CS251
Foundation Lab
Introduction

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http://www.cse.iitb.ac.in/~cs251
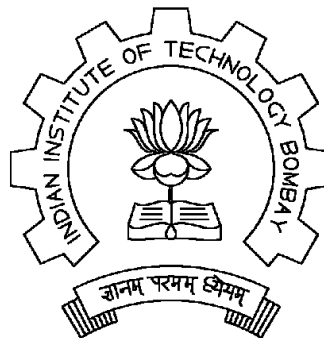
Beware of the computer!

- from computers -> embedded + networked SoCs (SoS)
  -→ « System of Systems » IOT
- Complete change in device interaction
- Growing number of critical applications

Plan

- Overview:
  - Technology landscape of SW from CSE UG POV
- Teaches you to:
  - Script
  - Build web page
  - Document your work (theory and code)
  - Develop system programming skills
  - Put it all together in a project
- All to help you with later courses/career

Outline

- Course content & goal
- Instructor's take
- Course Notes/logistics
    - Groups
    - Sharing & Points
    - Grading
    - Latedays
- Project

Course Content & Goal

- **Presenting your work**
  - HTML, CSS, Drawing Software, LaTeX, gnuplot
- **Code warrior**
  - Reading and Writing Code, Profiling, Debugging, Editors, IDE, Makefiles, Compilation, Linking, Version Control,C++, Java, Python, Bash, Awk
- **Linux**
- **Goal:** prepare you with vocabulary of CS tools such that later concepts can be easily explored

Course: Instructor's take

- **Hone your programming expertise**
  - Build on CS101 and CS152
  - Develop a respect for programming
- **Engage more intimately with CS**
  - "Look beneath the hood" of software
  - Prepare yourselves for the cool stuff to be learnt

How do we achieve these goals?

Grading (8 credits)

- Assignments:
  - In-lab   20%
  - Out-of-lab   35%
- Quiz (2+) pre/post midsem   15%
- Project   30%
- Total   100%

  (Scheme subject to slight variation)

First Steps

- Form teams:
  - 3 members for assignments and project
  - TAs will mail Google form
  - Details on Moodle
- Prior experience:
  - Query prior knowledge
  - Topics of your interest
- Project
  - Starts post midsem
  - Think about something cool

Submissions

- Assignments due at 11:55 AM
  - Via moodle (If moodle is down we'll give alternate)
- Missed deadline:
  - Submit assignment to prevent getting a fail grade
- Programming assignments:
  - Late submission (every 2-hour or part thereof) have an exponential penalty starting with 1%
  - Penalties as follows:
  - 0-2(1%), 2-4(2%), 4-6(4%), 6-8(8%), 8-10(16%), 10-14(32%),14-24(64%),>24(100%) But you still have to submit it.

Latedays

- 3 latedays in over entire duration of course
- If you use a lateday for submission penalty will not apply (for that day only)
- E.g. 3 assignments one day late=> on-time
- 1 assignment 4 days late=> 1 day late
- 1 minute late = full lateday
- Group work =>lateday applies to each partner
- Latedays should be stated in README file
- Unused latedays cannot be encashed

Latedays

- Latedays must be explicitly claimed

- If the latedays have been all used up, then the penalty scheme will apply for each additional late day for the assignment submission.

- Unused late days are not available for cashing, or for donation to a needy soul.

Grade Revision

- Bring to OUR attention within 72 hours of receipt or next lecture, whichever is earlier

- Post query so others affected can benefit

- Study model answers before questioning decision

- Appeal=> instructor may revise other marks also

- Be objective: "Answer states 2 marks for this step; I have written this step; please reevaluate"

References

- See http://cse.iitb.ac.in/~CS251

Course rules

- Interactive

- Strict on attendance

- Fussy about learning

- May not know too much but willing to work hard and do his job

Course Logistics

- Moodle

- Piazza – for interaction

- Meeting time, TAs, Venue, Course Web Page

- Learning versus Evaluation

  - Lab assignments (inside lab and outside)

Groups

- Groups of 3, fixed for the semester
- However, individual marks
- Lowest roll number submits
- Questions
  - Who does the work?
  - How to get help?
  - What help is permissible?
  - What's the penalty for breaking rules?

Important

Ethics

- **Important preparation for future**
- **Default Honour code** (write on assignment):
  - Pledge: "I've not given or received unauthorized assistance on this task"
- **Collaboration:**
  - Discuss with **own** group or TA
  - Inter group discussions not allowed.
- **Project:**
  - Feel free to take things from Internet but do not plagiarize (cite sources if you do)
  - Violation is a serious matter

Sharing & Points

- Any work for which you (or your group) claims points much be done by you

- If it is not your work, you must **explicitly** cite

- Cannot take or borrow something for which you claim points

Penalties

- What happens if you violate these?

- Don't --- its about learning and not points

- Will result in reporting to DDAC

Project

Project

- **Assessment:**
  - 30% of CS251 Course Assessment
- **Ideate:**
  - Consider yourself developers of a product/ service
- **Project process**:
  - *Stages*: Idea exploration; Articulation; Debugging; Prototype; Final Demo & presentation;
  - *Submissions*: presentations, working demo, documentation, video, documented code, reusable artifacts (code)

Project Assessment

- Initial presentation   10%
- Initial Prototype   25%
  - % completion
  - Algorithm..
- Final Demo   30%
  - Completion of project goals (10%)
  - Effectiveness of demo (5%)
  - Viva (5%)
  - Programming and implementation (10%)
- Final Presentation   10%
- Report   10%
- Lab compliance   5%

- Reusability   10%
  - Design for reuse / Quality of work products.

        Total   **100%**

Subject to slight variation…

Summary

- **Hone programming skills & Linux OS**
  - Reading and Writing Code, Profiling, Debugging, Editors, IDE, Makefiles, Compilation, Linking, Version Control, Java, Python, Bash, Awk
- **Train you to present your work**
  - HTML, CSS, Drawing Software, LaTeX, Gnuplot
- **Project**
  - Brings it all together
- **Prepares you to get the most out of CS**