Name of subject	SCIENTIFIC PRACTICE (RESEARCH INTERNSHIP) (ECTS 14)
Subject/module code	**IA2416**
Science taught semester (s).	2nd and 4th semesters
Responsible teacher	Ganiyev Inomjon Gulomovich – head of the department "Road engineering", PhD, professor
Education language	Uzbek
Connection to the curriculum	Scientific activity
Training hours (this including independent education)	**Semester 2 — 180 h** **Semester 4 — 240 h**
ECTS	14
The purpose and tasks of subject / learning outcomes	**The purpose of teaching the subject is** To develop creative and practice-oriented research competence by studying road and aerodrome design, construction and operation processes in a real professional environment, applying modern technologies and research methods, collecting thesis data and developing evidence-based practical proposals. **The objectives of teaching the subject are** To study the organizational structure, responsibilities, and main areas of activity of the Ministry of Transport, the Committee for Roads, and its regional organizations; To familiarize students with modern methods of designing, constructing, operating, maintaining, inspecting, diagnosing, repairing, and reconstructing highways and airfields; To comply with occupational health and safety regulations, technical safety standards, and fire safety requirements in construction, industrial, and engineering design organizations; To identify and collect research objects, relevant processes, and baseline data corresponding to the topic of the master's thesis; To acquire practical skills in using equipment, measuring instruments, and sensors employed in experimental investigations, measurements, monitoring, and diagnostic activities; To process, analyze, and interpret research findings using statistical, graphical, and comparative analysis methods; To critically evaluate regulatory and technical documentation, engineering design projects, and scientific literature; To assess the technical, economic, environmental, and safety performance of proposed scientific and engineering solutions; To finalize the relevant chapters, conclusions, and practical recommendations of the master's thesis; To prepare, document, present, and defend the internship diary, professional portfolio, written report, and presentation in accordance with established academic and institutional requirements. **Learning outcomes:** 1. Analyze the organizational structure and activities of the Ministry of Transport, Road Committee and relevant territorial organizations. 2. Apply occupational, technical, fire and road-traffic safety requirements at the internship site. 3. Observe and assess practical processes of road/aerodrome design, construction, operation and reconstruction. 4. Identify research object, subject, methods and initial data relevant to the master's thesis. 5. Collect, systematize and formally record reliable data from production, design and research organizations. 6. Use instruments, devices and sensors applied in measurement, monitoring, diagnostics and experimental work.

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<tr><td></td><td>7. Process experimental and production data using statistical, graphical and comparative methods.
8. Critically analyze technical standards, project solutions and scientific literature.
9. Develop solution alternatives using scientific-technical, economic, environmental and safety criteria.
10. Prepare thesis chapters, conclusions and practical recommendations based on evidence.
11. Comply with industrial discipline, professional ethics, academic integrity and host-organization rules.
12. Prepare and defend internship diary, portfolio, written report and presentation.</td></tr>
<tr><td>Course content</td><td>I. Main activity and expected outputs:
Semester 2 — Study organizational units of road-sector authorities and territorial organizations; analyze sector problems; study safety and organization of design/construction/operation; analyze production activities and traffic-management/reconstruction projects; collect materials and prepare semester report.
Semester 4 — In-depth study of host organization and collection of production data for the thesis; work with specialist/scientific literature; finalize thesis Chapters 1 and 2; prepare Chapter 3, conclusions and practical recommendations; complete internship report and defense.</td></tr>
<tr><td>Scope of assessment criteria</td><td>Assessment is based on fulfilment of the approved internship plan, professional conduct and safety, the quality and traceability of collected evidence, linkage to the master’s thesis, the internship diary/portfolio/report, host and academic supervisor feedback, and report defense.
<table>
<tr><th>Assessment evidence</th><th>Basis of judgement</th></tr>
<tr><td>Individual internship plan</td><td>Completion of assigned professional/research tasks.</td></tr>
<tr><td>Safety and professional conduct</td><td>Compliance with occupational, fire, traffic and organisational requirements.</td></tr>
<tr><td>Data/evidence collection</td><td>Reliability, documentation and relevance to thesis research.</td></tr>
<tr><td>Internship diary and portfolio</td><td>Completeness, traceability and professional documentation.</td></tr>
<tr><td>Written report and presentation</td><td>Analysis, conclusions, recommendations and thesis linkage.</td></tr>
<tr><td>Defence / supervisor feedback</td><td>Evidence-based responses and professional performance.</td></tr>
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<tr><td>Criteria for assessing student knowledge</td><td>
<table>
<tr><th>5 grade</th><th>100 points</th><th></th><th>Assessment criteria</th></tr>
<tr><td>5</td><td>90-10</td><td>Excellent</td><td>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</td></tr>
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				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.
Recommended Literature	1. Qobulov, X. A. Ilmiy tadqiqot metodologiyasi / X. A. Qobulov, G. A. Karimova. - 2024. 2. Бондарева, Э. Д. Проектирование автомобильных дорог и элементов обустройства / Э. Д. Бондарева, М. П. Клековкина. - 3-е изд. - Юрайт, 2024. - 398 с. 3. Almusaed, A. Practice of Research Methodology in Civil Engineering and Architecture / A. Almusaed, A. Almssad, I. Yitmen. - Springer, 2025. 4. Ajimotokan, H. A. Research Techniques for Engineers / H. A. Ajimotokan. - Springer, 2022. 5. Rogers, M. Highway Engineering / M. Rogers, B. Enright. - 4th ed. - Wiley-Blackwell, 2023. 6. ICAO. Aerodrome Design Manual. Part 3: Pavements / International Civil Aviation Organization. - 3rd ed. - ICAO, 2022.			