Name of subject	YO‘L HARAKATI XAVFSIZLIGINI BOSHQARISH (ECTS 4)
Subject/module code	**YHXB2031**
Science taught semester (s).	1st semester
Responsible teacher	Ganiyev Inomjon Gulomovich – head of the department “Road engineering”, PhD, professor
Education language	Uzbek
Connection to the curriculum	Elective
Training hours (this including independent education)	**Total hours – 120 hours** **Contact hours – 36 hours** Lecture training hours – 12 hours Practical training hours – 24 hours **Independent education – 84 hours**
Course work	No
ECTS	4
The purpose and tasks of subject / learning outcomes	**The purpose of teaching the subject is** To develop master's students’ competencies in systematic road traffic safety management, analyzing road traffic accident data and associated risk factors, selecting appropriate road infrastructure safety improvements and organizational measures, evaluating their effectiveness, and making evidence-based management decisions. **The objectives of teaching the subject** are to provide students with a comprehensive understanding of the legal and organizational frameworks for road traffic safety management; develop skills in analyzing road traffic accident data and traffic volume data; assess risks associated with vehicle speeds, vulnerable road users, and road infrastructure; apply road safety audit and inspection methodologies; and develop competencies in designing road safety programs, conducting safety monitoring, and evaluating the effectiveness of road safety interventions and improvement measures. **Learning outcomes:** 1. Explains the principles of systematic road traffic safety management, shared responsibility, and consideration of human error, and aligns strategic objectives with measurable safety outcomes. 2. Distinguishes the roles and responsibilities of competent authorities, road authorities, transport organizations, and road users in ensuring road traffic safety, and substantiates effective mechanisms for interagency coordination and cooperation. 3. Evaluates the quality and completeness of road traffic accident, traffic volume, and infrastructure data, and explains the distinction between crash frequency and crash risk indicators. 4. Develops road safety management objectives, strategic priorities, and performance monitoring indicators for a road network, transport organization, or specific geographical area. 5. Cleans, classifies, and visualizes road traffic accident data using digital mapping tools, and calculates crash rates normalized by comparable traffic exposure measures. 6. Identifies hazardous traffic conditions based on available speed, sight distance, and traffic flow data, and selects an appropriate combination of speed management measures. 7. Conducts a simulated road safety audit for a road section or engineering project, classifies identified safety risks, and prepares documented recommendations for risk mitigation.

	8. Selects and prioritizes safe infrastructure solutions for pedestrians, cyclists, children, and persons with reduced mobility, taking into account their specific accessibility and safety requirements. 9. Compares road safety interventions in terms of implementation costs and expected benefits, accounting for external influencing factors and uncertainty in the results of before-and-after safety evaluations. 10. Develops a road safety improvement program through collaborative group work, assigns responsibilities, establishes implementation schedules and resource requirements, and presents and defends evidence-based road safety management decisions.
Course content (topics)	**I. Main Theoretical Part (Lecture Sessions).** Topics: 1. Fundamentals of Systematic Road Traffic Safety Management 2. Road Traffic Accident Data and Road Safety Analysis Methods 3. Speed Management and Road User Safety 4. Road Infrastructure Safety Audits and Inspections 5. Organizational Road Safety Management and Operational Coordination 6. Road Safety Programs and Evaluation of the Effectiveness of Safety Interventions **II. Instructions and recommendations for organizing laboratory exercises** Laboratory work is not included in the curriculum **III. Practical training instructions and recommendations** The instructor's preparation for a practical session begins with the study of initial documents (such as the curriculum, topic schedule, etc.) and concludes with the development of a detailed lesson plan. The instructor must have a clear understanding of the objectives and tasks of the practical session, as well as the amount of work each student is expected to perform. Methodological guidelines serve as the primary instructional document for instructors in preparing and conducting practical sessions. The purpose of the practical session is to facilitate the comprehension of theoretical material, the acquisition of practical skills, the ability to consciously apply knowledge in academic and professional activities, and the development of critical thinking and confidence in forming personal viewpoints. *Recommended Practical Topics:* 1. Develop a road safety management organizational structure and a stakeholder responsibility matrix for a selected geographical area or transport organization. 2. Identify duplicate and missing records in a given road traffic accident dataset and classify crashes by type, severity, and time of occurrence. 3. Calculate relative crash rates for selected road sections, taking into account traffic volume and the observation period. 4. Develop a map of high-risk road sections based on crash coordinates and road characteristics, and identify priority locations for further investigation. 5. Analyze the distribution of observed vehicle speeds, calculate the 85th-percentile speed, and justify appropriate speed management measures for the given road environment. 6. Calculate stopping sight distance based on reaction time, vehicle speed, road gradient, and braking conditions, and compare the results with the available sight distance.

