Rationale: ASP.NET is a server-side web application framework designed for web development to produce dynamic web pages. It allows you to use a full featured programming language such as C# or VB.NET to build web applications easily.

Learning Outcomes:
- Concept of Web Application Architecture
- How to use Server controls and their Properties and Events
- Creating Site-wide Layout Using Master pages
- Database connection using ADO.NET
- Securing Web Application

Resource Required:
- Computer Lab Facility with Microsoft Visual Studio
- Projector

Teaching and Evaluation Scheme:
The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations which consist of Term Work such as class test, quiz, class participation, home assignments, presentations, Attendance regularity (i.e. Minimum 85%), Internal marks (Term Work + Sessional Exams) which consist of 30 marks and External marks which consist of 70 for University examination.

Sub Code	Subject Title	Teaching Scheme		Exam Scheme				
		Credit	Hrs/ Week	Theory		Practical		Total Marks
BCA 501	Web Development using ASP.Net	4	4	Internal	External	Internal	External	100
				30	70	-	-	

Course Contents:

Unit 1: Introduction to ClientServer Architecture [25%]

What is Client Server Architecture? 2-tier v/s 3-tier architecture, ASP.NET Essentials (Section-I), Developing a Web Application: Page Directives, Basics of C# Variables, Data Types, Control structure, Types- Value types and reference types, Namespaces

Book-1 Page Nos.- 1 to 12, 73 to 76

Book-3 Page Nos.- 23,24,26,31,32,37 to 43,45

Unit 2: Web Forms: Standard Controls [25%]

Standard Controls - I: Label, Button, TextBox, PlaceHolder, FileUpload, HiddenField

Standard Controls - II: Image, ImageButton, ListBox, DropDownList, HyperLink, CheckBox, CheckBoxList, RadioButton, RadioButtonList, Table, Panel, Calendar, AdRotator)

Book-1 Page Nos.- 113 to 117, 150 to 159, 165,166

Unit 3: Various Controls [25%]

Navigation Controls: Menu, SiteMapPath

Validation Controls, Login Controls, Master Pages

Book-1 Page Nos.- 242 to 246, 277 to 282, 906 to 908, 1379 to 1395

Unit 4: Working with Database andState Management [25%]

Working with ADO.NET, Overview of ADO.NET Data Objects Understanding Data Source

Controls: SqlDataSource control Working with Data bound Controls: GridView, DataList,

DetailsView, FormView, ListView, Chart

State Management: View State, Cookie, Session, Application State

Book-1 Page Nos.- 403 to 418, 425, 428
Book-2 Page Nos.- Chapter-10

Text Book(s):

1. ASP.NET 4.0 Black Book, Dreamtech Press
2. The Complete Reference ASP.NET By Matthew MacDonald, Tata McGraw-Hill.
3. Professional C# 4 and .NET 4, Christian Nagel, Bill Evjen, Jay Glynn, Karli Watson, Morgan Skinner, Wiley-India Edition

Other Reference Books:

1. ASP.NET Website Programming: Programs - Design – Solution
2. ASP.NET in a Nutshell
3. Teach Yourself ASP.NET in 24 Hours

Question Paper Pattern:

University Examination   Duration: 3 Hours   Total Marks: 70

1.	Unit-I & II (Objective/Short questions)	11 Marks
2.	Unit-I (Descriptive /Long questions)	12 Marks
3.	Unit-II (Descriptive /Long questions)	12 Marks
4.	Unit-III & IV (Objective/Short questions)	11 Marks
5.	Unit-III (Descriptive /Long questions)	12 Marks
6.	Unit-IV (Descriptive /Long questions)	12 Marks

Note: Que.2, Que.3, Que. 5 and Que.6 must have at least 40% Internal Options (i.e. Attempt Any 3 out of 5).

