

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 1 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

Ministry of Science and Higher Education of the Republic of Kazakhstan

D.Serikbayev EKTU

APPROVED
 Dean of SDT&AI
 Khasenova Z.T.
 _____2023 y.

RESEARCH METHODS

Syllabus

Programme of Study: 8D07101 Automation and Control Engineering
 Course code: MNI7202
 Number of credits: 5
 Cycle: BD
 Component: UC

Ust-Kamenogorsk, 2023

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 2 of 24
	Quality Management System	И-НАО "БКTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

The syllabus was developed at the «School of Digital Technologies and Artificial Intellect (SDT&AI)» on the basis of the State General Educational Standard for Higher Education approved by the Minister for Education and Science of the Republic of Kazakhstan (Order No. 604 dated 10.31.2018), Rules for organizing educational process based on academic credit system approved by the Minister for Education and Science of the Republic of Kazakhstan (Order No. 563 dated 12.10.2018), Education Program, Work Curriculum, and the Catalog of Elective Courses.

Approved by the Quality Assurance Commission

Chairperson

Zhomartkyzy G.

Date 01.09.2023 y. minutes №1


Head of the educational program

Grigoryeva S.V.
8D07101

Library employee

Developed by

Alontseva D.L.
Professor

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 3 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

1.1 Course Overview

The “Research methods” is the basic discipline of the 8D07101 "Automation and control" specialty's working curriculum, which forms the Ph.D. student knowledge of the basics of the optimal structure of organization and planning of a scientific experiment, management and organization of scientific and technical activities, presentation and discussion of research results and execution of all necessary documents. . The result of studying the course (Learning Outcomes) should be the assimilation by students of the basic concepts and definitions of scientific research; the development of skills and abilities to search and review reliable scientific and technical information; effective planning of research on the topic of the dissertation and presentation of its results in English using modern computer and information and communication technologies.

1.2 Goals and Objectives of the Course

Goals of the course:

The purpose of studying the discipline is to provide students with knowledge about research methods and understanding of the basic principles of organizing and planning scientific research, including the requirements for the choice of research methodology and for the assessment and dissemination of its results, as well as the ability to apply the knowledge gained to planning and conducting original scientific research. As a result, the undergraduate will be able to use modern technologies for searching and analyzing the reliability of scientific information, will be able to work with technical documentation and the necessary software, and will be able to competently plan his own research.

Objectives of the course:

As a result of studying the discipline, the student will acquire:

- knowledge of the main research methods and optimal structure of organization and planning of a scientific experiment, management and organization of scientific and technical activities, presentation and discussion of research results and execution of all necessary documents;
- the ability and skills to search and review reliable scientific and technical information, effective planning of research on the topic of the dissertation and presentation of its results using modern computer and information and communication technologies.

Particular attention will be paid to improving academic English skills in the area of research expertise, in particular reading and writing skills.

The knowledge gained in the “Research methods” course is key for the development of abilities and skills for further independent research.

1.3 Learning Outcomes

Learning outcomes are determined based on Dublin Descriptors for the appropriate educational level and are expressed through competencies.

Core competencies to be formed	Learning outcomes (units of core competencies)	
	Programme of study	Course

KK1 - The ability to apply basic and specialized knowledge in the field of mathematical, natural, humanitarian and economic sciences in complex engineering activities	PO1 - Demonstrate an understanding of the nature and meaning of information, possession of the main methods, methods and means of obtaining, storing, processing information	Students should demonstrate an understanding of the basic concepts of scientific research and its methods and stages, classification of research methods and indicators of the effectiveness of scientific research, the structure of scientific papers, the basics of research planning. Skills: - planning the main stages of research, - working with scientometric databases (including searching for the scientific journal or an author indicators, literature and patent search on information rubrics or key words, etc.) - presenting research results.
KK5 - Ability to work on innovative projects using research methods based on the study of scientific and technical information	PO5 - Perform calculations related to the choice of element parameter values, optimization of these parameters and operating modes using computer equipment	Key competencies: - the ability to apply knowledge of the basic methods of scientific research, their classification and performance indicators, as well as research planning techniques for planning experiments and writing research proposals; - the ability to work with scientometric databases and find information, conduct literary and patent searches, take notes and write a literature review; - practical skills in planning research and presenting its results using computer technology and ICT.

