III/IV B. TECH. FIRST SEMESTER
FREE OPEN SOURCE SOFTWARE TOOLS(Required)

Course Code : CS 5L4   Credits: 2
Lab Hours: 3 periods/ week   Internal assessment: 25 Marks
Tutorial:-   Semester end examination: 50 Marks

Course Objectives:

To expose students to free open source software environment and introduce them to use open source packages.

Course Outcomes:

At the end of this course student will:

CO1) Implement various applications using build systems

CO2) Understand the installation of various packages in open source operating systems

CO3) Create simple GUI applications using Gambas 3

CO4) Understand various version control sytems

CO5) Understand the kernel configuration and virtual environment

Syllabus:

1. Compiling from source : Learn about the various build systems used like the cmake / make / ant etc. instead of just running the commands.
2. Introduction to package management system : Given set of RPM or DEB, how to build and maintain , serve packages over http or ftp. And also how do you configure client systems to access the package repository.
3. Install various software packages
    b. Install Samba and share files to windows
    c. Install Common Unix Printing System (CUPS)
4. GUI Programming : A Sample programme – Using Gambas 3 since the students have VB knowledge. However, one should try using GTK or QT
5. Version Control System setup and usage using RCS/ CVS/SVN
6. Text Processing with Perl : Simple programs , connecting with database e.g., MYSQL
7. Running PHP : Simple applications like login forms after setting up a LAMP stack
8. Running Python : Some simple exercises
Set up the complete network interface using ifconfig command like setting gateway, DNS, IP tables, etc.
7. Virtualization environment (e.g. Xen / kquemu / lguest / Oracle virtual box) to test an applications, new kernels and isolate applications.

8. Kernel Configuration, Compilation and installation : Download / Access the latest kernel source code from kernel.org, compile the kernel and install it in the local system. Try to view the source code of the kernel.

Learning Resource

Text Books

1. Linux Labs and Open Source Technologies Paperback by Dayanand Ambawade (Author), Deven Shah (Author), Kogent Learning Solutions Inc. (Author)
2. Linux Apache Web Server Administration (Craig Hunt Linux library)Paperback – Import, 23 Nov 2000