Kadi Sarva Vishwavidhyalaya, Gandhinagar
BCA Semester V
BCA 502: WEB TECHNOLOGIES USING OPEN SOURCE

Rationale: PHP is an Open source Server Side Scripting Language widely used to develop websites and Web Services. Wordpress and Magento are CMS based on PHP MYSQL. Wordpress is used to develop any kind of blogging and general purpose websites as well as ecommerce websites.

Objectives:

7. To provide Practical Knowledge of a Open Source Web Technologies
8. To provide Practical knowledge of Developing website using PHP AND MYSQL
9. To provide Practical knowledge of Developing website using wordpress
10. To provide Practical knowledge of Basics of ecommerce websites using wordpress

Expected learning outcomes of the program:

1. Student will be able to Use PHP for developing websites
2. This syllabus will help students to Understand open source CMS for websites.
3. This syllabus will help students to understand blogging, general purpose websites an ecommerce websites using Wordpress.
4. This will also provide introduction of ecommerce websites using wordpress

Resource Required:

- PHP 5, 7 or higher and MYSQL (with wamp or xamp or direct)
- Wordpress for php5 and php7

Teaching and Evaluation Scheme:

The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations which consist of Term Work such as class test, quiz, class participation, home assignments, presentation, Regular Attendance (i.e. Minimum 85%), Internal marks which consist of 30 (Term Work + Sessional Exams) marks and External marks which consist of 70 for University examination.

Subject Code	Subject title	Teaching scheme		Exam scheme			
		Credit	Hrs/Week	Theory		Practical	Total marks
				Internal	External	Max marks	
BCA 502	Web Technologies Using Open Source	4	4	30	70	-	100

Course content:

Unit 1:- Introduction to open source web technologiesand PHP [25 %]

- Websites , Server s i d e Scripting, Client side scripting languages.
- Introduction to PHP, installing and configuring php for windows(using wamp or xamp)
- Syntax of writing PHP, Embedding PHP with HTML, creating php pages
- Variables and data types in php, static and global variables,
- Arrays(one dimensional, two dimensional, multidimensional, associative arrays
- Operators in PHP
- Looping and control structures of php –while loop, do … while loop, for loop, foreach loop, if, if…else, if...elseif..else, switch…case
- User define functions, arguments in function, Return different values With function, default argument in function, variable function, variable Length argument function, writing a function with return statement.
- Super Global Variables- $_GET,$_POST, $_REQUEST ,$_SESSION,$_SERVER,$_FILES,$_COOKIE,$GLOBALS
- Working with Forms, interaction of data from html forms to PHP

Unit 2:- Functionsin PHP [25 %]

- Variable Functions: (gettype, settype, isset, strval, floatval, intval,print_r)
- string function: (Chr, ord, strtolower, strtoupeer, strlen, ltrim, rtrim, trim, substr, strcmp, strcasecmp, ctrpos, strrpos, stristr, str_replace, strrev, echo, print)
- MATH functions: (Abs, ceil, floor, round, fmod, min, max, pow, sqrt, rand)
- Date function: (Date, getdate, setdate, checkdate, time, mktime)
- Array Function: (Count, list, in_array, current, next, previous, end, each, sort, array_merge, array_reverse)
- File function: (Fopen, fread, fwrite, fclose)
- Miscellaneous Functions (include, require, requireonce, header,die)

Unit 3:- PHP MySQLi [25%]

- Connection to the MySQL Database –mysqli_connect() Creating and DeletingMySQL database and tables
- Updating, Inserting, Deleting records in the MySQL database tables-mysqli_query()
- Fetching data from mysql to php using php mysqli functions-mysqli_query() and
- Mysqli_num_rows(),mysqli_fetch_array(),mysqli_fetch_assoc, mysqli_fetch_object(), mysqli_error()
- Basic OOP in PHP

Unit 4:- CMS [25%]

