

VIVEKANANDHA

COLLEGE OF ARTS AND SCIENCES FOR WOMEN

ELAYAMPALAYAM, TIRUCHENGODE (Tk.), NAMAKKAL (Dt.).
(Affiliated to Periyar University, Approved by AICTE & Re-Accredited with A Grade by NAAC)
Recognized under section 2(f) and 12(B) Under UGC Act, 1956



DEPARTMENT OF COMPUTER APPLICATIONS

**B.Sc. INFORMATION TECHNOLOGY
SYLLABUS & REGULATIONS**

**FOR CANDIDATES ADMITTED FROM 2017-18
ONWARDS UNDER AUTONOMOUS & CBCS PATTERN**

VIVEKANANDHA COLLEGE OF ARTS AND SCIENCES FOR WOMEN

**VIVEKANANDHA EDUCATIONAL
INSTITUTIONS**

**Angammal Educational Trust
Elayampalayam, Tiruchengode (Tk.), Namakkal (Dt.)**

**A
U
T
O
N
O
M
O
U
S**

[AUTONOMOUS]

B.Sc., (INFORMATION TECHNOLOGY)

(Candidates admitted from 2017-2018 onwards)

REGULATIONS**I. SCOPE OF THE PROGRAMME**

Bachelor of Information Technology can be considered to be one of the most prominent UG level programs in our country. This program mainly deals with the development of computer applications for the purpose of updating computer programming languages. B.Sc.[IT] also aims at creating strong knowledge of theoretical Information Technology subjects who can be employed in software development and testing units of industries. The course has a time period of 3 years with 6 semesters.

II. SALIENT FEATURES

- Regular conduct of guest lectures and seminars
- Campus recruitment
- Provides facilities such as Internet Access and In-House Library
- Provides Career Guidance for Post Graduate Courses like M.Sc, and the Certifications in programming languages
- Conduct of Personality Development Program
- Visiting Faculties from Industries

III. OBJECTIVES OF THE COURSE

The Course Objective of the B.Sc. Information Technology program is to provide advanced and in-depth knowledge of Information Technology and its applications to enable students pursue a professional career in Information and Communication Technology in related industry, business and research. The course designed to impact professional knowledge and practical skills to the students.

IV. ELIGIBILITY FOR ADMISSION

A Candidates seeking admission to the first year Degree course (**B.Sc. Information Technology**) shall be required to have passed Higher Secondary Examination with Mathematics or Business Mathematics or Computer Technology or Statistics (Academic Stream or Vocational Stream) as one of the subject under Higher Secondary Board of

Examination, conducted by the Government of Tamilnadu or an examination accepted as equivalent thereto by the syndicate, subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the **B.Sc. Information Technology** Degree Examination of Periyar University after a course of study of three academic years.

V. DURATION OF THE PROGRAMME

- The course shall extend over a period of three academic years consisting of six semesters. Each academic year will be divided into two semesters. The First semester will consist of the period from July to November and the Second semester from December to April.
- The subjects of the study shall be in accordance with the syllabus prescribed from time to time by the Board of Studies of Vivekanandha College of Arts and Sciences for Women with the approval of Periyar University.

VI. CONTINUOUS INTERNAL ASSESSMENT (CIA)

The performance of the students will be assessed continuously and the Internal Assessment Marks for Theory papers

- | | |
|-------------------------|------------|
| 1. Average of two Tests | - 10 Marks |
| 2. Seminar | - 5 Marks |
| 3. Assignment | - 5 Marks |
| 4. Attendance | - 5 Marks |

Total	= 25 Marks
-------	------------

Internal Assessment Marks for Practical

- | | |
|----------------|------------|
| 1. Attendance | - 10 Marks |
| 2. Observation | - 10 Marks |
| 3. Test | - 20 Marks |

Total	=40 Marks
-------	-----------

PASSING MINIMUM (Theory)

EXTERNAL

In the University Examinations, the passing minimum shall be 40 % out of 75 Marks.
(30 Marks)

PASSING MINIMUM (Practical / Mini project)

EXTERNAL

In the University Examinations, the passing minimum shall be 40 % out of 60 Marks.
(24 Marks)

Distribution of Marks

Problem Understanding	: 05 Marks
Program writing	: 10 Marks
Debugging	: 10 Marks
For Correct Results	: 05 Marks

The Passing minimum shall be 40% out of 60 marks (24 Marks)

VII. ELIGIBILITY FOR EXAMINATION**Distribution of marks for attendance**

PERCENTAGE	MARKS	
	THEORY	PRACTICAL
75-80	1	2
81-85	2	4
86-90	3	6
91-95	4	8
96-100	5	10

A candidate will be permitted to appear for the University Examination only on earning 75 % of attendance and only when her conduct has been satisfactory. It shall be opened to grant exemption to a candidate for valid reasons subject to conditions prescribed.

VIII. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Successful candidates passing the examination of Core Courses (main and allied subjects) and securing marks

- 75 % and above shall be declared to have passed the examination in first class with Distinction provided they pass all the examinations prescribed for the course at first appearance itself.
- 60% and above but below 75 % shall be declared to have passed the examinations in first class without Distinction.
- 50%and above but below 60% shall be declared to have passed the examinations in second class.

- d) All the remaining successful candidates shall be declared to have passed the examinations in third class.
- e) Candidates who pass all the examinations prescribed for the course at the first appearance itself and within a period of three consecutive academic years from the year of admission only will be eligible for University rank.

IX. ELIGIBILITY FOR AWARD OF THE DEGREE

A candidate shall be eligible for the award of the degree only if she has undergone the above degree for a period of not less than three academic years comprising of six semesters and passed the examinations prescribed and fulfilled such conditions have been prescribed therefore.

X. PROCEDURE IN THE EVENT OF FAILURE

If a candidate fails in a particular subject, she may reappear for the semester examination in the concerned subject in subsequent semesters and shall pass the examination.

XI. COMMENCEMENT OF THESE REGULATIONS

These regulations shall take effect from the academic year 2017-18 (i.e.,) for the students who are to be admitted to the first year of the course during the academic year 2017-18 and thereafter.

EVALUATION OF EXTERNAL EXAMINATIONS (EE)
QUESTION PAPER PATTERN – Theory

Time Duration: 3 Hours

Max. Marks: 75

PART- A: 20x1= 20

Answer all the Questions (Objective types)

Two Questions from each unit

PART- B: 5x5 = 25

Answer all the Questions

One Question from each unit (either or type)

PART- C: 3x10 = 30

Answer Any Three Questions

One Question from each unit (3 Out of 5)

The Passing minimum shall be 40% out of 75 marks (30 marks)

QUESTION PAPER PATTERN – Practical

Time duration: 3 Hours

Max. Marks : 60

1. One compulsory question from the given list of objectives : 30 Marks
2. One Either/OR type question from the given list of objectives : 30 Marks

The Passing minimum shall be 40% out of 60 marks (24 marks)

VIVEKANANDHA COLLEGE OF ARTS AND SCIENCES FOR WOMEN [AUTONOMOUS]
ELAYAMPALAYAM, TIRUCHENGODE - 637 205.
DEPARTMENT OF COMPUTER APPLICATIONS
B.Sc. INFORMATION TECHNOLOGY
COURSE PATTERN AND SCHEME OF EXAMINATIONS UNDER CBCS
for the Candidates admitted from the year 2017-2018

Sem	Course Code	Part	Courses	Hour	Credit	Marks		
						Int. Marks	Ext. Marks	Total Marks
I	17U1LT01	I	Tamil-I	4	3	25	75	100
	17U1LE01	II	English I	4	3	25	75	100
	17U1ITC01	IV	Core – I Information Technology in Business	5	5	25	75	100
	17U1ITP01	IV	Core Lab - I Computer Practices Lab	5	3	40	60	100
	17U1MAA04	III	Allied-I Numerical Methods	4	4	25	75	100
	17U1ITC02	IV	Core-II Office Automation	4	3	25	75	100
	17U1VE01		Value Education	2	2	25	75	100
			Library	1	-	-	-	-
			Sports	1	-	-	-	-
TOTAL				30	23	190	510	700
II	17U2LT02	I	Tamil-II	4	3	25	75	100
	17U2LE02	II	English-II	4	3	25	75	100
	17U2ITC03	IV	Core III – Programming in C	4	4	25	75	100
	17U2ITP02	IV	Core Lab -II Programming in C Lab	4	3	40	60	100
	17U2MAA08	III	Allied II Discrete Mathematics	4	4	25	75	100
	17U2ITC04	IV	Core IV DTP Package	4	2	25	75	100
	17U2ES01		Environmental Studies	4	4	25	75	100
			Library	1	-	-	-	-
			Sports	1	-	-	-	-
TOTAL				30	23	190	510	700
III	17U3ITC05	IV	Core V-Data Structures and Algorithms	4	3	25	75	100
	17U3ITC06	IV	Core VI-Operating Systems	4	3	25	75	100
	17U3ITC07	IV	Core VII- Object Oriented Programming in C++	5	5	25	75	100
	17U3ITP03	IV	Core Lab - III Programming in C++ Lab	5	3	40	60	100
	17U3MAA14	III	Allied III - Resource Management Techniques-1	4	4	25	75	100
	17U3ITC08	IV	Core VIII E-Commerce	4	3	25	75	100
	17U3ITS01	VII	SBEC-I – Basics of Unix and Linux	2	2	25	75	100
			Library	1	-	-	-	-
			Sports	1	-	-	-	-
TOTAL				30	23	190	510	700
IV	17U4ITC09	IV	Core IX-Information security	4	3	25	75	100
	17U4ITC10	IV	Core X- Computer Networks	4	3	25	75	100
	17U4ITC11	IV	Core-XI- Relational Database Management Systems	5	5	25	75	100
	17U4ITP04	IV	Core Lab - IV RDBMS Lab	5	3	40	60	100
	17U4CMA04	III	Allied-III Cost and Management Accounting	4	4	25	75	100
	17U4 ITC12	IV	Core XII Multimedia Design (Corel DRAW)	4	3	25	75	100
	17U4ITS02	VII	SBEC-II Mobile Application Development	2	2	25	75	100
			Library	1	-	-	-	-
			Sports	1	-	-	-	-
TOTAL				30	23	190	510	700

V	17U5ITC13	IV	Core-XIII Java Programming	5	5	25	75	100
	17U5ITC14	IV	Core-XIV C#.NET	5	5	25	75	100
	17U5ITP05	IV	Core-XV Java Programming Lab	5	3	40	60	100
	17U5ITP06	IV	Core Lab - V C#.NET Lab	5	3	40	60	100
	17U5ITE	V	Elective – I	5	4	25	75	100
	17U5MAN01	VI	NMEC I	2	2	25	75	100
	17U5ITS03	VII	SBEC-III Mobile Application Development	2	2	25	75	100
			Library/ Sports	1	-	-	-	-
TOTAL				30	24	205	495	700
VI	17U6ITC16	IV	Core-XVI Web Technology	5	5	25	75	100
	17U6ITP06	IV	Core Lab -XVI Software Engineering	5	5	40	60	100
	19U6CACPPR01	IV	PROJECT – I Project Work- (In house -Project)	5	3	25	75	100
	17U6ITP07	IV	Core Lab –VII Web Technology Lab	5	3	40	60	100
	17U6ITE	V	Elective –II	4	3	40	60	100
	17U6MAN02	VI	NMEC II	2	2	25	75	100
	17U6ITS04	VII	SBEC-IV Internet of Things	2	2	25	75	100
			Library/Sports	1	-	-	-	-
17U6EX01		Extension Activities	1	1	-	-	-	
TOTAL				30	24	220	480	700
GRAND TOTAL				180	140	1185	3015	4200