1.3.1 Learning Assessment Policy

Letter system grade	Points (% content)			
	90-100	70-89	50-69	0-49
Traditional assessment	Excellent	Good	Satisfactory	Unsatisfactory

1.4 Educational Technologies Used in the Course

1.4.1 Key Educational Technologies

The following educational technologies are used during the Course:

- technology of research activities;
- technologies of educational and research activities;
- problem -based learning (PBL);
- flipped classroom;
- communication technologies (discussion, press conference, brainstorming, educational debate and other active forms and methods);
- information and communication (including distance educational) technologies

1.4.2 Adaptive Learning Technologies (Inclusive Education)

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 5 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

The following learner-adaptive educational technologies can be used in education for persons with special needs:

- access to electronic teaching aids and the links to Internet resources;
- possibility to submit assignments through the LMS portal.

1.4.3 Innovative

It is planned to use the following forms of training:

Traditional (face-to-face) teaching

The traditional form of education provides:

- the systematic nature of training;
- orderly, logically correct presentation of educational material;
- organizational clarity;
- constant emotional impact of the teacher's personality;
- optimal resource consumption for mass training.

Distance (online) learning

Distance learning provides:

- the systematic nature of training;
- orderly, logically correct presentation of educational material;
- organizational clarity;
- feedback from student and teacher;
- optimal resource consumption for mass training

Forms of organizing distance learning:

1. Lectures (video lectures, multimedia lectures, visualization lectures) using such basic programs as Open EdX, BBB and ZOOM;
2. Practical exercises (practical exercises on solving problems, laboratory work) are also carried out using the Open EdX, BBB and ZOOM platforms, as well as using the distance learning system (DLS);
3. Seminars (network seminars in distributed time mode, web - seminars, expert - seminars);
4. Consultations with a teacher (in real time and in distributed time mode);
5. Summative control (midterm and final control, quizzes, writing assignments, test control, self-control, mutual control).
6. Research work of students (educational and scientific projects, creative projects, participation in distance competitions, conferences)

Blended learning

For this course, it is possible to use one of the following blended learning models, which provides a combination of the above features and advantages of traditional and distance learning:

1. Model "Face to face Driver". A significant part of the curriculum is studied in the classroom with direct interaction with the teacher. E-learning is used as an addition to the main program; most often, work with electronic resources is organized using computers during a training session.
2. Model "Rotation". Study time is allocated between one-to-one e-learning and classroom training with a teacher. The classroom educator also provides distance support for e-learning.
3. Model "Flex". Most of the curriculum is learned in an e-learning environment. The teacher accompanies each student remotely, to work out topics that are difficult to understand, he organizes face-to-face consultations with small groups or individually.
4. Model "Online Lab". The curriculum is mastered in terms of e-learning, which is organized within the walls of an educational institution, as a rule, in classrooms equipped with computer

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 6 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

equipment. Online training is accompanied by teachers. Students, in addition to online courses, can be trained in a traditional form.

6. Model "Online Driver". Most of the curriculum is mastered using electronic resources of the information and educational environment. Face-to-face meetings with a teacher are periodic. The procedures of face-to-face consultations, interviews, examinations are mandatory.

1.5 Prerequisites

This course has no special prerequisites. Any first-year university PhD student can enroll in this course. Since this course is in English, for successful and comfortable learning, students need a certain level of English (required for admission to the PhD degree at the university)

1.6 Postrequisites

The knowledge, skills and abilities acquired during this course will be essential for the successful planning, writing and defense of a PhD thesis.

