C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:- Computer Science
DEPARTMENT OF:- Master of Computer Application
SEMESTER: -V
CODE: - 5CS05MOB1
NAME: –Mobile Application Development (MOB)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	Total
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05MOB1	Mobile Application Development	4	0	0	4	4	30	1.5	70	3	--	--	--	100

Objectives:
- Find tips and tricks to streamline the development process and take advantage of unique features of mobile based application development.
- To provides comprehensive guidance on designing, developing, testing, debugging, and distributing professional mobile based applications.

Prerequisites:
- Fundamentals knowledge of Core Java Programming, GUI Controls, Database Terminologies.

Course Outline:-

SNo.	Course Contents	Number of Hours
1	Overview of Android; setting up android development environments	3
2	Android Application Design Essentials	2
3	Android Application Design Essentials; anatomy of an android application.	2
4	Android Application Design Essentials; managing android resources	4
5	Android User Interface Design Essentials; user interface screen elements	8
6	Android User Interface Design Essentials; layouts and working with animation	6
7	Using Common Android APIs; Data & Storage APIs	8
8	Using Common Android APIs; Content Providers	4
9	Using Common Android APIs; Telephony APIs	4
10	Android Application Design Principles; Notifications	4
11	Android Application Design Principles; Services. Deploying Android App to the Store	3
	Total	**48**

Learning Outcomes:
- Students learn to develop professional android applications.

Teaching & Learning Methodology:
- Using Whiteboard & Multimedia or OHP

Books Recommended:
1. Android Wireless Application Development, **Lauren Darcey and Shane Conder**, Pearson Education, 2nd Ed.
2. Beginning Android, **Mark L Murphy**, Wiley India Pvt Ltd.

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FACULTY OF:- Computer Science
DEPARTMENT OF: -Master of Computer Application
SEMESTER: -V
CODE: - 5CS05WNS1
NAME: – Wireless Networks and Security (WNS)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
							Sessional Exam		University Exam		Internal		University	Total
		Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05WNS1	Wireless Networks and Security (WNS)	4	0	0	4	4	30	1.5	70	3	--	--	--	100

Objectives

- Help students become familiar with the fundamental Basics of wireless communication
- Help students to work with any infrastructure or cellular system of current and future wireless base networks.
- Student also builds their career in Research issues in emerging wireless networks.

Prerequisites

- Data Communication and Networks

Course Outline:

SNo.	Course Contents	Number of Hours
1	**Evolution of wireless communication systems** 1G wireless cellular networks: NMT, AMPS , TACS 2G cellular systems: GSM, IS-136, PDC ,IS-95 2.5G: HSCSD, GPRS, EDGE, IS-95B 3G: UMTS/W-CDMA,CDMA2000, Limitation of 3G 4G: Objectives ,Issues, QoS, Security , Multimedia Service, Applications, Convergence of Cellular and WLAN, Billing Issue, Wireless Networks, Cellular Technique	03
2	**Wireless Network** Wireless LAN, Mobile Ad hoc network, QoS, Mobile IP, Wireless Mesh Network, TCP over Wireless network.	05
3	**Emerging Networks** Wireless Sensor Network, Bluetooth Wireless PAN,	04

	High data rate wireless PAN, ZigBee (802.15.4), WiMAX (802.16)		
4	**Network Security and Symmetric Encryption** Security Trends, The OSI Security Architecture, Security Attacks, Security Services, Security Mechanism, A Model for Internetwork Security, Internet Standards the Internet Society. Symmetric Encryption Principles, Symmetric Block Encryption Algorithms, Stream Ciphers and RC4, Cipher Block Modes of Operation, Location of Encryption Devices, Key Distribution.		18
5	**Public Key Cryptography and Authentication** Approaches to Message Authentication, Secure Hash Functions and HMAC, Public Key Cryptography Principles, Public Key Cryptography Algorithms, Digital Signatures		18
		Total	**45**

Learning Outcomes:
- Adequate knowledge of wireless networks.
- Able to carry research in different domains of wireless networks.
- Understand the network security and appreciate the importance of network in today's world.
- Apply security services and mechanisms in evaluating networked systems
- Analyze and use to apply best suited Network Security mechanisms and standards in various applications.

Teaching & Learning Methodology:

The module will be delivered via lectures (by teaching aids i.e. Projectors PPT and PDF's) and assignments. Students are also expected to undertake self-study during this course.

Books Recommended:
- Wireless Communication and Networks, **W. Stalling**, 2nd edition Pearson Education,
- Wireless Communications: Principles and Practices, **T S. Rappaport**, 2nd edition Pearson Education,
- The Mobile Communications Handbook, **Jerry D. Gibson** ,3rd edition CRC Press.
- Computer Networking, Andrew S. Tanenbaum , Prentice Hall, Fourth Edition
- Cryptography and Network Security, **William Stallings,** Pearson Education.

E-Resources:

SrNo.	Name of Websites	Description
1	www.NPTEL.org	These are the sites for searching the books Web Directories
2	www.efy.com portal.acm.org	Subjective searching

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FACULTY OF:- Computer Science
DEPARTMENT OF: -Master of Computer Application
SEMESTER: -V
CODE: - 5CS05DSR1
NAME: – Dissertation

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	Total
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05DSR1	Dissertation	0	0	4	4	2	0	0	0	0	20	0	80	**100**

Learning Objectives:
- To gain an experience of a subject (area) of interest.
- To make an initial attempt at doing some research on the selected area / topic.
- To review research papers and white papers, etc. published in journals and conference proceedings of repute.
- To compile, organize and present the material collected from various sources in the form a white paper or a report of good value.

