DESN2000
(Computer Engineering)
Course Introduction

Hasindu Gamaarachchi
DESN2000 (COMP Stream)

DESN2000 = Engineering Design + Technical Component

Engineering Design

• done by cross-faculty Design next
• Course Coordinator:
  • Ilpo Koskinen
  • Room 503, Level 5, J17
  • ilpo.koskinen@unsw.edu.au

Technical Component

• done by the school of CSE
• Stream Coordinator:
  • Dr Hasindu Gamaarachchi
  • Room 501K, Level 5, K17
  • hasindu+desn2000@unsw.edu.au
Technical Component Timetable

• Technical lectures

<table>
<thead>
<tr>
<th>Day</th>
<th>Start Time</th>
<th>End Time</th>
<th>Weeks</th>
<th>Room</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>10:00</td>
<td>12:00</td>
<td>1-2, 4-5 and 7-10</td>
<td>Griff M11</td>
<td>Hasindu Gamaarachchi</td>
</tr>
<tr>
<td>Fri</td>
<td>10:00</td>
<td>11:00</td>
<td>1-5 and 7-10</td>
<td>BUS 216</td>
<td>Hasindu Gamaarachchi</td>
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• Technical Labs

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<thead>
<tr>
<th>Name</th>
<th>Day</th>
<th>Start Time</th>
<th>End Time</th>
<th>Weeks</th>
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<th>Staff</th>
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<tbody>
<tr>
<td>W14B</td>
<td>Wed</td>
<td>14:00</td>
<td>16:00</td>
<td>1-5 and 7-9</td>
<td>Flute ME303</td>
<td>Tony Yang Suneth Samarasinghe</td>
</tr>
</tbody>
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<tr>
<th>Name</th>
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<th>Staff</th>
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<tbody>
<tr>
<td>W14C</td>
<td>Wed</td>
<td>14:00</td>
<td>16:00</td>
<td>1-5 and 7-9</td>
<td>Oboe ME304</td>
<td>Riley Haydon Feddrick Aquino</td>
</tr>
</tbody>
</table>

Lab Demonstrators

• Tony Yang
  • yifan.yang4@student.unsw.edu.au

• Suneth Samarasinghe
  • suneth@unsw.edu.au

• Riley Haydon
  • r.haydon@student.unsw.edu.au

• Feddrick Aquino
  • f.aquino@unsw.edu.au
Assumed knowledge

• C programming language
• assembly language
• architectural layers of modern computer systems

assumed to have been acquired in COMP1521
• Designing embedded systems. We will cover several technical topics such as:
  • STM32 ARM microcontroller architecture and programming
  • General purpose Input/Output (GPIO)
  • I/O peripherals such as keypads and LCD
  • Interrupts
  • Timers
  • Analog Input/Output such as Analogue to Digital Converter (ADC) and Pulse Width Modulation (PWM)
  • Serial communication
UNSW CoaST Education Board
Communication

Forum:
https://edstem.org/au/courses/16529/discussion/

Course Material:
https://webcms3.cse.unsw.edu.au/DESN2000/24T2/
Technical Lectures

- You are expected to attend all lectures
- delivered face-to-face
- available through echo360 for reviewing
Labs

• Groups of 3
• 2h sessions every week (except week 6 and 10)
• 4 sets of lab exercises (lab sheets)
  • 2 weeks for each set
• Lab demos will tell you more info during the first lab
• Lab resources: https://webcms3.cse.unsw.edu.au/DESN2000/24T2/resources/98736
Project

- Custom clock with laboratory timer functions
- Groups of 3 (same as lab groups)
- Detailed discussion in next lecture
- See the project brief on webCMS
## Technical Assessments

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
<th>Assessment criteria</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Exercises</td>
<td>20%</td>
<td>Refer to assessment guide (see WebCMS labs)</td>
<td>End of Week 2, 4, 7, 9 labs</td>
</tr>
<tr>
<td>Project implementation</td>
<td>30%</td>
<td>Refer to assessment guide (provided later)</td>
<td>11:59 PM, Friday (Week 10)</td>
</tr>
<tr>
<td>Project documentation</td>
<td>10%</td>
<td>Refer to the assessment guide (provided later)</td>
<td>11:59 PM, Friday (Week 10)</td>
</tr>
</tbody>
</table>
Resources

1. Zhu, Yifeng, Embedded Systems with ARM Cortex-M Microcontrollers in Assembly Language and C

2. Sepehr Naimi, Sarmad Naimi, The STM32F103 ARM Microcontroller and Embedded Systems

• UNSW Leganto library reading list for these two textbooks: