INTRODUCTION

CS3021/3421 Computer Architecture II

Dr Jeremy Jones

Office: O’Reilly Institute F.11

Email: jones@scss.tcd.ie
BACS/MCS and BAI/MAI

students
## BACS/MCS Year 3 Timetable

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</table>
### INTRODUCTION

#### BAI/MAI YEAR 4 Timetable

<table>
<thead>
<tr>
<th>DAY</th>
<th>SEMESTER</th>
<th>0900 - 1000</th>
<th>1000 - 1100</th>
<th>1100 - 1200</th>
<th>1200 - 1300</th>
<th>1300 - 1400</th>
<th>1400 - 1500</th>
<th>1500 - 1600</th>
<th>1600 - 1700</th>
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**Note:** The highlighted courses (CS3421, CS4053, CS4052, CS4053, CS4D2B, CS3421, CS3421, CS4031) are marked as important for the BAI/MAI Year 4 curriculum.
SYLLABUS

- IA32 and x64 assembly language programming
- IA32 and x64 procedure calling conventions
- RISC vs CISC
- RISC-1 design criteria and architecture
- Register windows and delayed jumps
- Instruction level pipelining
- DLX/MIPS pipeline
- Resolving data, load and control hazards
- Virtual Memory
- Memory management units [MMUs]
- Multi-level page tables and TLBs
- MMU integration with an OS
INTRODUCTION

SYLLABUS ...

- Cache organisation (L, K and N)
- Cache operation and performance
- The 3 Cs
- Virtual vs physical caches
- Pseudo LRU and LRU replacement policies
- Address trace analysis

- Multiprocessor architectures
- Cache coherency
- Cache coherency protocols [write-through, write-once, Firefly and MESI]
ASSESSMENT

Coursework: 20%
  • 5 or 6 tutorials + a coursework project

Examination: 80%
  • answer 3 out of 4 questions in 2 hours
COURSE WEB PAGE


For

• Lecture notes
• Tutorials (questions, answers and marks)
• Coursework
• Miscellaneous materials
Useful Books

Computer Architecture - a Quantitative Approach
John Hennessey and David Patterson

High Performance Computer Architecture
Harold S. Stone
Get Started on Wednesday @ 3pm M17

See you there!