ELECTIVE COURSES

ELECTIVE – I

Semester	Course Code	Course Name
V	17U5ITE01	Data Mining and Data Warehousing
V	17U5ITE02	Mobile Computing
V	17U5ITE03	Distributed Computing

ELECTIVE – II

Semester	Course Code	Course Name
VI	17U6ITE04	Big Data Analytics
VI	17U6ITE05	Computer Graphics
VI	17U6ITE06	Cloud Computing

Subject Title	Java Programming	Semester	V	Hours:75
---------------	------------------	----------	---	----------

Subject Code	17U5ITC13	Specialization	NA
Type	Core - XIII	L:T:P:C	5:0:0:5
Objectives			
1. The objective of Java Programming is used web programming. Any Web developer needs to have the knowledge of Java programming.			
Unit	Syllabus Contents	Number of Sessions	
I	Introduction - Object Oriented Programming - History of Java – Byte Code – A first Simple program – I/O Basis – Reading / Writing Console Input/Output – Lexical Issues – Java Data types – Variables – Type Conversion and Casting – Arrays – Operators – Control Statements.	15	
II	Classes and Objects: A Simple Class and Declaring Objects, Methods – Examples – Constructor's – Inheritance – Basics – Using super - Creating a Multilevel Hierarchy – Packages and Interfaces: Packages – Access Protection – Importing Packages – Interfaces.	15	
III	Exception Handling: Fundamentals – Types – Using try and catch – Built in Exceptions – Throwing our own Exception .Introducing AWT: AWT classes – Windows fundamentals - Working with frame windows – Working with graphics – Control fundamentals – Labels – Buttons – Text Field.	15	
IV	Database programming: The Design of JDBC – JDBC Driver types – Uses of JDBC – SQL – Connecting to the database – Executing SQL – Statements – Managing Connections – Statements and Result sets – SQL Exception. The Applet Class-types of Applet- Basics-Applet Class – Architecture – An applet Skeleton - Applet Initialization and Termination- Overriding update()	15	
V	Simple Applet Display Methods -Requesting Repainting -A Simple Banner Applet -Using the Status Window -The HTML APPLET Tag -Passing Parameters to Applets -Improving the Banner Applet -getDocumentBase() and getCodeBase() -AppletContext and showDocument() -The AudioClip Interface -The AppletStub Interface-Outputting to the Console	15	

Learning Resources	
Text Books	1. Herbert Schildt , The Complete Reference Java II,5th Edition , TATA Mc Graw-Hill 2002. 2. Cays.Hortmann hary cornell, Core Java Volume II – Advanced Features, Pearson education 2010.
Reference Books	1. Deital Deital “Java How to Program” Pearson Education,2005 2. Rashmi kanta Das “Core Java: For Beginners, Vikas Publishing Pvt Ltd, 2009. 3. Martin Rinchart, “Java database development”, Tata Mcgraw Hill 2000.
Web Sites / Links	1. www.csee.umbc.edu/courses/331/spring03/0101/lectures/java02.ppt 2. www.slideshare.net/intelligotech/java-tutorial-ppt-7189933

Content beyond the syllabus

1. Developing applications using J2EE
2. Study about NetBean IDE

Subject Title	C#.NET	Semester	VI	Hours:75
Subject Code	17U6ITC14	Specialization	NA	
Type	Core - XIV	L:T:P:C	5:0:0:5	

Objectives

1. Create a rich GUI for web based applications using a rich set of controls
2. Create secure (authentication and authorization) web applications
3. Personalize a web page using Web Parts

Unit	Syllabus Contents	Number of Sessions
I	C# at Work- .NET Framework & the CLR –Assemblies- File Extensions used in Visual C#- Visual C# Integrated Development Environment –Data Types in C#.	15
II	Arrays & Variables: Variables –Arrays-User Defined Data types in C#: Classes, Inheritance- Methods – Operators –Branching & Looping – Exception Handling – Events.	15
III	Visual Elements in C# : General Components –User Defined Components –Graphics Handling, Web Form Controls – Classes –List Classes – Table Controls & Image Controls – Hyperlinks & Link Buttons.	15
IV	Validation: Validation Controls- Validation Groups, Calendars & Ad Rotators- HTML controls: Client & Server HTML controls- HTML Server Control classes- HTML control classes.	15
V	Data Access with ADO.NET : Introduction to Database-SQL Basics – Creating a new Data Connection –Dataset. Binding controls to database: Simple, Complex Binding- Binding data to Controls- Navigating in Data-Data Controls: The Grid view- The Details –The Form View.	15

Learning Resources

Text Books	1. Matt Teller and Kogent solutions inc “ C# 2005 Programming \Covers .NET 3.0 and 2.0 Black Book”, Dream Tech press,2007.
Reference Books	<ol style="list-style-type: none"> 1. Pro ASP.NET 2.0 in C# 2005-Matthew Macdonald and Mario Szpuszta- Apress 2. C# 2008 for programmers –Third Editon-Deitel developer series:Paul J.Deitel and Harvey M.Deitel :Pearson. 3. Murach’s ASP.NET 2.0 web programming C# 2005-Jeel Murach & Anne Boehm:SPD(Shroff publishers & Distributors pvt.Ltd) 4. Beginning ASP.NET 2.0 in C# 2005: From Novice to Professional (Beginning: From Novice to Professional). Matthew MacDonald (Author) publication: APress 2005.
Web Sites / Links	<ol style="list-style-type: none"> 1. www.slideshare.net/ 2. www.powershow.com/

Content beyond the syllabus:

