Name of subject	ROAD TRAFFIC SAFETY MANAGEMENT (10 ECTS)
Subject/module code	**AYHXTQ24510**
Science taught semester (s).	4th and 5th semesters
Module leader	Professor Inomjon G‘aniyev, Candidate of Technical Sciences, Head of the Department of Road Engineering
Education language	Uzbek
Connection to the curriculum	Elective
Training hours (this including independent education)	**Total hours – 300 hours** **Contact hours – 120 hours** Lecture training hours – 48 hours Practical training hours – 72 hours **Independent education – 180 hours**
Course work	No
ECTS	10
The purpose and tasks of subject / learning outcomes	**The purpose of teaching the subject is** to develop the competence to identify a traffic safety problem on a road section or at a junction using legislation, traffic-flow data and crash records, select justified engineering measures and evaluate their results. **The objectives of teaching the subject** are to Apply the Safe System approach, recognising human error and human vulnerability to injury. Calculate traffic-flow, speed and crash indicators. Analyse road geometry, roadsides, traffic control devices and road-user needs. Distinguish road safety audit and inspection tasks. Develop countermeasures, implementation conditions and a monitoring plan. **Learning outcomes:** 1. Distinguish the responsibilities of the road owner, designer and competent authority. Select and cite the applicable legal or technical requirement for a given case. 2. Explain how hazards arise within the human–vehicle–road–environment system and justify measures that reduce serious injury. 3. Prepare an observation schedule. Calculate traffic composition, flow, speed distribution and a selected percentile, and identify sample limitations. 4. Clean crash records and group them by location and severity. Distinguish crash frequency from an exposure-normalised rate. 5. Identify hazards using supplied information on visibility, stopping, roadside conditions and pavement condition. Explain the limits of a simplified model. 6. Analyse signs, road markings, lighting, signal phases and junction layouts together with pedestrian and vehicle movements. 7. Compare crossing, school-zone or bus-stop solutions for pedestrians, cyclists, children, older people and people with disabilities. 8. Distinguish audit stages, independence and authorisation from inspection tasks. Prepare an educational record of evidence, hazards, recommendations and responses. 9. Plan safety and data requirements for work zones and digital monitoring. Distinguish conflict indicators from crash outcomes. 10. Compare two countermeasure options in terms of safety, given costs and implementation conditions. Justify the treatment of uncertainty and the monitoring plan, and account for the individual contribution.
Course content (topics)	**I. Main Theoretical Part (Lecture Sessions).** Topics:

	1. Introduction and legal framework. 2. Safe System and human factors. 3. Traffic-flow indicators. 4. Speed-data analysis. 5. Crash recording and data quality. 6. Safety indicators. 7. Screening hazardous road sections. 8. Road geometry and visibility. 9. Pavement, weather and night-time traffic. 10. Roadside hazards. 11. Speed management. 12. Traffic control devices. 13. Fundamentals of traffic-signal control. 14. Junctions and access connections. 15. Pedestrians and inclusive mobility. 16. Cycling, motorcycling and micromobility. 17. Bus stops and railway level crossings. 18. Audit of traffic-management designs. 19. Inspection and hazard records. 20. Temporary traffic management in work zones. 21. Intelligent transport systems (ITS). 22. Evaluating countermeasure effects. 23. Prioritisation and economic comparison. 24. Integrated safety solutions. **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. Select and cite the law, traffic rule and technical requirement for a given situation. Prepare a table of institutional responsibilities. 2. Map a hazard chain within the road–human–vehicle–environment system and prepare a set of measures to reduce serious injury. 3. Calculate traffic flow and composition by direction, time and vehicle type using a supplied video or count table. 4. Check a speed sample. Calculate its mean and 85th percentile using a stated rule, and prepare a histogram. 5. Clean an anonymised crash table. Check duplicate records, unknown values, and location and severity codes. 6. Calculate crash frequency and exposure-normalised rates for a road section and a junction, stating the units. 7. Screen comparable road sections. Prepare a priority map using crash counts, severity, traffic flow and systemic risk.

	8. Calculate a simplified stopping distance from a given speed, reaction time and deceleration. Compare it with available sight distance and the relevant standard. 9. Record water, visibility and lighting hazards from pavement and night-time photographs. Identify the additional measurements needed. 10. Use a roadside layout to compare the hazard source, recovery area and a barrier option. Identify missing parameters. 11. Justify two speed-management options for a school or residential area under the applicable rules and given site conditions. 12. Check the layout of signs and road markings. List conflicting instructions, visibility issues and maintenance needs. 13. Prepare a conflict matrix for signal phases. Check pedestrian crossing arrangements and supplied intergreen periods, and propose corrections. 14. Prepare a diagram of junction manoeuvres and conflicts. Assess the opportunities and limitations of a turning restriction or roundabout solution. 15. Assess accessibility, speed and visibility together for a pedestrian crossing or access route to a school. 16. Identify a discontinuity in a cycling or micromobility route at a junction. Compare two connection layouts. 17. Prepare a hazard map for a bus stop or railway level crossing, covering pedestrian routes, visibility, queues and manoeuvres. 18. Prepare an audit brief for a supplied design, specifying the stage, authorised participants, independence, documents and questions. 19. Conduct an educational inspection using supplied images and plans. Record evidence, hazards, recommendations and a sample client response. 20. Prepare a conceptual roadworks traffic-management layout showing routes for drivers, pedestrians, workers, public transport and emergency vehicles. 21. Describe close interactions using a supplied trajectory table. Identify the data and potential errors relevant to conflict analysis. 22. Analyse supplied before–after data together with traffic flow and a comparison group. Interpret a CMF estimate with its limitations. 23. Prepare a prioritisation and sensitivity table for two safety measures using given costs and ranges of effects. 24. Individually defend the road-section portfolio, including checked calculations, a map, two options, and implementation and monitoring plans **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. Analyse a selected case using road traffic law, traffic rules and design requirements. Submit precise citations, revision dates and a map of responsibilities. 2. Clean and map supplied traffic-flow and crash data. Submit a coding dictionary, an error log and a verification record from each group member. 3. Justify two speed-management options using a speed sample and site conditions. Submit calculations, limitations and a monitoring plan. 4. Adapt a safety approach from the specified TOP-300 university course to a local educational case. Compare the international solution with national requirements.

	5. Develop two solutions for a pedestrian crossing or school zone. Submit an accessibility, speed and visibility assessment with a road-user route layout. 6. Analyse roadside risk for the given geometry. Compare options with and without a barrier, identifying required tests or parameters and maintenance needs. 7. Prepare a junction conflict diagram, identify a signal-phase or manoeuvre problem and compare two options using evidence. 8. Prepare an educational audit or inspection record showing scope, evidence, hazards, recommendations, responses and closure status. Document assigned roles and individual contributions. 9. Prepare a temporary traffic-management layout for a work zone, addressing pedestrian continuity, worker protection, diversion routes and information required for approval. 10. Critically review the research article, addressing its research question, data, conflict indicator, validation method and limitations of transfer to local conditions. 11. Compare two countermeasure options using given cost and effect ranges. Assess priorities, sensitivity and responsibilities for implementation. 12. Submit and defend an individual final portfolio containing verified data and calculations, a hazard map, a justified option, monitoring arrangements and an account of personal contributions.
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
	3	60-69,9	Satisfactory	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.
	2	0-59,9	Unsatisfactory	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.

Course assessment criteria and procedure	**Assessment type**	**Total points allocated**	**Control (task) form**	**Distribution of points**	**Qualifying score**
	Current assessment	30 points	System tasks	20 points (divided by number of tasks)	18 points
			Student activity (in seminars, practical, laboratory classes)	10 points	

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<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. G‘aniyev I. G‘., Umirzaqov Z. A. Avtomobil yo‘llarida harakat xavfsizligini tashkil qilish. Textbook. Jizzax, JizPI, 2026. 136 pp. Bibliographic entry supplied in the syllabus.
2. Republic of Uzbekistan. Law O‘RQ-900 of 19 January 2024, Yo‘l harakati to‘g‘risida (On Road Traffic). LexUZ revision of 30 December 2025.
lex.uz/docs/-6764454
3. Cabinet of Ministers of Uzbekistan. Resolution No. 172 of 12 April 2022 approving the Traffic Rules. LexUZ revision of 1 April 2026.
lex.uz/uz/docs/-5953883
4. SHNQ 2.05.02-23. Avtomobil yo‘llari. Loyihalash talablari (Highways. Design Requirements). Ministerial Order No. 01/2-61 of 23 August 2024. Effective from 14 October 2024.
lex.uz/docs/-7205692
5. Austroads. Guide to Road Safety Part 2. Safe Roads. Edition 2.0, 1 July 2024. AGRS02-24. ISBN 978-1-922994-30-1.
austroads.gov.au · AGRS02</td></tr>
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