



Programme Syllabus
Master's programme in Innovation, Defence and Security

Masterprogram i innovation, försvar och säkerhet

Scope	120.0	Decided by	Research and Education Council of the Swedish Defence University
Programme Code	2IFS1	Decision date	2022-09-14
Valid from Semester	Autumn 2023	Department	Department of Systems Science for Defence and Security
Education Cycle	Advanced level	Revision	1.0

The Main Content and Format of the Programme

The Master's Programme in Innovation, defence and security covers 120 credits and is an international Master's programme. The main field of study is Systems Science for Defence and Security.

Systems Science for Defence and Security is part of the defence, crisis management and security fields of study, and is found at the intersection of social sciences and engineering. The programme's objective is for the student to acquire the necessary knowledge in the main field of study to be able to critically review, evaluate, analyse and communicate phenomena such as needs, requirements and technical solutions related to defence capability. Thereby, the student develops the ability to independently, or in collaboration, solve complex problems, and the ability to follow developments in knowledge at the cutting edge of research in the field. Thus, in addition to preparing the students to undertake scientific research, the programme further educates students towards specialised systems engineering tasks to analyse and develop defence capability, qualifying them for key roles in public authorities with total defence responsibilities, or in private sector defence and security companies.

The programme will provide the student with the prerequisites to continuously develop their methodological competence and a scientific approach. Students are expected to shoulder increasing responsibility for their own education as they progress through the programme and successively acquire professionally relevant, research-based knowledge and expertise. Knowledge will be conveyed and acquired through teaching, individual study, exercises, group work, seminars, and individual oral and written assignments. The study programme provides opportunities to acquire knowledge and exercise abilities through internships. Throughout the study programme, there will be considerable systematic emphasis on written and oral presentations. The progression of the study programme should lead to a higher level of intellectual maturity and deeper insights into the complexity of the subject. This, combined with the ability to integrate knowledge and expertise, and to formulate and solve problems independently and creatively, will be presented in a final master's thesis. Studies are structured so the students will acquire the required knowledge of qualitative and quantitative methods before starting work on their thesis.

The programme reflects current activities at the Swedish Defence University, and is well founded on existing research. Teachers actively conduct research into systems science for defence and security or supporting subjects. After graduation, there are opportunities to apply for third-cycle studies at national and international higher education institutions.

The programme involves good cooperation with stakeholders and the surrounding community. The Swedish Defence University enjoys well-established collaboration with other stakeholders, including public authorities, such as the Swedish Armed Forces, the Swedish Defence Materiel Administration (FMV) and the Swedish Civil Contingencies Agency (MSB), and with private companies in the defence and security sector. This stimulates a practical focus during studies, and strengthens opportunities for placements with relevant employers.

Courses

The first academic year commences with courses of 15 credits, which introduce students to the field. The courses are designed to provide students with a common foundation for the progressive acquisition of subject knowledge. The academic year continues with studies taking a more in-depth look at theories for the study of defence and security systems. The second term includes a course on methods for defence and security systems development and a course about how states strategically organize, steer and govern its military capability development and defence acquisition. There is also the first opportunity to take an elective course.

The aim of elective courses in the programme is to provide flexible means to broaden or deepen knowledge in the field.

The second year provides more opportunities for elective courses, but also includes the three remaining mandatory courses. Two of these are intended to develop a usability and an international-law perspective, respectively, on professional work in the sector. The third covers the degree project. The student can choose an internship with a public authority, a private-sector company or another relevant stakeholder in the field. The internship is then completed as one of the elective courses.

Both compulsory and elective courses are normally held once a year.

The introductory courses in Leadership, Command and Control Science, and in International Law, respectively, are at first-cycle level, covering 10.5 credits, while the other courses are at second-cycle level. First-cycle courses equivalent to a maximum of 15 credits may be included in the Master's degree.