1. Application development using .NET
2. Study about tools and technologies of .NET

Subject Title	Java Programming Lab	Semester	V	Hours:60
Subject Code	17U5ITP05	Specialization	NA	
Type	Core Lab - VI	L:T:P:C	5:0:0:3	

Objectives

1. Write clear, elementary Java programs (applets and applications)
2. Use the Java interpreter to run Java applications
3. Read, write, and debug Java programs
4. Write programs using object-based programming techniques including classes, objects

List of Programs

1. Write a java program to generate Fibonacci series.
2. Write a java program to display tables from 1 to 10 using 2d Array.
3. Implementation of Classes and Objects concepts.
4. Implementation of Constructor.
5. Write a java program to create user defined exception.
6. Implementation of Interface concept.
7. Implementation of packages in java.
8. Write a Java program to implement the concept of importing classes from user defined package and creating packages.
9. Write a program to implement the concept of Exception Handling using predefined exception.
10. Write a program to implement the concept of Exception Handling by creating user defined exceptions.
11. Write a program using Applet to display a message in the Applet.
12. Write programs for using Graphics class
 - to display basic shapes and fill them
 - draw different items using basic shapes
 - set background and foreground colors.
13. Write a program to establish the connection between Java programs to database.
14. Write a program to create a database table by using Java program.
15. Develop an application to perform insert, update, retrieve and delete the record from the database in JDBC.
16. Write a program to combine data from more than one table in Java.

Subject Title	C#.NET Lab	Semester	VI	Hours:75
Subject Code	17U5ITP06	Specialization	NA	
Type	Core Lab - VII	L:T:P:C	5:0:0:3	

Objectives

1. Create a web based applications using a rich set of controls
2. Create secure web applications

List of Programs

1. Write a console application that obtains four int values from the user and displays the product.
2. If you have two integers stored in variables var1 and var2, what Boolean test can you perform to see if one or the other (but not both) is greater than 10?
3. Write an application that includes the logic from Exercise 1, obtains two numbers from the user, and displays them, but rejects any input where both numbers are greater than 10 and asks for two new numbers.
4. Write programs using conditional statements and loops:
 - I) Generate Fibonacci series.
 - II) II) Generate various patterns (triangles, diamond and other patterns) with numbers.
 - III) Test for prime numbers.
 - IV) Write programs using conditional statements and loops: IV) Generate prime numbers.
 - V) Write programs using conditional statements and loops: V) Reverse a number and find sum of digits of a number.
 - VI) Write programs using conditional statements and loops: VI) Test for vowels.
 - VII) Write programs using conditional statements and loops: VII) Use of foreach loop with arrays.
5. Write an application that receives the following information from a set of students: Student Id: Student Name: Course Name: Date of Birth: The application should also display the information of all the students once the data is entered. Implement this using an Array of Structures.
6. Write an application that uses two command-line arguments to place values into a string and an integer variable, respectively. Then display these values.
7. Write a program to declare class „Distance“ have data members dist1,dist2 ,dist3. Initialize the two data members using constructor and store their addition in third data member using function and display addition.
8. Create an application that allows the user to enter a number in the textbox named „getnum“. Check whether the number in the textbox „getnum“ is palindrome or not. Print the message accordingly in the label control named lbldisplay when the user clicks on the button „check“.
9. Create an application which will ask the user to input his name and a message, display the two items concatenated in a label, and change the format of the label using radio buttons and check boxes for selection , the user can make the label text bold ,underlined or italic and change its color . include buttons to display the message in the label, clear the text boxes and label and exit.
10. List of employees is available in listbox. Write an application to add selected or all records from listbox (assume multi-line property of textbox is true).
11. Database programs with ASP.NET and ADO.NET. Create a Web App to display all the Empname and Deptid of the employee from the database using SQL source control and bind it to GridView . Database fields are(DeptId, DeptName, EmpName, Salary).
12. Database programs with ASP.NET and ADO.NET Create a Login Module which adds Username and Password in the database. Username in the database should be a primary key.
13. Database programs with ASP.NET and ADO.NET Create a web application to insert 3 records inside the SQL database table having following fields (DeptId, DeptName,

EmpName, Salary). Update the salary for any one employee and increment it to 15% of the present salary. Perform delete operation on 1 row of the database table.

14. Programs using Language Integrated query. Create the table with the given fields. FIELD NAME DATA TYPE EmpNo number EmpName varchar EmpSal number EmpJob varchar EmpDeptNo number

15. Design the same webpages for BMS, BAF, BscIT students and apply same background color for all the pages using css.

- Set the label border color of rollno to red using css.
- Set the font-Arial , font style-bond , font size-18px of different controls(ie. Label, textbox, button) using css.
- Change the font family and color of all heading of above webpage using css.
- Use pseudo classes and display link, visited link and active link of contact us differently.

Subject Title	Mobile Application Development	Semester	V	Hours:30
Subject Code	17U5ITS03	Specialization	NA	
Type	SBEC:III	L:T:P:C	2:0:0:2	
Objectives				
1. Equip the participants with basic knowledge and skills about computer hardware and software maintenance and troubleshooting of common problems.				
Unit	Syllabus Contents			Number of Sessions
I	Introduction to Android: Introducing Android-History of Mobile Software Development-Open Handset Alliance-the Android Platform-Layers of Android-Android SDK- Kinds of Android Components- Building a Sample Android Application.			4
II	Android Application Design Essentials: Anatomy of an Android Applications-Android Terminologies- Application Context-Actives - Services-Intents-Receiving and Broadcasting Intents-Android Manifest File and its common settings-Using Intent Filter-Permissions.			4
III	Android Application Design Essentials: Managing Application resources in a hierarchy-Working with different types of resources. Android Application Design Essentials: User Interface Screen Elements-Designing User Interfaces with Layouts.			4
IV	Using Common Android APIs: Using Android Data and Storage APIs-Sharing Data between Applications with Content Providers-Using Android Web APIs and Using Android Telephony APIs.			4