Prerequisites:
- Searching on the Internet, Word Processing Software, Technical Writing Skills

Guidelines:
- It is a team work – team consisting of preferably two (in no case more than three) students. In special cases, a single student team is acceptable.
- The topic (area) will be either chosen by the students or else it may be suggested by the Institute (College).
- Each team will be allotted a faculty member who will be their mentor.
- It is advisable that the finalization of topic and major milestones is completed within 15 days from the date of start of the semester.

The mentors will assess the progress of the students allocated to them on ongoing basis based on the following parameters:

Topic finalized, and milestones identified Schedule preparation (keep at least 15 days for completing the final report. Report writing may involve several [4 or more] cycles of writing-checking-correctionschecking-………)
Quality of material collected in terms of (a) relevance, (b) research material, (c) experimentation and analysis, etc.

Quality of literature review, and finally, Report preparation
- **The report should be preferably of more than 40 pages.**
- **The report contents shall include:**
  - Title Page
  - Acknowledgement

- o Table of Contents
  - o Glossary of Important Terms and Abbreviations
  - o List of Tables, if any
  - o List of Figures and Charts, if any
  - o Main Text
  - o References
  - o Appendices
- **The Main Text shall include the following:**
  - o Abstract
  - o Key Terms
  - o Introduction
  - o Literature Survey
  - o Major Theses and Hypotheses Presented
  - o Data and Analysis, if relevant
  - o Results and Discussion
  - o Conclusion and Future Directions
  - o The line spacing: 1.5.
- **Reference Guidelines:**
  - o Format: Author Name(s) followed by comma (,) followed by Title enclosed within double quotes, followed by Journal/Conference Proceedings Name followed by Volume, Number, Year, ISSN/ISBN No. (In case of books, publisher's name, edition, year of publication, ISBN No.)
  - o Should be arranged in alphabetical order of the first author's name, and should be numbered consecutively.
  - o Documentation Style: IEEE referencing standards to be followed.
- **Accomplishments of the student:**
  - o The art and science of literature survey and sourcing of the relevant material on the area/topic of interest.
  - o Awareness of current trends in Information Technology field.
  - o First-hand feel of research orientation and analytical thinking ability.
  - o Compiling and synthesizing advanced technical information from diverse sources.
  - o Technical Report writing skills.

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FACULTY OF:- Computer Science
DEPARTMENT OF: -Master of computer Application
SEMESTER: -V
CODE: - 5CS05EMB1
NAME: –- Embedded Systems (MAJOR ELECTIVE – II)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	Total
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05EMB1	Embedded Systems	5	0	2	7	6	30	1.5	70	3	10	-	40	150

Course outline:-

Sr. No.	Course content	No. of Hours
1.	The Processors : 8086 : Register Organization of 8086, Architecture, Signal Description of 8086, Physical Memory Organization, General Bus Operation, I/O Addressing Capability, Special Processor Activities, Minimum Mode 8086 System and Timings, Maximum Mode 8086 System and Timings. Addressing Modes of 8086.	8
2.	Instruction Set, Assembler Directives and Assembly Language Programming of 8086 Machine Language Instruction Formats – Instruction Set of 8086-Data transfer instructions,Arithmetic and Logic instructions,Branch instructions,Loop instructions,Processor Control instructions,Flag Manipulation instructions,Shift and Rotate instructions,String instructions, Assembler Directives and operators,Example Programs,Introduction to Stack, STACK Structure of 8086, Interrupts and Interrupt Service Routines, Interrupt Cycle of 8086, Non-Maskable and Maskable Interrupts, Interrupt Programming, MACROS.	12
3.	Special Purpose Programmable Devices and their Interfacing Data transfer schemes-programmed I/O, Interrupt I/O, DMA, DMA Controller 8257, Programmable Interval Timer 8253, Programmable Interrupt Controller 8259A, Programmable Communication Interface 8251 USART, Programmable Pripheral Interface 8255.	10
4.	Architecture and Comparison of various Processors 80186,80286,80386,80486, Pentium Case Study on Advanced Multiprocessors	8
5.	Introduction to Embedded Systems Embedded system – classification, Hardware Components of an Embedded system. Microcontrollers 8051 – Introduction, Architecture, Memory Organization, Instruction Set – Programming.	10

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List of Experiments:

Sr. No.	Course content	No. of Hours
1.	Introduction to microcontroller and interfacing modules.	2
2.	To interface the seven segment display with microcontroller 8051.	2
3.	To create a series of moving lights using 8051 on LEDs.	2
4.	To interface the stepper motor with microcontroller.	2
5.	To display the digital output of ADC on 16*2 LCD Module.	2
6.	To display character 'A' on 8*8 LED Matrix.	2
7.	To display the data and time on LCD Module.	2
8.	To switch on and off relay by using keys.	2
9.	To interface the DC motor using H-Bridge.	2
10.	To interface different sensors to microcontroller.	2
11.	To interface a keypad with microcontroller.	2

Books Recommended:

- Advanced Microprocessors and Peripherals – Architecture, Programming and Interfacing by A.K. Ray and K.M. Bhurchand, Tata McGraw Hill,2002 Edition
- Embedded Systems – Architecture, Programming & Design by Raj Kamal -Tata McGraw Hill.
- The Intel Microprocessors 8086/8088, 80816/80188, 80286, 80486 Pentium and Pentium Pro Processor – Architecture, Programming and interfacing by Barry B Brey, 4th Edition, PHI.

