<table>
<tr><td>Name of subject</td><td>Scientific research and academic-pedagogical work, preparation of a master's dissertation (ECTS 38)</td></tr>
<tr><td>Subject/module code</td><td>ITIMDT3123438</td></tr>
<tr><td>Science taught semester (s).</td><td>1st / 2nd / 3rd / 4th semesters</td></tr>
<tr><td>Responsible teachers</td><td>Abdullaev Elnur Akhmatovich, Doctor of Philosophy (PhD) in Technical Sciences, Associate Professor
Anarboev Mukhiddin Almanovich, Doctor of Philosophy (PhD) in Technical Sciences, Associate Professor
Nazarov Furkat Daminovich, Doctor of Philosophy (PhD) in Technical Sciences, senior teacher.
Yuldashe Urishbay, Doctor of Physics and Mathematics, professor
Parsoxonov Abdulkobi Gafurovich, Candidate of Physical and Mathematical Sciences, Associate Professor.</td></tr>
<tr><td>Education language</td><td>Uzbek</td></tr>
<tr><td>Connection to the curriculum</td><td>Compulsory</td></tr>
<tr><td>Training hours (this including independent education)</td><td>Total hours-1140
<table><tr><td>Semesters</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Total workload</td><td>180</td><td>90</td><td>270</td><td>600</td></tr></table></td></tr>
<tr><td>ECTS</td><td>38</td></tr>
<tr><td>The purpose and tasks of discipline / learning outcomes</td><td>The purpose of the discipline is to prepare the master's student for independent research and pedagogical work, the main result of which is writing a master's thesis, conducting experiments, organizing pedagogical practice, and successfully defending the dissertation.
Learning outcomes
- the ability to apply methods of scientific knowledge in independent research activities, generate and implement innovative ideas;
- own the methodology of scientific knowledge, be able to analyze and evaluate the content and level of philosophical and methodological problems when solving problems of research and innovation activities;
- designing and conducting comprehensive, systematic scientific research based on knowledge and skills in the field of energy, including innovative studies;
- have the skills to use modern information technologies to solve research and innovation problems;
- conducting scientific research activities in the field of energy using modern research methods and information and communication technologies;
- adapt the results of modern energy and technical research to solve problems in the electric power system.</td></tr>
<tr><td>Course content (topics)</td><td>1. The relevance and necessity of the scientific research topic.
2. Selecting and Approving a Master's Thesis Topic.
3. The purpose and objectives of the master's dissertation.
4. The procedure and rules for structuring the dissertation contents.
5. The procedure and methods for conducting a literature review within the scope of the dissertation topic.
6. Conducting experiments within the scope of the dissertation work.
7. Conducting Experimental Research on the Scientific Topic, Summarizing and Analyzing the Results.
8. Preparing and Publishing Scientific Theses and Articles Based on the Research Conducted and the Results Obtained for the Master's Dissertation.</td></tr>
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	9. Applying the Research Conducted and Its Results from the Master's Dissertation to Practical Use. 10. Studying Existing Problems in Practice within the Framework of the Master's Dissertation and Developing Recommendations for Their Scientific Solutions. 11. Participating in Various Conferences and Scientific Seminars and Delivering Presentations Based on the Conducted Research Work.
Exam form	The report will be submitted in the form of a presentation
Teaching/learning and examination requirements	No more than 3 days are allotted for drawing up the final report, during which masters put their individual plan in order, prepare written reports, and prepare presentations. Each masters submits the following materials: - Report text; - Individual plan and characteristics from the supervisor; - Presentations of master's students-interns in electronic form. The credit for research activities (practice) is accepted by the commission in accordance with the approved order, in the presence of all masters and their supervisors. During the certification, the competencies of master's students-interns, which they mastered in the process of carrying out research activities (practice), are assessed.
Criteria for assessing student knowledge	

5 grade	100 points		Assessment criteria
5	90-100	Excellent	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 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.

