Mandsaur University

Subject Name	L	T	P	Credit
IT Infrastructure and Data Canter	3	-	-	3

Course Objectives:

- Knowledge in setting-up and Services provided by data centers.

- Datacenter fundamentals

- students to understand the basic concepts of Datacenter architecture

- Network infrastructure in a Datacenter, server frames fault tolerance, Datacenter availability, network implementation and disaster recovery.

- To learn about Business Continuity (BC) Infrastructure Services.

Unit-I
Datacenters Defined, Datacenter Goals, Datacenter Facilities, Roles Datacenters in the Enterprise, Roles of Datacenters in the Service Provider Environment, Application Architecture Models. The Client/Server Model and Its Evolution, n-Tier Model, Multitier Architecture Application Environment, Data Center Architecture.

Unit-II
Data Center Prerequisites, Required Physical Area for Equipment and Unoccupied Space, Required Power to Run All the Devices, Required Cooling and HVAC, Required Weight, Required Network Bandwidth, Budget Constraints, Selecting a Geographic Location, Safe from
Natural Hazards, Safe from Man-Made Disasters, Availability of Local Technical Talent, Abundant and Inexpensive Utilities Such as Power and Water, Selecting an Existing Building (Retrofitting), tier standard.

Unit-III
Characteristics of an Outstanding Design, Guidelines for Planning a Data Center, Data Center Structures, No-Raised or Raised Floor, Aisles, Ramp, Compulsory Local Building Codes, Raised Floor Design and Deployment, Plenum, Floor Tiles, Equipment Weight and Tile Strength, Electrical Wireways, Cable Trays, Design and Plan against Vandalism

Unit-IV
Types of server farms and data centre, internet server farm, intranet server farm, extranet server farm, internet datacenter, corporate datacenter, software defined datacenter, datacenter topologies, Aggregation Layer, Access Layer, Front-End Segment, Application Segment, Back-End Segment, Storage Layer, Data Center Transport Layer, Data Center Services, IP infrastructure Services, Application Services, Security Services, Storage Services

Unit-V
Business continuance infrastructure services, the need for redundancy, Information availability , BC terminology, BC planning life cycle, BC technology solutions, backup and recovery considerations , backup technologies, Uses of local replicas , Local replication technologies , Restore and restart considerations, Modes of remote replications , remote replication technologies

Reference Books:

1. IP Storage Networking by: Gary Oreinstein, Addison Wesley Professional, 2006
2. Information Storage and Management, G. Somasundaram – Alok Srivastava, Wiley; 1 edition
(April 6, 2009)
3. Administering Data-Centers, Kailash Jayswal, Wiley; 1 edition (November 28, 2005)

Course Outcomes:

- Students will learn the history of data centers, how they have evolved over the years, different facilities and their requirements.

- Student will learn about different requirements of datacenters.

- They will also learn different aspects that have to be considered while designing a data centre and various server farms.

- Student will be able to understand types of Server Farms and Data Centers, Data Center topologies.

- Students will be able to understand Business Continuity and Disaster Recovery Fundamentals.

Mandsaur University

Subject Name	L	T	P	Credits
Principles of Virtualization	3	-	-	3

Course Objectives:

- Providing knowledge about Server virtualization

- Learn the deployment and management of virtualized servers, deploying desktop, application and network virtualization.

- Understand the basic concepts of Cloud Data Security.

- Provides the basics of virtualization and Cloud Security.

- Providing knowledge in Cloud Trust Protocol & Transparency and Cloud Controls Matrix.

Unit-1:
Understanding Virtualization, Need of Virtualization and Virtualization Technologies: Server Virtualization, Storage Virtualization, I/O Virtualization, Network Virtualization, Client Virtualization, Application virtualization, Desktop virtualization, Understanding Virtualization Uses: Studying Server Consolidation, Development and Test Environments, Helping with Disaster Recovery.

Unit-II:
Configure the BIOS to support hardware virtualization; Install and configure Windows Virtual
PC: installing Windows Virtual PC on various platforms (32-bit, 64-bit), creating and managing virtual hard disks, configuring virtual machine resources including network resources, preparing host machines; create, deploy, and maintain images.

Unit-III
Prepare and manage remote applications: configuring application sharing, package applications for deployment by using RemoteApp, installing and configuring the RD Session Host Role Service on the server.

Unit-IV
Access published applications: configuring Remote Desktop Web Access, configuring role based
application provisioning, configuring Remote Desktop client connections. Configure client settings to access virtualized desktops: configuring client settings.

Unit-V
List of virtualization Software available. Vmware- introduction to Vsphere, ESXi, CenterServer and Vsphere client. Creating Virtual Machine. Introduction to HYPER-V role. Create Virtual Machines. Create Hyper-v virtual networking, Use virtual Machine Snapshots. Monitor the performance of a Hyper-v server, Citrix XENDesktop fundamentals

Mandsaur University

Reference Books:

1. Virtualization with Microsoft Virtual Server 2005 by TwanGrotenhuis, RogierDittner, Aaron Tiensivu, Ken Majors, Geoffrey Green, David Rule, Andy Jones, Matthijs ten Seldam, Syngress Publications, 2006

2. Virtualization--the complete cornerstone guide to virtualization best practices, Ivanka Menken, Gerard Blokdijk, Lightning Source Incorporated, 2008

3. Virtualization: From the Desktop to the Enterprise, Chris Wolf, Erick M. Halter, EBook, 2005

Course Outcomes:

- Basics of virtualization and Cloud Security

- Knowledge in Cloud Trust Protocol & Transparency and Cloud Controls Matrix.

