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## Annotation to the work program of the discipline

|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name disciplines                                                                   | <b>Материаловедение и ТКМ / Materials Science</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Brief content                                                                      | <p>Materials Science:<br/>         structure of metals; theory of alloys; plastic deformation and mechanical properties, the effect of heating on the structure and properties deformed metal, iron and its alloys, cermet alloys, refractory metals and their alloys, non-metallic materials, polymer, rubber, silicate, wood, composite, methods to increase the durability of products, new materials, used in the oil and gas industry.</p> <p>Structural technologymaterials:<br/>         basics of production of materials, basics of metallurgical production, powder metallurgy, deposition of materials, methods obtaining blanks, welding production, soldering, composite materials, electrophysical and electrochemical processing methods surfacesblanks.</p> |
| results development disciplines (module)                                           | participates in the collection and processing of primary materials on the instructions of the management of the design service;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| labor input, cu                                                                    | <b>4</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Reporting Forms (including by semesters)                                           | Graded (grading)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>List of basic and additional literature necessary for mastering disciplines</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Main literature                                                                    | 1. Material science and technology of materials: study guide / ed. A. I. Batysheva, A. A. Smolkina. - M. : INFRA-M, 2012. - 288 p.<br>2. Volkov G.M. Materials science: a textbook for universities / [G.M. Volkov G.M., Zuev V.M.] - M. : Infa-engineering, 2012. - 448 p.<br>3. Arzamasov, V. B. Materials science and technology of structural                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                    | materials: textbook / [V. B. Arzamasov, A. N. Volchkov, V. A. Golovin and others]; ed. V. B. Arzamasova, A. A. Cherepakchina. - 2nd ed., erased. - M.: Infa-engineering, 2011. - 448 p.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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| <p>Additional literature</p> | <ol style="list-style-type: none"> <li>1. Materials science and technology of structural materials: study guide / [O. S. Komarov, V. N. Kovalevsky, L. F. Kerzhentseva and others]; under total ed. O. S. Komarova. - 3rd ed., Rev. and additional - Minsk: New knowledge, 2009. - 670 p.</li> <li>2. Arzamasov, V. B. Materials science and technology of structural materials: textbook / [V. B. Arzamasov, A. N. Volchikov, V. A. Golovin and others]; ed. V. B. Arzamasova, A. A. Cherepakhina. - 2nd ed., revised. - M.: Academy, 2009. - 448 p.</li> <li>3. Kolesov, S. N. Material science and technology of structural materials: a textbook for universities / [S. N. Kolesov, I. S. Kolesov]. - 2nd ed., revised. and additional - M.: Higher School, 2008. - 536 p.</li> </ol> |
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