



UNIVERSITY OF SARAJEVO
FACULTY OF CIVIL ENGINEERING
COURSE DESCRIPTION



Form SP2

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Code:	Subject: EVALUATION OF TRAFFIC INFRASTRUCTURE PROJECTS		
Degree: II	Year: 2	Semester: 3	ECTS: 7
Status: mandatory	Total hours: 75 (3+2) 45 lectures 30 auditory exercises		
Teaching staff:	Prof.dr. Suada Sulejmanović, Civ.Eng.		
Prerequisite for enrollment:	NO		
Course objectives:	The objectives are to enable students to: • independently diagnose and analyse problems in the field of transport infrastructure, think creatively and innovatively, and propose appropriate solutions; • understand and analyse the investment process, the specific characteristics of transport infrastructure projects, and the principles of project management throughout their life cycle; • apply financial mathematics methods and appropriate indicators to assess the financial and economic viability of investment projects; • conduct financial and economic analyses of transport infrastructure projects, including the assessment of costs, revenues, economic benefits, and external effects; • identify, analyse, and assess risks and uncertainties associated with infrastructure projects and propose appropriate risk management measures; • apply multi-criteria evaluation methods, particularly the Analytic Hierarchy Process (AHP) and VIKOR, to compare and rank project alternatives and support investment decision-making; • analyse financing models and sources for transport infrastructure projects and assess their financial, economic, social, and environmental sustainability; • provide technical descriptions of proposed project solutions, present them, and substantiate them with sound arguments based on relevant analyses and evaluation criteria; • critically interpret the results of financial, economic, and multi-criteria analyses and use them to make well-founded decisions regarding the justification, prioritisation, and implementation of transport infrastructure projects.		
Thematic units:	1. Introduction 2. Transport Infrastructure and Projects 3. The Investment Process 4. Evaluation of Transport Infrastructure Projects 5. Methods and Analytical Approaches to Project Evaluation 6. Fundamentals of Financial Mathematics 7. Financial Analysis of Projects 8. Economic Analysis of Projects 9. Project Risk Analysis and Management 10. Multi-Criteria Evaluation 11. Financing of Transport Infrastructure Projects		
Learning outcomes:	Upon successful completion of the course, students will be able to: 1. Explain the fundamental principles of engineering economics and their significance in the planning, preparation, and implementation of transport infrastructure projects.		



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	2. Identify and classify transport infrastructure projects and explain their life cycle and the fundamental principles of project management. 3. Analyse the investment process, including its stages, investment documentation, feasibility studies, and criteria for making investment decisions. 4. Define project objectives and evaluation criteria, and formulate and compare alternative project solutions and scenarios. 5. Apply the principles of financial mathematics to calculate the time value of money, interest, discounting, depreciation, and investment profitability indicators. 6. Conduct financial analyses of projects, including the assessment of investment, operating, and maintenance costs, revenues, and financial sustainability. 7. Apply economic analysis methods to assess economic costs, benefits, and externalities, including the conversion of financial flows into economic flows and the application of conversion factors. 8. Identify and assess risks associated with infrastructure projects using qualitative and quantitative methods, sensitivity analysis, and scenario analysis. 9. Apply multi-criteria evaluation methods, particularly the Analytic Hierarchy Process (AHP) and VIKOR, to determine criterion weights and compare and rank project alternatives. 10. Analyse financing models and sources for transport infrastructure projects, including the role of domestic and international financial institutions. 11. Interpret the results of financial, economic, and multi-criteria analyses to justify investment decisions and establish project implementation priorities. 12. Critically assess project feasibility and sustainability, taking into account financial and economic effects, risks, and social and environmental impacts throughout the project life cycle.
Teaching methods:	Lectures, auditory exercises
Assessment methods with assessment structure:	The first part: Continuous evaluation during the semester K_v • Quizzes and assignments K_iZ max 10 points • I Partial exam Pl_1 (written/oral) max 20 points • II Partial exam Pl_2 (written/oral), max 20 points • Program assignments/Seminars P_z (oral defense), max 10 points $K_v = \text{max 60 points}$ The minimum required percentage of success in continuous evaluation is 55%, or 33 points ($0.55 \times 60 = 33$) to meet the prerequisite for taking the final exam. The second part: Final exam Z_i (written and oral) $Z_i = \text{max 40 points}$ The minimum required percentage of success in the final exam is 55%, or 22 points ($0.55 \times 40 = 22$). Final grade = $K_v + Z_i$ Note: If the student does not submit the required program assignments, assignments and seminars within the prescribed time, he can submit his work in an extended period defined by the professor, where he can win a maximum of 70% of the maximum number of points.



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Literature:

Mandatory:

- **VREDNOVANJE PROJEKATA SAOBRAĆAJNE INFRASTRUKTURE** - Teorijski okvir sa praktičnim primjerima – prof.dr Suada Sulejmanović
<https://e-izdanja.qf.unsa.ba/index.php/izdanja/en/catalog/book/6>
- **Alati za ekonomsko vrednovanje u niskogradnji**, prof.dr. Branko Mazić

Additional:

- EUROPEAN COMMISSION - Directorate General Regional Policy, Guide to Cost-Benefit Analysis of investment project - Structural Funds, Cohesion Fund and Instrument for Pre-Accession, 2008
- European Commission Directorate-General for Regional and Urban Policy, Economic Appraisal Vademecum 2021-2027, European Commission, 2021.
- European Commission - DG MOVE & CE Delft, 2020. Handbook on the external costs of transport – Version 2019