- Introduction toCMS
- InstallingWordpress
- Modifying Settings,Creating User with different roles
- Customizing theme
- Adding Widgets and Menus
- Adding, editing, publishing pages and posts, different between pages and posts
- Adding plugging like contact form 7,photo and video gallery plugging
- Introduction to ecommerce plugging like woocommerce and payment gatways

Recommended Books & Reference Online:

1. PHP & MySQL Novice to Ninja – by Kevin Yank Published by SitePoint
2. Learning PHP, MySQL, JavaScript, and CSS: A Step-by-Step Guide to Creating Dynamic Websites – by Robin Nixon Published by O'Reilly

Question Paper Scheme:

University Exam	Duration 3 Hrs	Total Marks: 70
Q.1- Unit-I & II (Objective/Short questions)		11 Marks
Q.2- Unit-I (Descriptive / Long questions)		12 Marks
Q.3- Unit-II (Descriptive / Long questions)		12 Marks
Q.4- Unit-III & IV (Objective/Short questions)		11 Marks
Q.5- Unit-III (Descriptive / Long questions)		12 Marks
Q.6- Unit-IV (Descriptive / Long questions)		12 Marks

Kadi Sarva Vishwavidhyalaya, Gandhinagar
BCA Semester V
BCA 503: NETWORKING-II

Rationale: Networking-II focus on understanding of the current networking technologies concepts of various protocols like ARP, RARP, IP, TCP, UDP, BOOTP, DHCP, DNS.

Prerequisite: Basic Knowledge of Network fundamentals and TCP/IP Protocols of Ipv4.

Learning Outcomes:
- Understanding of TCP Protocol suites

Teaching and Evaluation Scheme:

The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations which consist of Term Work such as class test, quizzes, class participation, home assignments, presentation, Regular Attendance (i.e. Minimum 85%) and Internal marks.

Subject Code	Subject title	Teaching scheme		Exam scheme			
		Credit	Hr/Week	Theory		Internal practical work	Total marks
				Internal	External	Max marks	
BCA 503	Networking - II	4	4	30	70	-	100

Course Content:

Unit 1: Overview and TCP/IP Protocol I   **[25%]**

Objective: The main objective is to learn about the hardware,Network Structure and address mapping protocols.
Different types of networks LAN, WAN, MAN,
CAN Different Network Topologies
Difference between OSI Reference Model and TCP/IP
Model Different Network devices:Hubs, Routers,
Switches

Page No: 17 to 74

ARP and RARP: Address Resolution Protocol & Reverse Address Resolution Protocol ARP Packet Format, Encapsulation, Operation, Proxy ARP, Cache Table, Queues, Output Module, Input Module, Cache Control Module. RARP Packet format, Encapsulation, Alternative Solution to RARP.

Page No: 159 to 175

Unit 2: TCP/IPProtocol II [25%]

Objective: The main objective is to learn about Host to host communication and process to process communication protocols.

Internet Protocol (IP)
Datagram, Fragmentation, Options, Checksum, IP package
User Datagram Protocol (UDP)
Process to process communication, User Datagram, UDP Operation

Page No: 179 to208, 255 to268

Unit 3: TCP/IPProtocol III [25%]

Objective: The main objective is to learn about Reliable process to process communication and address mapping protocol.

Transmission Control Protocol (TCP)
Process to process communication, TCP services, Flow Control, Silly Window Syndrome, TCP Timers, Segment, Options, Connection
Bootstrap Protocol (BootP)
Packet Format, Operation

Page No: 275 to 325, 457 to 461

Unit 4: TCP/IPProtocol IV [25%]

Objective: The main objective is to learn about Dynamic configuration protocol and domain name services.

Dynamic Host Configuration Protocol (DHCP)
Leasing, Packet Format, Transition States
Domain Name System (DNS)
Name Space, Domain Name Space, Distribution of Name Space, DNS in the Internet, Resolution, DNS Messages, Types of Records, Compression.