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FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:- V
CODE :- 5CS05AJP1
NAME – Advanced Java Programming (MAJOR ELECTIVE – II)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							Total
							Theory				Practical (Marks)			
							Sessional Exam		University Exam		Internal		University	
		Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05AJP1	Advanced Java Programming	5	0	2	7	6	30	1.5	70	3	10	--	40	**150**

Objectives:
- To be able to understand the concepts of Database Programming, using JDBC.
- To develop proficiency in creating web based applications using the Servlets and JSP, following MVC architecture

Technical Prerequisites:

- Knowledge of the Core Java Programming

Course outline:-

Sr. No.	Course content	No. of Hours
1	Introduction to JFC and Swing, Features of the Java Foundation Classes, Swing API Components, JComponent Class, Windows, Dialog Boxes, and Panels, Labels, Buttons, Check Boxes, Menus, Toolbars, Implementing Action interface, Pane, JScrollPane, Desktop pane, Scrollbars, Lists and Combo Boxes, Text-Entry Components, Colors and File Choosers, Tables and Trees.	12
2	Java Database Connectivity, JDBC Product, Types of Drivers, Two-Tier Client/Server Model, Three-Tier Client/Sever Model ,Basic Steps of JDBC, Creating and Executing SQL Statement, The Result Set Object, Working with Database MetaData	8
3	Servlet Basics, Basic Servlet structure, Servlets Generating text/html content, Packaging Servlets, The servlet life-cycle, Handling Client Request Form Data, Reading Form Data from Servlets, Handling Client Request, Reading Request Headers, Understanding HTTP/1.1 Request Headers, Changing the page according to how the user got there, Accessing the Standard CGI Variables,Generating the Server Response, HTTP Status Codes, Specifying Status Codes, HTTP / 1.1 Status Codes, Using Redirections, HTTP Response Headers, Setting Response Headers from Servlets, Understanding HTTP / 1.1 Response Headers, Using Servlets to Generate JPEG Image, Handling Cookies, Remembering Usernames and Passwords, Deleting Cookies, Sending and Receiving Cookies, Using Cookie Attributes, Differentiating Session Cookies from Persistent Cookies, Using Cookies to Remember User Preferences, Session Tracking, Need for Session Tracking, Session Tracking API, Encoding URLs Sent to the Client,	14

	Accumulating a List of User Data		
4	JSP Basic Syntax, HTML Text, HTML comments, Template Text, JSP Comment, JSPExpression, JSP Scriptlet, JSP Declaration, JSP Directives, JSP Action, JSP Expression Language Element, Custom Tag (Custom Action), Escaped Template Text, Using JSP Scripting, Elements, Using Predefined Variables, XML syntax for Expressions, Scriptlets, Declarations and Directives, Using Scriptlets, Using Declarations, Using Page Directive,Using Standard Actions Tags – <jsp:plugin>, <jsp:forward>, <jsp:include>,Using JavaBeans in JSP pages – <jsp:useBean>, <jsp:getProperty>, <jsp:setProperty>, Sharing Beans, Use of Scopes and their Attributes,Integrating Servlets and JSP in a Web Application (MVC Architecture for Web Applications), Implementing MVC with Request Dispatcher		9
5	RMI Architecture, Designing RMI application, Executing RMI application		5
		Total	**48**

Indicative Practical List:

Sr.no	Course Contents
1	Using JavaScript take a date from user and display the day of the week on that date.
2	Write a JavaScript to generate two random numbers and find out maximum and minimum out them.
3	Create a Form in HTML with two fields, minimum and maximum, write JavaScript to validate that only numeric value is entered in both, and the value entered in minimum is less than the value entered in maximum.
4	Develop an application that takes students roll number. If the marks of the student is between 40 and 50, change the backColor of "result.jsp" to" yellow", if the marks is between 50 and 60, change the backColor of the same page to "green" . if marks less than 40 the backColor should be "red" and if marks is above 60, the backColor should be "blue".
5	Using JavaScript count and display the total number of components on a form. Also display the name and the value of each of the component.
6	Write a JavaScript that finds out multiples of 10 in 0 to 10000. On the click of button start the timer and stop the counter after 10 seconds. Display on the screen how many multiples of 10 are found out within stipulated time.
7	Write a JavaScript to generate two random numbers and find out maximum and minimum out of it.
8	Write a JavaScript to remove the highest element from the array and arrange the array in ascending order.
9	Write a JavaScript to find a string from the given text. If the match is found then replace it with another string.
10	Write a JavaScript to show a pop up window with a message Hello and background color lime and with solid black border.
11	Write a Servlet to display "Hello World" on browser.
12	Write a Servlet to display all the headers available from request.
13	Write a Servlet to display parameters available on request.
14	Write a Servlet which displays a message and also displays how many times the message has been displayed (how many times the page has been visited).
15	Assume that we have got three pdf files for the MCA-1 Syllabus, MCA-2 Syllabus and MCA-3 Syllabus respectively, Now write a Servlet which displays the appropriate PDF file to the client, by looking at a

	request parameter for the year (1, 2 or 3).
16	Develop a Servlet which looks for cookies for username and password, and forwards to a home.jsp in case the cookies are valid and forwards to login.jsp, in case the cookies are not found or the cookies are nto valid. Develop a Servlet to authenticate a user, where the loginid and password are available as request parameters. In case the authentication is successful, it should setup a new session and store the user's information in the session before forwarding to home.jsp, which displays the user's information like full name, address, etc.
17	Write a simple JSP page to display a simple message (It may be a simple html page).
18	Write a JSP page, which uses the include directive to show its header and footer.
19	Develop interest calculation application in which user will provide all information in HTML form and that will be processed by servlet and response will be generated back to the user.
20	Develop an application to demonstrate how the client (browser) can remember the last time it visited a page and displays the duration of time since its last visit. (Hint: use Cookie)
21	Develop an application to write a "page-composite" JSP that includes other pages or passes control to another page. (Hint: Use <jsp:include> or <jsp:forward>).
22	You want to reduce the amount of Java coding in your JSP using a JavaBean component. (Hint: Use <jsp:useBean> with the name of your bean).
23	Develop a program to perform the database driven operation like insert, Delete, Update and select. To perform the above operations create one table named Employee.: Field Name Field Type , EmpId Integer , Empname Varchar , Emp_desig Varchar Emp_J_Date Varchar , Emp_Salary Numeric
24	Develop a Java application to perform the database driven operation like insert, Delete, Update and selection using PreparedStatement. To perform the above operations use the table from above exercise.

