

MODULE INFORMATION SHEET

Name of Module Unit	Surveying
Name in polish language	Geodezja inżynierska
Module type	obligatory / elective
Form of studying	full-time day courses
Level of study	undergraduate course (B.Sc. level)
Type of study (for extra-mural courses)	-
Programme	Environmental Engineering
Speciality	Environmental Engineering
Responsible department	Faculty of Civil Engineering
Responsible person	Jerzy Durlej M.Sc.

Semester	Lectures	Tutorials	Laboratory	Computer Exercises	Projects	ECTS
1	15	15				2

Objectives (summary)

The aim of this course is to cover fundamentals of the surveying to enable students to understand and execute some surveyor's duties. The whole theory presented during lectures will be accompanied by practical assignments and tutorials. After completion of this course, student should be able to execute simple surveying tasks, liaise with professional surveyor on construction site, as well as use modern surveying equipment such as total stations, GPS receivers etc.

Prerequisites

Secondary/high school mathematics, geometry, physics and geography

Rules of integrated grade setting

Average for lectures and classes.

Recommended readings

1. Adam and Sabina Lyszkowicz: *Surveying, 2010*;
2. John Uren & Bill Price: *Surveying for Engineers, 5th edition*;
3. William Irvine & Finlay Maclellan: *Surveying for construction, 5th edition*;
4. Jack McCormac, Wayne Sarasua, William Davis: *Surveying, 5th and 6th edition, ;*
5. John Muskett: *Site Surveying, 2nd edition*;
6. Alfred Leick: *GPS Satellite Surveying, 3rd edition*;
7. Hycner R. , Dobrowolska-Wesolowska M.: *Geodesy, Surveying and Professional Ethics*;
8. Jagielski A., *Geodezja I & II, 2nd edition*;

Contents of lectures (syllabus)

	Topics	Time (hrs.)	Scope (S / Ex)
1	Introduction to Geodesy and Surveying: Definition of Surveying, major tasks of Engineering Surveying, Shape and size of Earth, Geoid, ellipsoid, plane surveying.	1	S
2	Reference Systems, Reference Frames, Datums, Map Projections, National Coordinate Systems.	1	S
3	Maps, Emblems, Polish National Principal Map.	1	S
4	Angular Measurements: Theodolite.	2	Ex
5	Linear Measurements: Electronic Distance Measurements.	1	Ex
6	Basic Surveying calculations: Azimuth, bearing, distance, intersections, resections, grid coordinates.	2	S
7	Control Networks.	1	S
8	Traversing: Travers computation and adjustment.	1	S
9	Error Analysis in Surveying	1	
10	Levelling: Direct Levelling, Trigonometrical Levelling, Level adjustment.	2	Ex
11	Global Navigation Satellite Systems (GNSS).	1	S
12	Land Area measurement and computation.	1	S
Total		15	hours

S – topics listed in the legal study programme standards from 12.07.2007

Ex – extended topics

Lecturers

Jerzy Durlej M.Sc.

Assessment method

Two tests covering entire scope of material presented during lectures.

Contents of tutorials

	Topics	Time (hrs.)	Scope (S / Ex)
1	Operations with approximate numbers. Units conversion. Individual assignment.	2	S
2	Working with principal map. Individual assignment.	2	S
3	Checking and adjusting theodolite. Horizontal angle measurement. Individual assignment.	4	Ex
4	Coordinates calculation. Individual assignment.	4	
5	Total Station. Electronic distance measurement. Field practice.	3	Ex
Total		15	hours

S – topics listed in the legal study programme standards from 12.07.2007

Ex – extended topics

Persons responsible for tutorials

Jerzy Durlej M.Sc.

Assessment method for tutorials

Two tests covering entire scope of material presented during tutorials. Assessment of student's individually executed projects and assignments.