(For Harry Potter Fans – others go to page 2)

Hogshill College of Science Based Magic
11000000111001_2 El Monte Road Los Altos Hills, CA 10110111101000110_2

Computer Magic 1010_2

Any sufficiently advanced technology is indistinguishable from magic.

Arthur C. Clarke

Syllabus

Days: TTH, Time: 06:00PM - 07:50 PM, Room: 4305 Main Campus

Contact info: Tom Riordan, riordanthomas@fhda.edu

Text (Required)

Patterson & Hennessy, **RISC-V Edition**: Computer Organization and Design: The Hardware/Software Interface. San Francisco, CA: Morgan Kaufmann

Note!!! Not "Hennessy and Patterson" that is a different book and make sure to get the RISC-V edition! ISBN: 9780128122754

Reference Text (Not Required)

Harris & Harris, 2nd Edition: Digital Design and Computer Architecture. Morgan Kaufmann

Course Outline

1. Transfiguration: Sand into Sentience, Computer Abstractions and Technology, Warehouse Scale Computers – Chpt1, Week 1
2. Parseltongue: Language of the Computer (Instructions) - Chpt 2, Weeks 2 & 3
3. Arithmancy: Arithmetic for Computers – Chpt 3, Week 4
4. Her**boole**gy: Basics of Logic Design – Appendix B, Week 4
5. Potions, Flying, and Divination: The Processor (Pipelining, Forwarding, and preDiction) – Chpt 4, Weeks 5 & 6
6. Midterm – Week 7 (first class of the week)
7. Magical Creatures: Large and Fast: Exploiting Memory Hierarchy (Caches) – Chpt 5, Week 7 & 8
8. Defense Against the Dark Arts: Error Correcting Codes – Chpt 5, Week 9
9. Apparition: Parallel Processors from Client to Cloud – Chpt 6, Weeks 10 & 11
10. Final – Week 12 per the Foothill Finals Schedule, posted online

In this course you will learn every magic trick that computer architects and designers use to make your Magic Wand, Broom (smart phone, self driving car) work. However, **make no mistake**; this is a class that is **difficult** due to its vast scope. It is transferrable to the UC system, etc. and as such has strict requirements on content. (GoTo page 3.)

Foothill College
12345 El Monte Road Los Altos Hills, CA 94022

Computer Science CS10

Syllabus

Days: TTH, Time: 06:00PM - 07:50 PM, Room: 4305, Main Campus

Contact info: Tom Riordan, riordanthomas@fhda.edu

Text

Patterson & Hennessy, **RISC-V Edition**: Computer Organization and Design: The Hardware/Software Interface. San Francisco, CA: Morgan Kaufmann

Note!!! Not "Hennessy and Patterson" that is a different book and make sure to get the RISC-V Edition! ISBN: 9780128122754

Reference Text (Not Required)

Harris & Harris, 2nd Edition: Digital Design and Computer Architecture. Morgan Kaufmann

Course Outline

1. Computer Abstractions and Technology – Chpt1, Week 1
2. Instructions: Language of the Computer – Chpt 2, Weeks 2 & 3
3. Arithmetic for Computers – Chpt 3, Week 4
4. Basics of Logic Design – Appendix B, Week 4
5. The Processor – Chpt 4, Weeks 5 & 6
6. Midterm – Week 7 (first class of the week)
7. Large and Fast: Exploiting Memory Hierarchy (Caches) – Chpt 5, Week 7 & 8
8. Error Correcting Codes – Chpt 5, Week 9
9. Parallel Processors from Client to Cloud – Chpt 6, Weeks 10 & 11
10. Final – Week 12 per the Foothill Finals schedule, posted online

In this course you will learn every technique that computer architects and designers use to make your smart phone, self driving car, etc. work. However, **make no mistake**; this is a class that is **difficult** due to its vast scope. It is transferrable to the UC system, etc. and as such has strict requirements on content.

What should you expect in this course? You will be expected to complete a reading assignment from the text **before** each week. For example, you should have read Chapter 1 before coming to class the first time. There will be both a graded at home and in class quiz every week. There is also a programming component to the class that will be done in assembly language – the language of the processor.

Grade Determination: The breakdown of grade assignment is as follows:

Programming/Lab 20% (Programming in C or MIPS/RISC-V assembly, ultimately to evaluate the relationship between programming and performance) **All labs must be completed and turned in to avoid being downgraded by one letter grade – The labs are individual, not group assignments, but you may consult with and share ideas with your classmates.**

Weekly Quizzes 15/15% (**Online Outside of Class** once or possibly twice each week covering mainly conceptual questions from that week and **Online in class** once or twice each week covering problem solving from the previous week) The **in class** quizzes are **highly** representative of what will be on the **midterm** and **final**. Use them as a study guide.

Midterm 25% (Closed book, Closed Notes, Open MIPS/RISC-V Instruction List)

Final 25% (Closed book, Closed Notes, Open MIPS/RISC-V Instruction List)

I reserve the right to change the grade determination percentages if conditions warrant, necessitate, or permit such a change. Note that one should not try to manage his or her way to an A in the course as you are graded relative to your peers, not to a static % scale as one might encounter in high school.

Late Work Policy

Each person gets three(3) “no excuse required” late days. A day is the minimum granularity; that is, 1 hour late = 1 day late

All other late submittals require my explicit approval

No labs or homework accepted more than one week late under any circumstance