Learning Outcomes:
- Ability to create Web applications using Servlets and JSP, following MVC architecture for developing web applications
- Ability to fetch data from a database server and use in a web application.

Teaching & Learning Methodology:
- Using multimedia in a problem-based learning environment.
- The institute provides an excellent academic environment with accent on self-learning. The teaching and learning methodologies follow a rigorous regime that involves intensive and extensive working on challenging academic assignments.

Books Recommended:
- Core Servlets and JavaServer Pages Volume – 1, **Marty Hall, Larry Brown,**Pearson Education, 2nd ed.(2004)
- Java The Complete Reference 7th Edition,**Herbert Schildt**,TMH Publication
- Marty Core Servlets and JavaServer Pages Volume – 2, **Hall, Larry Brown, Yaakov Chaikin,** Pearson Education, 2nd ed.(2004)

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:- V
CODE :- 5CS05LIN1
NAME – Linux Programming (Major Elective –II)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							Total
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05LIN1	Linux Programming	5	0	2	7	6	30	1.5	70	3	10	--	40	**150**

Objectives:

1. Linux is available for many different systems. Its adaptability is such that enterprising souls have persuaded it to run in one form or another on systems based on the Alpha, ARM, IBM Cell, Itanium, PA-RISC, PowerPC, SPARC, SuperH, and 68k CPUs as well as the various x86-class processors, in both 32- and 64-bit versions.

Prerequisites:

1. Fundamentals knowledge of operating systems, programming skills.

Course Outline:

Sr. No.	Course content	No. of Hours
1	Introduction to UNIX, Linux, and GNU; Linux Programs, Text Editors, The C Compiler, Development System	3
2	Shell Programming	6
3	Linux File Structure, File Access, I/O Library, Formatted Input and Output, File and Directory Maintenance, Scanning Directories, Errors, The /proc, fcntl, mmap	5
4	Linux Environement; program arguments, environment variables, time, data, temporary files, user & host information, logging, resources and limits	4
5	Terminals; terminals structure, terminal output, detecting keystrokes	4
6	Managing text-based screens with curses	4
7	Data management	4
8	Development tools	5
9	Process structure, New processes	3
10	Inter-process Communication: Pipes	4
11	Sockets	6
	Total	**48**

Indicative Practical List:

S.No.	Experiments
1	Simple Hello, CCMCA program. Experiment on use of static libraries
2	Experiment on redirecting output, redirecting input, pipes, interactive programs, creating a scripts
3	Experiments on variables, conditions, program control, lists, functions; commands.
4	Experiments using commands including mount, cd, cp, write, read, open, close, umask, lseek, fstat, stat, lstat, dup, dup2
5	Experiments using commands including fopen, fclose, fread, fwrite, fflush, fseek, string functions, print functions, input functions
6	Experiments using /proc, fcntl, mmp
7	Experiments using getopt, getopt_long
8	Experiments using environment variables; getenv, putenv, environ, time, date
9	Menu Routine Program using C, Output redirection,
10	Experiments on window structure, generalized functions, moving & updating a window, Managing multiple window.
11	Experiments on Memory allocation, available memory, abusing memory, null pointer and freeing memory
12	Experiments on Locking the files; create, cooperative, locking regions, competing locks.

Learning Outcomes:
1. After completion of this course, students benefitted to working with Operating Systems and its functionalities.

Teaching & Learning Methodology:
1. Using Whiteboard & Multimedia or OHP

Books Recommended:
1. Beginning Linux Programming, 4th Edition, **Neil Matthew and Richard Stones**, Wrox Publication, 2012.

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:-   V
CODE :- 5CS05NET1
NAME – Advanced ASP & C# .NET Programming (Major Elective– II)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme						
							Theory				Practical (Marks)		
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	Total
5CS05NET1	Advanced ASP & C# .NET Programming	5	0	2	7	6	30	1.5	70	3	10	-	40	150

Objectives:
- Gain a thorough understanding of the philosophy and architecture of Web applications using ASP.NET
- Acquire a working knowledge of Web application development using Web Forms and Visual Studio .NET
- Optimize an ASP.NET Web application using configuration, security, and caching
- Access databases using ASP.NET and ADO.NET

Technical Prerequisites:
- knowledge of basic object-oriented programming and the .NET Framework

Course Outline:

SNo.	Course Contents	Number of Hours
1	**Microsoft.Net Introduction**, Features and Advantages Microsoft.Net Framework and Architecture MS .Net Platform Microsoft .Net and Windows DNA, Microsoft .Net Architecture Hierarchy Features of Microsoft .Net Platform Multilanguage development, Platform and Processor independent, Automatic Memory Management, Easy Deployment, Distributed Architecture, Interoperability with Unmanaged code, Security, Performance and Scalability Component of the .Net Architecture MS .Net Runtime, Managed/Unmanaged code, Intermediate language, Common type System, MS .Net Base Class Library (BCL), Assemblies, Metadata, Assemblies and Modules, Assembly Cache, Reflection, Just In Time Compilation, Garbage Collation	8

