Subject Title :		Advanced Internet Technology		
Subject Ref. No.	MANC702	No. of Credits	:	04
		No. of Periods/Week	:	04
		Assignments/Sessional	:	20%
		Semester Exam.	:	80%

Course Objective

After completing this course students will be able to:

- understand the basics of PHP & MySQL
- Creating sessions & dynamic webpages
- Creating dynamic web-sites.

Prerequisite : Students must have knowledge of HTML, JavaScript.

Unit –I : **Introduction to PHP**

PHP Basics
Conditions and Branches
Loops
Variables and Arrays
Strings

Unit –II : **Form Handling**

Dealing with functions
Forms
Super global variables
Super global array
A script to acquire user input
Importing user input
Accessing user input
Combine HTML and PHP code
Using hidden fields
Redirecting the user
File upload and scripts
Delete a File

Unit –III : **Cookies , Sessions and Authentication**

Using Cookies in PHP
Setting a cookie
Accessing cookie
Destroying Cookie
HTTP Authentication
Storing Username and Passwords
Using Sessions
Starting a session
Ending a session
Session Security

Unit – IV : **Database Operations with PHP**

Built-in Database Functions, Connecting to a MySQL,
Selecting a Database,
Building and Sending the Query to Database Engine,

Retrieving , Updating and Inserting Data in database

Unit – V : Classes And Objects

Object oriented concepts
Define a class
Class attributes
An Object
Creating an object
Object properties
Object methods
Object constructors and destructors
Class constants
Static method
Class inheritance
Abstract classes
Final keyword
Implementing Interface
Object serialization
Understanding Advance and New
Checking for class and method existence
Iterators

Reference Books :

1. *PHP and MySQL Web Development* by Luke Welling, and Laura Thomson
2. *PHP, MySQL, and JavaScript* by Robin Nixon
3. *PHP 6 and MySQL 5 for Dynamic Web Sites: Visual QuickPro Guide* by Larry Ullman
4. *PHP Cookbook* by Adam Trachtenberg, and David Sklar
5. PHP Object – Oriented Solution by David Powers
6. *Head First PHP & MySQL* by Lynn Beighley, and Michael Morrison
7. *Beginning PHP and MySQL* From Novice to Professional, Third Edition by W.J. Gilmore

Subject Title	Practical Based on MANC702		
Subject Ref. No.	MANC751	**No. of Credits**	2
		No. of Periods / Week	2
		Assignments / Sessionals	10
		Semester Examination	40

Practicals based on PHP will be conducted.
Projects on PHP will be covered.

Subject Title	:	Advances in Algorithms			
Subject Ref. No.	:	MANC703	**No. of Credits**	:	4
			No. of Periods / Week	:	4
			Assignments / Sessionals	:	20
			Semester Examination	:	80

Course Objective : The goal is to study various design techniques and representative algorithms on advanced computing, a few emerging topics in distributed and network computing area. Topics included, algorithms for sorting, searching, selection, trees, graphs, data structures, etc.

Pre Requisite : Design and Analysis of Algorithms
Data Structures

Unit – I : **Linear Algebra:** LUP decomposition, inverting matrices.
Fast Fourier Transform. Polynomial multiplication, integer multiplication and division.

Unit – II : **Max Flows:** Max Flows (Ford-Fulkerson and bipartite matching).
Number-theoretic Algorithms: GCD, Modulo arithmetic, Chinese remaindering, RSA.

Unit – III : **Linear Programming:** formulation, simplex, primal-dual.

Unit – IV : **Geometric algorithms:** convex hull, closest pair, intersection of line segments, polygon triangulation.

Unit – V : **Randomized Algorithms:** identity testing, primality and min-cut.

Unit – VI : **Approximation Algorithms:** max-cut, tsp, vertex-cover etc.

Text Books :
1. A. V. Aho, J. E. Hopcroft, and J. D. Ullman.*The Design and Analysis of Computer Algorithms*, Addison Wesley, 2003.
2. E. Horowitz and S. Sahni.*Fundamentals of Computer Algorithms*, Galgotia, 2007

Additional Reference Books :
1. Cormen, Leiserson, and Rivest, "*Algorithms*", MIT Press, 2000

Subject Title	Practical Based on MANC703		
Subject Ref. No.	MANC752	**No. of Credits**	2
		No. of Periods / Week	2
		Assignments / Sessionals	10
		Semester Examination	40

Assignements based on Advances of Algorithm will be covered.

Subject Title :		Software Project Management		
Subject Ref. No.	MANC704	No. of Credits	:	04
		No. of Periods/Week	:	04
		Assignments/Sessional	:	20%
		Semester Exam.	:	80%

Course Objective

After completing this course students will be able to:

- understand the basics of software project management

Prerequisite :

Students must have knowledge of SDLC.