	7. Assess safety risks at a pedestrian crossing or within a school zone and develop a protected, accessible, and inclusive traffic management scheme. 8. Conduct a simulated road safety audit of an intersection design and prepare a risk register documenting identified hazards and recommended corrective measures. 9. Evaluate inspection findings for a roadside area or roadwork zone on an existing road and develop a list of appropriate engineering safety measures. 10. Develop a road safety management plan for a transport organization, incorporating safety policies, journey-related risks, assigned responsibilities, and key performance indicators. 11. Compare two alternative road safety interventions based on expected crash reduction, cost–benefit analysis, and sensitivity analysis. 12. Analyze the provided before-and-after road safety data, accounting for a comparison group and changes in traffic volume, and prepare an evidence-based evaluation of the program's effectiveness. **IV. Independent learning and independent work** Independent learning competency helps students to develop self-improvement skills and increase the efficiency of their professional activities. Students perform independent tasks on their mobile devices under the guidance of a teacher, either in traditional or electronic form. Recommended topics for independent work: 1. Develop a table identifying responsible authorities, organizations, and their respective duties based on national legislation governing road traffic safety management. 2. Compare the Safe System and Vision Zero approaches using at least three reliable sources and prepare a concise analytical review. 3. Develop a data management plan covering the collection, validation, anonymization, and mapping of road traffic accident data. 4. Conduct a preliminary road safety assessment of a selected road section through collaborative group work, based on crash rates and identified risk factors. 5. Compare the conditions and requirements for implementing engineering, enforcement, and information-based speed management measures. 6. Develop a road safety assessment checklist addressing the safety needs of pedestrians, cyclists, children, and persons with reduced mobility. 7. Conduct a simulated road safety audit of an intersection, school zone, or pedestrian crossing through group work, and present and defend the identified risks and proposed recommendations. 8. Critically analyze a scientific article on roadside hazards or traffic management in roadwork zones and prepare a summary of its practical implications. 9. Collaboratively develop a road safety management plan for a transport organization, addressing journey-related risks, assigned responsibilities, monitoring procedures, and post-incident coordination. 10. Evaluate an Intelligent Transportation System (ITS) or automated traffic enforcement solution in terms of data quality, privacy protection, and road safety outcomes. 11. Develop an evaluation plan for a before-and-after road safety study, incorporating methods to account for changes in traffic volume, external influencing factors, and regression-to-the-mean effects. 12. Collaboratively develop and defend a comprehensive road safety improvement program for a selected geographical area, specifying proposed

	interventions, budget allocations, responsible stakeholders, implementation schedules, and measurable performance targets.
Exam form	Written
Teaching/learning and examination requirements	Complete mastery of theoretical and methodological concepts and practical knowledge of the discipline, the ability to correctly reflect the results of analysis, independently reason about the processes being studied and carry out tasks in the current, intermediate forms of control and independent work, pass written work on the final control. When drawing up final exam questions, deviations from the content of the discipline program are not allowed. The bank of final exam questions for each discipline is discussed at the meeting and approved by the head of the department. No later than 1 week before the start of the final control, tickets signed by the head of the department, enclosed in an envelope, are sealed by the Dean's office and opened 5 minutes before the start of the exam in the presence of students. Final exam duration is 80 minutes. Answers to final exam questions are recorded in copybooks with the seal of the Dean's office. After completion of the final work, the work is immediately encrypted by a representative of the Dean's office, and the copybooks are handed over to the commission for verification. From the moment of completion of the final exam, a period of 72 hours is allotted for checking and posting the results on the electronic platform. The teacher who taught the students in this discipline is not involved in the process of conducting the exam and checking the students' answers. Student(s) who are dissatisfied with the final exam results may submit a written or oral appeal within 24 hours of the publication of the final exam results. Complaints submitted after 24 hours from the publication of the final exam results will not be accepted.
Scope of assessment criteria and procedure	CURRENT CONTROL Purpose: Determining and assessing the student's level of knowledge, practical skills, and competencies on course topics. Instructions: The student's activity in daily classes is assessed through the student's mastery of course topics, as well as constructively interpreting and analyzing the educational material, developing module specific skills, acquiring practical skills (in terms of quality and the specified number) and competencies, solving problem situations aimed at applying professional practical skills, working in a team, preparing presentations, etc. Current control form: Activity in lessons; Preparing educational materials; Working with sources within the subject; Using educational technologies; Working in a team Preparing presentations; Working with projects. MIDTERM CONTROL Purpose: Assessing the student's knowledge and practical skills and level of mastery of lecture material after completing the relevant section of the course. Form and procedure of intermediate control: Midterm examination is held during the semester during the training sessions after the completion of the relevant module of the curriculum of the subject. Midterm examination is held once in written form within the framework of this subject. Midterm examination questions cover all topics of the subject. INDEPENDENT LEARNING Purpose: Independent learning is aimed at fully covering the content of this course, expanding the theoretical knowledge acquired, and establishing independent learning activities for students. Form and procedure of independent education: independent work assignments are completed in the form of an educational project,

presentation, case study, problem solving, information search, digest, colloquium, essay, article, abstract, etc. Completed assignments for independent study are placed in the electronic system and checked based on the anti-plagiarism program and evaluated by the subject teacher.