2	**Introduction to C# .Net**	18
	C# Program Console Application Development	
	Compiling and Execution, Defining a Class, Declaring the 'main()' Method, Organizing Libraries with Namespace, Using the 'using' keyword, Adding Comments	
	C# Data Types	
	Values Types- Primitive Data Type, Reference Type	
	C# Control Structure	
	Using the if statement, Using the if-else statement, Using the switch-case statement, Using the for statement, Using the while statement, Using the do-while statement, Using the break statement, Using the continue statement, Using the goto statement, Using the return statement	
	C# Properties and Indexers	
	Using Properties, Get Accessor, Set Accessor	
	Accessing List with Indexers	
	Delegates and Events in C#	
	Delegates , Single Cast and Multicast, Events	
	Exception Handling in C#	
	Using the try block, Using the catch block, Using the finally block, Using the throw statement	
	Inheritance, Polymorphism and Interfaces in C#	
	Structures in C#	
	Operator Overloading in C#	
	Using Generics in C#	
3	**Web Application Development with ASP .Net**	12
	Introduction to the ASP .Net,ASP .Net Controls, ASP .Net Pages, ASP .Net Framework, Global.asax Page	
	Standard Controls	
	Displaying Information, Accessing User Input, Submitting Forms Data	
	Displaying Images, Using the Panel Control, Using the Hyper Link Control	
	Validation Controls	
	Overview of the Validation Controls, RequiredFieldValidator Control	
	RangeValidator Control , CompareValidator Control, RegularExpressionVelidator Control, CustomValidator Control	
	ValidationSummary Control, Custom Validation Control	
	Rich Controls	
	Accepting File Uploads, Displaying a Calendar, Displaying Advertisements	
	Displaying Different Page Views, Displaying Wizard	
	Designing ASP .Net Websites	
	Designing Websites with Master Pages	
	Creating Master Pages, Modifying Master Page Content	
	Loading Master Pages Dynamically	
	Designing Websites with Themes	
	Creating Themes, Adding Skins to Themes	
	Adding Cascading Style Sheets to Themes	
	Creating Global Themes	
	Applying Themes Dynamically	
	Creating Custom Controls with User Controls	

	Creating User Controls AJAX and User Controls Dynamically Loading User Controls		
4	**Database Application Development with ADO .Net** **Introduction to ADO .Net** ADO .Net Architecture Understanding the Connection Object Building the Connection String Understanding the Command Object Understanding DataReaders Understanding DataSets and DataAdapters DataTable, DataColumn, DataRow Differences between DataReaders model and DataSet model Understanding the DataView Object Working with System.Data.OleDb Using DataReaders, Using DataSets **Performing Data Access in ASP .Net** Overview of Data Access, Using SqlDataSource Control, Using different List Controls, Using the GridView Control Using the DetailsView Control, Using the FormView Control Using the Repeater Control, Using the DataList Control **Site Navigation** Site Maps, SiteMapPath Control, Menu Control, Tree View Control **Security in ASP .Net** Using the Login Control, Using the CreateUserWizard Control Using the LoginStatus Control, Using the LoginName Control Using the ChangePassword Control, Using the PasswordRecovery Control Using the LoginView Control **AJAX** AJAX implementation in ASP .Net		10

Indicative Practical List:

Sr.no	Course Contents
1	Write a program that prints "Hello World" on screen.
2	Write a program to ask user to input three Numbers and display average of them.
3	Write a program that prints & calculate Addition, subtraction, division, multiplication, module in program.
4	Write a program to find the area of circle. {**Hint**:- Area=3.14*r*r}
5	Write a program to convert years into minutes. {**Hint**:-Min=Years*365*24*60}
6	Write a program to interchange the values of two variables with and without using third variable

7	Write a program to find out maximum and minimum number out of three numbers
8	Write a program to find a factorial of given number.
9	Write a program to find whether the given number is odd or even.
10	Write a program to find whether the given number is prime or not
11	Input number through the keyboard, Write a program to find whether the given number is perfect or not.
	(Hint: Perfect no -> 6. i.e. 2*3*1=6 and 2+3+1=6)
12	Write a program to generate a Fibonacci series of first n numbers.
13	Five digit number is input through the keyboard. Write a program to reverse the number.
14	Write a program to print the total of ½+2/3+………+9/10.
15	Write a program to calculate total of first 50 odd numbers.
16	Write a program to calculate sum of digits of given number.
17	Create a console application to implement Constructors and Constructor overloading.
18	Create a console application to implement method overloading.
19	Create a console application to implement Simple Inheritance.
20	Create a console application to implement Polymorphism.
21	Create a console application to implement Boxing & Unboxing.
22	Create a console application to implement Properties.
23	Create a console application to implement Indexers.
24	Create a console application to implement Structures.
25	Create a console application to implement Interface.
26	Create a console application to implement Delegate.
27	Create a console application to implement Exception Handling.
28	Create a console application to implement Custom Exception.
29	Create a console application to implement Operator Overloading.
30	Create web application using standard control.
31	Use all validation control on above application in suitable manner.
32	Create Asp.net webpage Accepting File Upload Control.
33	Create Asp.net webpage displaying a Calender.
34	Create Asp.net webpage displaying an Advertisements using adrotator control.
35	Create Asp.net webpage displaying different page views.
36	Create Asp.net webpage displaying Wizard.
37	Designing Asp.net webpage using Master page.
38	Designing Asp.net webpage using Themes.
39	Change webpage design using CSS style.
40	Create User control on Asp.net Webpage.
41	Dynamically loaded User Control on Asp.net webpage.
42	Create Asp.net webpage using GridView control.
43	Create Asp.net webpage using DetailView control.
44	Create Asp.net webpage using FormView control.
45	Create Asp.net webpage using Datalist control.
46	Create Asp.net webpage using ListView control.

47	Create Asp.net webpage using Repeater Control.
48	Create Asp.net webpage using DataPager control.
49	Create Asp.net webpage using SiteMapPath Control.
50	Design Menu in Asp.net Webpage.
51	Design TreeView in Asp.net Webpage.
52	Create Asp.net webpage using Login Control.
53	Create Asp.net webpage using LogonView Control.
54	Create Asp.net webpage using PasswordRecovery Control.
55	Create Asp.net webpage using Loginstatus control.
56	Create Asp.net webpage using LoginName control.
57	Create Asp.net webpage using Create User Wizard control. Create Asp.net webpage using Change Password.
58	Create Asp.net webpage using AJAX.
59	Create a web application for runtime adding controls.
60	Create a web application for connection with MS-Access and SQL-Server. Create a web application to perform insert, Update & delete operations using Store procedure.