Unit –I :

Project Management Framework

Overview of project Management
Project Organization
Planning a s/w project
Project management life cycle
Risk management
Identification of Risks
Risk Analysis
Risk Planning & Monitoring

Unit –II :

S/w Project Estimation

Project Estimation
Different methods of estimation (COCOMO model, Delphi cost estimation
etc.)
Function point analysis

Project Management Tools & Techniques

PERT & Gantt Charts
Introduction to Microsoft Project

Unit –III :

Software Quality Management & Testing

Quality Assurance & Standards
Quality Planning
Quality control
Role of testing in Software development
Testing Procedure
Defect Management

Unit – IV :

Configuration Management(CM)

CM planning
Change Management
Version and Release Management
Configuration Management Tools

Unit – V :

S/W Team Management

Characteristics of Performance management
High performance Directive and collaborative styles
Team Structure
Team Communication

Managing customer expectations
Group Behavior

Role of User in Projects

User role in project management
User role in various stages of S/W Development
User role in System implementation

Reference Books :

1. Software Project management Edwin Bennatan
2. Software Engineering Roger S. Pressman
3. Software Engineering concepts Richard Fairley
4. Software Project Management S.A. Kelkar
5. Software Engineering IAN Sommerville
6. System Analysis and Design Methods Whitten, Bentley and Dittman

ELECTIVE –V

Subject Title :		Artificial Neural Network		
Subject Ref. No.	MANC721	No. of Credits	:	04
		No. of Periods/Week	:	04
		Assignments/Sessional	:	20%
		Semester Exam.	:	80%

Course Objective

After completing this course students will be able to:

- Understand the basics of Artificial Neural Network.

Prerequisite :

Students must have knowledge AI.

Unit –I :

INTRODUCTION

what is a neural network? Human Brain, Models of a Neuron, Neural networks viewed as Directed Graphs, Network Architectures, Knowledge Representation, Artificial Intelligence and Neural Networks

LEARNING PROCESS

Error Correction learning, Memory based learning, Hebbian learing, Competitive, Boltzmann learning, Credit Asssignment Problem. Memory, Adaption, Statistical nature of the learning process

Unit –II :

SINGLE LAYER PERCEPTRONS

Adaptive filtering problem, Unconstrained Organization Techniques, Linear least square filters, least mean square algorithm, learning curves, Learning rate annealing techniques, perceptron —convergence theorem, Relation between perceptron and Bayes classifier for a Gaussian Environment

MULTI LAYER PERCEPTRONS

Back propagation algorithm XOR problem, Heuristics, Output representation and decision rule. Computer experiment, feature detection

Unit –III :

BACK PROPOGATION

- back propagation and differentiation, Hessian matrix, Generalization, Cross validation, Network pruning Techniques, Virtues and limitations of back propagation learning, Accelerated convergence, supervised learning.

Unit – IV : **SELF ORGANIZATION MAPS**

Two basic feature mapping models, Self organization map, SOM algorithm, properties of feature map, computer simulations, learning vector quantization, Adaptive patter classification

Unit – V : **NEURO DYNAMICS**

Dynamical systems, stability of equilibrium states, attractors, neurodynamical models, manipulation of attractors as a recurrent network paradigm

HOPFIELD MODELS

Hopfteld models, computer experiment

Text Books: Neural networks A comprehensive foundations, Simon Haykin, PHI edition.

Reference Books :

1. Artificial neural networks - B.Vegnanarayana Prentice Haul of India Pvt Ltd 2005
2. Neural networks in Computer intelligence, Li Mm Fu TMH 2003
3. Neural networks James A Freeman David M S kapura pearson education 2004
4. Introduction to Artificial Neural Systems Jacek M. Zurada, JAICO Publishing House Ed. 2006

Subject Title	Practical Based on MANC721		
Subject Ref. No.	MANC753	**No. of Credits**	2
		No. of Periods / Week	2
		Assignments / Sessionals	10
		Semester Examination	40

Practicals Based on Artificial Neural Network will be covered.

Subject Title	:	Linux Bash Scripting			
Subject Ref. No.	:	MANC722	**No. of Credits**	:	4
			No. of Periods / Week	:	4
			Assignments / Sessionals	:	20
			Semester Examination	:	80

Course Objective : Knowing about shell scripting is a must for any advanced Linux administrator. That's why the course is developed to enhance more in Linux Programming.

Pre Requisite : Familiarity with Linux command lines and familiarity with basic programming concepts is helpful.
C programming Skills.

Unit – I : **Getting started with Shell Programming:** How to write shell script, A Simple Example. Uses of Shell Scripts, Advantages of Shell Scripts.

Unit – II : **Revisiting redirection:** Theory and quick reference,
stdout 2 file, stderr 2 file, stdout 2 stderr, stderr 2 stdout, stderr and stdout 2 file
Pipes: What they are and why you'll want to use them.

Unit – III : **Variables:** Hello World! using variables, A very simple backup script, Local variables

Unit – IV : **Conditional:** Basic conditional example if .. then, Basic conditional example if .. then ... else, Sample: Conditionals with variables

Unit – V : **Loops for, while and until**: For sample, C-like for, while sample, until sample

Unit – VI : **Functions:**
Functions sample, Functions with parameters sample

Text Books :
1. Sumit Das, "Unix and Shell Programming", Tata McGraw Hill, 2008.
2. ISRD Group, "Basics of OS, Unix and Shell Programming, Tata McGraw Hill, 2006.

