

# **MSc Specialization in Highway and Railway Engineering**

## **Final exam questions**

### **Transport Strategic Planning (BMEEOUVMU-1)**

1. Strategic planning. Basic concepts. The process of strategic planning. Strategic management. Types of strategic documents.
2. Strategical planning. Situational analysis, problem analysis, problem map, SWOT analysis. Future visions, setting up objectives and targets. Types of indicators measuring the contribution to the achievement of targets, requirements for the indicator system.
3. Strategy framing, programming. Logical Framework Approach. Project identification, selecting measures, forming packages. Financial planning.
4. Structure of the feasibility study, tasks and objectives. Assessment of the situation, option analysis, evaluation methods. Financial and social impact analysis. Sensitivity analysis and risk analysis.

### **Railway Station Design (BMEEOUVMU-2)**

1. Geometry and structural set-up of railway turnouts (standard straight and standard cross-circular ones) and crossings. Theoretical and practical solution of curved turnouts.
2. Track connections with standard and curved turnouts.
3. Theoretical and practical set-up of intermediate, connecting, junction and crossing railway stations. Platforms.
4. Theoretical and practical set-up of railway terminals.

### **Infrastructure Management Systems (BMEEOUVMU-3)**

1. Mechanism of railway track deterioration: Through a practical example, illustrate the characteristic features and process of the degradation mechanism of the railway track as a function of the traffic load. The objective of track asset management. The standardized track inspection approaches. The theory of optimal track inspection. Levels of maintenance strategies.
2. Basic concepts of road management. General tasks of road operation. Brief description of road maintenance technologies. Pavement condition assessment methods.
3. PMS functions, pavement performance evaluation, data requirements. Adaptation of PMS and description of some major PMS systems. Practical applicability of PMS.

### **Project Management in Transportation (BMEEOUVMU-4)**

1. Progress of an infrastructure project, project lifecycle. Main types of FIDIC contracts, contract milestones. Main tasks of the Engineer. Dispute resolution procedure in FIDIC.
2. Participants of a project: partners and other stakeholders. Summarize the contractor aspects of project implementation (calculation, scheduling, organization, project organization, specific rules). Guarantee and warranty period.