Казахский национальный университет имени аль-Фараби

Факультет географии и природопользования

Кафедра географии, землеустройства и кадастра

Магистратура

ПРОГРАММА

**«Управление природопользованием с применением геоинформационных технологий»**

**«7M05204 – Геопространственное управление окружающей средой», 2 курс, а/о**

**Алматы, 2020**

**Лабораторная работа №1**

Topic: Create a bitmap file, apply its formats. Gridding in cartographic projections in the GIS package Arсgis 9.3. 2 hours.
Task: selecting a coordinate system and creating a spatial reference.

**Лабораторная работа №2**

Topic: Working with layers. Create point features on training maps. Scale 1: 200000. Organization of attribute data in a table, its extension. 2 hours.
Task: Create a point shapefile. Working with the attribute table. Editing a layer.

**Лабораторная работа №3**

Topic: Digitize Linear Objects. Organize attribute data. Working with symbols.
Task: Create a Linear Shapefile. Working with the attribute table. Editing a layer.

**Лабораторная работа №4**

Topic: “Digit polygonal objects. Organize attribute data. Working with symbols. "
Task: Create a polygon shapefile. Working with the attribute table. Editing a layer. Converting polygons to lines.

**Лабораторная работа №5**

Topic: “Labeling objects. Basic cartographic rules for labeling geographic objects."
Task: methods of labeling objects on the map. Working with properties and styles of labels on the map.

**Лабораторная работа №6**

Topic: Working with Layer Symbols
Task: methods of labeling objects on the map. Working with properties and styles of labels on the map.

**Лабораторная работа №7**

Topic:"Working with the Maplex Module"
Assignment: Exploring label properties and Maplex functionality. Weight, label category, etc.

**Лабораторная работа №8**

Topic: “Creating a database. Working with the database. Converting shapefiles to a geodatabase. Creating Feature Classes "
Assignment: Create a database, feature datasets, and feature classes. Converting shapefiles to a geodatabase.

**Лабораторная работа №9**

Topic: Working with annotations. Translate labels to annotations
Task: create annotations. Types of annotations and methods of saving them.

**Лабораторная работа №10**

Topic: “Map layout. Card templates. Ways to print a training card "
Task: Map layout. Elements of the map layout: legend, title, north arrow, scale bar, etc. Use ready-made map templates and create your own template. Card printing.

**Лабораторная работа №11**

Topic:"Map Topology".
Task: Creating a topology. Checking map layers for topological correctness. Selection of cartographic rules

**Лабораторная работа №12**

Topic: "Display the qualitative and quantitative characteristics of phenomena on maps."
Task: Create charts on the map (pie, column and stack). Working with the "Connection and communications" function.

**Лабораторная работа №13**

Topic: "What's New in ArcGIS Online"

**Лабораторная работа №14**

Topic:"Additional modules"
Assignment: Working with Toolbox. Exploring the tools of additional GIS modules

**Лабораторная работа №15**

Topic: Working with Google Earth converting geographic data
Task: Converting and working with kml format. Create words in kml and translate in Google Earth

**Литература:**

1. Карманов А.Г., Кнышев А.И., Елисеева В.В. Геоинформационные системы территориального управления: Учебное пособие – СПб: Университет ИТМО, 2015.

2. Esri Press, Мир ArcGIS - Применение The Science of Where – 10 замечательных идей™ , 380 New York Street, Редландс, Калифорния, США 92373-8100 Copyright © 2017 Esri

3. Курлович, Д.М. Геоинформационные методы анализа и прогнозирования погоды : учеб.-метод. пособие / Д.М. Курлович. – Минск : БГУ, 2013.

4. Clemmer, Gina. 2013. The GIS 20: Essential Skills. Redlands California: ESRI Press.

5. Cope, Megan and Elwood, Sarah. 2009. Qualitative GIS: A Mixed Methods Approach. Sage.

6. Harder, Christian; Ormsby, Tim; and Balstrom, Thomas. 2013. Understanding GIS: An ArcGIS workbook. Redlands California: ESRI press.

7. Keranen, Kathryn. 2012. Making Spatial Decisions Using GIS: A Workbook. Redlands California: ESRI Press.

8. Longley, Paul; Goodchild, Michael; Maguire, David; and Rhind, David. 2011. Geographic Information Systems and Science. Wiley