

**GED 535 Gravity Measurements (3+0+0) 3 ECTS 7**  
**Autumn 2019-2020**

**Instructor: Onur Yilmaz**

**COURSE DESCRIPTION**

Actual gravity and other forces. Absolute, relative, sea surface and underwater, and airborne gravity measurements. Corrections and reductions of gravity measurements of gravity gradient. Gravity anomalies and unsurveyed areas. Variation of gravity and geodynamics.

**REFERENCE BOOKS**

- ✓ The Earth's Shape and Gravity by G. D. Garland, Pergamon
- ✓ Theory of the Earth's Gravity Field. Miloš Pick , Jan Picha , Vicenc Vyskočil, Elsevier
- ✓ Gravity Prospecting by N. Sazhina, N. Grushinsky, Mir Publishers
- ✓ Geodesy and Gravity by John Wahr, Samizdat Press

**COURSE OBJECTIVES**

The purpose of this course is to introduce students to the basic concepts of gravity and geodesy related subjects to enhance their knowledge on gravity measurements. At the completion of this course, the students will be able to understand the principals of gravity and to calculate the gravity differences using parameters.

**COURSE CONTENT**

Definition of Gravity  
Gravity Field  
Curvature of Level Surfaces and Plumb Lines  
The Anomalous Gravity Field, Geoid Undulations and Deflections of the Vertical  
The Vertical Gradient of Gravity  
Determination of Physical Constants of the Earth  
Gravity Reduction  
Isostatic Reductions  
Spherical Effects  
Practical Determination of the Geoid  
Relative Gravity Measurements

**GRADING**

Presentations	30%
Midterm exam	30%
Final exam	40%