V	DDMS-Debug and Other View: DDMS - Dalvik Debug Monitor Server-LogCat View-File explorer-Breakpoints and Debug.	4
----------	---	----------

Learning Resources	
Text Books	<ol style="list-style-type: none"> 1. Lauren Darcey and Shane Conder, “Android Wireless Application Development”, Pearson Education, 2nd Edition, 2011. 2. W. Frank Ableson, Robi Sen, Chris King, “Android in Action”, 2nd Edition, Manning Publications Co., 2011.
Reference Books	<ol style="list-style-type: none"> 1. Chris Haseman, “Android Essentials”, Apress Publications, 2008. 2. James Steele, Nelson To, “The Android Developer’s Cookbook-Building Applications with the Android SDK”, Addison-Wesley Publications, 2011.
Web Sites / Links	<ol style="list-style-type: none"> 1. www.tonex.com 2. developer.android.com

1. Learn about Latest Android based Applications
2. Scope of Android
3. Android application for education

Subject Title	Web Technology	Semester	VI	Hours:75
Subject Code	17U6ITC17	Specialization	NA	
Type	Core - XVII	L:T:P:C	5:0:0:3	
Objectives				
1. To cover the TCP/IP Basics, Basics of Browser, tiers, servlets, web security and XML.				
Unit	Syllabus Contents			Number of Sessions
I	User HTML Basics: An overview of HTML-Creating an HTML Document. Formatting an HTML Document- Fonts & Colors- Lists & Tables.			15
II	Hyperlinks & Frames- Images- Working with Audio & Video- Forms- Style Sheets			15
III	PHP syntax & variables : Introduction- Comments-Variables & its scope – Data Types –Output in PHP. PHP Control Structures & Functions : Boolean Expression –Branching- Looping-using functions- Function Documentation – Defining own functions- Functions & Variable scope- function scope.			15
IV	Passing Information with PHP- PHP string Handling- Arrays in PHP- PHP Number Handling.			15
V	MySQL Database Integration: Introduction to Database & MySQL-SQL – Integrating PHP & MySQL: Connecting & Creating MySQL Queries- Fetching Data sets- Multiple Connection- Creating MySQL Database with PHP –Error Checking.			15

Learning Resources	
Text Books	1. Steve Suehring, Tim Converse and Joyce Park “PHP & MySQL “ wiley

	Publication,2017. 2. NIIT, “HTML & XML –An Introduction “ PHI Learning pvt 2012.
Reference Books	1. Larry Ullman “PHP 6 and MySQL5” Pearson Publications,2016. 2. Faithe Wempen “ Microsoft step by step HTML5” O’Reilly Media Inc 2017.
Web Sites / Links	1. http://www.tutorials.com 2. www.w3schools.com/php

Content beyond the syllabus:

1. knowing about the tools for web technology
2. Study about latest technologies of web technology

Subject Title	Software Engineering	Semester	V	Hours:75
Subject Code	17U5ITC15	Specialization	NA	
Type	Core - XV	L:T:P:C	5:0:0:3	
Objectives				
1. Introduce software engineering basics				
2. To Learn Cost Estimation, Design notations and Software testing.				
Unit	Syllabus Contents			Number of Sessions
I	Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. Planning a Software Project: Planning the Development Process – Planning an Organizational Structure. Software Development Life cycle models.			15
II	Software cost Factors – Software Cost Estimation Techniques –Staffing-Level Estimation – Estimating Software Estimation Costs.			15
III	Software Requirements Definition: The Software Requirements specification – Formal Specification Techniques. Software Design: Fundamental Design Concepts – Modules and Modularization Criteria.			15
IV	Design Notations – Design Techniques. Implementation Issues: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.			15
V	Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing. Software Maintenance: Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management. Software Tools :Overview – Examples.			15

Learning Resources

Text Books	1. Richard Fairley, “Software Engineering Concepts, TMH 2007.
-------------------	---

	2. Dr.K.V.K.K.Prasad “Software Testing tools”, Dream Tech Press, 2010.
Reference Books	1. Eve Anderson, Philip Greenspun, Andrew Grumet, “Software Engineering for Internet Applications”, PHI 2006. 2. Jeff Tian, “Software Quality Engineering” Student edition, 2006, Wiley India.
Web Sites / Links	1. www.softwareengineerinsider.com/articles/what-is-software-engineering.html 2. https://www.udemy.com/courses/development/software-engineering

Content beyond the syllabus:

1. Knowing about case tools
2. Study about CAD / CAM

Subject Title	Project Work (In-House Mini Project)	Semester	V	Hours:15
Subject Code	17U5ITPR01	Specialization	NA	
Type	Mini Project	L:T:P:C	0:0:1:1	
Objectives				
<ol style="list-style-type: none"> 1. To understand the problem in clear and concise mode 2. To know how to connect the statement with the problem 3. Usage of features of programming language in project. 4. Design the whole project 				
Project Work Pattern				

FIRST REVIEW:**(20 Marks)**

1. Project Title
2. Project Platform (Language / Package Selected)
3. Confirmation Letter (from Company / Industry)
4. Details of Internal Guide with Designation & Qualification (in the company / Industry)
5. Presentation

SECOND REVIEW:**(20 Marks)**

1. Work Observation
2. Modules in Project (Design Screens Sample)
3. DFD / ERD / System Flow Diagram (Whichever Applicable)
4. Estimated Time of Completion
5. Completed Work in the form of Percentage Analysis
6. PowerPoint Presentation.