1.7 Course Workload

Types of classes	hours
Lectures	15
Practice (workshops)	30
SAWTG (Student Autonomous Work under Teacher Guidance)	75
SAW (Student autonomous work)	30
Final assessment method	Exam

2 COURSE CONTENT

2.1 Course Topics

No	Topic, content	Workload (hours)	References
Lectures			
1	Introduction to the course. Goals & Motivation. Why teach classes in English in Kazakhstan? Focus of this course. Benefits from this course. Why have I developed this course? Meeting your instructor. Learning outcomes. About This Course. Course Resources. Syllabus. Basic concepts and definitions. Glossary. Introduction to the Open EdX interface.	1	[1-3]
2	Topic 1. Basic concepts and definitions (relevance, object and subject of research).	1	[1,2, 4, 5]
3	Topic 2. Scientific information and its sources: search, accumulation and processing. How to take lecture notes in English. How to take notes on what you read.	1	[1-5]
4	Topic 3. Concept of science. Hierarchy of Science. Steps of	1	[1, 6-8]



No	Topic, content	Workload (hours)	References
	research process. Rubricators of scientific and technical information. Physics and Astronomy Classification Scheme (PACS), The Law on Science of the Republic of Kazakhstan. State standards and regulations of the Republic of Kazakhstan. State Classifier NTI / SRSTI.		
5	Topic 4. What is Research: Definition, Methods, Types & Examples.	1	[1-4]
6	Topic 5. What is Research Methodology? What is Research Method? What is a Research Plan, and why do you need one?	1	[1-5]
7	Topic 6. Research Performance Indicators. Expert review. Scientometrics (h-index, impact-factor, quartile, percentile). Scientometric databases (Scopus, WoS, Research Gate, Google Scholar). ORCID - Open Researcher and Contributor ID. How to find reliable information.	1	[1,8,9]
8	Wrapping up online meeting, Analysis of assignments (lecture notes, academic CV and individual research plan). Advice. Questions and answers.	1	
9	Topic 7. Different genres of research papers: conference paper and abstract, research and review article (journal articles), research proposal, monograph, book chapter patent review, dissertation (Master thesis). The structure (main components) of research proposal and report. Genre awareness and analysis of written documents.	1	[1, 5,10-12]
10	Topic 8. How to Write a Literature Review? Literature Review of Research Thesis. Introduction section (an article)	1	[1, 12]
11	Topic 9. Participation in a scientific conference. Objectives, types of participation (plenary and oral speech, poster, listener), benefits of participation. The main components of a conference presentation. Abstract. Post-conference publications.	1	[1, 2, 4]
12	Topic 10. How to write a scientific article. Anatomy of a manuscript.	1	[1, 12]
13	Topic 11. Patent system of the Republic of Kazakhstan. Sources of patent documentation. Patent application.	1	[1, 13-17]
14	Topic 12. How to write the PhD thesis. The main components of a PhD thesis and advice on what and how to write.	1	[1, 5, 18-20]
15	Closing online meeting Summing up the course. Analysis of assignments (conference poster and literature review). Advice. Q&A.	1	
TOTAL		30	
Practice (workshops)			
1	Introduction. Teaching materials. How to introduce yourself in English. How to write request emails. Please read these documents (watch the video) which explains how to introduce yourself in English and provides	4	[21-26]



No	Topic, content	Workload (hours)	References
	<p>examples of CVs, resumes and bio. Please introduce yourself (in English). Tell us your field of research and type your introduction in "Chat". You can format the text using the tool bar, add links, etc. Now look at your classmates' posts. Reply to at least one of them!</p> <p>Graded writing assignment 1. Explore the examples of Academic CVs and write yours. Submit your academic CV via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email.</p>		
2	<p>Taking notes. Writing request emails. Listening&Reading. Check out and download the files in this section: presentations (ppt), audio file and documents, read documents and listen to audio in presentations and audio file to the document Symbols and Acronyms. Reading assignment. Read the document and make comments in Perusall. - Find in this text definitions of key (required) moves and highlight them and comment. - Find these moves in the samples of students' request emails, highlight them and write a comment. If some move is missed, indicate it in the commentary. We are going to use an app called Perusall several times this semester. Perusall is a tool developed by faculty at Harvard University to improve students' engagement with reading. We are using Perusall because it lets you have conversations with each other and with me about the texts we read together.</p>	2	[1, 28-31]
3	<p>Rubricators of scientific and technical information. Optional writing assignment 1 1) define as accurately as possible the headings (numbers-letters) of your PhD research. There may be several of them, think and answer, why is it recommended to indicate several numbers? 2) indicate the title of your dissertation (in English and in Russian), the headings (numbers) that you have chosen for it (write down the names of these headings, not only indicate the numbers). 3) answer the question, what are УДК (UDC) and МРПТИ (IRSTI-International Rubricator of Scientific and Technical Information) using the search on the Internet. 4) find and indicate the appropriate UDC and IRSTI for your master's thesis. Submit your assignment via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email</p>	2	[1]
4	<p>Types of research. Research subject and object, research methodology. Optional writing assignment 2 Explore the priority areas for the development of science in the</p>	2	[1, 2, 4, 18-20, 32-39]



