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| System Programming Using Linux  *Certification Program Curriculum* | | | | |
| *Certification Rules: All mandatory assignments/course work must be completed for participant to be eligible for certification exam. Mandatory assignments/course work is marked in orange.* | | | | |
| *Communication Channels: All updates regarding study materials, assignments, due dates, classroom sessions, etc., will be shared via emails/notifications from the platform. Classroom sessions will be announced in the monthly learning calendars.* | | | | |
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| L&D Lead: Tanmoy Bandyopadhyay | | | | |
| *Module* | ***Topic Covered*** | ***Learning Objective*** | ***Course Work*** | ***Available when?*** |
| 1 | Pretest | * Assess baseline understanding | * Pre test | July’ 2017 |
| 2 | Computer Organization and Architecture | * Should be able to relate software hardware interaction | * Study Material. | July' 2017 |
| 3 | Operating System Concepts | * Should be able to understand OS abstraction so that it becomes clear what OS is doing conceptually | * Study Material. | July' 2017 |
| 4 | Introduction to Linux Operating System | * Should be comfortable with linux command line interface along with tools like gcc, gdb, valgrind, make, ar etc. * Should be able to create static and dynamic libraries. | * Study Material. * Quiz for self-assessment | July' 2017 |
| 5 | Shell Scripting | * Should be able to understand the syntax and apply basic programming constructs applicable for a shell script. * Should be comfortable in using external commands like grep, find, awk in a shell script and process the information returned by these commands. | * Study Material. * Quiz for self-assessment. | July' 2017 |
| 6 | File I/O | * Should be able to write simple file handling tasks using the available system calls. | * Study Material. * Quiz for self-assessment. | Aug' 2017 |
| 7 | Process Management | * Should be able to apply the process management functions in a code. | * Study Material. * Quiz for self-assessment. | Aug' 2017 |
| 8 | Signals | * Should be able to appreciate the importance of signals and be able to enhance existing codes after incorporating proper signal handling. | * Study Material. * Quiz for self-assessment. | Aug' 2017 |
| 9 | Interprocess Communication | * Should be able to distinguish between different IPC objects and write codes using them. | * Study Material. * Quiz for self-assessment. * Graded Assignment on topic 5, 6, 7, 8, 9. | Aug' 2017 |
| 10 | Threads | * Should be able to write a threaded code, taking care of race conditions (preferably a concurrent server) | * Study Material. * Quiz for self-assessment. | Sept' 2017 |
| 11 | Basics of Data Communication | * Should be able to appreciate TCP/IP model so as to write and understand codes using sockets API | * Study Material. * Quiz for self-assessment. | Sept’ 2017 |
| 12 | Socket Programming - TCP | * Should be able to write or debug a moderately complex client server application using TCP sockets | * Study Material. * Quiz for self-assessment. * Graded Assignment on topic 10, 11, 12. | Oct’ 2017 |
| 13 | Examination for Certification | * Assess learning | * Certification Exam | Nov’ 2017 |