

COURSE		LAND SURVEYING III		
LECTURER		Assist. Prof. Nedim Tuno Ph.D.		
STUDY	STATUS	SEMESTER	NUMBER OF LESSONS L+E	ECTS
B – G	Compulsory	3	3+3	7
OBJECTIVES				
<ul style="list-style-type: none"> □ To provide a fundamental level of understanding of geodetic networks, with emphasis on the modern 2D precision survey networks. □ To develop student's ability to plan, supervise and carry out the fieldwork necessary to establish positional survey networks, as well as the abilities to adjust and analyse these networks. 				
LEARNING OUTCOMES				
<p>Upon successful completion of this module students should be able to:</p> <ul style="list-style-type: none"> □ Identify and define the key aspects of data quality, including resolution, precision, and accuracy. □ Explain the concepts of precision conventional horizontal positioning techniques. □ List and explain the procedures surveyors use to produce 2D positional data, including triangulation, trilateration and combined networks. □ Carry out angle and distance measurement with precise electronic instruments. □ Identify sources of error in measuring angles and distances. □ Perform practical 2D network designs and analysis. □ Perform 2D network least squares adjustments using appropriate software systems and manually. 				
COURSE CONTENT				
<ul style="list-style-type: none"> □ State reference 2D coordinate system. Fundamental geodetic network. Positional geodetic networks. Design of geodetic networks. Stabilization of positional geodetic network points. Signalisation of points. Principles of triangulation, the definition of terms, concept of triangulation network. Triangulation - special design rules of triangulation networks. Methods of horizontal angles observations. Preparing data for adjustment. Determination of definitive coordinates of triangulation points. Principles of trilateration. Trilateration - special design rules of trilateration networks. Measuring the distances by electronic distancemeters. Corrections in electronic distance measurements and accuracy estimation. Weights of measured distances. Adjustment of trilateration. Weights of the measured data in the combined triangulation and trilateration networks. Homogenisation of accuracy of the angle and distance measurements. 				
RECOMMENDED LITERATURE				
<ol style="list-style-type: none"> 1. Tuno, N., Kogoj, D. (2015): Primijenjena geodezija III, skripta. Građevinski fakultet, Univerzitet u Sarajevu, Sarajevo. 2. Kogoj, D. (2006): Mjerenje dužina elektronskim daljinomjerima. Građevinski fakultet, Univerzitet u Sarajevu, Sarajevo. 3. Tuno, N. (2014): Praktikum vježbi iz Primijenjene geodezije III, skripta. Građevinski fakultet, Univerzitet u Sarajevu, Sarajevo. 				
Examination:				
<p>The mid-term exam and the end-of-term exam (based on a written tests related to solving practical issues) are organized during the semester. Each practical exam is scored out of a maximum of 25 score points. The pass mark for each practical exam is 55 %. The total score is computed as a sum of the scores from the mid-term exam and the end-of-term practical exam. In case the student gets less than 55% of the mid-term examination marks, he has to set for re-examination at the end-of-term exam (an integrated written practical exam – maximum 50 score points). In case the student does not achieve the minimum requirements to pass the end-of-term exam or integrated practical exam, he is considered failed, and has to set for re-examination during the assigned examination period (January – February), under the same rules as in the previous cases. The students who do not achieve the required scores on this exam, can satisfy the assesment related to solving practical issues by passing the integrated written supplementary exam in September, with the score of 55% or higher.</p> <p>Final written examinations is related to theoretical issues. The practical exam must be passed before the theoretical exam, i.e. the students must earn a minimum of 27,5 points. Final theoretical exam is scored out of a maximum of 50 score points. The pass mark for this exam is 55 % (27,5 points). In case the student does not achieve the minimum requirements to pass the final exam in regular term, he is considered failed, and has to set for re-examination during the makeup examination term (second final exam). Students who do not achieve the required scores on this exam, can satisfy the assesment related to solving practical and theoretical issues by passing the integrated supplementary written exams in September, with the score of 55% or higher, under the same rules as in the previous cases.</p> <p>Once the exams are passed, the total score is computed as a sum of scores from the practical exam and the theoretical exam and grade is formed in accordance to a scale prescribed by the Law on Higher Education.</p>				