Learning Outcomes:
- The course is for application developers and architects who wish to become competent at designing and implementing Web applications in a .NET environment.
- After completion of this course students are able to creating & manipulating dynamic web application.

Teaching & Learning Methodology:
Involve the learners during learning. Having someone demonstrate a skill, and giving an explanation
Including aids such as check lists that learners can use during their practice of skills and competences
Using multimedia
The institute provides an excellent academic environment with accent on self-learning. The teaching and learning methodologies follow a rigorous regime that involves intensive and extensive working on challenging academic assignments.

Books Recommended:
- Inside C#, **Tom Archer**, Microsoft Press
- Microsoft ADO .Net,**Rebecca M. Riordan**, Microsoft Press
- ASP .Net Unleashed, Sams Publication
- Microsoft .Net XML Web Services Step by Step, **Adam Freeman**

E-Resources:
http://www.tutorialspoint.com/asp.net/
http://www.w3schools.com/aspnet/
http://asp.net-tutorials.com/
http://www.tutorialspoint.com/csharp/
http://www.completecsharptutorial.com/
http://msdn.microsoft.com/en-us/library/aa288436%28v=vs.71%29.aspx

C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:-   V
CODE: - 5CS05ANT1
NAME: – Artificial Intelligence (**MINOR ELECTIVE – I**)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme						
							Theory				Practical (Marks)		
		Th	**Tu**	**Pr**	**Total**		Sessional Exam		University Exam		Internal		University	Total
							Marks	**Hrs**	**Marks**	**Hrs**	**Pr/Viva**	**TW**	**Pr**	
5CS05ANT1	Artificial Intelligence	5	0	0	5	5	30	1.5	70	3	----	---	---	**100**

Objectives:-
- Explain the basic knowledge representation, problem solving, and learning methods of Artificial Intelligence
- Develop intelligent systems by assembling solutions to concrete computational problems

Prerequisites:-
- The Artificial Intelligence involves the ability to be intelligent artificially and must possess the ability to come out with the human like responses and for the achievement of all these features.

Course outline:-

Sr. No.	Course content	No. of Hours
1.	**AI and Knowledge Based Decision Support** **Artificial Intelligence**: Concepts, Definitions, Fields, AI v/s Natural Intelligence **Problem Solving**: Defining the Problem as State Space Search, Water-jug Problem, Production System , Problem Characteristics, Production System Characteristics. **Heuristic Search Techniques**: Generate and Test, Hill Climbing, Best First Search, A* Algorithm, Problem Reduction, Constraint Satisfaction, Means - End Analysis. **Expert System**: Types of Knowledge Based DSS, Basic Concepts of ES, Structure of ES, Type of ES, Development Life Cycle of ES, Problem Area's and Example Of ES, Advantages and Limitations of ES, ES and Internet/Intranet/Web.	20
2.	**Knowledge Representation and Knowledge Acquisition Knowledge Representation**: Introduction, Representation in logic and Other Schemas, Rules in Knowledge Representation, Multiple, Experimental and Uncertain Knowledge Representation, Knowledge Representation Techniques: Semantic Net, Frame, Script. **Knowledge Acquisition**: KE Introduction, Scope Of Knowledge: Sources, Level and Categories, Difficulties in KA, Methods Of Knowledge Acquisition: Interview, Tracking Methods, Observation And Manual Methods, Expert Driven Method, RGA, Role Of Knowledge Engineer, Machine learning, KA from Multiple Experts ,V & V in Knowledge Base, Analyzing, coding, Documenting, Diagramming knowledge, Numerical and	20

	Documented KA, KA and Internet/Intranet. **Game Playing**: The Minimax Search Procedure, Alpha - Beta Cutoffs.	
3.	**Fuzzy Logic Fuzzy Set:** Introduction, Basic Types and Concepts, Basic Operation, Arithmetic and Relation, Fuzzy Decision Making	10
	Total	50

Learning Outcomes:
1. Analyze and solve problems involving various forms of search algorithms, including the design of heuristic functions to improve the efficiency of such solutions
2. solve a complicated task with limited resources in the form of time and computations
3. solve problems both individually and in groups
4. formulate and solve problems with uncertain information using Bayesian approaches

Text Books:
- Decision Support System and Intelligent System,**Efraim Turban and Jay E. Aronson**, PHI publication.
- Fuzzy Sets and Fuzzy Logic: Theory and Applications,**George J. Klir and Bo Yuan,** Prentice Hall Publication.

Reference Books:
- Principles of Artificial Intelligence and Expert System Development, **David W. Rolston,** TMH publication
- Artificial Intelligence - Elaine rich, Kevin Knight, Pub: Tata McGraw Hill

C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:- V
CODE: - 5CS05DWD1
NAME: – Data Warehousing & Data Mining (**MINOR ELECTIVE – I**)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							Total
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05DWD1	Data Warehousing & Data Mining	5	0	0	5	5	30	1.5	70	3	----	---	---	100

Objectives:-
- To understand the need of Data Warehouses over Databases, and the difference between
- Usage of operational and historical data repositories.
- To be able to differentiate between RDBMS schemas & Data Warehouse Schemas.
- To understand the concept of Analytical Processing (OLAP) and its similarities & differences with respect to Transaction Processing (OLTP).
- To conceptualize the architecture of a Data Warehouse and the need for pre-processing.
- To understand the need for Data Mining and advantages to the business world. The validating criteria for an outcome to be categorized as Data Mining result will be understood. To get a clear idea of various classes of Data Mining techniques, their need, scenarios (situations) and scope of their applicability.
- To learn the algorithms used for various type of Data Mining problems.

