

Lovely Professional University, Punjab

Course Code	Course Title	Course Planner	Lectures	Tutorials	Practicals	Credits
INT301	OPEN SOURCE TECHNOLOGIES	19259::Shivali Chopra	0	0	4	2
Course Weightage	ATT: 5 CAP: 45 ETP: 50					
Course Orientation	NA					

Course Outcomes :Through this course students should be able to

CO1 :: administer tasks of a LINUX administrator.

CO2 :: integrate and apply different LAMP technologies like Apache, MySQL and PHP in web development.

CO3 :: develop websites using PHP and MySQL

CO4 :: apply branching and merging concepts in your projects using Git

CO5 :: understand how to work on projects using Git

	TextBooks (T)		
Sr No	Title	Author	Publisher Name
T-1	PHP,MYSQL AND APACHE	JULIE C. MELONI	PEARSON
T-2	FUNDAMENTALS OF OPEN SOURCE SOFTWARE	M. N. RAO	PHI Learning Pvt Ltd

	Reference Books (R)		
Sr No	Title	Author	Publisher Name
R-1	OPEN SOURCE WEB DEVELOPMENT WITH LAMP	JAMES LEE, BRENT WARE, PEARSON EDUCATION	PEARSON
R-2	BEGINNING PHP6, APACHE, MYSQL WEB DEVELOPMENT	TIMOTHY BORONCZYK, ELIZABETH NARAMORE, JASON GERNER, YANN LE SCOUARNEC, JEREMY STOLZ, MICHAEL K.GLASS	WILEY
R-3	UNIX CONCEPTS AND APPLICATIONS	SUMITABHA DAS	MC GRAW HILL

Relevant Websites (RW)		
Sr No	(Web address) (only if relevant to the course)	Salient Features
RW-1	www.opensource.org	Open Source
RW-2	https://www.hscripts.com/tutorials/linux-commands/index.php	Linux Basic Commands
RW-3	http://linuxcommand.org/lc3_wss0010.php	Shell Script
RW-4	http://www.guru99.com/apache.html	Apache
RW-5	https://dev.mysql.com/doc/refman/5.7/en/creating-tables.html	MySQL
RW-6	https://www.youtube.com/watch?v=AQPoVHPboiA	Install Linux, Apache, MySQL, PHP (LAMP) stack on Ubuntu 16.04 And Ubuntu 16.10
RW-7	https://www.tutorialspoint.com/php/php_validation_example.htm	PHP Validations
RW-8	http://itsolutionstuff.com/post/paypal-payment-gateway-integration-in-php-source-codeexampleexample.html	PHP Payment Gateway Integration
RW-9	https://www.codexworld.com/paypal-standard-payment-gateway-integration-php/	Payment Gateway Integration
RW-10	https://guides.github.com/introduction/git-handbook/	Introduction to Git and Github
RW-11	https://opensource.com/resources/what-is-git	Git introduction

Scheme for CA:

CA Category of this Course Code is:C010102 (Total 3 tasks, 1 compulsory and out of remaining 1 best out of 2 to be considered)

Component	Iscompulsory	Weightage (%)	Mapped CO(s)
BYOD-Practical 1	NO	50	CO2, CO3
BYOD-Practical 2	NO	50	CO2, CO3, CO4, CO5
Test	Yes	50	CO1

Details of Academic Task(s)

An instruction plan is only a tentative plan. The teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.

Academic Task	Objective	Detail of Academic Task	Nature of Academic Task (group/individuals)	Academic Task Mode	Marks	Allottment / submission Week
BYOD-Practical 1	To evaluate the students individually on the basis of shell script and MySQL.	Syllabus covered up to 9th week for BYOD-Practical	Individual	Offline	30	9 / 10
BYOD-Practical 2	To evaluate the students individually on the basis of Apache server, PHP and git.	Syllabus covered up to 12th week for BYOD Practical	Individual	Offline	30	12 / 13
Test	To evaluate students on the basis of open source technologies, platforms and licensing schemes	Syllabus covered up to fourth week for class test.	Individual	Offline	30	4 / 5

Detailed Plan For Practicals

Practical No	Broad topic	Subtopic	Other Readings	Learning Outcomes
Practical 1	Introduction to open source	Open source technologies	RW-1	Student will have the understanding about open source technologies, history, benefits and its comparison with other technologies
	Introduction to open source	Open source history	RW-1	Student will have the understanding about open source technologies, history, benefits and its comparison with other technologies
	Introduction to open source	Benefits and disadvantages of open source technologies	RW-1	Student will have the understanding about open source technologies, history, benefits and its comparison with other technologies
	Introduction to open source	Comparison between open source technologies and other technologies	RW-1	Student will have the understanding about open source technologies, history, benefits and its comparison with other technologies
Practical 2	Introduction to open source	Licensing types, licensing issues, GNU, GPL.	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license
	Different Open Source Licensing Schemes	General Public License (GPL)	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license
	Different Open Source Licensing Schemes	BSD License	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license

An instruction plan is only a tentative plan. The teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.