In this case, the uniqueness of the completed assignment should not be less than 60%, otherwise the assignment will not be accepted for assessment. The number of independent work assignments, depending on the nature of the subject, should not be less than 3 for one subject (module). Independent work assignments account for 60% of the points allocated for current and intermediate control.

FINAL CONTROL

Purpose: The final examination is held at the end of the semester to determine the level of mastery of the student's theoretical knowledge and practical skills in the relevant subject. The final examination is held at a specified time according to the examination schedule created by the Registrar's Office on the electronic platform.

Requirements: The student must have passed the current control, intermediate control and independent learning assignments by the deadline for the final control type in the relevant subject. A student who has not passed the current control, intermediate control and independent learning assignments, as well as who has received a score in the range of "0-29,9" for these assignments and control types, is not included in the final control type. Also, a student who has missed 25 percent or more of the classroom hours allocated to a subject without a reason is excluded from this subject and is not included in the final control type and is considered not to have mastered the relevant credits in this subject. A student who has not passed or was not included in the final control type and has received a score in the range of "0-29.9" for this type of control is considered to be an academic debtor.

Final control form: The final examination in this subject will be conducted in written form. If the final examination is conducted in written form, the requirements for assessment must also be reflected.

Criteria for assessing student knowledge

5 grade	100 points		Assessment criteria
5	90-10	Excellent	When a student is considered to be able to make independent conclusions and decisions, think creatively, observe independently, apply the knowledge he has gained in practice, understand, know, express, and narrate the essence of the subject, and have an idea about the subject.
4	70-89,9	Good	When the student is considered to be able to observe independently, apply the knowledge he has gained in practice, understand, know, express, and narrate the essence of the subject, and has an idea about the subject

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<tr><td>3</td><td>60-69,9</td><td>Satisfactory</td><td>When the student is found to be able to apply the knowledge he has gained in practice, understands, knows, can express, and narrate the essence of the subject, and has an idea about the subject.</td></tr>
<tr><td>2</td><td>0-59,9</td><td>Unsatisfactory</td><td>When it is determined that the student has not mastered the science program, does not understand the essence of the subject, and does not have an idea about the science.</td></tr>
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<tr><td>Course assessment criteria and procedure</td><td>
<table>
<tr><th>Assessment type</th><th>Total points allocated</th><th>Control (task) form</th><th>Distribution of points</th><th>Qualifying score</th></tr>
<tr><td rowspan="2">Current assessment</td><td rowspan="2">30 points</td><td>System tasks</td><td>20 points (divided by number of tasks)</td><td rowspan="2">18 points</td></tr>
<tr><td>Student activity (in seminars, practical, laboratory classes)</td><td>10 points</td></tr>
<tr><td rowspan="2">Midterm assessment</td><td rowspan="2">20 points</td><td>Supervision: writing work</td><td>10 points</td><td rowspan="2">12 points</td></tr>
<tr><td>System tasks</td><td>10 points (divided by number of tasks)</td></tr>
<tr><td>Final assessment</td><td>50 points</td><td>Written assignment (5 questions)</td><td>50 points (10 points per question)</td><td>30 points</td></tr>
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* Note: 60% of the points allocated for current and intermediate control are allocated to independent work assignments. Independent work assignments are evaluated as system assignments through the electronic platform.
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<tr><td>Recommended Literature</td><td>1. International Transport Forum. The Safe System Approach in Action. ITF Research Reports. Paris: OECD Publishing, 2022. 65 p.
2. Global Road Safety Partnership. Speed Management: A Road Safety Manual for Decision-Makers and Practitioners. 2nd ed. Geneva: International Federation of Red Cross and Red Crescent Societies, 2023. 80 p.
3. World Health Organization. Pedestrian Safety: A Road Safety Manual for Decision-Makers and Practitioners. 2nd ed. Geneva: WHO, 2023.</td></tr>
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4. World Health Organization. Global Status Report on Road Safety 2023. Geneva: WHO, 2023. 81 p.
5. O‘zbekiston Respublikasining “Yo‘l harakati to‘g‘risida”gi Qonuni. 2024-yil 19-yanvar, O‘RQ-900-son. Amaldagi tahrir.
6. ISO 39001:2012. Road Traffic Safety (RTS) Management Systems - Requirements with Guidance for Use. Geneva: ISO, 2012. 37 p. ISO 39001:2012/Amd 1:2024 qo‘shimchasi bilan.
7. Chatterjee S., Mitra S., Maitra B. Approach for Quantifying Roadside Hazard Risk on Two-Lane Highways in Low- and Middle-Income Countries // Transportation Research Record. 2023. Vol. 2677, no. 3. P. 113-127. DOI: 10.1177/03611981221114120.