No	Topic, content	Workload (hours)	References
	<p>Republic of Kazakhstan. Write (in English) a justification for the relevance of the topic of your research. Indicate the type (basic or applied) of your PhD research. Describe your chosen research methodology and methods. What is the difference between methods and methodology? Write about your research: title, type, relevance, goal, object, subject and methods. Submit your assignment via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email</p>		
5	<p>Making a Research Plan The lesson teaches how to make a research plan, a quick guide to beginning research projects in seven stages or steps: manage your time, consider your situation, choose your topic, read broadly, discover your question and problem, focus your research, and draft a working thesis statement, or hypothesis, to get started. By following this plan, you will work smarter because you'll understand the research plans' complex genre and the required steps to fulfill its generic expectations in view of target audience. You will also save time by avoiding false starts, dead ends, and wandering through the project. You will benefit from understanding or reviewing the research plan and process leading to a quality product. Graded writing assignment 2. Individual research plan (IRP) of dissertation research</p>	4	[5, 40- 41]
6	<p>Scientometric databases. How to find reliable information Optional writing assignment 3 Find the following information on the Scopus database about your (foreign) research advisor: Name and Surname, Affiliation, Research ID, ORCID, h (Hirsh)-index, and 3 (three) publications on a topic close to your research (Title, authors, publication info). Find the following information about these 3 sources</p> <ul style="list-style-type: none"> • Years covered by Scopus: • Publisher: • ISSN: • Knowledge branch: • Source type: <p>CiteScore rating including Category, Rating, Percentile Write down (copy and paste) all this information and submit your assignment via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email</p>	2	[9, 42-44]
7	<p>Different genres of research papers. Literary and patent search Optional writing assignment 4 Find 10 research papers (conference papers, journal articles, monographs, book chapters, patents) for your literature review and make a list of references. Papers should be mostly up-to-date (at</p>	2	[1, 10, 12]

No	Topic, content	Workload (hours)	References
	<p>least published in the last 10 years) Submit this list (references) via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email</p>		
8	<p>How to Write a Literature Review? Optional writing assignment 5 Take the lecture notes on the lecture “Research proposal literature review” https://www.youtube.com/watch?v=bCh_3VqwTnI Submit your assignment via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email Graded writing assignment 3. Literature review on the topic of dissertation research.</p>	4	[45-47]
9	<p>Participation in a scientific conference How to apply for a conference and get a publication? Presentation for the conference: oral, poster. Presentation structure. Features of the presentation: visualization, clarity, brevity, etc. Examples. Optional writing assignment 6 Making a conference poster in English using a provided template. Submit this poster via Open EdX or Distance Learning Platform or send it to your professor (facilitator) by email</p>	4	[48-51]
10	<p>How to write a scientific article? Reading assignment Analyze the structure of a scientific article and make your comments on Perusall. Look for and mark the key components of the article. In which section of the article is the goal set? Find the rationale for the relevance of the study in the introduction. How do the authors show the importance of their research? In what sections do authors write about the significance of their research and its further development? How many literary references were used? Which sections of the paper have the most references? Analyze the writing style. Are personal pronouns used? What tense and form of verbs are mainly used? Who are the target readers of this article? Mark sentences or individual words in the text that indicate the target audience.</p>	4	[52-57]
TOTAL		30	
SAWTG (Student Autonomous Work under Teacher Guidance)			
1	<p>How to take lecture notes, why it is important, different note-taking techniques. Accepted abbreviations. How to take bibliographic notes. Examples of the accepted design of the list of references (APA, AMA, NLM, etc.). Taking lecture notes on the lecture “Let's Write: First Lines and Literature Review of Research Thesis” https://youtu.be/hesAOR17wFc</p>	10	[28-30, 47]
2	How to introduce yourself: curriculum vitae (CV), resume, bio.	5	[8, 9, 21-27,

