Lab Course / “Praktikum”: 
Project Management and Software Development for Medical Applications

Preliminary Meeting – SS2021

Conducted by:
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Prof. Dr. Nassir Navab - CAMP

Munich, 1st of February 2021
Work with clinicians on real-world medical applications

Improve your project management and presentations skills
CoVid-19 related announcements

• Due to the CoVid-19 outbreak and subsequent government measures, short term changes might be necessary
  – Follow the announcement section on the website of the course
  – Check emails regularly

• As of today (1st February 2021) we are planning
  – Purely virtual lectures and presentations conducted via TUM Zoom
  – Zoom details will be provided one day before the sessions via email
  – Presence might be required by supervisors depending on the Project
    • Not guaranteed 100% online course
Lecture Structure

• **4 lectures** by course tutors
  – Introduction (Administrative, Requirements, Grading)
  – Project Management & Presentation Tips
  – Introduction to Software Engineering - Unified Modeling Language (UML)
  – Introduction to Software Engineering - Documentation, Tests, Design Patterns & Integration Strategy

• **3 presentations** by students
  – Kick-off / Requirements (5 mins)
  – Intermediate (7 minutes)
  – Final (with demo) (7 minutes)
Projects will be on Software Development in Medical Applications

- Involves “Medical Application” and “Software Development”
- In collaboration with Hospital or Industry or Research Institute
- In the previous years, example projects were based on:
  - Image Analysis (Registration, Segmentation, Quantification)
  - Graphical User Interface design
  - Mobile App Development
  - Robotics
  - Machine Learning, Deep Learning
  - Computer Vision
  - Image Reconstruction
  - Simulations and Modeling
  - Augmented Reality
  - Computer Graphics
You are Project Manager as well as Software Developer

- **Make and follow your project** plan
  - Gather requirements
  - Set goals and tasks
  - Derive milestones
  - Make Gantt chart (project time plan)

- **Design and implement** the software
  - Design patterns, use case and class diagram
  - Programming in higher level languages (C/C++, Python, Java, Matlab etc.)
  - Development tools like IDEs, version control (GIT) etc.

- **Present your work to the course and supervisors**
  - 3 presentations: Kickoff, Intermediate, Final (with demo)
Project Assignment

• Project proposals will be announced in the web-site of the course in due time
  – You need to send us your application with 3 preferred projects and motivation
  – Application form provided under Downloads > “Student project application template”

• We will try to assign students one project from their preferences
  – Maximize the number of students to assigned projects as their first choice

• Students must discuss the projects with their assigned supervisors as soon as possible
  – After the projects have been assigned
### Project Assignment (continued)

#### Tab. Percentage of assigned projects based on student's preferences

<table>
<thead>
<tr>
<th>Choice</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st choice assigned</td>
<td>10 students</td>
<td>50%</td>
</tr>
<tr>
<td>2nd choice assigned</td>
<td>7 students</td>
<td>35%</td>
</tr>
<tr>
<td>3rd choice assigned</td>
<td>2 students</td>
<td>10%</td>
</tr>
<tr>
<td>no submission</td>
<td>1 student</td>
<td>5%</td>
</tr>
</tbody>
</table>

#### Tab. Top favorite projects (based on student's preferences)

<table>
<thead>
<tr>
<th>Project Number</th>
<th>Selected by</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>7 students</td>
</tr>
<tr>
<td>19</td>
<td>7 students</td>
</tr>
<tr>
<td>1</td>
<td>5 students</td>
</tr>
<tr>
<td>5</td>
<td>5 students</td>
</tr>
<tr>
<td>18</td>
<td>4 students</td>
</tr>
</tbody>
</table>
Grading

• This course has **10 ECTS**
  – Equivalent to **10 – 14 hours per week** for **3 – 4 months**

• **Project Supervisor** will grade based on performance (weight: **50%**)
  – Requirement coverage
  – Implementation on time
  – Completion of the project goals
  – Regular communication

• **Course Tutors** will grade based on presentations (weight: **50%**)
  – Fundamental requirements met (citations, correctness, formatting)
  – Presentation skills (get the message across)
  – Slides (proper layout of text and visual information)
  – Content (for example: introduction, software design, tasks, project management)
Registration

- Highest priority is given to BMC students in their ≥2 semester who have never taken this course (guaranteed place*)
  - Informatics students ≥3 semesters are also prioritized
  - It is not possible to take the course to improve the grade (unless failed previously)

- Register through TUM Matching System ONLY
  - TUM Matching System matching.in.tum.de
  - Matching FAQ docmatching.in.tum.de
Please follow the course webpage or write to us if you have specific questions

- Website

- Course tutors
  
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Thank you