# CS 6291: Embedded Software Optimizations

# Detailed Pacing Schedule

Lessons and Book Reading

## Part I

Book (Embedded Computing: A VLIW Approach to Architecture, Compilers and Tools 1st Edition
by Joseph A. Fisher , Paolo Faraboschi , Cliff Young)

| Week # | Associated Lesson(s) | Book Reading |
|---|---|---|
| 1 (May 11th to 17th) | P1L1 and P1L2 | Chapters: 1 and 2 |
| 2 (May 18th to 24th) | P1L3 and P1L4 | Chapters: 3 and 4.1-4.2 |
| 3 (May 25th to May 31st) | P1L5 and P1L6 | Chapter 4: 4.3 - end |

## Part II

Book (Compilers: Principles, Techniques, and Tools (2nd Edition)
by Alfred V. Aho, Monica S. Lam, Ravi Sethi and Jeffrey D. Ullman

and Research Papers (Links at the beginning of respective lessons)

| Week # | Associated Lesson(s) | Book Reading |
|---|---|---|
| 4 (June 1st to June 7th) | P2L1 and P2L2 | Chapter 1, upto 1.3, Chapter 2: upto 2.4.4 Chapter 8: upto 8.4.4 |
| 5 (June 8th to June 14th) | P3L1 and P3L1*** (lessons 11 followed by 10) | Chapter section 8.8 Chapter section 9.2.5 |
| 6 (June 15th to June 21st | P3L2 | Paper on: Post-pass register allocation (Link at the beginning of the lesson) |
| 7 (June 22nd to June 28th ) | P3L3 | Paper on: Differential Register Allocation (Link at the beginning of the lesson) |
| 8 (June 29th to July 5th) | P3L4 | Paper on: Optimizations for Auto Addressing Mode (Link at the beginning of the lesson) |
| 9 (July 6th to July 12th) | P3L5 | Paper on: Parallelizing Load/Stores (Link at the |

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|---|---|---|
| | | beginning of the lesson) |
| 10 (July 13th to July 19th) | P4L1 and P4L2 | Paper on : Resolving Register Bank Conflicts (Link at the beginning of the lesson) |
| 11 (July 20th to July 23rd) | Review and Final Examination Preparation | Comprehensive Examination, review all the course material covered in the semester |

**Homeworks, Project, and Finals (Dates are tentative)**

| Assignment | Assigned | Due |
|---|---|---|
| Homework 1 | 5/22/2020 | 6/1/2020 |
| Homework 2 | 6/5/2020 | 6/15/2020 |
| Homework 3 | 6/19/2020 | 7/6/2020 |
| Homework 4 | 7/10/2020 | 7/20/2020 |
| Project* | 5/28/2020 | 7/19/2020 |
| Finals** | 7/24/2020 | 7/28/2020 |

**Notes**:

- The book chapters and papers cover many additional topics than the respective lectures, in some cases, they give many additional

details. Therefore, students should study BOTH the lesson videos and the suggested reading materials above.

- * The project will have two independent parts – the first part will be due on June 22nd and second part will be due on July 19th
- ** Final exam will be administered through ProctorTrack. Will be open for taking it from 9 am on 7/24/2020 and will close at 9 am on 7/28/2020. Duration will be approximately 3 hours. Final examination will be comprehensive covering all the topics in the course.
- *** Udacity has wrongly numbered these lessons both as P3L1 so please pace these lesson numbers 11 (register allocation) followed 10 (liveness analysis) together, going back and forth as needed.