

# Materials Science and Nanotechnology, Master's programme

120 credits

Materials Science and Nanotechnology,  
masterprogram

6MMSN

Valid from:

**Determined by**  
Faculty Board of Institute of Technology

**Date determined**  
2015-01-16

## Introduction

For the complete syllabus, also see "Tekniska högskolans studiehandbok":

[https://kdb.it.liu.se/KDB/kdb-5.liu.se/liu/lith/studiehandboken/enutbplana20a-2016.html?&up\\_year=2016&up\\_ladokkod=6MMSN](https://kdb.it.liu.se/KDB/kdb-5.liu.se/liu/lith/studiehandboken/enutbplana20a-2016.html?&up_year=2016&up_ladokkod=6MMSN)

## Entry requirements

### Degree in Swedish

Master of Science (120 credits) with a major in Applied Physics or Master of Science (120 credits) with a major in Physics

### Degree in English

Master of Science (two years) with a major in Applied Physics or Master of Science (two years) with a major in Physics

## Curriculum

### Semester 2 (Spring 2017)

| Course code     | Course name                                       | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| <b>Period 1</b> |   |         |       |                  |     |
| TFFM40          | Analytical Methods in Materials Science           | 6*      | A1X   | 1                | C   |
| TFYA25          | Physics of Condensed Matter part II               | 6       | A1X   | 2                | C   |
| THEN24          | Communication, Ethics and Sustainable Development | 6*      | G1X   | -                | C   |
| TFYA04          | Materials Optics                                  | 6       | A1X   | 4                | E   |
| TFYA21          | Physical Metallurgy                               | 6       | A1F   | 3                | E   |
| TFYY67          | Classical Electrodynamics                         | 6       | A1X   | 1                | E   |
| <b>Period 2</b> |   |         |       |                  |     |
| TFFM40          | Analytical Methods in Materials Science           | 6*      | A1X   | 1                | C   |
| THEN24          | Communication, Ethics and Sustainable Development | 6*      | G1X   | -                | C   |
| TFYA19          | Quantum Computers                                 | 6       | A1X   | 4                | E   |
| TFYA38          | Optoelectronics                                   | 6       | A1X   | 3                | E   |
| TFYA41          | Thin Film Physics                                 | 6       | A1X   | 2                | E   |

### Semester 3 (Autumn 2017)

| Course code     | Course name   | Credits | Level | Timetable module | ECV |
|-----------------|---|---------|-------|------------------|-----|
| <b>Period 1</b> |   |         |       |                  |     |
| TFY54           | Quantum Mechanics   | 6       | A1X   | 2                | C   |
| TFYA17          | Advanced Project Work in Applied Physics                                | 6*      | A1X   | -                | E   |
| TFYA40          | Analytical Mechanics  | 6       | A1X   | 4                | E   |
| TFYA50          | Project course in Computational Physics CDIO                            | 12*     | A1X   | 4                | E   |
| TFYA51          | Project Course in Physics - Design and Fabrication of Sensor Chip, CDIO | 12*     | A1X   | 4                | E   |
| TFYA53          | Computational Physics   | 6       | A1X   | 4                | E   |
| TFYA88          | Additive Manufacturing: Tools, Materials and Methods                    | 6       | A1X   | 3                | E   |
| TFYY47          | Semiconductor Physics   | 6       | A1X   | 1                | E   |
| <b>Period 2</b> |   |         |       |                  |     |
| TFYA17          | Advanced Project Work in Applied Physics                                | 6*      | A1X   | -                | E   |
| TFYA28          | Quantum Dynamics  | 6       | A1X   | 1                | E   |
| TFYA39          | Semiconductor Technology  | 6       | A1X   | 3                | E   |
| TFYA50          | Project course in Computational Physics CDIO                            | 12*     | A1X   | 4                | E   |
| TFYA51          | Project Course in Physics - Design and Fabrication of Sensor Chip, CDIO | 12*     | A1X   | 4                | E   |
| TFYY54          | Nano Physics  | 6       | A1X   | 3                | E   |

### Semester 4 (Spring 2018)

| Course code     | Course name                      | Credits | Level | Timetable module | ECV |
|-----------------|----------------------------------|---------|-------|------------------|-----|
| <b>Period 1</b> |                                  |         |       |                  |     |
| TQXX30          | Degree project - Master's Thesis | 30*     | A1X   | -                | C   |
| <b>Period 2</b> |                                  |         |       |                  |     |
| TQXX30          | Degree project - Master's Thesis | 30*     | A1X   | -                | C   |

ECV = Elective / Compulsory / Voluntary

\*The course is divided into several semesters and/or periods