Prerequisites:-
- Knowledge of RDBMS and OLTP

Course outline:-

Sr. No.	Course content	Hours
1	**Introduction to Data Warehousing, A Multi-dimensional Data Model & Schemas, OLAP Operations & Servers** An overview and definition along with clear understanding of the four key-words appearing in the definition. Differences between Operational Database Systems and Data Warehouses; Difference between OLTP & OLAP • Overview of Multi-dimensional Data Model, and the basic differentiation between Fact and Dimension; Multi-dimensional Cube Concept Hierarchies of Dimensions Parameters: Examples and the advantages Star, Snowflakes, and Fact Constellations Schemas for Multi-dimensional Databases Measures: Their Categorization and Computation OLAP Operations in Multi-dimensional Data Model: Roll-up, Drill-down, Slice & Dice, Pivot (Rotate)Indexing OLAP Data; Type of OLAP Servers: ROLAP versus MOLAP versus HOLAP ,Metadata Repository	6

2	**Data Warehouse Architecture; Further Development of Data Cube & OLAP Technology** The Design of A Data Warehouse: A Business Analysis Framework; The Process of Data Warehouse Design .A 3-Tier Data Warehouse Architecture; Enterprise Warehouse, Data mart, Virtual Warehouse	3
3	**Data Mining: Introduction** An Overview; What is Data Mining; Data Mining – on What Kind of Data .Data Mining Functionalities – What Kind of Patterns Can be Mined; Concept/Class Description: Characterization & Discrimination; Mining Frequent Patterns, Associations, and Correlations; Classification & Prediction; Cluster Analysis; Outlier Analysis .Classification of Data Mining Systems. Data Mining Task Primitives.Integration of a Data Mining System with a Database or Data Warehouse System. Major Issues in Data Mining	8
4	**Data Pre-processing** The need for Pre-processing, Descriptive Data Summarization. Data Cleaning: Missing Values, Noisy Data, Data Cleaning as a Process. Data Integration & Transformation. Data Cube Aggregation; Attribute Subset Selection. Dimensionality Reduction: Basic Concepts only Numerosity Reduction: Regression & Log-linear Models, Histograms, Clustering, Sampling	5
5	**Mining Frequent Patterns, Associations, and Correlations** Basic Concepts: Market Basket Analysis; Frequent Itemsets, Closed Itemsets, and Association Rules; Frequent Pattern Mining: A Roadmap Apriori Algorithm: Finding Frequent Itemsets Using Candidate Generation; Generating Association Rules from Frequent Itemsets; Improving the Efficiency of Apriori From Association Mining to Correlation Analysis; Strong Rules Are Not Necessarily Interesting: An Example; From Association Analysis to Correlation Analysis	5
6	**Classification & Prediction** Introduction to Classification and Prediction; Basics of Supervised & Unsupervised Learning; Preparing the Data for Classification and Prediction; Comparing Classification and Prediction Methods. Classification by Decision Tree Induction, Attribute Selection Measures; Rule-based Classification: Using IF-THEN Rules for Classification; Bayesian Classification: Bayes' Theorem, Naïve Bayesian Classification; Bayesian Belief Networks An Overview of Other Classification Methods Prediction: Linear Regression; Non-linear Regression; Other Regression Models Classifier Accuracy and Error Measures: Classifier Accuracy Measures; Predictor Error Measures	12
7	**Cluster Analysis** Introduction to Cluster Analysis; Types of Data in Cluster Analysis; A Categorization of major Clustering Methods Partitioning Methods; Centroid-Based Technique: K-Means Method; Overview of Other Clustering Methods Outlier Analysis; Statistical Distribution-based Outlier Detection; Distance-based Outlier Detection; Density-based Outlier Detection	6
8	**Data Mining Applications** Financial Data Analysis, The Retail Industry, The Telecommunication Industry	5

Learning Outcomes:
- Ability to create a Star Schema for a given Data warehousing requirements
- Ability to decide the number & levels of pre-computed Data Cubes, the corresponding Metadata and the appropriate OLAP operation
- Ability to apply pre-processing on existing operational & historical data for creation of Data Warehouse
- Ability to apply Apriori algorithm for Association Mining

- Ability to apply Decision Tree and Bayesian algorithms for Classification

Teaching & Learning Methodology:
- Using Whiteboard & Multimedia or OHP

Books Recommended:

1. Data Mining: Concepts & Techniques 3rd ed. , **Jiawei Han & Micheline Kamber,** Morgan Kaufmann Publishers (2006)
2. Building the Data Warehouse, **W. H. Inmon,** Wiley Dreamtech India Pvt. Ltd.
3. Data Warehousing: Design, Development and Best Practices, **Mohanty, Soumendra,** Tata McGraw Hill (2006)
4. Data Mining, Addison-Wesley, **Pieter Adriaans & Dolf Zentinge,** Pearson (2000)
5. Data Mining Methods & Models, **Daniel T. Larose,** Wiley-India (2007)
6. Data Mining, **Vikram Pudi & P. Radhakrishnan,** Oxford University Press (2009)
7. Data Warehousing, **Alex Berson & Stephen J. Smith,** Data Mining & OLAP, Tata McGraw-Hill (2004)
8. Data Mining Techniques, **Michael J. A. Berry & Gordon S. Linoff,** Wiley-India (2008)
9. Data Mining – a Tutorial-based Primer, **Richard J. Roiger & Michael W. Geatz,** Pearson Education (2005)
10. Data Mining: Introductory and Advanced Topics, **Margaret H. Dunham & S. Sridhar,** Pearson Education (2008)
11. Introduction to Data Mining with Case Studies, **G. K. Gupta,** PHI (2006)

C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:- V
CODE: - 5CS05BIO1
NAME: Fundamentals of Bioinformatics (**MINOR ELECTIVE – I**)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Cred its	Evaluation Scheme							
							Theory				Practical (Marks)			Tot al
		T h	T u	P r	Tot al		Sessional Exam		Universit y Exam		Internal		Univers ity	
							Mar ks	H rs	Mar ks	H rs	Pr/Vi va	T W	Pr	
5CS05BI O1	Fundamentals of Bioinformatics	5	0	0	5	5	30	1.5	70	3	----	---	---	**100**

Objectives:
- Introduce students to the current bioinformatics concepts and their implementations.
  Introduce students to the basics of working knowledge about how to use computer system for bioinformatics problems. Teach and train the students with the skills necessary to select relevant tools, optimize their settings, and solve the set problem.

