

Program Code & Semester: B.Tech (IT)- 2nd Semester.

Paper Title: Computer Organization and Architecture
Tutorial and Practical - Set 1

1. Linux Time [Practical] - Analyse the Linux time command. Understand the difference among the user, system and real time
2. Processor Core [Practical] - Use the Linux **taskset** command to run the program in a specific core and check its correctness using the **top** command.
3. Performance Computation [Tutorial] - Compute our Central Computing Facility's High Performance Computing performance in Floating Point Operations Per Second (FLOPS). The processor is **2xIntel Xeon 6148 Gold** and other details are in <https://ccf.iiita.ac.in/hpc.html>
4. Assembly Code [Practical]- Write a Simple Calculator program and analyse the assembly code that can be generated using the **GCC**?
5. MARS [Practical] - Install and understand the execution process with a simple addition program as an example and setting the registers. Do the following for installation and same test.
 - Download the tool from <https://courses.missouristate.edu/KenVollmar/mars/tutorial.htm>
 - After download, double click to open the tool in Windows. In Linux, you can open it through the terminal by typing the jar file run command (java -jar jarfilename.jar).
 - Copy a sample program from <https://courses.missouristate.edu/KenVollmar/mars/tutorial.htm>
 - Run the program (Click Run — assemble). You can see in the Mars message console if any error.
 - To see the process steps and output click on play button.
6. Performance [Tutorial] - Understand the difference between based and turbo frequency of a processor.
7. Basics [Tutorial] - Throughput, Response Time, Execution Time, Elapsed Time, Clock Time and Clock Cycles.