- Understanding Legal Aspects in impacting Cloud Security And Privacy.

Mandsaur University

Subject Name	L	T	P	Credit
Introduction to Python	3	1	4	6

Course Objectives:

- Basics of Python programming.

- Decision Making and Functions in Python.

- Object Oriented Programming using Python.

- Files Handling in Python.

- GUI Programming and Databases operations in Python.

UNIT-I

Introduction, Origin, Comparison, Comments, Operators, Variables and Assignment, Numbers, Strings, Lists and Tuples, Dictionaries, if Statement, while Loop, for Loop and the range(),String and regular expressions. Module: Importing Module, Math Module, The sys Module, Random Module, and Package.

UNIT-II

Functions: Defining a function, calling a function, Types of functions, Function Arguments, Anonymous functions, Built-in functions, Lists and Tuple: Introduction to List and Tuple, Accessing List and Tuple, Operations, working with List and Tuple, Function and Methods. Dictionaries: Working with dictionaries, properties and functions.

UNIT-III

Object oriented programming and classes in Python - creating classes, instance objects, accessing members, Data hiding (the double underscore prefix), Built-in class attributes, Garbage collection: the constructor, Overloading methods and operators, Inheritance-implementing a subclass, overriding methods, Exceptions: try Statement, Exception Propagation, Except Clause, Try, Finally Clause, User Defined Exception, The raise statement.

UNIT-IV

Creating files, Operations on files (open, close, read, write), File object attributes, file positions, Listing Files in a Directory, Testing File Types, Removing Files and Directories, Copying and Renaming Files, Splitting Path names, Creating and Moving to Directories, Traversing Directory Trees, Illustrative programs: word count, copy file.

UNIT-V

Tkinter module, widgets and basics, Component, layout options, Button, Label, Entry, Listbox, Radio button, Check button, Scrollbar, Container Widgets: Frame, Event handling, Keyboard events, Mouse events etc. Introduction to MySQL, PYMYSQL Connections, using connect, cursor, execute & close functions, reading single & multiple results of query execution, executing different types of statements, understanding exceptions in database connectivity.

Reference Books:

1. Python Essential by David M. Beazly.
2. Python Pocket by Mark Lutz.
3. Barry, Paul, Head First Python, 2nd Edition.
4. Python: The Complete Reference.

Course Outcomes:

- Describe the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python.

- Express different Decision Making statements and Functions.

- Interpret Object oriented programming in Python.

- Understand and summarize different File handling operations.

- Explain how to design GUI Applications in Python and evaluate different database operations.

List of Experiments

1. Write a program to convert temperature from Fahrenheit to Celsius depending upon user choice.

2. Write a program to use dictionary and its functions in python.

3. Write a program to check whether given no is prime or not.

4. Write a program to implement list and use its methods.

5. Write a program to implement tuple and use its methods.

6. Write a program to import module and use it.

7. Write a user defined function to implement factorial of a given no.

8. Write a program to show the use of anonymous functions.

9. Write a program to calculate area of rectangle and circle using class.

10. Write a program to implement single level inheritance.

11. Write a program to overriding method.

12. Write a program to implement double underscore methods.

13. Write a program to implement Exception Handling.

14. Write a program for user defined exception.

15. Write a program to copy a file.

16. Write a program to count no. of words in a file.

17. Write a program to make Login GUI in Tkinter.

18. Write a program to make registration form GUI in Tkinter.

19. Write a program to connect with database and perform insert operation.

20. Write a program to perform select operation on database.

21. Write a program to perform delete operation on database.

22. Write a program to perform update operation on database.

Mandsaur University

Subject Name	L	T	P	Credit
Cloud Computing Applications - II	3	1	4	6

Course Objectives:

- To learn JQuery events.

- To learn basics concepts of Ajax.

- To provide the knowledge of basic PHP syntax and data types.

- To provide the knowledge of array loops and inbuilt methods.

- Working with HTML forms and handling data in PHP.

Unit-I
Introduction to jQuery, Bind and Unbind, Click, dblclick, focus, blur, change, Mousemove,
mouseover, mouseout, Keypress, keyup, Disabling cut, copy, paste using jQuery, Disabling right click using jQuery, Filtering characters in a textbox using jQuery, Fade in, fade out, fade to, fade toggle, Show, hide, toggle, Slide down, slide up, slide toggle, etc Introduction AJAX, AJAX Internals, Http Request Object, AJAX UI Tags, Div Tag, Submit Tag, Anchor Tag, Tabbed Panel Tag, Auto Completer Tag.

