



# Course Syllabus

**Course title in Swedish:** Introduktion till Ingenjörsvetenskap för samhällsvetare

**English title:** Introduction to Engineering for Social Scientists

**Course code:** 1MF001  
**Valid from:** Autumn term 2019  
**Date of establishment:** This course syllabus was established by the Research and Education Board's Course Syllabus Committee at the Swedish Defence University on 28.01.2018.  
**Department:** Department of Military Studies  
**Subject:** Systems Science for Defence and Security  
**Level:** First cycle  
**Scope:** 15 higher education credits

## **Prior knowledge requirements and other preconditions for admission to the course**

Admitted to the Master's Programme in Defence and Security Systems Development.

## **Main field of study**

Systems Science for Defence and Security

## **Gradual specialisation**

G2F, first cycle, with a minimum of 60 HE credits at first-cycle level.

## **Level of specialisation**

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## **Course content and structure**

The purpose of the course is to provide the student with a grounding in dealing with military issues from an engineering and critical standpoint.

The course is intended to provide basic knowledge on statistics and probability theory, matrix algebra as a method for solving systems of linear equations, and working in calculation and programming language MATLAB, all of which are prerequisites for effectively completing the other compulsory courses in the study programme.

The course consists of two modules with the following focus and scope:

- Statistics and Probability Theory, 7.5 HE credits.
- Matrix Algebra and Programming in MATLAB, 7.5 HE credits.

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The modules will alternate between teacher-directed lessons, applied problem solving and independent study. Applied problem solving will be performed as computer lab sessions and homework assignments.

### **Intended learning outcomes**

On completing the course, the student shall be able to:

#### *Statistics and Probability Theory, 7.5 HE credits*

- explain the use of statistics and probability theory in solving applied problems; and
- apply statistics and probability theory to applied problems.

#### *Matrix Algebra and Programming in MATLAB, 7.5 HE credits*

- apply matrix algebra methods to solving applied problems; and
- apply MATLAB as an aid to numerical calculations and the visualisation of applied problems.

### **Assessing knowledge and examination**

Examination will be by written examination for module 1 and oral examination and individual written presentations of an assigned project for module 2.

The examiner may decide that supplementary work is required in order for a pass grade to be achieved. Examination papers submitted late will not be graded, unless there are special reasons, which have been approved by the examiner. Supplementary assignments are to be submitted no later than five working days after the notification of results and the supplementary assignment for the examination in question, unless there are special reasons, which have been approved by the examiner.

The examiner may decide on alternative forms of examination for a student, if that student has an approval from the Swedish National Defense College concerning special pedagogical support due to disability.

### **Number of examination opportunities**

There is no limit on the total number of examination opportunities. The total number is restricted to one ordinary examination and two retakes in any two-term period, unless special circumstances exist that are acceptable to the examiner.

### **Grades**

Grades are set according to a three-grade scale: Pass with merit (VG), Pass (G) and Fail (U).

In order to achieve a pass with merit (VG) for the course, a pass with merit (VG) is required for the written examination together with a pass for the oral and written project report.

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In order to achieve a pass (G) for the course, a pass (G) is required for the written examination together with a pass for the oral and written project report.

Grading criteria are stated in the course description.

### **Course literature and additional teaching materials**

See Appendix 1.

### **Interim regulation**

When a course is no longer provided or when the content of a course has been significantly altered, the student/participant retains the right to be examined in accordance with this course syllabus once per term during a three-term period.

### **Other**

The course is held as a compulsory element of the Master's Programme in Defence and Security Systems Development for students who have completed the Officers Programme or equivalent.

The course may be held within the framework of contract education.

On the completion of the course, an evaluation will be conducted under the auspices of the course director which will form the basis for any changes to the course.

The course will be held in English. If no international students are admitted, parts of the course may be held in Swedish.