**CLASS ROOM WORK**

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| **Module 1. RANS** | |
| 1 | Lecture 1. The nature of turbulent flows |
| **Lab.** Performance of laboratory work №1. Related exercises |
| 2 | Lecture 2. Averaging procedure for Navier-Stokes equation |
| **Lab.** Performance of laboratory work №2. Related exercises |
| 3 | Lecture 3. Local similarity principle in turbulent transport theory |
| **Lab.** Performance of laboratory work №3. Related exercises |
| **IWST 1.** Consultation on the IWS 1 implementation |
| **IWS 1.** Import objects from AutoCAD into 3DsMax |
| 4 | Lecture 4. Equations for Reynolds Stress Velocity |
|  | **Lab.** Performance of laboratory work №4. Related exercises |
| 5 | Lecture 5. Semi-empirical relations and hypotheses  closures for the equation of second moments |
| **Lab.** Performance of laboratory work №5. Related exercises |
| **IWST 2.** Consultation on the IWS 2 implementation. |
| Independent work of student with teacher: IWST. |
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| 6 | Lecture 6. Pulsation structure of turbulent  flows in a homogeneous medium |
| **Lab.** Performance of laboratory work №6. Related exercises |
| 7 | Lecture 7. Influence of Archimedean forces on the structure of turbulence |
| **Lab.** Performance of laboratory work №7. Related exercises |
| 8 | Lecture 8. Pulsation structure of turbulent flows in a stratified environment |
| **Lab.** Performance of laboratory work №8. Related exercises |
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| **IWS 3.** Independent work of student with teacher: IWST. |
| 9 | Lecture 9. Influence of temperature and concentration on  the structure of turbulent flow |
| **Lab.** Performance of laboratory work №9. Related exercises |
| 10 | Lecture 10. Pulsation structure of turbulent transverse flows of the conducting liquid magnetic field |
| **Lab.** Performance of laboratory work №10. Related exercises |
| **IWST 4.** Independent work of student with teacher: IWST. |
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| 11 | Lecture 11. Pulsation structure of turbulent flows in a curved domain |
| **Lab.** Performance of laboratory work №11. Related exercises |
| 12 | Lecture 12. Pulsation structure of turbulent admixture transfer in curved domain |
| **Lab.** Performance of laboratory work №12. Related exercises |
| 13 | Lecture 13. The influence of rotation, stratification, and magnetic fields on turbulence |
| **Lab.** Performance of laboratory work №13. Related exercises |
| 14 | Lecture 14. The influence of magnetic fields the MHD equations |
| **Lab.** Performance of laboratory work №14. Related exercises |
| 15 | Lecture 15. Turbulence total energy balance |
| **Lab.** Performance of laboratory work №15. Related exercises |
| **IWST 5.** Consultation on the IWS 5 implementation |
| Independent work of student with teacher: IWST |
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