Additional Reference Books :
1. Ellie Quigley, "UNIX Shells by Example", Pearson Education, 2005 Edition

Subject Title	:	Practical Based On MANC722			
Subject Ref. No.	:	MANC754	**No. of Credits**	:	2
			No. of Periods / Week	:	2
			Assignments / Sessionals	:	2 5
			Semester Examination	:	2 5

Course Objective : This lab work will provide hands on practice to student to enhance their Linux Shell Programming.

Course Description & Pre Requisite : Students have to perform at least 15 assignments out of 17 which are listed below.
Theoretical Knowledge of Linux Shell Programming
Good Knowledge of C /C++ programming language.

Assignment No 1 : Write a shell script to print name, address and date of birth of a student.

Assignment No 2 : Write a shell script to print date and present working directory.

Assignment No 3 : Write a shell script to calculate and print sum of 5 numbers. Also to print largest number.

Assignment No 4 : Develop an interactive grep script that asks for a word and a file name and then tells how many lines contain that word

Assignment No 5 : Write a shell script to Write A shell script that takes a command – line argument and reports on whether it is directory ,a file, or something else

Assignment No 6 : Write a shell script that determines the period for which a specified user is working on the system

Assignment No 7 : write a shell script that accepts a file name starting and ending line numbers as arguments and displays all the lines between the given line numbers

Assignment No 8 : Write a shell script that computes the gross salary of a employee according to the following 1) if basic salary is <1500 then HRA 10% of the basic and DA =90% of the basic2) if basic salary is >1500 then HRA 500 and DA =98% of the basic. The basic salary is entered interactively through the key board.

Assignment No 9 : Write a shell script that accepts two integers as its arguments and computes the value of first number raised to the power of the second number

Assignment No 10 : To write a shell script program to print the bill for the customer of telephone company at the following rates:
For the first 50 calls rate — Rs. 25 (fixed rate)
For next 100 calls — Rs. 6 (per 10 calls)
For next 200 calls — Rs. 7 (per 10 calls)
For more than 350 calls — Rs. 8 (per 5 calls)

Assignment : To write a shell program to sort the given names in a file.

No 11		
Assignment No 12	:	To write a shell program to check whether the given string is palindrome or not
Assignment No 13	:	To write a shell program to find the factorial of a given number.
Assignment No 14	:	To write a shell program to interchange two numbers using a temporary variable and without using a temporary variable.
Assignment No 15	:	**Write a shell script to create a backup of all the files/folders whose absolute path is stored in a file**
Assignment No 16	:	**Write a shell script to d**isplay a summary of the disk space usage for each directory argument (and any subdirectories), both in terms of bytes, and kilobytes or megabytes (whichever is appropriate).
Assignment No 17	:	Changing the ownership of a file to a user so he can move it and then moves it

Subject Title	JSP		
Subject Ref. No.	MANC723	**No. of Credits**	4
		No. of Periods / Week	4
		Assignments / Sessionals	20
		Semester Examination	80

Course Objective The main objective of the said course is to create and deploy JavaServer Pages.To use JSP's implicit objects and scriptlets to create dynamic Web pages.To specify global JSP information with directives. To use actions to manipulate JavaBeans in a JSP, to include resources dynamically and to forward requests to other JSPs

Pre Requisite Core Java, Advanced Java, JavaScript, HTML, XML, Apache Tomcat Server

Unit – I **Servlet:** Basic of Servlet, Servlet API, Servlet Interfaces, Http Servlet, Servlet Life Cycle, Step to create Servlet in Tomcat, how works, ServletRequest, Collaboration, RequestDispatcher SendRedirect, ServletConfig, ServletContext Attributes , session , URl Rewruting, HttpSession, Event and Listner, ServletInputStream, ServletOutputStream.

Unit – II JDBC Data Sources : The javax.sql.DateSource Interface, the geConnection() method(), the getLoginTimeout(),the setLoginTimeout(), getLogWriter(), setLogWriter(), JNDI and Data sources

Unit – III **Basic of JSP:** Life Cycle of JSP, JSP API: Packages : JspPage, HttpJspPage, classes : JspWriter, PageContext, JspFactory, JspEngineInfo, JspException, JspException, JspError, JSp Directives, The page, include and taglib Directives, Scripting Elements : Declaration, Scriptlets, expression and comment. Standard Action: <jsp:useBean>, <jsp:setProperty>, <jsp:getProperty> <jsp:param>, <jsp:include>, <jsp:forward>, <jsp:liugin>, Implicit Object

Unit – IV **JSP Technical Support**: Application design, the welcome page, The request-processes JSP, The JDBCHelper class, The TechSupportBean, The Registration Form, The Regsitration JSP, The Response and Banner JSP pages, the Error page, Deploying the application

Unit – V **Hibernate :** Basic of Hibernate, Hibernate with IDE, Application, Hibernate Logging , Hibernate Mapping , Collection Mapping, Component Mapping ,