



## COURSE DATASHEET

<b>Semester:</b>	2015/16/1
<b>Course:</b>	Applied Mechanics
<b>Code:</b>	VEMKGEM244M
<b>Responsible department:</b>	Institute of Mechanical Engineering
<b>Department code:</b>	MKGEI
<b>Responsible instructor:</b>	dr. Imre Timár

---

### Course objectives:

To know of special fields of mechanics.

### Course content:

1. Finite element analysis: Background of the method, history. 2. Finite element analysis: Energy methods, discrete systems. 3. Finite element analysis: Rayleigh-Ritz method applied to a tensioned rod. 4. Finite element analysis: Method of structural analysis, stiffness matrix of a tensioned rod in local coordinate system. 5. Finite element analysis: Stiffness matrix of a tensioned rod in global coordinate system. 6. Finite element analysis: 2D-problems, theory. 7. Finite element analysis: 2D-problems, problem solving with computer program. 8. Torsion of thin walled beams with open and closed cross section. 9. Fundamentals of the plate theory. 10. Sandwich constructions (beams, plates, shells). 11. Sandwich constructions (beams, plates, shells). 12. Flexible beams planar bending swingung. 13. Prismatic beams longitudinal and torsion swingungs. 14. Prismatic beams bending swingungs.

### Requirements, evaluation and grading:

### Required and recommended readings:

Dr. Fodor Tamás-Dr. Orbán Ferenc-Dr. Sajtos István: Mechanika, Végeselem-módszer, Elmélet és alkalmazás, Szaktudás Kiadó Ház, Budapest, 2005. M. Csizmadia Béla-Nándori Ernő: Mechanika mérnököknek, Modellalkotás, Nemzeti Tankönyvkiadó, Budapest, 2003. Farkas, J.: Fémszerkezetek. Tankönyvkiadó Budapest, 1983. Koshade, R.: Die Sandwichbauweise. Ernst and Sohn, 2000. Dr. Hering: Analitikus Mechanika I. Tankönyvkiadó, 1986.