

## **Mathematics A3 for Mechanical Engineers (BMETE90AX10)**

Lecturer: *Dr. Peter Moson* (www.math.bme.hu, +3614632690, +36309329626).

Office: H. building 41. Office hours: Wednesday 7-8 a.m.

*Prerequisites:* Mathematics A1, A2.

*Detailed program:*

Classification of differential equations. Separable ordinary differential equations, linear equations with constant and variable coefficients, systems of linear differential equations with constant coefficients. Some applications of ODEs. Scalar and vector fields. Line and surface integrals. Divergence and curl, theorems of Gauss and Stokes, Green formulae. Conservative vector fields, potentials. Some applications of vector analysis. Software applications for solving some elementary problems. (4 hours/4 credits)

*Literature:*

**Thomas' Calculus** by THOMAS, G.B. et al. Addison-Wesley, Several editions. (ISBN0321185587)

K.F.RILEY,M.P.HOBSON,S.J.BENCE. Mathematical methods for physics and engineering. Cambridge University Press 1998 (reprinted 2000). (ISBN 0 521 55529 9 paperback)

*Grading system:*

There will be 2 mid-term tests. The mark will be calculated: 2\*50% from the tests. A minimal result of 15% is required from each test. The planned dates of the midterm tests: October 10, November 28, 2017. Marks: 0-39 fail (1), 40-54 pass (2), 55-69 satisfactory (3), 70-84 good (4), 85- (excellent (5). Make up tests: December 5, 2017. One test can be repeated / improved in the week right after the semester (for extra fee): Dec 12, 2017.

***Good Luck, Have a Nice Semester!***