

# Joint Master's Programme in Software Engineering

## Introduction for new master students – 2016-08-17

- ▶ Supervisors: HiB or UiB or joint, possibly also external
- ▶ Two branches, determines compulsory courses
  - ▶ PU – software engineering:  
INF234(A), MOD250(A), MOD251(S)
  - ▶ PUT – programming theory: INF234(A) and 3 of  
INF220(A), INF225(I-A), INF214(A),  
INF222(S), INF223(S), INF227(S), INF328(I-S0), INF329(I),  
INF214(A), or INF210(I)
- ▶ Remaining courses freely selected from HiB / UiB
- ▶ Two master thesis variants (talk to supervisor)
  - ▶ Long: 60 stp, deadline 1 December 2018  
Research/development oriented, needed for PhD
  - ▶ Short: 30 stp, strict start/end dates  
More structured studies, 3 extra courses

# What is “programutvikling” (PUT)?

- ▶ English: Software Engineering  
In practice: computer programming using experience, tools, common sense and a tiny bit of theory.
- ▶ Our research at II/UiB aims to reverse this order:
  1. a solid theoretical base
  2. innovative themes
  3. developing tools
  4. gaining experience
- ▶ Research and projects range from highly theoretical, to highly practical! — independently of chosen track or long/short thesis

# Staff of PUT



Marc Bezem



Magne Haveraaen



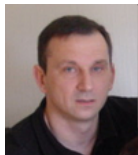
Torill Hamre (II)



Anya Bagge



Jaakko Järvi



Michał Walicki



Uwe Wolter

## Research Themes & Supervisors

- ▶ Programming languages & tools (Anya, Jaakko, Magne)
  - Magnolia – our research language
  - User interface logic – a new programming model
  - Tools for software development and evolution
  - Software (language) engineering
  - High integrity systems (reliable, robust, safe, secure)
- ▶ Logic & foundations (Marc, Michał, Uwe)
  - logical systems & formal proofs
  - foundations of model driven engineering
  - theory of computation
  - type theory
- ▶ Geographical information systems (Torill)
- ▶ Other topics (everybody)
  - in cooperation with industry / research institutions / others
  - proposed by students
  - databases

## Master Topics & Courses

- ▶ Many topics require specific background knowledge
  - take specialised course before starting the thesis
- ▶ Many courses have irregular schedules
  - take the course when it is available
- ▶ Fun courses you may want to include
- ▶ All compulsory courses have regular schedules
  - spring courses can be taken 0th/2nd semester
  - autumn courses can be taken 1st/3rd semester
- ▶ Ask advice from supervisors
  - **ask advice early!**
  - Courses start next week

## Courses for PU/PUT - 0th semester

### Spring 2017

- ● INF 222 Programming Languages (Jaakko Järvi)
- ● INF 223 Category Theory (Uwe Wolter)
- ● INF 227 Introduction to logic (Marc Bezem)
- INF 328 Elements of programming languages (Magne Haveraaen)
- \* MOD 251 Modern Software Development Methods
- MOD 350 Model driven Software Development

### All semesters (ask supervisor)

- INF 219 Programming Project (possibly bachelor)
- INF 319 Programming Project (master)

## Courses for PU/PUT - 1st/3rd semester

Autumn 2017

- INF 214 Concurrent programming (?)
- ● INF 220 Program specification (?)
- INF 226 Software security (?)
- \*●INF 234 Algorithms
- \* MOD 250 Advanced Software Technologies
- MOD 252 Agent Technologies
- MOD 351 Introduction to Grid and Cloud Computing

All semesters (ask supervisor)

- INF 219 Programming Project (possibly bachelor)
- INF 319 Programming Project (master)

## Courses for PU/PUT - 2nd semester

### Spring 2018

- INF 222 Programming Languages (Jaakko Järvi)
- ● INF 223 Category Theory (Uwe Wolter)
- ● INF 227 Introduction to logic (?)
- \* MOD 251 Modern Software Development Methods
- MOD 350 Model driven Software Development

### All semesters (ask supervisor)

- INF 219 Programming Project (possibly bachelor)
- INF 319 Programming Project (master)



## Courses for PU/PUT - 3rd semester

Autumn 2018

**Deadline for thesis: 1 December 2018**

It is not recommended to take courses in the last semester!

## Courses for PU/PUT - irregular

Irregular semesters (ask supervisor)

- INF 210 Modelling of Computing
- INF 328 Elements of Programming Languages
- INF 329 Selected Topics in Programming Theory

Some fun/filler courses

- INF/INFO 207 Social Networks Theory (autumn)
- INF 236 Parallell programming (spring) – requires INF 234
- INF 250 Foundations of data-oriented visual computing (spring)
- INF 251 Computer Graphics (autumn) - requires INF 250
- INF 283 Introduction to Machine Learning (autumn)