17CS42E2- FREE AND OPEN SOURCE SOFTWARE

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| **Course Category:** | Professional Elective | **Credits:** | 3 |
| **Course Type:** | Theory | **Lecture – Tutorial – Practical:** | 3-0-0 |
| **Prerequisite:** | Require the fundamentals of any operating system and computing basics | **Sessional Evaluation:**  **Univ. Exam Evaluation:**  **Total Marks:** | 40  60  100 |
| **Objectives** | * To introduce students to open source software, study common open source software licenses and open source project structure etc. * To practice the distributed team software development and current events in the open source world. * To work on an open source project and will be expected to make a significant contribution. | | |

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| **Course Outcomes** | Upon the successful completion of the course, the students will be able to: | |
| CO1 | Understand the open source basics |
| CO2 | Setup packages and binaries in Linux |
| CO3 | Learn basic commands in UNIX and LINUX |
| CO4 | Explore real time FOSS applications and development |
| CO5 | Develop web applications on LAMP with insights to MySQL and PHP |
| CO6 | Analyze licensing mechanisms and version controling |
| **Course Content** | UNIT – I  Introduction to Open Sources- Need of Open Source, Advantages of Open Sources, Application of Open Sources, Who create Open Source, Who uses Open Source, Where do I get Open Source Software.  UNIT – II  **Introduction to Linux OS:** OS basics, Linux GUI: Exploring folders, Installation of binary packages, Built in Package Mangers Introduction to Linux file system, man pages, The first command cat, Command History, **Basic Unix Commands**: vi editor, Redirection operators, and some Unix commands.  UNIT – III  File Filters: Basic understanding about uniq, grep, cut, paste, join, tr, df, du, who, w, rm, unlink, ulimit, chmod, umask, chown, chgrp, id, diff, sed, cmp, comm, Introduction to pipes, Backup Commands: tar, cpio, zip and unzip commands, mount and umount.  UNIT – IV  Real Time FOSS Applications: Ubuntu Operating System, LAMP, Mozilla Firefox, Virtual Box, Gimp, Moodle, Wordpress,Android, Libre Office, Maxima,Media Wiki, qBittorrent, LaTeX.  UNIT – V  Open Source Database - MySQL: Introduction-Setting up account- Starting, terminating and writing your own SQL programs-Record Selection Technology.  Open source Programming Languages - PHP: Introduction-Programming in web environment-Variables-Constants-data types-Operators-Statements.  UNIT – VI  **Open Source Software Development:** Starting from what you have, Choose a license and apply it, Setting the tone, **Technical infrastructure:** What a project needs, Mailing lists, Version Control, Bug Tracker, RSS Feeds, Wikis, and Websites. | |
| **Text Books and References** | **Text Books:**   1. Bernard Golden, "Succeeding with Open Source", Addison-Wesley Professional 2. N.B.Venkateswarlu,“Introduction to Linux: Installation and Programming”, B S Publishers, 2005. (An NRCFOSS Publication). 3. Karl Fogel, Producing Open Source Software http://producingoss.com, 2010.   **Reference Books:**   1. Remy Card, Eric Dumas and Frank Mevel, “The Linux Kernel Book”, Wiley Publications, 2003. 2. Steve Suchring, “MySQL Bible”, John Wiley, 2002 | |
| **E-Resources** | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> 3. <http://opensource.org/history> | |