FINAL REVIEW:**(60 Marks)**

1. Documentation
2. Screens Shots
3. DFD / ERD / System Flow Diagram (Whichever Applicable)
4. Final Project Report (with executable format including complete source code)

The Passing minimum shall be 40% out of 60 marks (24 Marks)

Subject Title	Web Technology Lab	Semester	VI	Hours:75
Subject Code	17U5ITP07	Specialization	NA	
Type	Core Lab - VIII	L:T:P:C	5:0:0:3	

Objectives

1. Plan different types of HTML Tags and usage.
2. Differentiate different types of Cascading Style Sheets in HTML.
3. Infer PHP Programs.
4. Critiquing the different types of String Handling Function in PHP.
5. Implement PHP MySQL programs.

List of Programs

HTML Programs

1. Design a web page for your College using basic HTML tags.
2. Create a Web page with the following using HTML
 - a) To embed an image map in a web page
 - b) To fix the hot spots
 - c) Show all the related information when the hot spots are clicked.
3. Create a Web page with all types of cascading style sheets. Use all types of Cascading.

PHP Programs

4. Create a php webpage and print “hello world”.
5. Create a php program to find odd or even number from given number
6. Write a php program to find maximum of three numbers.
7. Write a PHP program to swap two numbers.
8. Write a PHP Program to do various String Handling Functions in PHP.
9. Write a PHP program that demonstrate **form element**(input elements).
10. Write a PHP program that demonstrate passing variable using URL.
11. Write a PHP program to create a table in MySQL.
12. Write a PHP program to insert record into a table using MySQL.
13. Write a PHP program to drop table using MySQL.
14. Write a program to update table.
15. Create a student Registration in PHP and Save and Display the student Records.

Subject Title	Internet of Things	Semester	VI	Hours:30
Subject Code	17U6ITS04	Specialization	NA	
Type	SBEC- IV	L:T:P:C	2:0:0:2	

Objectives

1. To assess the vision and introduction of IoT.
2. To understand the application areas of IOT.

Un it	Syllabus Contents	Number of Sessions
I	Introduction: Introduction to Internet of Things – Defintion & Characteristics of IoT – Things in IoT – IoT Protocols – Logical Design of IoT: IoT functional Blocks – IoT Communication Models – IoT Communication APIs.	6
II	IoT Enabling Technologies: Wireless Sensor Networks – Cloud computing – Bigdata Analytics – Communication Protocols – Embedded Systems. Domain Specific IoTs: Home Automation – cities – Retail – Health & Monitoring.	6

III	Developing IoT: Introduction – IoT Design Methodology – Case Study on IoT System for Weather Monitoring.	6
IV	IoT and M2M: Introduction – M2M – Difference between IoT and M2M – SDN and NFV for IoT: Software defined Networking – Network Function Virtualization.	6
V	IoT System Management with NETCONF-YANG: Need for IoT System Management – SNMP – NETCONF – YANG. Tools for IoT: Introduction - Chef – Puppet.	6

Learning Resources

Text Books	1. Arshdeep Bahga, Vijay Madiseti “Internet of Things, A Hands on Approach” Universities Press 2015.
Reference Books	1. Oliver Hersent, David Boswarthick, Omar Elloumi. “ The Internet of Things – Key applications and Protocols”, Wiley, 2012.
Web Sites / Links	1. www.theinternetofthings.eu 2. www.cisco.com/c/en_in/solutions/internet-of-things/overview.html

ELECTIVES

Subject Title	Data Mining and Data Warehousing	Semester	V	Hours:60
Subject Code	17U5ITE01	Specialization	NA	
Type	Elective - I	L:T:P:C	4:0:0:3	
Objectives				
1. Understand data mining principles and techniques				
2. Introduce DM as a method and acquaint the students with the DM techniques.				
Unit	Syllabus Contents			Number of Sessions
I	Introduction: What motivated data mining?-Why is it important?-What is data mining?-Data mining-On what kind of data?-Data mining Functionalities-Classification of Data mining-Data mining task primitives-Integration of a Data mining System with a Database or Data Warehouse System-Major issues in Data mining			12
II	Data Preprocessing: Why Preprocess the Data?-Descriptive Data Summarization-Data Cleaning-Data Integration and Transformation-Data Reduction-Data Discretization and Concept Hierarchy Generation			12

III	Mining Frequent patterns, Associations and Correlations: Mining various kinds of association Rules-Classification and Prediction: What is Classification? What is Prediction? Issues regarding classification and Prediction-Bayesian Classification-Classification by Back propagation-Prediction	12
IV	Types of Data in cluster Analysis-Categorization of major Clustering methods Hierarchical methods-Density-based Methods-Spatial Data mining-Text mining-Data Mining Applications-Social Impacts of data mining-Trends in data mining	12
V	Data Warehouse and OLAP Technology: What is Data Warehouse? A Multidimensional Data Model-Data Warehouse Architecture-Data Warehouse Implementation	12

Learning Resources

Text Books	1. Jiawei Han and Micheline Kamber, "DATA MINING Concepts and Techniques", Morgan Kaufmann Publishers, Second Edition, 2006.
Reference Books	1. Soman K. P, Shyam Diwakar, V. Ajay, Data Mining, Printice Hall, 2008. 2. Arun K. Pujari, "Data Mining Techniques", Universities Press (India) Limited, 2001. 3. Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Introduction to Data Mining, Pearson, 2008.
Web Sites / Links	1. https://en.wikipedia.org/wiki/Data_mining 2. www.hinduwebsite.com/webresources/data_warehousing.asp

Content beyond the syllabus:

1. knowing about the tools for data mining
2. Study about latest technologies of data mining