No	Topic, content	Workload (hours)	References
	Examples. How to find information about a scientist (for example, a potential reviewer)? How to write in English an email to your instructor, research advisor or an editor. Writing an academic CV in English.		31]
3	Acquaintance with the law on science, the state system of scientific and technical information of the Republic of Kazakhstan, with the priority scientific directions of the development of science in the Republic of Kazakhstan, with the sites of the NCSTE (National Center of Science and Technology Evaluation) and CCSES (Committee for Control in the Sphere of Education and Science). D. Serikbayev EKTU website navigation, the Science and Innovation section. The structure and purpose of the research proposal. Search for rubricators of information of your research (UDC and International rubricator of scientific and technical information). Writing in English rationale for the relevance of your research.	15	[6, 7, 18-20]
4	Individual research plan of a PhD student: structure and filling. The main stages of planning a dissertation research: terms and indicators of the plan's implementation. How to plan participation in a scientific conference and a scientific internship? How do you search for conference information? Dubious conferences and events, how to recognize and avoid them. Writing your individual research plan in English.	15	[1,5, 33, 39-41]
5	Peer Review Assignment (Text Review) Use the provided review form and manuscript. Read the manuscript and comment (in English) on the manuscript at Perusall, considering the points of the review form. Read the comments of your classmates and your facilitator. Review the manuscript using the review form. i.e., fill out the review form (in English). Create a Google Doc of your review for comments and share it with the link. You must submit your review as a PDF file to the Open EdX Control window and email the link to your Google Doc to the teacher (to send to your classmate). You will also receive one review and rate and comment on it in Google Doc. The results of the peer review will be submitted for discussion on the forum in order to make the decision of the editorial board about the manuscript. Grading will be carried out within 1 week after submitting your review and its discussion in Google Doc and group discussion on the forum. You will receive (and you will give to your classmate) a maximum of 8 points for completing each of the 8 points of the review form on the second page of the review form and a maximum of 8 points for completing the first page. The final score for this assignment will be the sum of the points for	15	[12, 57]

No	Topic, content	Workload (hours)	References
	each of the items listed, plus 1 point for work at Perusall and 1 point for discussion on the Forum and 2 points for your comments on your classmate's Google Doc review. These will be your extra points for the final grade (20 points maximum possible).		
6	The structure and content of PhD thesis. Anti-plagiarism. Literature review. How to correctly cite research papers, including patents or certificates of intellectual property. Assessment of the success of the dissertation research, assessment criteria. Review. Dissertation abstract. Writing in English a literature review on topic of your research.	15	[1, 5, 45-47]
TOTAL		75	

2.2 Assignments for Student Autonomous Work (SAW)

Topic	Content	Assessment method	Submission date, week	Workload (hours)	Reference to literature
Individual research plan (IRP) of dissertation research.	Write in English an individual research plan on the topic of your dissertation, indicating the deadlines and performance indicators. Research planning includes: the title of your PhD thesis, substantiating the relevance of the research topic, setting goals and objectives, choosing a methodology and substantiating research methods, describing the main idea (hypothesis) of the research, the object and subject of the dissertation research, indicators of plan implementation (for example,	Graded writing assignment IRP of a master's degree student in English.	5	15	[1, 5, 40-41]



