Technische Hochschule Rosenheim
Technical University of Applied Sciences

Programming Basics– WiSe21/22

Organisational

Prof. Dr. Silke Lechner-Greite

Introduction

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- Lecturers
  - Prof. Dr. Silke Lechner-Greite – responsible for lectures
  - Email: silke.lechner-greite@th-rosenheim.de

  - Prof. Dr. Kai Höfig – responsible for exercises
  - Email: kai.hoefig@th-rosenheim.de

- Tutor:
  - Mr. Simon Metzger
  - Email: simon.metzger@stud.th-rosenheim.de

- Office Hours:
  - Please make an appointment by e-mail.
  - Place and type of appointment will depend on the Corona situation.

Lecture and exercise schedule

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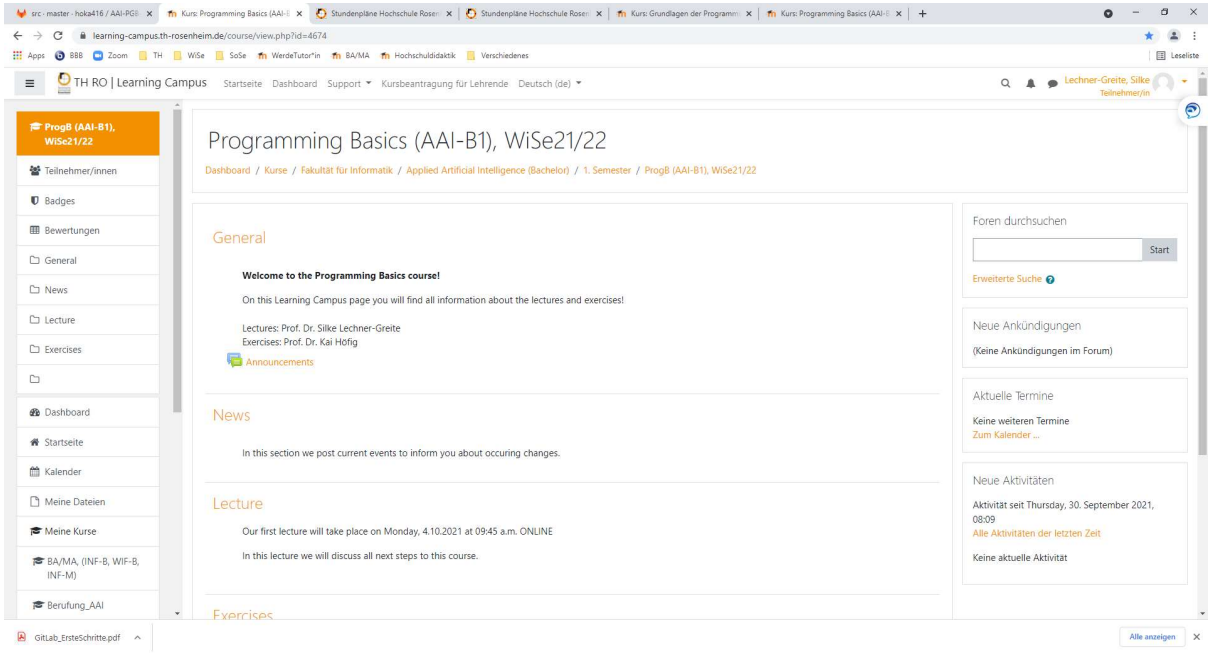
- 4 semester hours („SWS“) – Lecture:
  - Always ONLINE via Zoom
    - Monday 09:45-11:15 am
    - Wednesday 08:00-09:45 am

- 2 semester hours – Exercise:
  - Work on various tasks to deepen the respective contents (coding, coding, coding)
  - Always @ TH RO :
    - Group 1: Friday 09:45 – 11:15 am (S1.29)
    - Group 2: Friday 11:45 – 13:15 pm (S1.29)
  - The group selection takes place via the Learning Campus.

This is how we do it in the lecture

- All information regarding the lecture is exchanged via the Learning Campus.
- ProgB Learning Campus: https://learning-campus.th-rosenheim.de/course/view.php?id=4674
- Here, you'll find:

  - Announcements
  - Selection of the exercise group
  - Web links
  - Lecture slides
  - Exercise sheets
  - Literature recommendations
  - Evaluation
  - etc.



Zoom

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- Online Meeting Room:
- Chat
- Status Update
- Questionnaires
- Live-”Commenting”
- Breakout Rooms

Lecture

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- Advice:
  - Prepare the lecture in advance (read through slides, do the live exercises in advance)
  - Bring your questions to the lecture and let's discuss about it
  - I will ask the audience to answer questions, participate actively!
  - Bring your computer … make notes
  - Read pro-actively within weblinks and suggested literature
  - Try to get up to speed as soon as possible.

GitLab

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- Source code of the lecture and suggested solutions to the exercises can be found here:
- **https://inf-git.fh-rosenheim.de/hoka416/aai-pgb-ws2021**

Learning Objectives

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- Systematics of programming: systematic problem solving as well as the logic of programming => Basic understanding of methodical procedure.
- Getting to know important elements of programming and basic data structures => Important, as these principles are found in a similar way in the most diverse programming languages.
- Concept of object orientation => Important, since it is the basis for many different activities within your studies (modelling, SW design, commonly used paradigm)
- Implementation of the concepts => transfer into the practical daily life => acquisition of a quality-oriented programming style (incl. documentation and testing)
- IDE - Integrated Development Environment == Development environment: design, create, test and analyse projects with several modules with the help of a single tool.