Subject Title	Mobile Computing	Semester	V	Hours:60
Subject Code	17U5ITE02	Specialization	NA	
Type	Elective - I	L:T:P:C	4 : 0 : 0 : 3	
Objectives				
<ul style="list-style-type: none"> • To develop background knowledge about mobile computing. • To provide the importance of transmission of data • To learn about mobile communication 				
Unit	Syllabus Contents			Number of Sessions
I	Introduction - Introduction to Telephone Systems - Mobile communication: Need for mobile communication - Requirements of mobile communication – History of mobile communication - Introduction to Cellular Mobile Communication.			12
II	Mobile Communication Standards - Mobility Management: Handoff Techniques – Handoff Detection and Assignment – Types of Handoffs – Radio Link Transfer – Roaming Management - Frequency Management - Cordless Mobile Communication Systems.			12
III	Mobile Computing: History of data Networks - Classification of Mobile data networks - CDPD System. Satellites in Mobile Communication - Global Mobile Communication – Mobile Internet - Wireless Network			12

	Security - Wireless Local Loop Architecture - Wireless Application Protocol.	
IV	WCDMA Technology and Fibre Optic Microcellular Mobile Communication – Ad Hoc Network and Bluetooth Technology - Intelligence Mobile Communication System - Fourth Generation Mobile Communication Systems.	12
V	Mobile network layer: Mobile IP – Dynamic host configuration protocol – Mobile Ad-Hoc networks. Mobile transport layer: Traditional TCP – Classical TCP Improvement – TCP over 2.5/3G Wireless networks – Performance enhancing proxies – Support for Mobility: File Systems – World Wide Web.	12

Learning Resources

Text Books	<ol style="list-style-type: none"> 1. T.G. Palanivelu & R.Nakkeeran, “Wireless and Mobile Communication”, PHI Learning Private Limited, 2009. 2. Jochen Schiller, “Mobile Communications”, Pearson Education, Second Edition , 2009.
Reference Books	<ol style="list-style-type: none"> 1. William Stallings, “Wireless Communications and Networks”, Pearson Education, 2002. 2. <u>Asoke K Talukder</u>, “Mobile Computing: Technology, Applications, and Service Creation”, Tata McGraw-Hill Communications Engineering, 2009
Web Sites / Links	<ol style="list-style-type: none"> 1. www.tutorialspoint.com/mobile_computing/ 2. https://en.wikipedia.org/wiki/Mobile_computing

Content beyond the syllabus:

1. App development using mobile computing
2. Study about latest technologies of mobile computing

Subject Title	Distributed Computing	Semester	V	Hours:60
Subject Code	17U5ITE03	Specialization	NA	
Type	Elective - I	L:T:P:C	4 : 0 : 0 : 3	
<u>Objectives</u>				
<ul style="list-style-type: none"> To expose students to both the abstraction and details of file systems. <p>To introduce concepts related to distributed computing systems</p>				
Unit	Syllabus Contents			Number of Sessions
I	Introduction: Definition Of distributed system- goals - Types of Distributed Systems Architectures: Architectural Styles - System Architectures - Architectures Vs Middleware – Self-Management in Distributed Systems. Processes: Threads – Virtualization - Clients Servers - Code Migration.			12
II	Communication: Fundamentals - Remote Procedure Call – Message-Oriented Communication – Stream-Oriented Communications - Multicast Communication. Naming: Names, Identifiers and Addresses - Flat Naming - Structured Naming –Attribute-Based Naming			12
III	Synchronization: Clock Synchronization - Logical Clocks - Mutual Exclusion -Global Positioning of Nodes - Election Algorithms. Consistency and Replication: Introduction – Data-Centric Consistency Models – Client-Centric Consistency Models-Replica Management - Consistency Protocols.			12
IV	Fault Tolerance: Introduction to Fault Tolerance - Process Resilience - Reliable Client-Server Communication - Reliable Group Communication - Distributed Commit- Recovery. Security: Introduction to Security - Secure Channels - Access Control -Security Management.			12
V	Distributed Object-Based Systems: Architecture – Processes – Communication –Naming – Synchronization - Consistency and Replication – Fault Tolerance -Security. Distributed file system: Architecture –Processes-communication-Naming-Synchronization-Consistency and Replication - Fault Tolerance – Security – Distributed Web-Based Systems.			12

Learning Resources	
Text Books	1. Andrew S.Tanenbaum, Maarten Van Steen, “Distributed Systems” Principles and Paradigms. Second Edition, PHI Publications, New Delhi -2008. Unit-I (Chapters -1,2,&3) , Unit-II (Chapters- 4 & 5), Unit-III (Chapters-6 & 7), Unit-IV (Chapters-8 & 9), Unit-V (Chapter-(10,11 &12)
Reference Books	1. Birman, Kenneth P, “Reliable Distributed Systems - Technologies, Web Services, and Applications” , Springer Publications, 2005 Edition, 2. G.coulouris, Jean Dollimore & Tim Kindberg,Distributed Systems: Concepts and Design (4th Edition) , Addison Wesley Publications, 2005 Edition
Web Site / Links	1. www.adarshpatil.com 2. www.webopedia.com 3. http://www.cs.uic.edu/

Content beyond the syllabus:

1. Compare with parallel computing
2. Study about latest technologies of distributed computing

Subject Title	Big Data Analytics	Semester	VI	Hours:60
----------------------	---------------------------	-----------------	-----------	-----------------