Criteria for evaluating students' scientific research, pedagogical work, and the tasks completed during the preparation of their master's thesis

S/n	Name of events and tasks	Allocated points	Report form
1	The relevance and necessity of the scientific research topic.	0-5	A report in the form of a presentation will be prepared on the relevance and necessity of the research topic.
2	Selecting and Approving a Master's Thesis Topic.	0-5	A report in the form of a presentation will be prepared on the selection and approval of the

				master’s thesis topic
	3	The purpose and objectives of the master's dissertation.	0-5	A report in the form of a presentation will be prepared on the objectives and tasks of the master’s thesis
	4	The procedure and rules for structuring the dissertation contents.	0-5	A report in the form of a presentation will be prepared on the structure and formatting rules of the thesis content
	5	The procedure and methods for conducting a literature review within the scope of the dissertation topic	0-10	A report in the form of a presentation will be prepared on the procedure and methods of analyzing literature related to the thesis topic
	6	Conducting experiments within the scope of the dissertation work.	0-15	A report in the form of a presentation will be prepared on conducting experiments within the framework of the thesis wor
	7	Conducting Experimental Research on the Scientific Topic, Summarizing and Analyzing the Results.	0-15	A report in the form of a presentation will be prepared on conducting experimental research on the scientific topic, summarizing and analyzing the results
	8	Preparing and Publishing Scientific Theses and Articles Based on the Research Conducted and the Results Obtained for the Master's Dissertation.	0-10	A report in the form of a presentation will be prepared on preparing and publishing scientific theses and articles based on the conducted research for the master’s thesis.
	9	Applying the Research Conducted and Its Results from the Master's Dissertation to Practical Use.	0-10	A report in the form of a presentation will be prepared on the practical application of the research and its results conducted within the framework of the master’s thesis
	10	Studying Existing Problems in Practice within the Framework of the Master's Dissertation and Developing Recommendations for Their Scientific	0-10	A report in the form of a presentation will be prepared on studying existing practical problems within the thesis framework and developing scientific recommendations for their solution

	Solutions.		
11	Participating in Various Conferences and Scientific Seminars and Delivering Presentations Based on the Conducted Research Work.	0-10	A report in the form of a presentation will be prepared on participating in various conferences and scientific seminars and delivering presentations based on the conducted research

* Note: 60% of the points allocated for current and intermediate control are allocated to independent work assignments. Independent work assignments are evaluated as system assignments through the electronic platform.

Recommended Literature

Main literature:

1. Raxmonov I.U., Niyozov N.N., I.B.Baxadirov., S.K.Maxmutxonov. Elektr ta'minoti tizimida energiya tejamkorligi. Darslik. Toshkent: 2020- 212 b.
2. Hoshimov O.O., Imomnazarov A.T. Elektr mexanik tizimlarda energiya tejamkorligi. Toshkent-2015. "Fan va texnologiya" nashriyoti.
3. Yusupbekov N.R., Muxitdinov D.P.. Texnologik jarayonlarni modellashtirish va optimallashtirish asoslari. -T.: «Fan va texnologiya», 2015, 440 bet.
4. Toshpo'latov N.T., Qodirov D.B. Qayta tiklanuvchi energiya manbalari fanidan o'quv qo'llanma Toshkent – 2020 20-bet.
5. Karimov R.Ch., Rafiqova G.R., Usmanov E.G. «Elektr xavfsizligi asos-lari». Darslik. – T.: ToshDTU, 2020, - 283 b.

Additional literature:

6. Hakimov T.H. Elektr taminoti tizimini montaji va ishlatish.O'quv qo'llanma. Toshkent - 2020. 319 b.
7. Taslimov A.D., Karimov R.Ch. «Energiyadan ratsional foydalanish va elektr energiya sarfini me'yorlash». O'quv qo'llanma. – T.: ToshDTU, 2020. – 160 b.
8. Hakimov T.H., Jalilov M.X. ва Niyozov N.N. Elektr texnologik qurilmalar. Darslik. Toshkent: - 2020. 402 b.
9. General Aspects of Energy Management And Energy Audit. Guide Book For National Certification Examination For Energy Auditors and Managers.
10. Xoshimov F.A., Taslimov A.D.. Energiya tejamkorligi asoslari. O'quv qo'llanma. – T.: "Voris", 2014 – 192 bet.

Internet resources:

www.ziyonet.uz – national educational materials search site.

www.google.com – international educational materials search site.

www.twirpx.com – international educational materials search site.