Topic	Content	Assessment method	Submission date, week	Workload (hours)	Reference to literature
	<p>completion of the first part of the experiment, publication of an article, presentation at a conference, writing a chapter of a dissertation, scientific internship, presentation at a scientific seminar of your department or faculty, etc.) indicating the time for completing the task. Use a template</p>				
<p>Literature review on the topic of dissertation research.</p>	<p>Write in English a short literature review of your research topic with an up-to-date bibliography. A literature review on the topic of your dissertation should be written on the basis of an analysis of relevant (over the past 10 years) journal articles, books and patents in the field of your research (with a complete list of references). You should use a documentary-note style, which means you put a number in your text to cite sources of information and the reference list is in numerical order. In text citations are in square brackets [1]</p>	<p>Graded writing assignment Literature review in English.</p>	<p>9</p>	<p>15</p>	<p>[1, 45-47]</p>

Type of assignment	Academic period, week									
	1	2	3	4	5	6	7	8	9	10
Knowledge										
IRP					+					
Literature review									+	
Assignments 1-6				+				+		
Comprehension										
IRP					+					
Literature review									+	
Assignments 1-6				+				+		
Application										
IRP					+					
Literature review									+	
Assignments 1-6				+				+		
Analysis										
IRP					+					
Literature review									+	
Assignments 1-6				+				+		

3 ASSESSMENT OF STUDENT KNOWLEDGE

The teacher performs all types of current control and puts an appropriate assessment of the current progress of students twice in the academic period (semester, quarter). According to the results of the current control, a rating of 1 and 2 is formed. At the same time, the student's educational achievements are evaluated by accumulating points for certain types of tasks from 0 to 100. The assessment of the student's work in the academic period is carried out by the teacher in accordance with the schedule of assignments for the discipline. The control system can combine written and oral forms, group and individual forms.

Period	Type of assignments	Number of points (max)	Total
1st midpoint control (rating)	Individual research plan (IRP) of dissertation research (in English)	70	0-100
	Assignments (SAWTG) 1-3 (10 points each)	30	
2nd midpoint control (rating)	Literature review on the topic of dissertation research (in English).	70	0-100
	Assignments (SAWTG) 4-6 (10 points each).	30	
Final control	Exam		0-100

The student's final grade in the course is calculated on a 100 point grading scale, it includes:

- 40% of the examination result;
- 60% of current control result.

The final grade is calculated by the formula:

$$H = 0,6 \frac{P_1 + P_2}{2} + 0,4 \Theta \quad (1)$$

where P1, P2 are numerical values of Rating 1 and Rating 2 correspondingly;
 Θ is the numerical value of the examination grade.

Final alphabetical grade and its equivalent in points:

Point and alphabetical grading system of student achievements and its transfer to the traditional grading scale and ECTS.

Alphabetical grade	Numerical value	Points (%)	Traditional grade	Criterion
A	4.0	95-100	Excellent	The theoretical content of the course has been fully mastered, without gaps, the necessary practical skills of working with the mastered material have been formed, all the learning tasks provided for in the learning program have been completed, the quality of their performance is estimated by the number of points close to the maximum.
A-	3.67	90-94		
B+	3.33	85-89	Good	The theoretical content of the course has been fully mastered, without gaps, some practical skills of working with the mastered material have not been formed sufficiently, all the learning tasks provided for in the learning program have been completed, the quality of none of them has been evaluated with a minimum number of points, some types of tasks have been completed with errors.
B	3.0	80-84		
B-	2.67	75-79		
C+	2.33	70-74		
C	2.0	65-69	Satisfactory	The theoretical content of the course has been partially mastered, but the gaps are not significant, the necessary practical skills of working with the mastered material have been mainly formed, most of the learning tasks provided for in the learning program have been completed, some
C-	1.67	60-64		
D+	1.33	55-59		
D	1.0	50-54		

Alphabetical grade	Numerical value	Points (%)	Traditional grade	Criterion
				of the completed tasks may contain errors.
FX	0.5	25-49	Unsatisfactory	The theoretical content of the course has not been mastered, the necessary practical work skills have not been formed, the completed learning tasks contain gross errors, additional independent work on the course material will not lead to a significant improvement in the quality of the learning tasks.
F	0	0-24		

Effort Score

You will receive an effort score for this course which is separate from your grade according to this scale for effort scores:

1 = Exemplary

2 = Satisfactory

3 = Unsatisfactory

Your effort score is based on your attendance, punctuality, completion of assignments, engagement, interaction, and behavior. The Effort Score Rubric at the **Additional Policies section** of this syllabus explains how your teacher will assign your score.


