                  |                          |
| 14.Week | *RS image processing   |          |            |                  |                  |                          |

| Assesment Methods % |
|---------------------|
| 1 Mdtterms : 40.000 |
| 2 Final : 60.000    |

| ECTS Workload   |       |            |                                   |
|---|-------|------------|-----------------------------------|
| Activities  | Count | Time(Hour) | Sum of Workload                   |
| Vize / Midterms   | 1     | 1.00       | 1.00                              |
| 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    | 2.00       | 28.00                             |
| Ders Sonrası Biresysel Çalışma / Individual study after lecture | 14    | 3.00       | 42.00                             |
| Ara Sınav Hazırlık / Preparation for midterm                    | 1     | 15.00      | 15.00                             |
| Final Sınavı Hazırlık / Preparation for final                   | 1     | 20.00      | 20.00                             |
|   |       |            | Total : 150.00                    |
|   |       |            | Sum of Workload / 30 ( Hour ) : 5 |
|   |       |            | ECTS : 5.00                       |

| 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                      | 4      | 0      | 0      | 0      | 0      | 4      | 0      | 0      | 0      | 0       | 4       |
| L.O. 2                      | 4      | 0      | 0      | 0      | 0      | 4      | 0      | 0      | 0      | 0       | 4       |
| L.O. 3                      | 4      | 0      | 0      | 0      | 0      | 5      | 0      | 0      | 0      | 0       | 5       |
| L.O. 4                      | 5      | 0      | 0      | 0      | 0      | 5      | 0      | 0      | 0      | 0       | 5       |
| L.O. 5                      | 5      | 0      | 0      | 0      | 0      | 5      | 0      | 0      | 0      | 0       | 5       |