Practical 2	Different Open Source Licensing Schemes	Apache License	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license
	Different Open Source Licensing Schemes	Creative Commons Zero(CCO)	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license
	Different Open Source Licensing Schemes	License Approval Process	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license
	Different Open Source Licensing Schemes	uses of different licenses	RW-1	Student will learn about various licenses available for the software and the process for applying the open source license
Practical 3	Linux OS	Basic linux commands: ls, touch,cat,mkdir,rm,rmdir,grep,cp,mv	RW-2	Student will learn how to interact with the Linux environment
Practical 4	Linux system administration	File system checking, mounting and unmounting	RW-2 RW-6	Student will have the understanding of file system of Linux and devices
	Linux system administration	File system components	RW-2 RW-6	Student will have the understanding of file system of Linux and devices
	Linux system administration	Partitions and file systems	RW-2 RW-6	Student will have the understanding of file system of Linux and devices
	Linux system administration	Devices and device names	RW-2 RW-6	Student will have the understanding of file system of Linux and devices
	Linux system administration	Administrator's privileges	RW-2 RW-6	Student will have the understanding of file system of Linux and devices
Practical 5	Linux system administration	Maintaining security	RW-2 RW-6	Student will learn how to archive various files along with compressing and then un-archiving them
	Linux system administration	Tape archive program	RW-2 RW-6	Student will learn how to archive various files along with compressing and then un-archiving them
Practical 6	Linux system administration	Shell scripting	RW-3	Student will learn how to write shell script programs and will be able to understand how command line arguments are used, Basic Shell scripting with arrays and functions will be covered
Practical 7	Linux system administration	Shell scripting	RW-3	Student will learn how to write shell script programs and will be able to understand how command line arguments are used, Basic Shell scripting with arrays and functions will be covered

Practical 8	Linux system administration	Shell scripting	RW-3	Student will learn how to write shell script programs and will be able to understand how command line arguments are used, Basic Shell scripting with arrays and functions will be covered
Practical 9	Linux system administration	Shell scripting	RW-3	Student will learn how to write shell script programs and will be able to understand how command line arguments are used, Basic Shell scripting with arrays and functions will be covered
Practical 10	Test			
Practical 11	MySQL	Introduction to RDBMS	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
	MySQL	SQL (General queries)	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
	MySQL	Mysql advanced queries	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
	MySQL	MySQL Administration and user creation	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
	Linux system administration	Owner, Groups, others Permissions	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
	Linux system administration	Run levels	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
	Linux system administration	Managing Users and Groups	RW-5	Student will learn how to make users and group, how to make use of chmod and umask for changing permissions. Also, RDBMS concepts will be visited
Practical 12	MySQL	Query optimisation	RW-5 RW-6	Student will learn concepts of MySql
	MySQL	The SHOW DATABASES, CREATE DATABASE, USE commands	RW-5 RW-6	Student will learn concepts of MySql
	MySQL	The CREATE TABLE, SHOW TABLES, DESCRIBE commands	RW-5 RW-6	Student will learn concepts of MySql
Practical 13	MySQL	Other DDL, DML, DCL commands	RW-5 RW-6	Student will learn DDL, DML and DCL commands
	MySQL	Some Administrative details	RW-5 RW-6	Student will learn DDL, DML and DCL commands

Practical 14	MySQL	Table JOINS	RW-5 RW-6	Student will learn the use of Joins
Practical 15	Apache	Introduction to apache web server	RW-4 RW-6	Student will learn to use, configure, and host web pages using Apache
	Apache	Installation and configuration apache web server	RW-4 RW-6	Student will learn to use, configure, and host web pages using Apache
	Apache	Securing apache web server	RW-4 RW-6	Student will learn to use, configure, and host web pages using Apache
	Apache	Hosting webpages	RW-4 RW-6	Student will learn to use, configure, and host web pages using Apache
	Apache	Webpage modification	RW-4 RW-6	Student will learn to use, configure, and host web pages using Apache
	Apache	Apache log files: use of .htaccess	RW-4 RW-6	Student will learn to use, configure, and host web pages using Apache
Practical 16	Apache	Use of HTML to create web pages	RW-4 RW-6	Student will learn to use HTML and Apache to create web pages and its hosting
	Apache	Configuration: Modifying the Default Configuration	RW-4 RW-6	Student will learn to use HTML and Apache to create web pages and its hosting
	Apache	Starting, Stopping and Restarting Apache	RW-4 RW-6	Student will learn to use HTML and Apache to create web pages and its hosting
	Apache	Securing Apache	RW-4 RW-6	Student will learn to use HTML and Apache to create web pages and its hosting
	Apache	Hosting Webpage using Apache	RW-4 RW-6	Student will learn to use HTML and Apache to create web pages and its hosting
Practical 17	Server side includes	Introduction	RW-6	Student will learn about server side includes and its security considerations.
	Server side includes	How it works	RW-6	Student will learn about server side includes and its security considerations.
	Server side includes	Configurations	RW-6	Student will learn about server side includes and its security considerations.
	Server side includes	Security Considerations	RW-6	Student will learn about server side includes and its security considerations.