Subject Code	17U6ITE04	Specialization	NA
Type	Elective - II	L:T:P:C	4:0:0:3
Objectives			
1. To understand the basic concepts of big data, methodologies for analyzing structured and unstructured data and Hadoop.			
Unit	Syllabus Contents		Number of Sessions
I	Overview of BigData: What is Big Data? Structuring Big Data – Types of Data - Elements of Big Data – Volume, Velocity, Variety – Veracity - Big Data Analytics – Advantages of Big Data Analytics - Careers in Big Data – Future of Big Data.		12
II	Technologies for Handling BigData: Distributed and Parallel Computing for Big Data – Introducing Hadoop – Cloud computing and Big Data: Features of Cloud Computing – Cloud Delivery Models – Cloud Services for Big Data – Cloud Providers in Big Data Market – In-memory Computing Technology for Big Data.		12
III	Understanding Hadoop Ecosystem: Hadoop Ecosystem – Hadoop Distributed File System – HDFS Architecture – Concept of Blocks in HDFS Architecture – HDFS Commands – Introducing Hbase – Map Reducing Framework – Role of Hbase in Big Data processing.		12
IV	Analyzing Data with Pig: Introducing Pig – Running Pig – Working with operators in Pig – Introducing to No Sql – Types of No Sql Data Models – Flum Architecture – Sqoop – Importing Data – What is Mahout – Machine Learning – Mahout Algorithms.		12
V	Understanding Analytics and Big Data: Comparing report and analysis – Types of analytics – Points to consider during analysis – Developing an Analytic team – Understanding text analytics – Analytical approaches – History of analytical tools – Introducing popular analytical tools.		12

Learning Resources	
Text Books	1. “Big Data Black Book”.“DT Editorial services”, Dream Tech Press, 2016.
Reference Books	1. “Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data” EMC Educational services, Wiley Publications, 2015. 2. “Real-Time Big Data Analytics: Emerging Architecture”, “Mike Barlow”, O’Reilly Publications, 2013.
Web Sites / Links	1. http://searchbusinessanalytics.techtarget.com/definition/big-data-analytics 2. https://www.sas.com/en_us/insights/analytics/big-data-analytics.html

Content beyond the syllabus:

1. Knowing about the concept of unstructured data
2. Study about latest technologies of big data

Subject Title	Computer Graphics	Semester	VI	Hours:60
Subject Code	17U6ITE05	Specialization	NA	
Type	Elective -II	L:T:P:C	4 : 0 : 0 : 3	
Objectives				
1. To explore different software components and their application.				
Unit	Syllabus Contents			Number of Sessions
I	Introduction, Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices. Output primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms.			12
II	Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms. 2-D Geometrical transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.			12
III	2-D Viewing: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.			12
IV	3-D Object representation: Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-spline curves, Bezier and B-spline surfaces. Basic illumination models, polygon rendering methods. 3-D Geometric transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations.			12
V	Visible surface detection methods: Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods. Computer animation: Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications.			12

Learning Resources	
Text Books	<ol style="list-style-type: none"> 1. “Computer Graphics C version”, Donald Hearn and M. Pauline Baker, Pearson education.. 2. “Computer Graphics Principles & practice”, second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.
Reference Books	<ol style="list-style-type: none"> 1. “Computer Graphics Second edition”, Zhiqiang Xiang, Roy Plastock, Schaum’s outlines, Tata Mc Graw hill edition. 2. “Procedural elements for Computer Graphics”, David F Rogers, Tata McGraw hill, 2nd edition. 3. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH. 4. “Principles of Computer Graphics”, Shalini, Govil-Pai, Springer.
Web Site / Links	<ol style="list-style-type: none"> 1. https://www.tutorialspoint.com/computer_graphics/ 2. https://lecturenotes.in/subject/59/computer-graphics

Content beyond the syllabus:

1. Knowing about the image processing
2. Study about latest technologies of computer graphics

Subject Title	Cloud Computing	Semester	VI	Hours:60
Subject Code	19U5ITE06	Specialization	NA	
Type	Elective - II	L:T:P:C	4 : 0 : 0 : 3	
<u>Objectives</u>				
1. To explore different software components and their application.				
Unit	Syllabus Contents			Number of Sessions
I	Cloud computing: Introduction to Cloud Computing – history of cloud computing – client/server computing – peer-to-peer computing – distributed computing – collaboration computing – cloud computing – how cloud computing works: cloud storage – cloud architecture – cloud services – companies in the cloud – the pros and cons of cloud computing: advantages and disadvantages.			12
II	Evolution of cloud computing- Web service delivered from the cloud -Developing cloud services-Building cloud networks - Virtualization.			12
III	Cloud Hardware and Infrastructure – Client – Security – Network – Services – Platforms. Cloud Solutions: introduction – Cloud Application Planning – Cloud Ecosystem – Cloud Business Process Management – Cloud Service Management: Key Cloud Solution Characteristics – on-premise Cloud Orchestration and Provisioning Engine – Computing On Demand (COD) – Cloud Sourcing			12
IV	Migrating to the Cloud: Cloud Services for individuals – Cloud Services Aimed at the Mid-Market – Enterprise-Class Cloud Offerings – Migration – Mobile Internet devices and the cloud - Best practices and the Future of Cloud Computing: Analyze your Service – Best Practices – How Cloud Computing Might Evolve.			12
V	Security in cloud: Overview-Cloud Security Challenges- Software as a Service – Common standards in cloud computing - Symmetric ciphers: Classical encryption techniques – Data Encryption Standard – Advanced Encryption Standard – Multiple Encryption and Triple DES. Asymmetric ciphers: Public-key cryptography and RSA – Cryptographic hash function – Message authentication code.			12

Learning Resources	
Text Books	<ol style="list-style-type: none"> 1. "Cloud Computing web – based applications at change the way you work & collaborate online", Michael miller,pearson. 2. "Cloud Computing" 2nd edition, Dr.Kumarsaurabh,wiley India. 3. "Cloud Computing a practical approach", McGraw Hills. 4. Cloud Computing Implementation, Management, & Security "John W. Rittinghouse, James F . Ransome " Special Indian Edition.
Reference Books	<ol style="list-style-type: none"> 1. "Cryptography and Network Security" principles and practices – William Stallings. 5th Edition.
Web Site / Links	<ol style="list-style-type: none"> 1. webobjects.cdw.com 2. www.forbes.com 3. cloudcomputinglegal.weebly.com

Content beyond the syllabus:

1. To know about real time Cloud Applications.
2. To know about different technologies used along with Cloud.