Exam/Tentamen

R&D: System Development (I00156)

R&D: System Development Research (I00162)

HG00.304, January 29, 2009,
08:30 – 10:30

Name:	
Studentnumber:	

- For starters write (**now**!) your name and studentnumber on this piece of paper.
- Books, personal notes etcetera are not allowed to be used during this exam.
- The questions refer to the subjects covered by the course documents in Blackboard, i.e. the (guest)lectures with added background material, and by the content of the corresponding chapters of the book as indicated in blackboard (unless explicitly stated otherwise).
- For every question a maximum number of points is stated. The exam as a whole has a maximum of 100 points..
- Start with the questions that you can answer immediately!
- Put your answers on this piece of paper. Use extra paper for draft answers when needed.
- Please formulate precisely and concisely.
- Do not forget to hand in your answer to the supervisor!

I wish you a lot of succes!

Marko van Eekelen

1. Design / Architecture (35 pt)

a) Describe the essential differences between a service-oriented architecture and a data-flow architecture. **(10pt)**

b) Give an example of a problem which you would rather solve with a data-flow architecture than with a service-oriented arhcitecture. **(15 pt)**

c) Describe the architecture of the project that you did during the practical part of this course. Motivate the architectural decisions that have been made by you and your group. **(10 pt)**

2. Agile Development (35 pt)

a) Which 2 agile development principles worked out best in your project? Explain why. **(10 pt)**

b) Which 2 agile development principles worked out less good in your project? Explain why. **(10 pt)**

c) What would you consider the advantages and the disadvantages of introducing a scrum-‘standup’ in GipHouse projects? Overall, are you in favour of it or against it? **(15 pt)**

3. Mixed subjects (30 pt)

a) Consider the following program:

```
if    (condition1)
      f1();
else f2();
if    (condition2)
      f3();
else f4();
```

How many tests are needed for full branch coverage? Explain.
What is McCabe's cyclomatic complexity for this program? Explain.
How many tests are needed for full path coverage? Explain. **(10 pt)**

b) Explain what the ‘copy-left’ restriction means in software licenses. **(10 pt)**

c) How can the defect removal efficieny metric be adapted for component integration? Give a formula. **(10 pt)**

END OF EXAM