MCSC106: SOFTWARE TOOLS AND TECHNIQUES [0-0-2]

Course Objective:

To develop proficiency in the use of software tools required for project development.

Course Learning Outcomes:

On completing this course, the student will be able to:

CO1: master the command line interface
CO2: use features of version control systems
CO3: debug and profile code
CO4: manage dependencies

Syllabus:

Shell Tools and Scripting, Editors (Vim), Data Wrangling, Command-line Environment, Version Control (Git), Debugging and Profiling, Metaprogramming: Working with Daemons, FUSE, Backups, APIs, Common command-line flags/patterns, Window managers, VPNs, Markdown, Booting + Live USBs, Docker, Vagrant, VMs, Cloud, OpenStack, Notebook programming

Readings:

1. Newham C. Learning the bash shell: **Unix shell programming**. " O'Reilly Media, Inc."; 2005 Mar 29.
2. Shotts W. **The Linux command line: a complete introduction**. No Starch Press; 2019 Mar 5.
3. https://git-scm.com/book/en/v2

PART - I (SEMESTER - II)

MCSC201: ARTIFICIAL NEURAL NETWORKS [3-0-1]

Course Objectives: The course covers state-of-the-art techniques in neural network design, optimization, and specialized architectures. Students will gain hands-on experience through practical assignments and projects, enabling them to apply advanced neural network models to real-world problems.

Course Learning Outcomes:

On completion of this course, the student will be able to:

CO1: implement and analyze kernel methods, radial-basis function networks, and kernel regression.

CO2: implement and evaluate regularization networks and self-organizing maps.

CO3: develop information-theoretic models for the machine learning tasks.

Syllabus: