

Course/module description (*Scientific research methodology and methods – Методология и методы научного исследования*)

Course provider (institution): Kyrgyz State Technical University named after I.Razzakov (KSTU), Department of Production and expertise of building materials, products and constructions.

Course title: Scientific research methodology and methods (БД.1.2)

Target group: PhD Students (620100 – Geodesy and Remote Sensing Direction. Geodesy and Geoinformation Technologies Program)

Type (compulsory/optional): optional

Number of ECTS credits allocated (if applicable); estimated workload: 5 ECTS (150 academic hours)

Mode of delivery (face-to-face/ distance learning etc.); number of contact hours:
48 class hours (16 - lectures, 32 – practical), 102 hours for the self study

Language of instruction: Kyrgyz/Russian/ English

Prerequisites and co-requisites (if applicable): Knowledge of English for reading literature

Course aims: formation of ideas about the specifics of scientific research, its main stages, the main requirements for the structure and content of the dissertation work

Learning outcomes: After taking this course, the students should:

1. know the of basic principles of scientific research organization;
2. know the of main stages of scientific research;
3. be able to methods of scientific research;
4. be able to reasonable search for scientific information;
5. know the basic principles of writing a scientific text;
6. know to requirements and procedure for the design and presentation of the dissertation text.

Course content:

1. Goals and objectives of the course. Basic concepts of scientific research, terms, classification of science.
2. Selection of the scientific research topic. Statement of a scientific problem and stages of research work.
3. Methods of search, accumulation and processing of scientific information.
4. Theoretical research.
5. Experimental studies.
6. The history of the development of intellectual property. Objects of intellectual property.
7. Principles of writing scientific texts.

Recommended or required reading and other learning resources/tools:

1. Lecture Materials
2. Normative documents and regulations.
3. The Power Point lecture slides are available for download as PDF files at the course website.
4. Electronic resources on the lecture topics are available at the course website.
5. The class notes, latest journal articles and references related the course topics will be referred to and/or distributed during the lectures.
6. Text and Reference Books

Recommended or required reading and other learning resources/tools:

Course teaching materials available through the university ELMS;
Instant messaging, blog and personal electronic communication platforms

Required literature:

1. Новиков, А. М. Методология научного исследования / А.М. Новиков, Д.А. Новиков. - М.: Либроком, 2014. - 272 с.
2. Скворцова Л.М. Методология научных исследований: Учебное пособие. Москва: МГСУ 2014

3. Байбородова Л. В., Чернявская А. П. Методология и методы научного исследования. Учебное пособие. - М.: Юрайт. 2018. 222 с.

Additional literature:

1. Гаранина О.Д., Сержкина А.А. Методология и методика научного исследования. Пособие по изучению дисциплины. - М.: МГТУГА, 2016. - 48 с.
2. Коваленко Н. А. Научные исследования и решение инженерных задач в сфере автомобильного транспорта. - М.: Инфра-М, Новое знание. 2016. 272 с.
3. Комлацкий В. И., Логинов С. В., Комлацкий Г. В. Планирование и организация научных исследований. Учебник. - М.: Феникс. 2014. 208 с.
4. Рыжков И. Б. Основы научных исследований и изобретательства. — М.: Лань. 2012. 224 с.
5. Демина, Л.А. Логика, методология, аргументация в научном исследовании. Учебник для аспирантов: моногр. / Л.А. Демина. - М.: Проспект, 2017. – 942 с.

Planned learning activities and teaching methods:

1. Regular lectures;
2. Practicals and seminars;
3. Independent work on the research topic.
4. Regular consultation and discussion of independent work;

Assessment methods and criteria:

1. Practice assignments (25%).
2. Individual assignments (25%).
3. Activity and participation in discussions (25%).
4. Final exam (25 %).

Grading system: Five-point academic grading system, where 5 - "Excellent" and 2 - "Unsatisfactory" (Grades: A, B, C, F)

Additional information: Course instructor – Dr. Makhavat Dzhusupova.

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