

## **REA2032 Mathematics 20 - Civil/Mechanical Engineering Mathematics - 2008-2009**

**Course code:**

REA2032

**Course name:**

Mathematics 20 - Civil/Mechanical Engineering Mathematics

**Course level:**

Bachelor (syklus 1)

**ECTS Credits:**

10

**Duration:**

Autumn

**Language of instruction:**

Norwegian

**On the basis of:**

REA1042, REA1051

**Expected learning outcomes:**

The students should be able to use the topics of the course in mathematical modelling and thereby solving practical technological problems.

**Topic(s):**

Dynamic modelling:

Differential equations, numeric solutions.

Definition and properties of Laplace transform, inverse Laplace transforms, solving linear differential equations, transfer functions and block diagrams.

**Series:**

Geometric series, power series, Taylor series, series convergence, convergence tests.

**Fourier series:**

Periodic functions, trigonometric functions, Fourier series, odd and even functions, half-range periodic extension.

Functions of several variables:

Graphs, partial derivatives, finding maximum and minimum points, total differential.

**Teaching Methods:**

Lectures

Exercises

**Form(s) of Assessment:**

Written exam, 4 hours

**Grading Scale:**

Alphabetical Scale, A(best) – F (fail)

**External/internal examiner:**

All student works is evaluated by the internal examiner.

An external examiner will be used periodically (every 3 to 4 years)

**Re-sit examination:**

A re-sit examination will be held if necessary.

**Tillatte hjelpemidler:****Examination support:**

Approved calculator .

Haugan, J. Tabeller og formelsamling. NKI-forlaget. ISBN 82-562-2483-5

**Academic responsibility:**

Faculty of Technology, Economy and Management

**Course responsibility:**

Høgskolelektor Jon Sveen Haugen

**Teaching Materials:**

Croft, Davison, Hargreaves: Engineering Mathematics. Prentice Hall. ISBN 0 130 26858 5

Lorentzen, Hole, Lindstrøm: Kalkulus med en og flere variable, Universitetsforlaget. ISBN 82-00-42433-2

Hans Engenes: "Om periodiske funksjoner og Fourierrekker" (free paper)

**Publish:**

Yes