Course Plan

CS 348 Implementation of Programming Languages Lab

Jan-May 2023

Prof. Sukumar Nandi

Course Instructor & TAs

Course Instructor: Prof. Sukumar Nandi

PhD TAs:

- **Saurav Kumar** *(ksaurav@iitg.ac.in)*
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M.Tech TAs:

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Moodle Page

- Link: https://www.iitg.ac.in/moodle/course/view.php?id=899
- Password: CS348STUD

All course materials, assignments, and other important documents will be shared on Moodle.

Marks Distribution

CS 348 0-2-3-7

Weightages:

- Tutorials: 55%
- Lab: 45%

Evaluation Structure - Tutorials

Total 4 Quizzes

- Quiz 1: End of January
- Quiz 2: Surprise Quiz (in February)
- Quiz 3: End of March
- Quiz 4: Surprise Quiz (in April)

Evaluation Structure - Lab

Total 4 Assignments

- Assignment 1 (To be floated on 9th Jan, Monday)
- Assignment 2 (To be announced)
- Assignment 3 (To be announced)
- Assignment 4 (To be announced)

Attendance in Lab is mandatory; attendance will be taken twice per day.

CS 348 Syllabus

- **Prerequisites:** CS204 (Algorithms and Data Structures Lab) and CS205 (Formal Languages, Automata Theory and Computation)

- **Syllabus:** Assembly language programming: basic concepts of computer organization, instruction and data representation; Linux Assembly language; assembly language programming and simulation using X86; C-macro linker and loader; design of linkers and loaders in C: compile and go loader, absolute loaders, relocating loaders, direct linking loaders; programming assignments to build a compiler for a subset of a C-like programming language, using tools such as Lex / Flex / JLex and Yacc / Bison / CUP etc.

CS 348 Reference Books

- 1. S. Tanenbaum, Structured Computer Organization, Prentice Hall, 1999.
- 2. Britton, MIPS Assembly Language Programming, Prentice Hall, 2003.
- 3. J. Donovan, Systems Programming, 45th Reprint, Tata Mc-Graw-Hill, 1991.
- 4. Pal, Systems Programming, Oxford University Press, 2012.
- 5. Levine, Linkers and Loaders, MORGAN KAUFFMAN, 1999.
- 6. Brown, J. Levine, T. Mason, Lex and Yacc, 2nd Edition, O'REILLY Publications
- 7. N. Fischer, R. J. Le Blanc, Crafting a Compiler with C, Pearson Education, 2009.
- 8. V. Hall, Microprocessor and Interfacing, Tata McGraw Hill, Second Edition, 1999.