TIE-02408 Programming 3: Techniques

Self Study, spring 2021

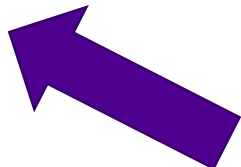5 cr

Course in spring 2021

- Person responsible:
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- Others:
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Programming courses renewal

- **COMP.CS.100 Programming 1: Introduction to Programming** from fall 2020 replaces TIE-02107 Programming 1: Introduction

- **COMP.CS.110 Programming 2: Structures** from fall 2020 replaces TIE-02207 Programming 2: Basics

- **COMP.CS.140 Programming 3: Interfaces and Techniques from SPRING 2022!** **r**eplaces TIE-02408 Programming 3: Techniques

There will be a programming language shift to Jave. This is why a self study module of the course is offered during spring 2021.
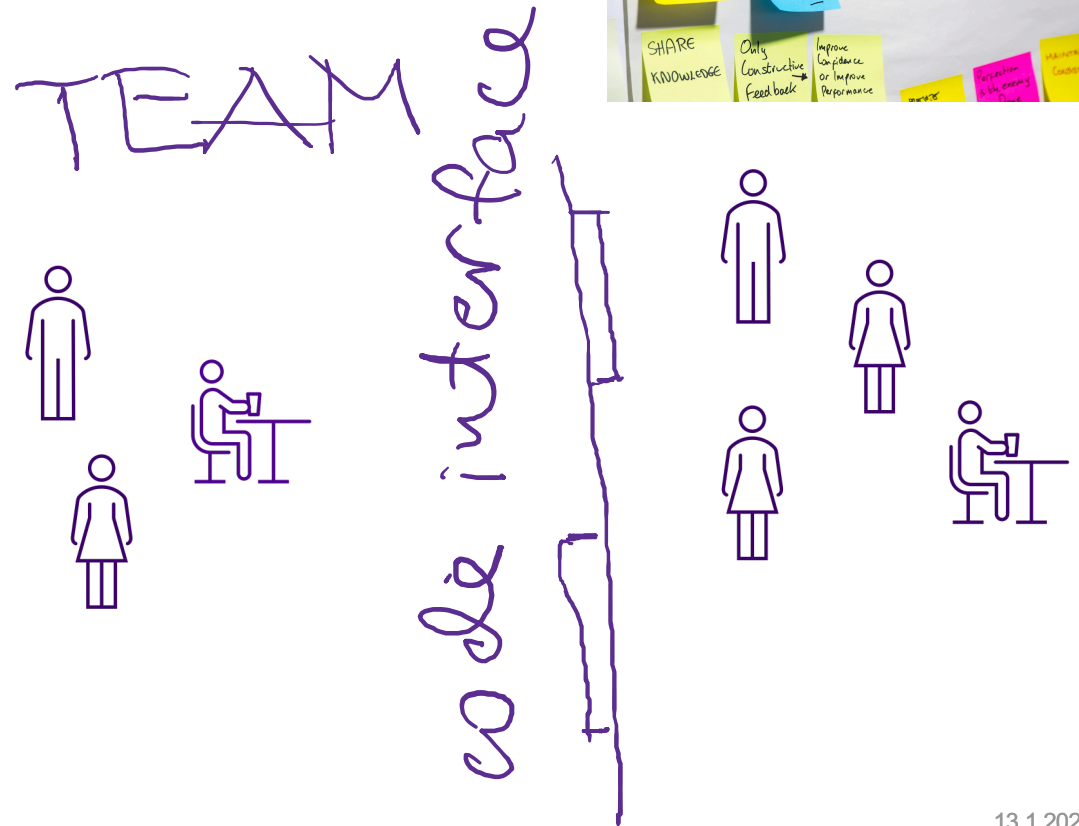
Passing the course

Fig: Working with a project (TTY Kaapeli)

Kuva: Dev Team Charter, gdsteam (CC BY 2.0)

Learning outcomes

Main goal:

To deepen programming skills and tool know-how in order to enable working in a team with several programmers

Learning outcomes

- To be able to use usual programming tools
- To be able to program modules that are integrated to other code by predefined interfaces
- To be able to read interface documentation and to understand the principles of design-by-contract
- To know more structures of a programming language and to be able to use them in programming
- To be able to explain the concepts of inheritance and to use them in programming

The main contents

- Basic tools for programming
- Design-by-contract and interfaces
- Implementation of a UI with several windows
- Inheritance
- Exceptions: handling and safety issues

Studying on the Course

The course is a self study module

To support your studies videos will be published in Panopto on Wednesdays at noon.

In addition, starting on 20.1. there is a teaching hour available in Zoomn on Wednesdays 12-14.

Studying on the Course

Period 3:
- A small task in Plussa each week
- NOTE! Part of the exercises are mandatory

- Period 4:
- Course project, two person teams
- TA will be available for guidance each week

Grading

The course project is graded 0-5
In addition the compulsory exercises of the course are required to be completed in Plussa

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The final grade will be the grade of the course project deducted by on.
E.g. 5->4 2->1.

If the project grade is left to 1 or one wishes to improve the grade for some other reason, an exam must be taken.

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The final grade will be the average of the course project and the exam, rounded up..
E.g. Project 1 + Exam 3 -> 2

Project work

- **Group work**: Project work will be done in pairs. Pairing happens in Moodle.

- **Requirements**: Project work will be done with Qt and you should use git (for version control). You should divide the programming task in reasonable parts and commit the parts in git regularly.

Course Project

The goals of the work:

- Getting familiar with existing code and using it via given interfaces (exploiting design-by-contract)

- Adding functionality to the application by predefined interfaces (following design-by-contract)

- Implementing a GUI for a program

- Handling exceptions and managing errors

- Testing of your code (unit testing)

Deadline:

- 19.4.2021 at midnight

- If there are challenges in meeting the deadline, contact the person responsible

Material

- Lecture slides will be published in Plussa (plus.tuni.fi) week by week

- (Finnish textbook: Matti Rintala ja Jyke Jokinen, *Olioiden ohjelmointi C++:lla)*

- Additional material will be collected in Plussa. If you find good material, please inform the other participants

Tampereen yliopisto
Tampere University

Communication

Team working is assumed among students and between students and the course personnel. We can use the following channels:

- Plussa: `plus.tuni.fi` materials, submissions

- In Teams TUNI Group TG-Programming 3: Discussion and peer support between students.

- Moodle (moodle.tuni.fi): pairing, course messages

- Git, GitLab, GitLabCI: Management and submission of project works.

- Sähköposti: prog3@tuni.fi, questions