Exam

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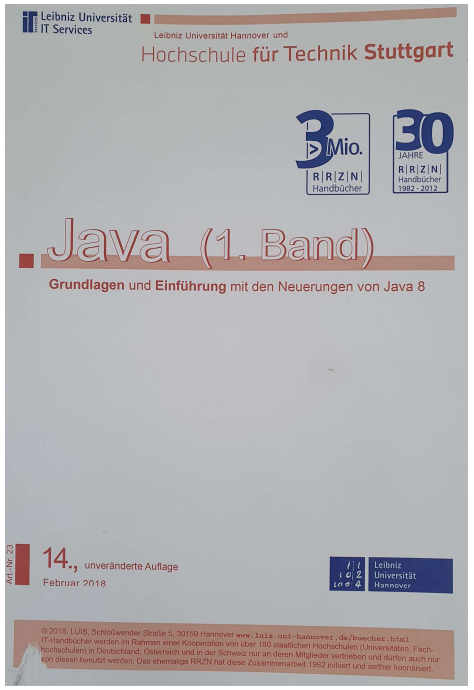
- Written examination at the end of the semester (examination period is 26.01.22 - 12.02.22, see online diary https://www.th-rosenheim.de/home/infos-fuer/studierende/studienorganisation/termine-fristen/)
- The exam lasts 90 minutes. You'll answer questions and programme on paper.
- Approved aids:
  - One Book with ISBN number
  - OR
  - Rechenzentrum Handbuch zu Java (1. Band) (Grundlagen und Einführung mit den Neuerungen von Java 8, Peter Heusch, Leibniz Universität Hannover und Hochschule für Technik Stuttgart, 14., unverarbeitete Auflage, Februar 2018) -> attention - in German
  - **without notes!**
- Registration for the examination via Online Service Centre necessary (1.11.21 - 8.11.21)



Effort - What should you do?

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- Programming Basics counts 7 ECTS points
  - ECTS = European Credit Transfer System
  - 1 ECTS is about 30 hours of work (1 hour == 60 minutes)
  - In total 210 hours of work
  - The semester is split into 14 weeks of lectures: 15 hours per week
  - Lectures/Exercises: 3 x 90 minutes = 4,5 hours per week
    => 10,5 hours of your own contribution per week!

- Follow up the course (think through the topics, write down important points, learn basic terms).
- Prepare course (read text, if necessary, answer questions, repeat live coding)
- Prepare and follow up on exercises!

Literature - German

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Christian Ullenboom: „**Java ist auch eine Insel“**

There are various versions of this book available at the library.
There is an online version, too:

http://openbook.rheinwerk-verlag.de/javainsel/

Literature - English

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- Cosmina, Iuliana: Java for Absolute Beginners : Learn to Program the Fundamentals the Java 9+ Way, 1st edition, Apress 2018 (ISBN: 9781484237786)

- Parsons, David: Foundational Java : Key Elements and Practical Programming, 2nd edition, Springer International Publishing, 2020 (ISBN: 9783030545185)

- Ogihara, Mitsunori: Fundamentals of Java programming, Springer, 2018 (ISBN: 9783319894911)

Topics Overview

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1. Introduction
2. Fundamental language concepts
3. Control structures
4. Methods
5. Arrays
6. Object orientation
7. Classes
8. Packages
9. Characters and Strings
10. Unit Testing
11. Exceptions
12. I/O

Changes possible!

IDE

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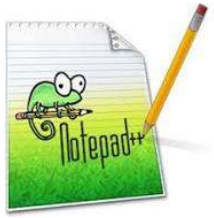
- For the start:
  - Current version of the Java Development Kit (JDK) –
    - I recommend installing OpenJDK on your computers: https://openjdk.java.net/
  - A text editor, i.e., Notepad++
    https://notepad-plus-plus.org/



OpenJDK

- Later on:
  - Current version of IntelliJ IDEA Community version
    https://www.jetbrains.com/idea/

IntelliJ IDEA

Some food for thought

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- **How do I quickly and unerringly mess up my studies?**
  - I dutifully attend the online lecture, but don't pay attention.
  - I go to work during the time allotted for self-study.
  - I always just do the exercises in the allotted time without having looked at the worksheet beforehand.
  - Of course, I haven't worked through the lecture content either.
  - I don't understand what it's about, but I learn the slides by heart.
  - I already put off the difficult exams in the first semester.

Therefore:

- Program, program, program!!!
- Exercises are essential!
- Be prepared to the lectures and exercises

Important

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- If you have questions related to the lecture --- ask them.
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- If you have technical problems (i.e. with the installation) --- ask them.
- Stay tuned! Even if it seems very "theoretical" at the beginning, the material picks up quickly and the exercises quickly become more complex!
- Talk to each other, e.g., via Discord. Set up WhatsApp groups. Use the exercises @ TH Rosenheim to get connected.
- Code, try things out, experiment! This is the only way to learn programming.

During your studies, there will always be moments like this ... but

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