Page No: 463 to 465, 471 to 489

Book:
- TCP/IP Protocol Suite - Second Edition By : Behrouz AForouzan TataMcGrawhill Edition

Reference Books:
- Guide to Wide Area Networks By : Tere Parnell Tata McGrawhill Edition
- Computer Networks, Fourth Edition by Andrew S. Tanenbaum

Question Paper Scheme

University Examination	Duration: 3 Hours.	Total marks: 70
Q.1- Unit-I & II	(11 Marks)	Objective / Short Questions
Q.2- Unit-I	(12 Marks)	Descriptive / Long questions
Q.3- Unit-II	(12 Marks)	Descriptive / Long questions
Q.4- Unit-III & IV	(11 Marks)	Objective / Short Questions
Q.5- Unit-III	(12 Marks)	Descriptive / Long questions
Q.6- Unit-IV	(12 Marks)	Descriptive / Long questions

Frequently Asked Questions

1. Define Network? What are the different types of network? Explain.
2. Describe the topologies of network.
3. List and explain network devices.
4. Describe in brief the following:
5. IP Address / Logical Address
6. Physical / MAC / Hardware Address
7. MTU
8. Port Number
9. Port Address
10. Well Known Port Numbers
11. Datagram
12. Segment
13. Proxy ARP
14. What is ARP and how it works?
15. Describe ARP message format?
16. What is ARP cache table?
17. Describe the IP datagram format?
18. What is MTU? What is Fragmentation? When it is required?
19. Write a note on following: Strict Source Route, Record Route, Timestamp
20. Explain UDP with its message format?
21. Discuss features of UDP in brief?
22. Describe process-to-process communication?.
23. What is a TCP Segment? Describe its format?
24. Describe connection establishment and connection release scenario of TCP?
25. Write the full forms of following-OSI, TCP, IP, UDP, MTU, ARP, RARP, HLEN, URG, PSH, ACK, RST, SYN, FIN, rwnd, cwnd
26. Explain the concept of Flow Control with Sliding Window Protocol and Silly Window Syndrome?
27. Draw and explain BooTP format.
28. What is DHCP? Describe its message format?
29. Draw and explain DHCP state transition diagram.
30. What is a Domain? Discuss DNS in detail?
31. Which are the categories of Domain?
32. Explain DNS Types of Records.
33. Explain Distribution of name space in DNS
34. Explain DNS in the Internet.
35. Explain DNS Resolution.

Kadi Sarva Vishwavidyalaya, Gandhinagar

BCA Semester V
BCA 504 : MOBILE APPLICATION DEVELOPMENT

Rationale: Understanding most useful concept of network, system, techniques and Applications in Mobile Application Development.

Learning Outcomes:
- Students will be able to understand all features of Mobile as well as wireless transmission.
- Students will be able to handle Mobile framework as well as WAP and Web Services.
- Students will able to solve problem related to Mobile IP address and its process.
- Students will able to perform analysis of various Mobile Apps for Mobile Application Development.

Resource Required: Computer System and Projector.

Sub Code	Subject Title	Teaching Scheme		Exam Scheme				
		Credit	Hrs/Week	Theory		Practical		Total Marks
BCA 504	Mobile Application Development	4	4	Internal	External	Internal	External	
				30	70	-	-	100

Unit 1: Mobile Computing & Development Framework and Wireless Transmission [25%]

- **Mobile Computing:** Introduction to Mobile Communications and Computing, Characteristics, Mobile Communication Generations, Applications.
- **Mobile Development Frameworks:** C/S Architecture, N-Tier Architecture, N-Tier Architecture and WWW, Peer-To-Peer Architecture, Mobile Agent Architecture.
- **Wireless Transmission Terminologies:** Signals, Frequency and Bandwidth, Antennas, Signal Propagation, Multiplexing, Modulation, Spread Spectrum, Cellular System.

Book 1: Page No: 1-7, 69, 8-11, 12-37

Unit 2: Wireless LANS , Mobile IP WAP and WEB Services   [25%]

- **Wireless LANS:** Wireless LAN and Communication using Infrared, Radio Frequency.
- **Mobile IP:** Introduction, Entities, Agents, Address Types.
- **WAP:** Introduction, Need of WAP, WAP Architecture, Benefits of WAP, Examples of WAP.
- **Web Services**: Introduction, SOAP, UDDI ,WSDL, EDGE, Wi-Fi, WiMax.

Book 1: Page No: 45-48, 81-87, 105-108, 189-196.

Unit 3: Wireless Telecomm Networks, Messaging Services & Smart Phone   [25%]

- **Wireless Telecomm Networks Terminologies:** GSM, GPRS, CDMA, Wireless Sensor Network.
- **Messaging Services**: SMS: Architecture and Applications; MMS: Architecture Applications.

- **Smart Phone**: Introduction, History, Hardware, Operating System, Applications.

Book 1: Page No: 139-161, 163-176, 208-221.

Unit 4: Mobile Application Development Case Studies [25%]

Case Study based discussion on Requirement gathering and analysis; Designing; Implementation or coding; Testing; Deployment and Maintenance of various types of Mobile Apps:
- Educational Apps
- E-Commerce Apps
- Gaming Apps
- Entertainment Apps
- Utilities Apps

Text Book

1. Mobile Computing (Technologies and Applications) by Dr. N. N. Jani.
2. Wireless Communication and Networking by William Stallings.

Reference Books

1. Principles of Mobile Computing by Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober.
2. Principles of Wireless Networks by Kaveh Pahlavan, Prasanth Krishnamoorthy.

Question Paper Scheme:

University Exam: **Duration 3 Hrs** **Total Marks: 70**

Q.1-	Unit-I & II (Objective/Short questions)	11 Marks
Q.2-	Unit-I (Descriptive / Long questions)	12 Marks
Q.3-	Unit-II (Descriptive / Long questions)	12 Marks
Q.4-	Unit-III & IV (Objective/Short questions)	11 Marks
Q.5-	Unit-III (Descriptive / Long questions)	12 Marks
Q.6-	Unit-IV (Descriptive / Long questions)	12 Marks

Question Bank

Unit 1

1) What is Mobile Computing?
2) Explain Characteristics of Mobile Computing.
3) List out Application of Mobile Computing.
4) Discuss Mobile Communication Generations.
5) Discuss N-tier Architectures and its components with diagram.
6) Discuss C/S Architectures and its components with diagram.
7) Discuss Peer-to-Peer Architectures and its components with diagram.
8) State the difference between Mobile Agent Architecture and N-tier Architecture and WWW.
9) Comparison of Analog Signal and Digital Signal
10) Write the Full forms/Abbreviations of following terms:
    EHF,SHF,UHF,VHF,HF,MF,LF,VLF,ULF,SLF,ELF,AM,
    FM, PM, SDM, FDM, TDM, CDM, DSS, FHSS
11) Define the following terms:
    1) Signal   2) Frequency   3) Bandwidth   4) Antennas   5)
    Multiplexing 6) Modulation   7) Spread Spectrum 8) Cellular System 9) Signal
    Propagation.

Unit 2

1) Discuss comparison of Infrared (IR) and Radio Frequency (RF).
2) Write down advantages and disadvantages of Infrared (IR).
3) Write down advantages and disadvantages of Radio Frequency (RF).
4) Write the short note on Mobile IP.
5) Explain Mobile IPV6 Address Types.
6) Define Wireless Application Protocol (WAP)
7) Explain Need of WAP.
8) Explain Benefits of WAP.
9) List out Examples of WAP.

10) Draw diagram of WAP Architecture and describe each components with their functions.
11) What is Web Services?
12) State the difference between Wi-Fi and Wi-Max.
13) Describe SOAP in Detail.
14) Describe UDDI in Detail.
15) Describe WSDL in Detail.
16) Describe EDGE in Detail.
17) Write down Mobile Web Technology with its Benefits and Limitations.

Unit 3

1) Give Overview of Global System for Mobile Communication (GSM).
2) Explain GSM Architecture with diagram.
3) Explain GSM Components.
4) Write a short note on General Packet Radio Service (GPRS).
5) Discuss Wireless Sensor Network (WSN).
6) What is CDMA?
7) Give brief introduction of Short Message Service (SMS).
8) Explain SMS Architecture with diagram.
9) Give various applications of SMS.
10) What is Multimedia Message Services (MMS)? How does Work?
11) Explain MMS Architecture with diagram.
12) Give various applications of MMS.
13) What is Smart Phone? How they are built?
14) Describe History of Smart phones.
15) Which Hardware Components are used in Smart Phone?
16) Explain different types of Smart Phone Operating System.
17) Give various applications of Smart Phones.

Unit 4

Discussion on Requirement gathering and analysis; Designing; Implementation or coding; Testing; Deployment and Maintenance on the basis of the given types of Mobile Apps:

- Educational Apps
- E-Commerce Apps
- Gaming Apps
- Entertainment Apps
- Utilities Apps

Kadi Sarva Vishwavidhyalaya, Gandhinagar
BCA Semester V
BCA505: WEB DEVELOPMENT USING ASP.NET (P)

Rationale: ASP.NET is a server-side web application framework designed for web development to produce dynamic web pages. It allows you to use a full featured programming language such as C# or VB.NET to build web applications easily.

Learning Outcomes: Students will be able to understand the basic concepts of developing web applications, securing web applications through state management

Resource Required:

- Lab Facility with Visual Studio 2012 or Advanced version
- Projector

Sub Code	Subject Title	Teaching Scheme		Exam Scheme				Total Marks
BCA 505	Web Development using ASP.Net(P)	Credit	Hrs/ Week	Theory		Practical		50
				Internal	External	Internal	External	
		2	4	-	-	15	35	

Practical Assignments

1. Create a calculator in ASP.Net with the use of buttons and TextBox.
2. Create ASP.Net application which displays different images on button click events.
3. Create ASP.Net application to calculate the age from selected date using calculator.
4. Create ASP.Net application to upload a file to a server.
5. Create ASP.Net application to demonstrate the use of CheckBox and CheckBoxList.
6. Create ASP.Net application to demonstrate the use of RadioButton and RadioButtonList.
7. Create ASP.Net application to demonstrate the use of ListBox.
8. Create ASP.Net application to demonstrate the use of DropDownList.
9. Create ASP.NET application to demonstrate the use of AdRotator control.
10. Create ASP.Net application to manage multiple web pages using menu.
11. Create ASP.Net application to manage multiple web pages using sitemap.
12. Create ASP.Net application to demonstrate the use of various validation controls.
13. Create ASP.Net application to demonstrate the use of all login controls.
14. Create ASP.Net application to demonstrate the concept of Master page.
15. Create ASP.NET webpage to display Student data from database into GridView dynamically.
16. Create ASP.NET webpage to demonstrate Registration process and sign in process along with necessary validations.
17. Create ASP.NET application to demonstrate CRUD operation with database.
18. Create ASP.NET application to demonstrate the use of Session management.
19. Create ASP.NET application to demonstrate the use of State management using Cookies.

Kadi Sarva Vishwavidyalaya, Gandhinagar BCA Semester V
BCA 506: WEB TECHNOLOGIES USING OPEN SOURCE (P)

Teaching & Evaluating Scheme:

Teaching Scheme would consist of classroom board based teaching as well as Group activity, Role play and Problem solving of relevant real time data.

The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations which consist of Term Work such as class test, quizzes, class participation, home assignments, presentation, Regular Attendance (i.e. Minimum 85%), Internal marks which consist of 15 (7.5 Term Work + 7.5 Sessional Exams) marks and External marks which consist of 35 for University examination.

