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| **UNIVERSITY OF NIŠ** | | | | | | | | | |
| **Course Unit Descriptor** | | | **Faculty** | | | Faculty of Mechanical Engineering | | | |
| **GENERAL INFORMATION** | | | | | | | | | |
| Study Program | **Mechanical Engineering** | | | | | | | | |
| Study Module (if applicable) | - | | | | | | | | |
| Course Title | Theory and stability of composite plates and shells | | | | | | | | |
| Level of Study | ☐Bachelor | | | | ☐ Master’s | | | | ☒ Doctoral |
| Type of Course | ☐ Obligatory | | | | ☒ Elective | | | | |
| Semester | ☐ Autumn | | | | ☒ Spring | | | | |
| Year of Study | II | | | | | | | | |
| Number of ECTS Allocated | 10 | | | | | | | | |
| Name of Lecturer/Lecturers | Ratko Pavlovic | | | | | | | | |
| Teaching Mode | ☒ Lectures | | | ☐ Group tutorials | | | | | ☒ Individual tutorials |
| ☐ Laboratory work | | | ☒ Project work | | | | | ☒ Seminar |
| ☐ Distance learning | | | ☐ Blended learning | | | | | ☐ Other |
| **Purpose and Overview (max. 5 sentences)** | | | | | | | | | |
| Introducing students to vibration and stability of composite plates and shells. Gaining knowledge of vibration and stability of composite plates and shells. | | | | | | | | | |
| **Syllabus (brief outline and summary of topics, max. 10 sentences)** | | | | | | | | | |
| *Theory classes:*  Vibration of composite plates. Basic differential equation of buckling and vibration. Limitations and assumptions. Boundary conditions. Differential equations of the buckling of composite plates. Differential equations vibration composite plate. Buckling and vibration specially orthotropic, symmetric angle, transverse and antisymmetric simply supported antisymmetric angle-ply laminated plates. Determination of the stability condition plate under the action of constant compressive force in the plane of the board. Determination of the natural frequencies plate Vibration of composite shells Basic dynamic buckling differential equations and vibration. Limitations and assumptions. Boundary conditions. Differential equations of composite shell buckling. Differential equations vibration composite shell. Buckling and vibrations specially orthotropic and transverse antisymmetric simply supported laminated cylindrical shells. Determination of conditions of stability of shells under the influence constant axial and radial forces. Determination of the natural frequencies of laminate cylindrical shells**.**  *Guided independent research:*  Prepare students for research in their doctoral dissertation. | | | | | | | | | |
| **Language of Instruction** | | | | | | | | | |
| ☒Serbian (complete course) | | ☒ English (complete course) | | | | | | ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course) | |
| ☐Serbian with English mentoring | | ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | |
| **Assessment Methods and Criteria** | | | | | | | | | |
| **Pre exam Duties** | | **Points** | **Final Exam** | | | | **Points** | | |
| **Activity During Lectures** | | **0** | **Written Examination** | | | | **0** | | |
| **Practical Teaching** | | **40** | **Oral Examination** | | | | **Max. 60** | | |
| **Teaching Colloquia** | | **0** | **Overall Sum** | | | | **100** | | |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | | | | |