Digital Engineering
Master’s Degree Program

Benjamin Noack
April 2023
Who?

Benjamin Noack

Room 001, Building 28
Tel.: 67-57580
benjamin.noack@ovgu.de

2013: Graduation as Dr.-Ing., Chair for Intelligent Sensor-Actuator-Systems, DFG Research Training Group 1194, Karlsruhe Institute of Technology, University College London

since 2013: Postdoctoral Researcher/Project Leader at Intelligent Sensor-Actuator-Systems Lab, Karlsruhe Institute of Technology

since 2017: Akademischer Rat/Vice Director of Intelligent Sensor-Actuator-Systems Lab, Karlsruhe Institute of Technology

Since 2021: Professor, Autonomous Multisensor Systems Group, Otto-von-Guericke University
What do we do?

Introduction Digital Engineering

https://ams.ovgu.de
What is Digital Engineering?
Digital Engineering

= 

Computer Science + Engineering Discipline(s)

→ Diverse application scenarios

• Robotics
• Autonomous Vehicles
• ...  

• Smart factory/Smart home
• Intelligent Production

Web page: http://www.digi-eng.ovgu.de/en/
Study Program Structure
Digital Engineering — Structure

\[
\sum \text{120 CP}
\]

- Fundamentals of Computer Science: \(\geq 15\) CP (or \(\geq 5\) CP*)
- Fundamentals of Engineering: \(\geq 5\) CP (or \(\geq 15\) CP*)
- Human factors: \(\geq 5\) CP
- Methods of Computer Science: \(\geq 10\) CP
- Methods of Engineering: \(\geq 10\) CP
- Interdisciplinary team project: \(0 - 6\) CP
- Specialization: \(\geq 15\) CP
- Digital Engineering project: \(6 - 12\) CP
- Master’s thesis: \(30\) CP

(* dependent on your first study degree)
Where to Choose Modules from?

- Module list:
  1. Go to [https://www.inf.ovgu.de/](https://www.inf.ovgu.de/)
  2. Click on *Examination Office*, on the next page click on *Study Regulations*
  3. There you find everything you need (see screenshot next page)
    - Module list
    - Module catalogue
    - even the (most recent) study regulations
### Digital Engineering

**Master**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

### Computer Science

**Bachelor**
- Study & examination Regulations
- Module catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

**Master**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

### Computational Visualistics

**Bachelor**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

**Master**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

### Computer Science Engineering

**Bachelor**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

**Master**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

### Business Computer Science

**Bachelor**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

**Master**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Internship Regulations
- Degree Program Information

### Data and Knowledge Engineering

**Master**
- Study & Examination Regulations
- Module Catalogue
- Module Lists
- Degree Program Information

---

[https://www.inf.ovgu.de/en/Study/Being+a+student/Examination+Office/Study+Regulations.html](https://www.inf.ovgu.de/en/Study/Being+a+student/Examination+Office/Study+Regulations.html)
Where to Choose Modules from?

Some general rules for choosing modules

- **Computer Science modules**
  - Fundamentals: all courses from FIN Bachelor & Master programs
  - Methods of Computer Science: all courses from FIN Master programs

- **Engineering modules**
  - Fundamentals: all courses from FEIT/FMB/FVST Bachelor & Master programs
    (+ some courses from FMA)
  - Technical Specialization: all courses from FEIT/FMB/FVST Master programs

- **Human factors**
  - all courses of Bachelor and Master programs of FHW/FWW

The modules offered in the current term are in the LSF

**DO NOT use LSF to map modules to thematic areas!**
First Semester Courses — Example

- For Engineering background
  - Introduction to Computer Science for Engineers
  - Introduction to Software-Engineering for Engineers
  - Introduction to Simulation
  - Algorithm Engineering
  - Database Concepts
- Lectures are given at Summer or Winter term → Distribute them over 1st and 2nd semester
Summer Term — Exemplary Courses

- Introduction to Software Engineering for Engineers (if engineering background)
- Principles and Practices in Scientific Working
- Database Concepts (if engineering background)
- Seminar (Student Conference, Predictive Maintenance, …)
- Nonlinear Control (if computer science background)
- Introduction to Distributed Sensor Data Fusion
Winter Term — Exemplary Courses

- Introduction to Computer Science for Engineers (if engineering background)
- Introduction to Simulation
- Electronic Circuits (if computer science background, ask teacher)
- Systems & Control (if computer science background, ask teacher)
- Estimation for Autonomous Mobile Robots
Choosing Modules to PLAN YOUR STUDIES
Which Engineering Direction?

- Mechanical
- Electrical
- Chemical
- Medical Engineering
- ....

YOU
choose the courses you want to attend!
Recommendation: Create a Study Plan

Personalized Plan of Studies

1. Find modules:
   • Review modules offered according to the LSF
     [https://lsf.ovgu.de/qislsf/rds?state=wtree&search=1&trex=step&root120231=21636%7C21929%7C21800%7C21669&P.vx=kurz](https://lsf.ovgu.de/qislsf/rds?state=wtree&search=1&trex=step&root120231=21636%7C21929%7C21800%7C21669&P.vx=kurz)
   • read module descriptions (web pages) AND
   • drop by at the first one or two meetings (if no limits)
   • Make sure you have the background needed to attend the course – ASK the teacher if you are not sure

2. Assign modules you choose to thematic areas
   • Go through the module catalog/module list
3. Write down your plan

4. Update your plan at the end of each semester!
   - What do you have accomplished?
   - Additional courses?
   - Something skipped?
   - It’s all fine to skip courses, but you should keep track of what you got ;)

Recommendation: Create a Study Plan (cont’d)
<table>
<thead>
<tr>
<th>Thematic Area</th>
<th>Semester</th>
<th>Module</th>
<th>CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of</td>
<td>1</td>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td>2</td>
<td>2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>Methods of</td>
<td>2</td>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td>2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>Human Factors</td>
<td>1</td>
<td>1.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Important Notes on Modules

• Each module is initially **optional** ⇒ you are free to choose a module you want (according to the DE master program structure, cf. slide 5)

• After taking the first exam in a module, it becomes **mandatory** ⇒ you need to finish this module!

• Decisions on thematic areas of modules are done when registering for the exam

• Do not place modules in *Additional Achievements (zusätzliche Leistungen)* ⇒ *credits won’t count…never ever!*
Examinations
Examinations for Master Students

- Each module must be completed with an exam
- What types of exam are there?
  - Oral examination – mündliche Prüfung
  - Written examination – Klausur
  - Homework – Hausarbeit
- Type of exam depends on module —> **ASK TEACHER**
Examinations for Master Students (cont’d)

- When planning the 1st exam for a course, **BEWARE**
  - NO automatic enrollment – YOU must take action!
  - There are enrollment deadlines; if you miss a deadline, you cannot enroll
  - You can cancel an enrollment until 7 days before exam.
  - **Never register for an examination where you have not attended the lecture!**

- **BEWARE**
  - At most three tries per course.
  - You can have three tries for three courses total. For all other courses you have two tries.
  - **You have only ONCE the chance to step back from the exam of a course!**
Getting Advice
The ultimate landing page with lots of information goes here...

http://www.inf-international.ovgu.de
Even more (specific) information for Incoming Students

You can get Advice from...

1. Studies Coordinators

- Prof. Benjamin Noack
  Office: G28-001
  E-Mail: benjamin.noack@ovgu.de

- Prof. Gunter Saake
  Office: G29-110
  E-Mail: saake@iti.cs.uni-magdeburg.de
You can get Advice from...

1. Studies Coordinators

2. Coordinator for DE projects
   - NN

3. International Relationships and Exchange Coordinator
   - Dr. Claudia Krull
     Office: G29-214
     E-Mail: claudia.krull@ovgu.de
You can get Advice from...

1. Studies Coordinators
2. Coordinator for DE projects
3. International Relationships and Exchange Coordinator
4. Examination Office

Office: FIN building, room 101/102
Web: [http://www.inf.ovgu.de/pamt.html](http://www.inf.ovgu.de/pamt.html)

5. FaRaFIN

Email: [post@farafin.de](mailto:post@farafin.de)
Web: [www.farafin.de](http://www.farafin.de)
You can get Advice from...

1. Studies Coordinators
2. Coordinator for DE projects
3. International Relationships and Exchange Coordinator
4. Examination Office
5. FaRaFIN
6. Other DigiEng students/Mentors
7. DigiEng Facebook Group  
   https://www.facebook.com/groups/223056807855119/