

# TIE-02408 Programming 3: Techniques

Fall 2020


5 cr

## Course in fall 2020

- Person responsible:  
**Terhi Kilamo**  
TF108, [terhi.kilamo@tuni.fi](mailto:terhi.kilamo@tuni.fi)
- Others:
  - **Minna Färm**
  - **Mika Takala**
  - **Joel Haataja**
  - **Eerik Voimanen**
  - **Iiro Kiviluoma**
  - **Juuso Kujansuu**



# 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!** replaces TIE-02408 Programming 3: Techniques 

# Passing the course



Fig: Working with a project (TTY Kaapeli)

# 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

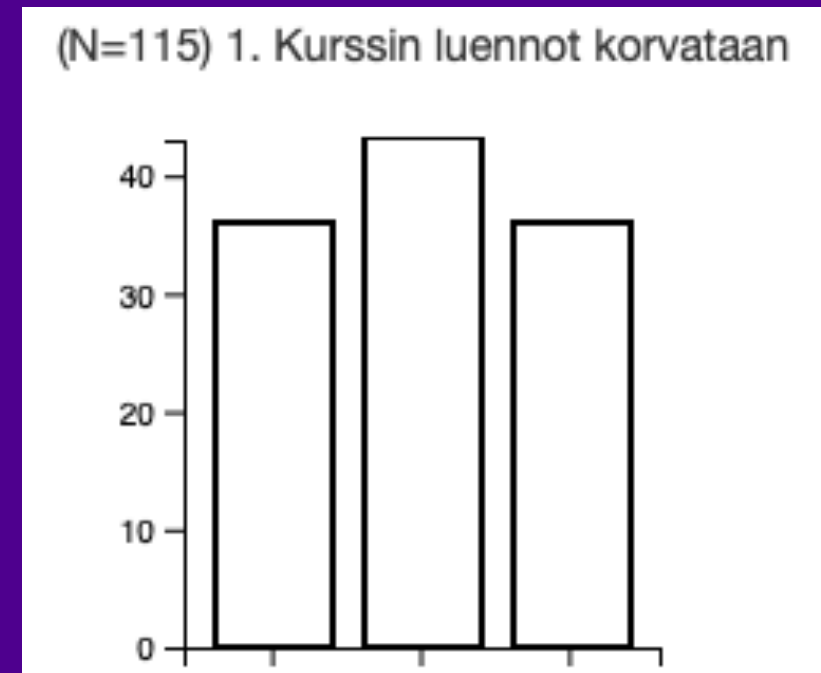
# The main contents

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

# Learning events

## Lectures period 1:

- Fridays 14-16 in Zoom
- Zoom-link published in Plussa and as a Sisu message
- In addition each week Panopto learning videos are published in Plussa





# Learning events

## Exercise class period 1:

- Wednesday 10-12 TC303
- Friday 9-11. Zoom

## Kooditorio on period 2:

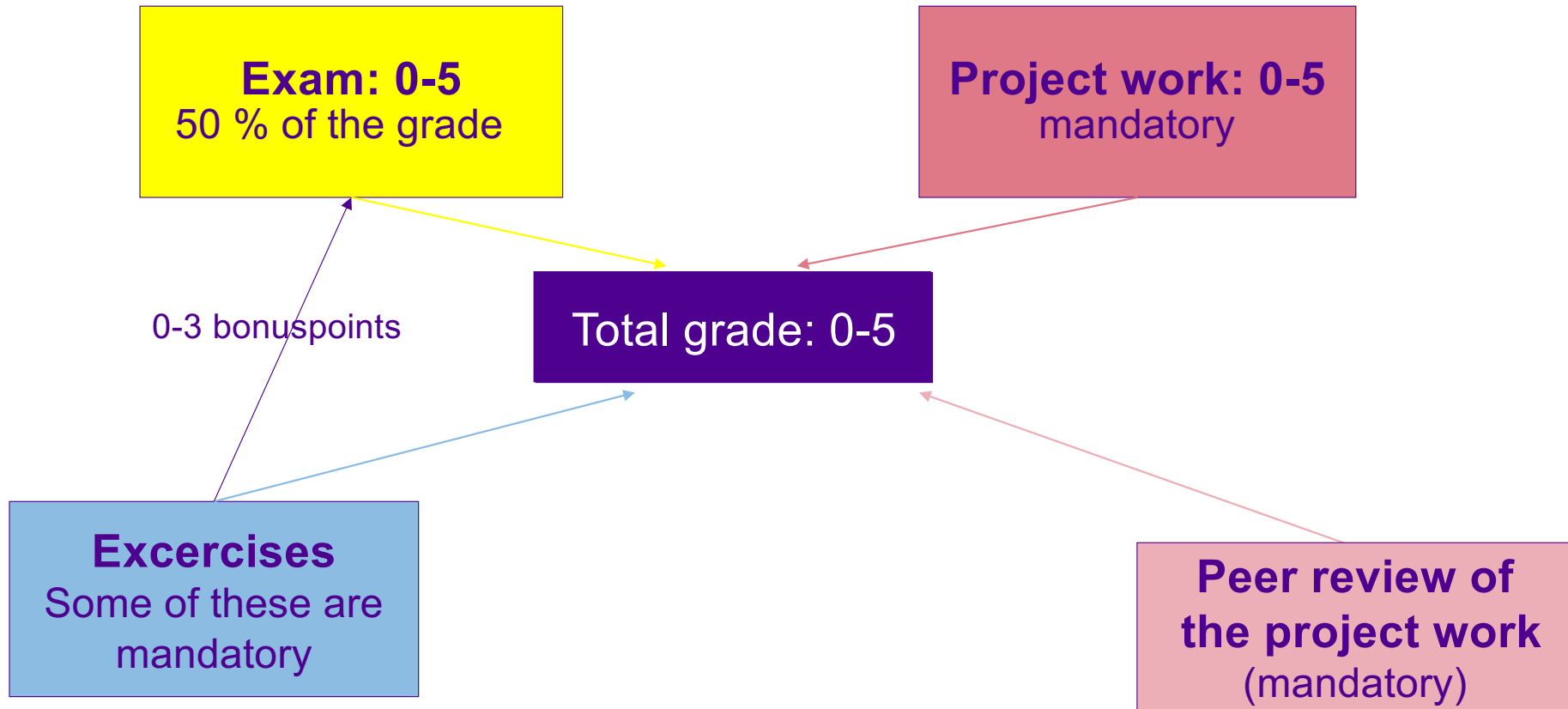
- TC215
- Assistants help with project during period 2 weekly

## Exercises:

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



# Grading: a proposal



# Project work: NysseMeni

- **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.

# NysseMeni – a Tampere adventure

Project work is a game, where the busses and passengers in the Tampere city center act as a part of the game. 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)

# 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

# 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](mailto:prog3@tuni.fi), questions