[A-3]COURSE SYLLABUS

1. Course Description (Approximately 100 words)

The course «Introduction in a specialty (Thermal Power Engineering)" is aimed at developing students “professional competence” ability and willingness to analyze scientific and technical information, to study national and international experience on the subject of research. For high quality, mastering discipline student should know: the laws of conservation and transformation of energy; principles of production of heat and electricity; be able to apply the methods of searching and processing information; analyze information; execute abstract works; to debate and controversy. The discipline of «Introduction in a specialty (Thermal Power Engineering)" is the base for the study of the following disciplines: water, fuel supply and fuel economy, boilers and steam generators. In short, form available to freshmen explains energy development trends, what disciplines will be taught during the training and the connection between them, the importance of their chosen profession.

2. Course Goals and Objectives (Approximately 100 words)

The purpose of development is to provide the students a clear understanding of the chosen specialty, the specifics of the industry and its importance in the national economy.
To discipline are skills that allow you to: Compile, analyze information, goal setting and a choice of ways to achieve it; analyze the scientific and technical information, to study national and international experience on the subject of research. Because of the development of the discipline «Introduction in a specialty (Thermal Power Engineering)" should be formed following competencies: capacity in terms of science and changing social practice revaluation of experience, analysis of their capabilities, willingness to acquire new knowledge, use a variety of tools and technology training. Also, the student must demonstrate the development of this competence by the descriptors "knowledge, skills, possession of" appropriate discipline thematic modules, and applicable in their further studies and professional activities.

3. Textbook (Title, Author, Publisher, Year of Publication, etc.)

1. Roland Wengenmayr, Thomas Buhrke, William D. Brewer. Renewable Energy: Sustainable Energy Concepts for the Energy Change) WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim. Germany.2013.164 p.
2. Deshmukh Y.V. Industrial Heating. Principles, Techniques, Materials, Applications, and Design Taylor & Francis. 2005. 775 p.
3. Mukund R. Patel. Wind and Solar Power Systems Design, Analysis, and Operation Published in 2006.
4. Kehlhofer R., Rukes B., Hannemann F., Stirnimann F. Combined-Cycle Gas & Steam Turbine Power Plants Pennwell Corp (USA). 2009. — 430 p.

4. Reference

The course «Introduction in a specialty (Thermal Power Engineering)" of students studying in the 1th year in a volume of 86 hours, including 36 hours on the general lectures and 18 hours of practical exercises. On the independent work of the curriculum is given 32 hours. Students must perform two tests, course project and protect one exam.

5. Course Requirements and Grades

Fund assessment tools to evaluate the knowledge, skills and competences acquired level. Fund assessment tools for the discipline «Introduction in a specialty (Thermal Power Engineering)" includes: Exam fees; Exam questions; Questions offset; Options for homework; A set of control options work; Test suite; Tasks for training in an interactive way.
Quality assessment of the development program of the discipline "Introduction in a specialty (Thermal Power Engineering)" includes the current control of progress, intermediate certification (in absolute value), and the final certification. Students are given the opportunity to evaluation content, organization and quality of the educational process. CAT 70%, EXAM 30%.

6. Course Calendar

Week	Main Content
1	The role of energy in the economy.
2	Fuel and energy resources.
3	The role of energy in the progress of technology.
4	Types and reserves of energy resources.
5	The use of energy resources.
6	Production of heat energy.
7	Fuel and fuel types.
8	Generation of electrical energy.
9	Combined cycle power plant.
10	Hydroelectric power plants.
11	Nuclear Power Plants.
12	Alternative energy sources.
13	Solar power engineering.
14	Energy and Environmental Protection.