CS 303 - Operating Systems Syllabus
Semester 1
Academic Year 2019 - 2020

- **Lecture Times:** Wednesdays 1:50 PM - 2:40 PM, Thursdays 2:50 PM - 3:40 PM and Fridays 3:50 PM - 4:40 PM.
- **Tutorial time:** Wednesdays 5:50 PM - 6:40 PM (same location as the lectures).
- **Lab times/Office Hours:** TBD.
- **Class Room:** Seminar hall, S. Ramanujan Building.
- **Instructor:** Nitin Auluck, Department of CSE (S. Ramanujan Block), room 106, email[1]: *nitin@iitrpr.ac.in*[2], web: `http://www.iitrpr.ac.in/cse/nitin`. Preferable to send email for an appointment.
- **Teaching Assistant:** Amanjot Kaur (CSE), email: *2017csz0014@iitrpr.ac.in*, Shobhit Kumar (CSE), email: *2018csm1021@iitrpr.ac.in* and Saurabh Jaiswal (CSE), email: *saurabh.19csz0009@iitrpr.ac.in*.
- **Moodle:** A course web page shall be maintained on Moodle: `http://www.iitrpr.ac.in/moodle/`. **Enrolment key is:** *cs*303_201920201. This page shall be used for - course announcements, reading material, lecture slides, assignment & lab submission etcetera. **All assignments & labs shall only be submitted electronically**. **It is your responsibility to check the course page on a regular basis (checking on a daily basis is strongly recommended)**.
- **Class Email List:** There will be a class email list with ID: *cs303@iitrpr.ac.in*. Please send me email if you are not receiving mails, so that we can add you to the list.
- **Textbook:** Operating System Concepts, by Abraham Silberschatz, Peter B. Galvin and Greg Gagne, 9^{th} edition, Wiley India, ISBN: 978-81-265-5427-0, 856 pages.
- **Reference book:** Modern Operating Systems, by Andrew S. Tanenbaum & Herbert Bos, 4^{th} edition, Pearson India, ISBN: 978-93-325-7577-6, 1136 pages.
- **Course Prerequisites:** CS 201 - Data Structures & CS 204 - Computer Architecture.
- **Course Objectives:** After completing this course, the student will have an understanding of the various concepts and principles that govern operating system design. The student will understand the basic building blocks of an operating system and how these blocks interact with each other to run user applications.

[1] email is the preferred mode of communication.
[2] while sending email, please include CS 303 in the title.

- **Course Overview:** Functions of operating systems, layered architecture, basic concepts, interrupt architecture, system calls and notion of process and threads, synchronization and protection issues, scheduling, memory management including virtual memory and paging techniques, input-output architecture and device management, file systems, distributed systems (if time permits), case studies of popular operating systems (if time permits).

- **Tentative List of Chapters from the textbook:** Introduction, System Structures, Process Concept, Multi-threaded Programming, Process Scheduling, Synchronization, Deadlocks, Memory Management Strategies, Virtual Memory Management, File Systems, Secondary Storage Structure, I/O Systems, Real-Time Systems, Multimedia Systems.

- **Important note: Please note that it is your responsibility to go through and understand all the course policies, which are described next**.

- **Weightage of marks:**

  - Quizzes: 2.5 %. *These may be unannounced.* Absence from class on the day of the quiz cannot be used as a basis for requesting a make-up quiz, unless there is a genuine case, & you have submitted evidence and obtained pre-approval from the instructor.
  - Tutorials: 7.5 %. These will consist of problems that you need to solve related to the material covered in the class.
  - Home-works and labs: 30 %. These will be both programming and non-programming (theory) based. Some may involve making changes to the OS/adding functionality to existing OS.
  - Mid Semester exam: 30 % - sometime between September 22 - September 29, 2019.
  - Final exam: 30 % - sometime between November 24 - December 2, 2019.

- **Student Responsibilities:**

  - Attending classes.
  - Maintaining decorum in the class.
  - Reading the textbook, and other assigned material. It is advisable to start reading from day one as opposed to waiting till just before the exams.
  - Completing and submitting the home-works and labs on time. Again, you need to start early. You may have a hard time finishing on time, if you do not start early.
  - Sitting in the exams.

- **Course Policies:**

  Please note that in addition to the policies of this course, the institute also has other policies. It your responsibility to read these policies. For more details on the various institute policies, you are strongly encouraged to read the institute undergraduate (UG) handbook of information, which is available at: `http://www.iitrpr.ac.in/handbook-information`.

  - **Coming to class Late policy:** You may not come to class later than 10 minutes after the start time of that class. In this case, attendance for that day will not be

marked. **It makes sense to be on time for class, else you may miss material & consequently, be lost for the rest of the class. Make all efforts to be on time for class**.

- **Late Home-work and Lab Policy:** All home works and labs will have a submission deadline. For each day that the lab or home-work is late (weekends included), 10 % of the grade for that lab or home-work will be deducted. This means that each lab or home-work's value is 0 if it is submitted more than 10 days late. If you need extra time, please see the instructor before the home-work or lab is **first due** and extra time may be scheduled on a case-by-case basis. In the rare case that you may need to miss an exam, contact the instructor with the required documentation (for example a doctor's note) as soon as possible. For more details on the institute policy, on this, & on other issues, see the handbook of information.
- **Academic Honesty Policy:** All the work that you submit must be your own. Cheating is a very serious issue and should be avoided at all costs. **All submitted home-works will be tested for cheating/plagiarism. We also have the code submitted by previous students in our database, so those will be checked as well.** If it is discovered that some form of cheating has been done in a home-work or lab, straight away, a ZERO will be given for that home-work or lab. Further cheating will result in an F in the course **and** the matter will be reported to the higher authorities for possible disciplinary action. Cheating in exams is also very serious and the involved students will receive a ZERO in that exam. In addition, note that the case shall be reported to the institute, & it can take more serious action for plagiarism - such as **F grades in all courses in that semester** or **expulsion from the institute**. To be clear, read the handbook of information.
- **Regrading Policy:** If you are not satisfied with the way that any home-work, lab or exam has been graded, you have the option of submitting it for re-grading. Here are some guidelines:
  - All such requests for potential re-grading should be submitted **only in written**. Please provide a written explanation as to why you think that the grading is incorrect. Please note that any oral request shall not be entertained. The individual cases will be examined and resolved based on their merit.
  - This written explanation should be submitted along with your graded home-work, lab or exam.
  - If it is determined that your request has merit, re-grading will be done.
  - Your re-grading request should be received **within one week** from the date that the graded home-work, lab or exam has been handed out to you.