To pass this course on OpenEdX and receive a certificate, you must have completed at least 70 % of all course assignments (written assignments, quizzes, tests, peer review assignment). You must also have a C or better grade point average.

4 COURSE POLICY

Student Responsibilities

You are responsible for:

- Completing all quizzes, tests, and assignments on time
- Participating actively in class in English
- Following directions accurately and asking questions when you do not understand
- Being prepared for all classes, including after an absence
- Using effectively the technical means provided by the University, using economically and rationally energy and other material resources of the University, taking measures to ensure the safety of this property. In the event of material damage to the University, students are obliged to compensate it in accordance with civil law
- Being disciplined, maintain cleanliness and order at the University
- Observing generally accepted ethics of behavior and communication
- Observing safety regulations, fire safety
- Observing all required sanitary standards, including, when required, wearing disposable medical or protective masks; using hand sanitizers and personal pens; social distancing - at least 1.5-2 meters from each other; avoiding shaking hands or other forms of direct contact

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 18 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

Attendance and Absence Policies for Remote Learning

1. You are marked absent if you do not come to class for any reason.
2. The class starts on time. If you arrive after the class starts, you will be marked late. A late arrival counts as 1/3 of an absence. If you arrive more than 15 minutes late, you will be marked absent.
3. To benefit fully from your learning experience, you are expected to remain in the room for the whole class period. If you have to leave the room, return to the class as quickly as possible. If you leave the class for an excessive period of time or for a non-essential purpose, you may be marked absent at the teacher's discretion. If you have a special medical need that requires you to leave the class, you should give the administration of your University documentation which describes your medical condition.
 - If you know you have to be absent, inform your teacher as soon as possible.
 - You are responsible for knowing what you missed and what homework is due.
 - You cannot make up missed, graded in-class assignments unless you make arrangements with your teacher in advance. Some assignments may not be submitted late.

Disciplinary Violations

Academic dishonesty

- Stealing an exam
- Giving another student an answer during a test
- Handing in work or papers written by someone else
- Posing as someone else to take a test for them

Attendance problems

- Arriving late to class more than three times
- Missing too many classes

Cheating

- Stealing an exam (either physically or electronically)
- Giving another student an answer during a test
- Handing in work or papers written by someone else
- Posing as someone else to take a test for them
- Copying an answer from another student's paper/test
- Peeking at notes when notes are not to be used during an exam

Disruptive classroom behavior

- Talking to another student while class discussion is going on or while the teacher is speaking to the whole class
- Making other distracting noises or gestures
- Verbally or physically threatening another student or the teacher

Plagiarism

- Stealing another person's idea or illustration and using it as one's own without giving credit to the original author or source
- Copying sentences of paragraphs directly from an article or book to use in an essay without giving credit to the original author

For violation by a student of the obligations stipulated by the legislation of the Republic of Kazakhstan, these Rules and other local regulations of the University, the following disciplinary sanctions may be applied to the student: rebuke; expulsion from the University.

It is prohibited on the territory of the University:

- behavior that hinders the normal work of the relevant unit;
- smoking tobacco outside of places specially designated and equipped for this;
- the use of alcoholic beverages, including low alcohol;
- storage, use and distribution of drugs of toxic and narcotic intoxication, as well as their precursors (the list of which is determined by the legislation of the Republic of Kazakhstan);
- gambling;
- drunkenness, drug or toxic intoxication;
- appearance with animals;
- storage, distribution and use of explosives and pyrotechnics;
- stay in outerwear and headdresses, as well as eating in classrooms during classes.

