

04834580 Software Engineering (Honor Track) 2024-25

## Course Overview

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## Dr. Sergey Mechtaev



- ▶ Website: <https://mechtaev.com>
- ▶ Email: [mechtaev@pku.edu.cn](mailto:mechtaev@pku.edu.cn)
- ▶ Research: automated program repair, AI for software engineering, program analysis
- ▶ Responsibilities: lectures, marking, organisation.

## Haoxiang Jia



- ▶ Email: [haoxiangjia@stu.pku.edu.cn](mailto:haoxiangjia@stu.pku.edu.cn)
- ▶ Research: controlling uncertainty in LLM for software engineering
- ▶ Responsibilities: Q&A, marking.

## Course Website

[https://mechtaev.com/teaching/pku\\_softeng\\_24\\_25](https://mechtaev.com/teaching/pku_softeng_24_25)



## Q&A Sessions (Mondays)

- ▶ In-depth discussions
- ▶ Individual questions
- ▶ Team collaboration

## WeChat Group

- ▶ General, simple question
- ▶ Announcements

## GitHub Classroom

- ▶ Questions about code

Create an issue, assign “mechtaev” or “feixiangdejiaobao”, provide a reference to a specific commit, reproduction instructions.

## Development Process, DevOps

- ▶ Agile
- ▶ Version Control
- ▶ Packaging, Continuous Integration

## Quality Assurance

- ▶ Unit Testing
- ▶ Property-based Testing
- ▶ Fuzzing, Symbolic Execution
- ▶ Debugging Techniques
- ▶ Error Handling

## Software Design

- ▶ Modelling
- ▶ Abstraction Mechanisms in PL
- ▶ Design Principles
- ▶ Design Patterns

## Advanced Topics

- ▶ AI for Software Engineering
- ▶ Automated Program Repair
- ▶ Static Analysis
- ▶ Dynamic Analysis
- ▶ Verification

★ Practice (most of) these topics in a group coursework project ★

Assessment scheme:

**50%** project (group)

**30%** marked based on automated tests

**20%** marked based on peer-review

**20%** 2-page report (individual)

marked by teaching staff

**30%** 2-page peer review (individual)

marked by teaching staff

Deadlines:

**24 February 2025, 4pm** Group selection

**13 May 2025, 4pm** Code submission

**3 June 2025, 4pm** Code review & report submission