Subject Code	Subject title	Teaching scheme		Exam scheme			Total marks
		Credit	Hr/Week	University theory		Internal practical work	
				Internal	External	Max marks	
506	Web Technologies Using Open Source (P)	2	4	15	35	-	50

Sample Practical

PHP:

1. Perform decision making example like (Even / odd number) in PHP
2. Perform looping with suitable example in PHP
3. String function of PHP example on library function like (Chr, ord, strtolower, strtoupeer, strlen, ltrim, rtrim, trim, substr, strcmp, strcasecmp, ctrops, strops, stristr, str_replace, strrev, print)
4. Math function of PHP example on library function like (Abs, ceil, floor, round, fmod, min, max, pow, sqrt, rand)
5. Date function of PHP example on library function like (Date, getdate, setdate, checkdate, time, mktime)
6. Array function of PHP example on library function like (Count, list, in_array, current, next, previous, sort, array_merge, array_reverse)
7. Perform PHP web page that explain associative Array with suitable example.
8. Using PHP write code and design with suitable example that focus on OOP.
9. Using PHP write code and design that you can write your friends name to specific file using File Function and read your friend name from specific file.
10. Using PHP create suitable database and table in MySqli and perform Insert , Update , Delete and Search as per field criteria.
11. Using PHP web page perform Signup and Login process for suitable database and table , session.

Wordpress :

12. Customizing theme of Wordpress template.
13. In Wordpress adding , editing various types of posts, pages,menu,widgets and incorporate to main web site.
14. In Wordpress adding photos and videos using various plug-in and sliders in Wordpress main website.
15. Primary level E-commerce based website and theme customizing using Wordpress with reference of woo-commerce.

Rationale: The main motive behind this subject is to give Project documentation skill and Project analysis skill for better practical exposure for next semester Project development. In this semester students will learn project documentation and analysis skill like , type of project , project title , technical level of project , existing system study , propose system study , modules of project … etc.

The objectives are:
• To learn about Project Types.
• To learn about Project Technology importance.
• To understand Project existing and propose system study.
• To understand Project feasibility study for project.
• To understand Project Designing with various project designing tools like DFD , ERD , in some special case student can perform UML , Activity diagram , Use-Case diagram also.

Teaching and Evaluation Scheme: The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations consisting of 15 marks (continuous evaluation based on project work done throughout the semester: 15 based on the continuous progress report) and External marks which consist of 35 for viva-voice presentation on Project Work in University Examination.

Subject code	Subject title	Teaching scheme (per week)		Examination scheme				Total Marks
		Cr.	Hrs. / week	Theory		Practical		
				Int.	Ext.	Int.	Ext.	
BCA 507	Project Phase –I	2	2	--	--	15	35	50

Mini project documentation format:

Acknowledgement

Preface

Index:

1. Project Definition
2. Objective and scope of the project
3. Existing system
    a. Introduction
    b. Problem analysis
        i. Study operating problems
        ii. Study informational problems
        iii. Feasibility study (Technical, Operational, Economical, Schedule)
    c. Present system model (Use any design tools / technique)
    d. What's new in the proposed system (if applicable?)
4. Proposed system
    a. Functional requirements
    b. Non-functional requirements
    c. Project plan
5. Software requirement analysis and specification
    a. General Hardware and Software description
6. System design
    a. Proposed system model (Use any design tools / technique)

Kadi Sarva Vishwavidhyalaya, Gandhinagar
BCA Semester V
BCA 508: Specialization (Robotics)
ROBOPEDIA-II

Rationale: This is to enable students to have an understanding of Arduino which is an open-source project for building digital devices and interactive objects that can sense and control physical devices..The course covers in depth study of Interfacing to LEGO programming and Projects Based on building and programming Robots and LEGO.