Additional Policies

Effort Score Rubric

	Effort Score of 1 <i>(Exemplary)</i>	Effort Score of 2 <i>(Satisfactory)</i>	Effort score of 3 <i>(Unsatisfactory)</i>
Attendance and punctuality	<p>The student is rarely, if ever, absent, attending at least 90% of the classes.</p> <p>The student is rarely, if ever, late.</p> <p><i>Note:</i> Students should not be given a score of 1 based <i>only</i> on attendance or punctuality.</p>	<p>The student attends class most of the time, attending at least 85% of the classes.</p> <p>The student arrives for class on-time for most class meetings.</p>	<p>The student has excessive absences, perhaps exceeding the absence limit required to obtain a certificate.</p> <p>The student is frequently late.</p>
Completion of Assignments	<p>The student consistently completes assignments on time.</p>	<p>The student usually completes assignments on time</p> <p>The student makes up missed work if possible.</p>	<p>The student frequently fails to complete the required assignments.</p> <p>The student fails to make up missed work.</p>
Engagement/Interaction	<p>The student consistently pays attention in class and participates in class activities by asking</p>	<p>The student usually pays attention in class and participates in class when called on.</p>	<p>The student frequently demonstrates a lack of engagement by not participating in class.</p>

relevant questions.

The student seeks help and clarification when necessary.

Behavior/Respect	The student demonstrates exemplary behavior (e.g., by observing the English-only policy.)	The student generally observes class rules and the course policies, such as the English-only policy.	The student engages in disruptive behavior, making it more difficult for the teacher to teach and more difficult for other students to learn.
	The student consistently shows respect to teachers and classmates.	The student generally shows respect to teachers, and classmates.	The student shows a consistent lack of respect for students, teachers, policies, rules, course objectives, etc.

Final exam questions

1. Basic concepts and definitions: relevance, object and subject of research.
2. What is research: definition, motivation and objectives.
3. Characteristics of research (controlled, rigorous, systematic, valid and verifiable, empirical and critical, ethical)
4. Stages of the research process
5. Different types of research: Basic (Fundamental) Research, Applied Research, Evaluation Research, Action Research
6. Research approaches (Inductive and Deductive, Quantitative and Qualitative; Experimental/Simulation/Qualitative methods)
7. What are research methods? Examples
8. What is the research methodology? Research Methods versus Methodology
9. Hierarchy of science. Classification of science (UDC, PACS, DOI).
10. What are the structure and characteristics of the scientific method of research?
11. What are the methods of empirical research?
12. Research methods and their components.
13. Classification of research methods.
14. Methods used at the stage of problem identification.
15. Methods of obtaining primary information.
16. Methods of data analysis and representation (Graphical, Mathematical, Statistical methods)
17. Research methods based on the examination of documents.
18. The literature reviews. Search for the information (the patent and literature search)
19. Expert evaluation of scientific works. Who are the experts? Criteria for evaluation. Peer review.

	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 21 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

20. Research planning. Planning an experiment.
21. Methods of verification of research results.
22. Presentation and discussion of research results. Conference talk. Main components of the conference presentation (oral/poster presentations)
23. The anatomy of manuscript. The structure of a scientific article.
24. Typical structure of a Master's Thesis.
25. The structure of a research proposal.
26. The right of intellectual property to the result of scientific and technical activities. Copyright.
27. Scientometric databases. State system of scientific and technical information in the Republic of Kazakhstan.
28. Basic requirements for dissertation research (i.e., PhD Thesis) and criteria for its assessment in the Republic of Kazakhstan
29. The main criteria for evaluating the research project.
30. Stages of scientific research from the idea to the realization of a scientific product (including patenting).

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	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 22 of 24
	Quality Management System	И-HAO "BKTY" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

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	D. SERIKBAYEV EAST KAZAKHSTAN TECHNICAL UNIVERSITY		Page 24 of 24
	Quality Management System	И-HAO "БКТУ" 026-II-2021 Development and design of a working curriculum (syllabus) in the NAO «D. Serikbayev EKTU»	

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