Unit -II
Introduction to PHP, History of PHP, Web Brower, Server, Xampp, Installation and Configuration files, How PHP scripts work, Basic PHP syntax, PHP data types, Variable, Constants, Variable scope, Operators, Variable manipulation, Dynamic variables, Static vs. Dynamic Optimization, PHP vs. JAVA.

Unit-III
If, else if, switch statement, loops: while, do while, for, foreach, breaking out of loops: Break, Continue, and exit. Array: Indexed arrays, Associative arrays, Multidimensional arrays, Getting the size of an array, Looping through an array, Looping through an associative array, Sorting arrays, Sorting an associative arrays.

Unit-IV
Methods: count, sum, sort, rsort, asort, arsort, ksort, krsort, explode, implode, trim. Function, Creating a function, Returning value from function, User-defined functions, Dynamic function calls, passing arguments by value, passing arguments by reference.

Unit-V
Working with Form: GET and POST data, Combine HTML and PHP code, Create user Forms using database, File Inclusion: Include(), Require(), Importing user input, Accessing user input, Using hidden fields, Redirecting the user, Upload a File, Delete a File.

Reference Books:

1. Head First JQuery by Ronan Cranley and Ryan Benedetti
2. jQuery in Action by Bear Bibeault

3. Head First Ajax: by Rebecca Riordan
4. PHP: The Complete Reference by Steven Holzner
5. Head First PHP & MySQL by Lynn BeighleyMichael Morrison

Course Outcomes:

- Able to work with JQuery and AJAX.

- Display and insert data using PHP and MySQL.

- Understand to how Test, debug, and deploy web pages containing PHP and MySQL.

- Develop simple web application using server side PHP programming and Database Connectivity using MySQL.

- Build Dynamic web site using server side PHP Programming and Database connectivity.

.

List of Experiments

1. Using jQuery find all textareas, and make a border. Then adds all paragraphs to the jQuery object to set their borders red.

2. Using jQuery add the class "w3r_font_color" and w3r_background to the last paragraph element.

3. Using jQuery add a new class to an element that already has a class.

4. Using jQuery insert some HTML after all paragraphs.

5. Using jQuery insert a DOM element after all paragraphs.

6. Convert three headers and content panels into an accordion. Initialize the

   accordion and specify the height.

7. Create a pre-populated list of values and delay in milliseconds between a keystroke occurs and a search is performed.

8. Initialize the button and specify the disable option.

9. Initialize the button and specify an icon on the button.

10. Initialize the button and do not show the label.

11. Create a simple jQuery UI Datepicker. Now pick a date and store it in a textbox.

12. Initialize the datepicker and specify a text to display for the week of the year column heading..

13. Write a program for finding an even or odd number.

14. Write a program to generate multiplication of the table which is given by the user.

15. Write a generate multiplication of the table with the given condition.

16. Write a program to check given number is prime or not?

17. Write a program for printing Fibonacci series?

18. Write a program to find sum & average of array element?

19. Write a program for finding area of shapes using functions. a. Rectangle b. Square c. Circle d. 4. Triangle

20. Write a program for arithmetic operation using functions.

21. Write a program to swap two numbers using a third variable using a function?

22. Write a program to swap two numbers without using a third variable using a function.

23. Create a user Registration form (Field Name: FirstName, LastName, Username, Email, Password, Address) with MySQL database connection. .

24. Create a user Login form (Field Name: Username, Password. Note: Username and a. Password must be 7 characters/digits) with MySQL database connection.

Mandsaur University

Subject Name	L	T	P	Credits
Server Operating System - II	-	-	8	4

Course Objectives:

- Provides the knowledge and skills necessary to plan and implement a Windows Server 2012 and Windows Server 2012 R2 environment.

- It provides Students the most important job tasks for Server Administrators who are responsible for the planning, operations, and day-to-day maintenance of Windows Server 2012 and Windows Server 2012 R2 servers in the enterprise

- Network foundation from which you can centrally manage settings on your computers that are based on the Windows® operating system.

- The students will have the functional knowledge of configuring core network services and the active directory of Windows Server.

List of Experiments

- Hyper-V – Creating and configuring virtual machines
- Hyper-V – Creating and configuring virtual machine storage
- Hyper-V – Creating and configuring virtual networks
- Configure Network Load Balancing (NLB)
- Configure failover clustering
- Manage Virtual Machine (VM) migration
- Configure advanced file services
- Implement Dynamic Access Control (DAC)
- Configure and optimize storage
- Configuring Windows server backup tool
- Bare metal recovery
- Understanding Windows booting and troubleshooting booting issues
- Configuring Hyper-V site level fault tolerance
- Active Directory Forest trust relationship
- Active Directory sites and services
- Active Directory Certificate services
- Active Directory Rights Management Services (ADRMS)
- Configuring CA backup and recovery

- Design an automated server installation strategy

- Understanding virtual server deployment

Course Outcomes:

- Configuring Hyper V for virtual machines, virtual network, virtual network.

- Plan about the server infrastructure and key aspects of the implementation, management and maintenance of Active Directory and Network Infrastructure.

- Install and configure windows server 2012.
- Configure local storage and other services like file sharing.
- Learn about configuring Active Directory.