Practical 18	PHP	Introduction and configuration	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	PHP identifiers, data types	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	Operators	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	Flow controls	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	Language Syntax: Web variables, Operators	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	Embedding PHP into HTML	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	User-defined and built in functions	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
	PHP	Built in PHP functions: Important Functions, Array Functions,String Functions,Other Functions	RW-7 RW-8 RW-9	Student will learn the basics of PHP, its syntax, and various built in functions which helps in back end implementations of website.
Practical 19	PHP validations	PHP form	RW-7 RW-8 RW-9	Student will learn how to create PHP form, use validations and have database connectivity
	PHP validations	Validations	RW-7 RW-8 RW-9	Student will learn how to create PHP form, use validations and have database connectivity
	PHP validations	Connecting PHP with MySQL	RW-7 RW-8 RW-9	Student will learn how to create PHP form, use validations and have database connectivity

Practical 19	PHP validations	Inserting data into sql	RW-7 RW-8 RW-9	Student will learn how to create PHP form, use validations and have database connectivity
Practical 20	BYOD-Practical 1			
Practical 21	PHP validations	Reading data from SQL	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
	PHP validations	Regular expressions in PHP	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
	PHP validations	Payment gateway	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
	PHP validations	Shopping Cart	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
Practical 22	PHP validations	Shopping Cart	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
	PHP validations	Payment gateway	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
	PHP validations	Regular expressions in PHP	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
	PHP validations	Reading data from SQL	RW-7 RW-8 RW-9	Student will learn how to use payment gateway
Practical 23	Introduction to Git and GitHub	Introduction— what are Git and GitHub?	RW-10 RW-11	Student will understand the basic definition of Git and its installation on Linux
	Introduction to Git and GitHub	Installing Git using Linux	RW-10 RW-11	Student will understand the basic definition of Git and its installation on Linux
Practical 24	Introduction to Git and GitHub	Getting started on GitHub	RW-10 RW-11	Student will learn how to interact with Git

Practical 24	Introduction to Git and GitHub	Adding files to your Git repository	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Configuring Git	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Creating a Git repository	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Creating and editing files	RW-10 RW-11	Student will learn how to interact with Git
Practical 25	Introduction to Git and GitHub	Creating and editing files	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Creating a Git repository	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Configuring Git	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Adding files to your Git repository	RW-10 RW-11	Student will learn how to interact with Git
	Introduction to Git and GitHub	Getting started on GitHub	RW-10 RW-11	Student will learn how to interact with Git
Practical 26	BYOD-Practical 2			
Practical 27	Introduction to Git and GitHub	Making changes and tracking them	RW-10 RW-11	Student will learn how to synchronize their Git repository
	Introduction to Git and GitHub	Synchronizing your local Git repository with GitHub	RW-10 RW-11	Student will learn how to synchronize their Git repository
	Introduction to Git and GitHub	Deleting and renaming files	RW-10 RW-11	Student will learn how to synchronize their Git repository
	Introduction to Git and GitHub	Undoing changes	RW-10 RW-11	Student will learn how to synchronize their Git repository
Practical 28	Introduction to Git and GitHub	Branching	RW-10 RW-11	Student will learn how to manage repository
	Introduction to Git and GitHub	Tags and releases	RW-10 RW-11	Student will learn how to manage repository

An instruction plan is only a tentative plan. The teacher may make some changes in his/her teaching plan. The students are advised to use syllabus for preparation of all examinations. The students are expected to keep themselves updated on the contemporary issues related to the course. Upto 20% of the questions in any examination/Academic tasks can be asked from such issues even if not explicitly mentioned in the instruction plan.

Practical 28	Introduction to Git and GitHub	Downloading a repository	RW-10 RW-11	Student will learn how to manage repository
	Introduction to Git and GitHub	Managing multiple copies of a repository	RW-10 RW-11	Student will learn how to manage repository
	SPILL OVER			
Practical 29	Spill Over			