Learning Outcomes: The student will be able to understand:
1. Basic fundamentals of Arduino which includes pin description, modules, architecture and applications.
2. Interfacing to LEGO programming
3. Project Based on mechanical Robots and LEGO

Teaching and Evaluation Scheme:

Subject Code	Subject Title	Teaching Scheme		Exam Scheme				Total Marks
		Cr.	Hrs/Week	Theory		Practical		
				Internal	External	Internal	External	
BCA 508	Robopedia-II	2	2	-	-	15	35	50

Course Content:

Unit 1: Introductionto Arduino   [25%]

Pin description, Architecture, modules, Application used in real life

AV Aids: Projector, Simulator   **No. of hours: 05**

Unit 2 : Learning Arduino   [25%]

An introduction to Arduino , Arduino Software (IDE) ,Libraries: Using and installing Arduino Libraries.Cores, Adding a new board to your Arduino Software, Install the relate core and manage it.

AV Aids: Projector, Simulator   **No. of hours: 05**

Unit 3: Interfacing to LEGO programming   **[25%]**

Introduction of LEGO brick, assemble of the parts, Programming into LEGO brick

AV Aids: Projector, Simulator   **No. of hours: 05**

Unit 4 : Projects Based on mechanical Robots and LEGO   **[25%]**

Sensors, Color sensors, Light Sensors, Sound Sensors, Touch Sensors, Temperature Sensors

AV Aids: Ardinuo board, Components, Projector, Simulator   **No. of hours: 15**

Evaluation: Presentation Based.

Text book:
1. Beginning Arduino – Michael McRoberts
2. Getting Started with Arduino – Massimo Banzi

Reference book:
1. Myke Predko, "Programming and customizing the 8051- micro-controller", Tata McGraw-Hill, New Delhi, 2000.
2. Kenneth J. Ayala, "The 8051 micro-controller architecture, programming and applications", Penram International publishers, Mumbai, 1996.

Reference Links:
https://www.arduino.cc/

Kadi Sarva Vishwavidhyalaya, Gandhinagar
BCA Semester V
BCA 508: Specialization (E-Commerce) E–COMMERCE TECHNOLOGY-III

Rationale:

It presents different security issues like computer security and e – commerce security.

Learning outcomes:

- Able knowledge of e-security.
- Avail Knowledge of different security threads and its solution.
- Practical knowledge by developing E- commerce Projects

Teaching and Evaluation Scheme:

The objective of evaluation is not only to measure the performance of students, but also to motivate them for better performance. Students are evaluated on the basis of internal examinations which consists of Term Work such as class test, quizzes, class participation, home assignments, presentation, Regular Attendance (i.e. Minimum 85%), Internal marks which consist 15 Term Work marks and External marks which consist of 35 for University examination.

Sub Code	Subject Title	Teaching Scheme		Exam Scheme				Total Marks
		Cr.	Hrs/ Week	Theory		Practical		
				Internal	External	Internal	External	
BCA 508	E–COMMERCE TECHNOLOGY-III	2	2	-	-	15	35	50

Course Content:

Unit – I:

E – Security: Security Standards, Cryptography, Key Management, Password System, Digital Certification, Digital Signatures.

E – Commerce Security Secure Socket Layer (SSL), S-HTTP, TLS, Malicious code and unwanted programs, Phishing and identity theft

Unit – II:

Project: Develop E- Commerce based Project using PHP (Word Press, Magento), ASP.Net, and Java

Project phase – I:

- Proposed system
- Planning
- Feasibility studies
- System Design
- System flow
    - Algorithm
    - Flow chart
    - DFD (Data Flow Diagram)
    - E- R Diagram
    - Hierarchical Chart

Reference:

- Cyber Security Understanding Crimes, Computer Forensics, and Legal Perspectives by Nina Godbole and Sunit Belpure. Publication Wiley
- Basic Cryptanalysis Field Manual, Aegrean Park Pr.

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