Course Title	**Innovation Management, Technology Commercialization and Transfer (4 ECTS)**
Subject/Module Code	IBTTHTQ2304
Semester(s) in Which the Course Is Taught	Semesters 2/3
Assigned Instructor	Ablayeva O‘g‘iloy Shodiqulovna, Associate Professor
Language of Instruction	Uzbek
Course Type	Elective
Study Hours (Including Independent Study)	**Total: 120 hours.** **Contact hours: 36.** **Lecture hours: 18.** Laboratory hours – **Practical class hours: 18.** **Independent study: 84 hours.**
ECTS	4
Faning maqsadi va vazifalari / ta’lim natijalari	Course aim: to develop master's students’ knowledge, skills and competencies in the strategic and organisational management of innovation activities, the commercialization of scientific and technological developments, the organisation of technology transfer, and the practical implementation of innovative solutions in the field of construction engineering. Course objectives: – to explain the concepts and substance of innovation, innovation processes and innovation systems; – to develop proficiency in methods for planning, organising and managing innovation activities; – to analyse the market potential of research results and approaches to their commercialisation; – to explain the fundamentals of the legal protection and use of intellectual property; – to study the models, mechanisms and participants involved in technology transfer; – to study the financing, business planning and economic efficiency assessment of innovative projects; – to develop approaches for introducing digital, energy-efficient and new-material-based innovations in construction engineering. **Learning outcomes:** 1. Explain the key concepts, principles and models of innovation and innovation management. 2. Develop an innovation strategy and identify innovation development priorities for an organisation or project. 3. Analyse the degree of novelty, market demand and commercial potential of a scientific or technological development. 4. Distinguish between intellectual property objects and methods of their legal protection. 5. Select appropriate models and mechanisms for technology transfer. 6. Develop a business model, business plan and commercialisation strategy for innovative projects. 7. Assess the costs, revenues, risks and economic efficiency of innovative projects. 8. Prepare proposals and a project concept for introducing innovative technologies in the construction sector.
Kurs mazmuni (mavzular)	**I. Main Theoretical Part (Lectures)** Topic 1. Content, essence and classification of innovation and innovation activities. Topic 2. Theoretical foundations and modern models of innovation management. Topic 3. Innovation strategy and management of innovation processes in organisations. Topic 4. Transforming research and experimental development into innovative products.

	Topic 5. Intellectual property, patenting and legal protection of innovative developments. Topic 6. Technology transfer: forms, mechanisms and international experience. Topic 7. Commercialisation of innovations: market analysis, business models and marketing. Topic 8. Financing innovative projects, investment and the startup ecosystem. Topic 9. Introducing innovations in construction engineering and assessing their effectiveness. **II. Guidelines and Recommendations for Practical Classes** Topic 1. Classification of innovative products and technologies in construction engineering. Topic 2. Developing an innovation development strategy for an enterprise or organisation. Topic 3. Formulating an innovative idea and assessing its novelty and relevance. Topic 4. Transforming research and experimental development into innovative products. Topic 5. Intellectual property, patenting and legal protection of innovative developments. Topic 6. Developing a cooperation model and transfer terms for technology transfer. Topic 7. Commercialisation of innovations: market analysis, business models and marketing. Topic 8. Calculating the costs, revenues and economic efficiency of an innovative project. Topic 9. Preparing a presentation and implementation proposal for an innovative project in the construction sector. **Recommended Independent Study Topics:** Topic 1. Development trends in the innovation economy and knowledge-based economy. Topic 2. Innovation systems and national innovation infrastructure. Topic 3. Government support mechanisms for innovation activities. Topic 4. Innovation cooperation between higher education institutions, research organisations and industrial enterprises. Topic 5. Innovative technologies in the production of construction materials and structures. Topic 6. Commercial potential of BIM, digital twins and the digitalisation of construction processes. Topic 7. Green construction, energy efficiency and environmental innovations. Topic 8. Technology Readiness Levels (TRL) of research developments and their assessment. Topic 9. Patent information searches, patent landscapes and competitor analysis. Topic 10. Licensing, franchising and agreements for the use of intellectual property. Topic 11. Activities and responsibilities of university technology transfer offices. Topic 12. Negotiations, cooperation and contractual relations in technology transfer. Topic 13. Market segmentation for innovative products and identification of customer needs. Topic 14. Strategies for bringing innovative products to market. Topic 15. Stages of establishing and developing startup projects. Topic 16. Commercialisation of energy-efficient and renewable energy technologies in construction. Topic 17. Innovation management and organisational change in construction enterprises.
Student Assessment	Master's students are assessed on the basis of their acquisition of the course materials throughout the semester, practical assignments, independent study work, project and presentation results, and the final assessment. Assessment is conducted using a 100-point system in accordance with the assessment regulations and criteria currently in force at the higher education institution. Ongoing assessment includes analytical tasks, case studies, practical calculations and participation in discussions on the topics covered. Independent study is assessed through an essay, analytical report or innovation project. The final

	assessment evaluates theoretical knowledge and practical competencies in the subject.
Examination Requirements	Master's students must have mastered the basic theoretical concepts and methods of innovation management, technology transfer and commercialisation. They must complete the assignments specified for lectures and practical classes, study the independent learning topics and submit the required work. Master's students must be able to analyse the market potential of an innovative development, select an approach to intellectual property protection, and justify a technology transfer and commercialisation plan. Admission to the final assessment and matters relating to academic debt are determined in accordance with the relevant regulations and procedures in force at the higher education institution.
Recommended Literature	1. Abdullayev A., Abduvasiqov A. Innovatsion menejment. – Toshkent: Iqtisod-moliya, 2018. Darslik. 2. Burxanov A.U., Tashxodjayev M.M. Innovatsion menejment. – Toshkent: Voris-Nashriyot, 2018.. O'quv qo'llanma. 3. Xamdamova G., Astanakulov O., Matchanov A. Innovatsion menejment. – Toshkent: Iqtisod-moliya, 2019. Darslik. 4 Abdullayev A., Abduvasiqov A. Innovatsion menejment. – Toshkent: Iqtisod-moliya, 2019. Darslik. 5. www.wipo.int 6. www.oecd.org 7. www.lex.uz