Faculty of Health, Science and Technology
Physics

Syllabus

Mathematical Physics II

Course Code:	FYGC08
Course Title:	Mathematical Physics II *Matematisk fysik II*
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

Major Field of Study:
FYA (Physics)

Course Approval
The syllabus was approved by the Faculty of Health, Science and Technology 2014-12-01, and is valid from the Autumn semester 2015 at Karlstad University.

Prerequisites
Mathematics 30 ECTS cr, including Mathematical Physics I or Complex Analysis and Transforms, or Tensors, Complex Analysis and Transforms, and Physics 45 ECTS cr, or equivalent

Learning Outcomes
Upon completion of the course, students should be able to:
- give an account of physical problems leading to partial differential equations,
- give an account of and apply some other important mathematical structures and methods used in physics,
- give an account of and solve important differential equations in physics for several types of boundary conditions,
- give an account of and apply important orthogonal function systems.

Content
Physical problems leading to partial differential equations, properties of linear partial differential equations, choice of coordinate system, separation of variables, the Frobenius' method, non-homogeneous equations, singular points, Green's functions, Sturm-Liouville theory, Fourier series, as well as other function systems of relevance to physics such as the Gamma function, Bessel functions, Legendre functions, Hermite functions and Laguerre functions.

Reading List
See separate document.

Examination
Assessment is based on a written exam, oral exam and hand-in assignments.

Grades
One of the grades Distinction (VG), Pass (G) or Fail (U) is awarded in the examination of the course. Engineering students are awarded one of the grades 5 (Pass with Distinction), 4 (Pass with some Distinction), 3 (Pass) or U (Fail).

Quality Assurance
Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate
A course certificate will be provided upon request.

Additional information
The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.