Compulsory courses (scope/subject other than defence systems)

Semester 1:

Leadership within the Officers' Profession (7.5 credits)

Introduction to military thinking (7.5 credits)

Theory, Systems Science for Security and Defense (15 credits)

Semester 2:

Methods in Systems Science for Defence and Security (15 credits)

Strategic Management of Capability Development and Defence Acquisition (7.5 credits)

Elective course (7,5 credits)

Semesters 3 and 4:

Usability and Design of Interactive Systems (4.5 credits)

Introduction to International Law, War and Technology (3 credits)

Master's Thesis, Systems Science for Defence and Security (30 credits)

Elective courses: 3 courses each of 7,5 credits

Elective courses

The range of courses for elective courses is determined at least one semester in advance. The students are informed about the range in good time. The range of elective courses varies from year to year. The elective courses may, depending on educational conditions, have a limited number of places. In these cases, program students in system and security development have priority.

As elective courses, it is also possible to transfer credits from other second-cycle courses relevant to the Degree of Master of Science in Systems Science for Defence and Security, such as complementary courses in other subjects taught at the Swedish Defence University or courses offered in collaboration with other Swedish or international higher education institutions.

Programme Objectives

Scope

A Degree of Master of Science is awarded once the student has completed course requirements for 120 credits, at least 60 credits of which are within the main field of study, Systems Science for Defence and Security, including an independent degree project of 30 credits. This requirement for 60 credits is ensured by completion of the compulsory courses.

Outcome

In accordance with the Swedish Defence University Ordinance (2007:1164):

Knowledge and understanding

For the Degree of Master of Science, the student will;

- demonstrate knowledge and understanding in the main field of study, including a broad overview of the field, specialised knowledge in certain areas of the field and greater insight into current research and development work; and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For the Degree of Master of Science, the student will:

- demonstrate the ability to integrate knowledge critically and systematically, and to analyse, assess and deal with complex phenomena, questions and situations even with limited information;
- demonstrate the ability to: identify and formulate questions independently and creatively, and, using appropriate methods, to plan, undertake and evaluate advanced tasks within predetermined timeframes, thus contributing to knowledge development;
- demonstrate, both in a national and international context, the ability orally and in writing to report and discuss clearly his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences; and
- demonstrate the skills required to participate in research and development work or to work independently in other advanced activities.

Judgement and approach

For the Degree of Master of Science, the student will:

- demonstrate, the ability to make assessments in the main field of study informed by relevant scientific, social and ethical aspects, and
- demonstrate awareness of ethical aspects of research and development work;
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used; and
- demonstrate the ability to identify his or her own need for further knowledge and to take responsibility for his or her ongoing learning.

Independent project

The programme includes an independent degree project on systems science for defence and security. This independent project may cover less than 30 credits, but not less than 15 credits, if the student has already completed a dissertation at second-cycle level covering a minimum of 15 credits in the field of defence systems or equivalent from an overseas study programme.

Local outcomes

For the Degree of Master of Science in Systems Science for Defence and Security, the student will also:

- demonstrated the ability to apply a critical approach to identifying and discussing the various perspectives of stakeholders on the development of defence and security capabilities.

Entry Requirements

A bachelor's degree with a minimum of 180 credits. The degree should include a documented, graded, written thesis project including a minimum of 15 credits, or equivalent.

The degree should be in either social sciences, engineering science, natural science or other relevant area or subject.

There are additional requirements for proficiency in Mathematics equivalent to Mathematics 3b or 3c, alternative Mathematics C, and English equivalent to English 6/English B.

Certain elective courses have specific entry requirements in order for the student to benefit from the education.

Degree

The programme leads to the Degree of Master of Science in Systems Science for Defence and Security.

The degree designation is as follows:

Degree of Master of Science (120 credits) in Systems Science for Defence and Security.

Miscellaneous

Certain courses during the latter part of the programme have specific entry requirements over and above the entry requirements for the study programme. These specific requirements mean that the student must have a certain number of credits from specified courses taken earlier in the study programme. The exact provisions are stated in individual course syllabuses.

Some of the elective courses have specific entry requirements and some of the courses are conducted in Swedish.

This syllabus replaces the syllabus for *2USF3 Master's Programme in Defence and Security Systems Development, 120 credits*



(established 2022-02-24), as the name of the Master's programme will change from HT2023.