

# Master in Nanoscience and Nanotechnology

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# The School of Science and Technology

## Faculty IV

Civil Engineering

Chemistry and Biology

Electrical Engineering and Computer Science

Mechanical Engineering

Mathematics

Physics

Centers & Facilities: ZESS, NCYTE

# Research Groups



## Chemistry

Chemistry and Structure of Novel Materials, Inorganic Chemistry, Inorganic Materials Chemistry, Macromolecular Chemistry, Physical Chemistry I



## Electrical Engineering

High-Frequency Technology and Quantum Electronics, Graphene-Based Nanotechnology, Analog Circuits and Image Sensors



## Physics

Experimental Nanophysics, X-Ray Physics, X-Ray Tomography, Laboratory of Nano-Optics

# The Master in Nanoscience and Nanotechnology

The Master in Nanoscience and Nanotechnology is a two-year 120 ECTS English language degree programme offered to national and international students.

## Key aspects:

- Focuses on nanoscience and nanotechnology, with emphasis on basic knowledge and applications.
- Set of lectures, lab courses followed by training in a research group (90 ECTS)
- Research project accomplished by a master thesis (30 ECTS)
- New examination rules started in Winter Term 2022/2023!

# Study Plans – Chemistry

| 1. Semester          | 2. Semester   | 3. Semester         |
|----------------------|---|---------------------|
| Solid-State Physics  | Nano Chemistry  | Photonics Devices   |
| Quantum Theory       | Physics of Nanoelectronic Devices                     | Elective Course     |
| Nanotechnology       | Lab Course „Micro and Nanotechnology“                 | Elective Course     |
| Nano-Research Course | Lab Course „Nanosynthesis, Nanosafety, Nanoanalytics“ | Research Lab Course |
| Elective Course      | Elective Course                                       |                     |

- The 1. Semester is dedicated to subjects complementary to the bachelor degree.
- The 2. Semester focuses on nanoscience subjects, with hands-on training courses.
- The 3. Semester aims at specializing the students, in preparation of the master thesis.
- The 4. Semester is dedicated to the master thesis.

# Study Plans – Electrical Engineering

| 1. Semester          | 2. Semester   | 3. Semester         |
|----------------------|---|---------------------|
| Solid-State Physics  | Nano Chemistry  | Photonics Devices   |
| Quantum Theory       | Physics of Nanoelectronic Devices                     | Elective Course     |
| General Chemistry    | Lab Course „Micro and Nanotechnology“                 | Elective Course     |
| Nano-Research Course | Lab Course „Nanosynthesis, Nanosafety, Nanoanalytics“ | Research Lab Course |
| Elective Course      | Elective Course                                       |                     |

- The 1. Semester is dedicated to subjects complementary to the bachelor degree.
- The 2. Semester focuses on nanoscience subjects, with hands-on training courses.
- The 3. Semester aims at specializing the students, in preparation of the master thesis.
- The 4. Semester is dedicated to the master thesis.

# Study Plans – Physics

| 1. Semester                  | 2. Semester   | 3. Semester         |
|------------------------------|---|---------------------|
| General Chemistry            | Nano Chemistry  | Photonics Devices   |
| Advanced Solid-State Physics | Physics of Nanoelectronic Devices                     | Elective Course     |
| Nanotechnology               | Lab Course „Micro and Nanotechnology“                 | Elective Course     |
| Nano-Research Course         | Lab Course „Nanosynthesis, Nanosafety, Nanoanalytics“ | Research Lab Course |
| Elective Course              | Elective Course                                       |                     |

- The 1. Semester is dedicated to subjects complementary to the bachelor degree.
- The 2. Semester focuses on nanoscience subjects, with hands-on training courses.
- The 3. Semester aims at specializing the students, in preparation of the master thesis.
- The 4. Semester is dedicated to the master thesis.



# Schedule (Winter Term 2023/2024)

| Time      | Monday  | Tuesday   | Wednesday   | Thursday   | Friday   |
|-----------|---|---|---|--|--|
| 8-9 Uhr   | Presence<br>General Chemistry<br>Exercise             | Presence<br>Solid-State Physics / Adv. Solid-State Physics / Photonics Devices<br>Lecture / Lecture / Lecture | Presence<br>Solid-State Physics<br>Lecture          | Presence<br>Solid-State Physics / Adv. Solid-State Physics<br>Exercise / Lecture | Presence<br>Photonics Devices<br>Exercise                                |
| 9-10 Uhr  | Room AR-H100<br>L. Birlenbach<br>Time (8:00 - 10:00)  | Room EN-D114 / EN-D308 / EN-<br>C. Gutt / C. Busse / M. Agio<br>Time (08:00 - 10:00)                          | Room EN-D114<br>C. Gutt<br>Time (08:00 - 10:00)     | Room EN-D120 / EN-D308<br>C. Gutt / C. Busse<br>Time (08:00 - 10:00)             | Room AR- oder EN-<br>M. Agio & P. Haring-Bolivar<br>Time (08:00 - 10:00) |
| 10-11 Uhr | Presence<br>Photonics Devices<br>Lecture              | By arrangement<br>Nanotechnology<br>Laboratory  |   | Presence<br>Quantum Theory<br>Lecture  | Presence<br>Adv. Solid-State Physics<br>Exercise                         |
| 11-12 Uhr | Room AR-<br>P. Haring-Bolivar<br>Time (10:00 - 12:00) | Room<br>A. Bablich<br>Time (10:00-12:00)  |   | Room EN-D120<br>V. Shtabovenko<br>Time (10:00 - 12:00)                           | Room EN-B030<br>C. Busse<br>Time (10:00 - 12:00)                         |
| 12-13 Uhr |   | Presence<br>Nanotechnology<br>Lecture   |   |  |  |
| 13-14 Uhr | Presence<br>General Chemistry<br>Lab Course           | Room AR-HB 0122<br>A. Bablich<br>Time (12:00-14:00)   |   |  |  |
| 14-15 Uhr | Room AR-G101<br>L. Birlenbach<br>Time (13:00 - 18:00) | Presence<br>Nanotechnology<br>Exercise  | Presence<br>Graduate nano seminar<br>Seminar        | Presence<br>General Chemistry<br>Lecture   | Presence<br>Physics Tutorium   |
| 15-16 Uhr |   | Room AR-HB 0122<br>A. Bablich<br>Time (14:00-16:00)   | Room H-C7327<br>M. Agio<br>Time (14:00 - 16:00)     | Room AR-H100<br>L. Birlenbach<br>Time (14:00 - 16:00)                            | Room EN-D115<br>L. Strauss<br>Time (14:00 - 16:00)                       |
| 16-17 Uhr |   |   |   |  | Presence<br>Quantum Theory<br>Exercise                                   |
| 17-18 Uhr |   |   | Nanoseminar<br>Room H-C5326<br>Time (17:00 - 18:00) |  | Room EN-B030<br>V. Shtabovenko<br>Time (16:00 - 18:00)                   |

# Digital Platforms

## UNISONO: [unisono.uni-siegen.de](https://unisono.uni-siegen.de)

- Course registration & schedule information
- Exam registration & credit points

## MOODLE: [moodle.uni-siegen.de](https://moodle.uni-siegen.de)

- Online teaching material
- Exercises
- Discussion with lecturer

## WEBSITE: [www.uni-siegen.de/nt/nano](https://www.uni-siegen.de/nt/nano)

- General information
- Documentation (modules, examination rules, ...)

# Contact Information

## Examination Board

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## Coordinator

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