Prerequisites:
- Basic knowledge of working with computer.

Course outline:-

Sr. No.	Course content	No. of Hours
1	**Introduction** Biology in the computer age, computing changes in biology, Bioinformatics just about building database, Meaning of informatics to biologists, challenges offered by biology to computer scientists, skills required for this field, Available information & software for this domain.	10
2	**Tools for Bioinformatics** Biological Research on the web, Using search engines, finding scientific articles. Public biological databases, Searching biological databases, Depositing data into the public databases, finding software, Judging the quality of information.	10
3	**Sequence Analysis** Chemical composition of bio-molecules, Composition of DNA & RNA, Development of DNA sequencing methods, Gene finders & feature detection in DNA, DNA translation.	10
4	**Pair-wise alignment techniques & Database searching** Database searching, Alphabets and complexity, Algorithm and programs, Comparing two sequences, sub-sequences, Identity and similarity, The Dotplot, Local and global similarity, different alignment techniques, Dynamic Programming, Pair wise database searching.	10
5	**Secondary database searching** Importance and need of secondary database searches, secondary database structure and	08

	building a sequence search protocol .		
		Total	**48**

Learning Outcomes:
- To familiarize the students with fundamental concepts of bioinformatics.
- To give overview of various tools available.
- Provides the foundation for sequence analysis.
- To familiarize the students with database searching techniques.

Teaching & Learning Methodology:
- Class room and laboratory teaching using teaching and learning tools like multimedia projector, overhead projectors etc.

Books Recommended:
- Developing Bio-informatics computer skills, **Cynthia Gibas & Per Jambeck**, O'REILLY.
- Introduction to Bioinformatics, **T K Attwood D J Parry-Smith**, Pearson Education
- Bioinformatics Computing, **Bryan Bergeron M.D.**, Prentice-Hall of India
- Bioinformatics- A Beginner's Guide , **Jean-Michel Claveriw, Cerdric Notredame**, WILEY dreamlech India Pvt. Ltd

Additional Reference Book(s)
- Introduction to Bioinformatics, **M.Lesk**, OXFORD publishers (Indian Edition)

C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
DEPARTMENT OF:-Master of Computer Application
SEMESTER:-   V
CODE: - 5CS05GIS1
NAME: Geographic Information System (GIS) (**MINOR ELECTIVE – I**)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							Total
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05GIS1	Geographic Information System	5	0	0	5	5	30	1.5	70	3	----	---	---	**100**

Objectives:

To maximize the efficiency of decision making and planning, provide efficient means for data distribution and handling, integration of information from many sources, analysis of queries involving geographical reference data for generation of new information, update data quickly and at the minimum cost. The main objective of the course is to give a basic theoretical understanding of GIS concepts and technical issues.

Prerequisites:

Knowledge of Database Management, Basic Knowledge of Statistical Methods

Course outline:-

Sr. No.	Course content	No. of Hours
1	**Introduction to GIS and Digital Geographic Data & Maps** **Introduction to Digital Geographic Data:** Introduction to Geographic Information Systems, Developing spatial awareness Spatial Measurement level, Spatial Location and Reference, Spatial Patterns, Geographic Data Collection **Map Basics:** Abstract Nature of Maps, Map Scale, More Map Characteristics, Map Projection, Grid Systems for Process, Map Symbolism **GIS Data Models:** Computer File Structure, Database Structure, Graphic Representation of Entities and Attributes, GIS data Models for Multiple MAPS Compact storing of raster data, Commercial Raster compaction products, Vector model, Compacting vector data models	12

	Vector model to represent Surfaces System models		
2	**Input, Storage and Editing** **The Input Subsystem:** Primary Data, Input Devices, Vector Input, Raster Input, Remote Sensing Data Input, GPS Data Input, Secondary data, Metadata and Metadata Standards. **Data Storage and Editing:** Storage of GIS Databases, Basic Error Types Consequences of Errors Error detection and editing Dealing with Projection Changes, Edge Matching, Conflation, Rubber Shitting		8
3	**Analysis Elementary Spatial Analysis:** GIS Data Query, Locating and identifying spactial objects Defining Spatial Characteristics, Working with Higher – Level Objectives **Measurement:** Measuring Length of Linear Objectives, Polygons, Shape and Distance **Classification:** Classification Principal, Elements of Reclassification, Neighborhood Functions, Roving Windows, Buffers **Statistical Surfaces:** Surface Mapping, Sampling the Statistical Surface, The DEM, Raster Surface, Interpolation, Terrain Reclassification, Slicing the Statistical Surface, Cut and Fill **Spatial Arrangement** Point, Line and Area Arrangement, Point Patterns, Thiessen Polygons, Area Patterns, Distance and Adjacency, Polygon Arrangement Measures, Linear Patterns, Directionality of Linear and Areal Objective, Connectivity of Linear Objects, Gravity Model, Routing and Allocation, The Missing Variables **Comparing Variables Among Maps:** The Cartographic Overlay, Point-in-Polygon, Line-in-Polygon, Polygon Overlay, Automating the Overlay, Types of Vector Overlay, CAD-Type Overlay, Dasymetric Mapping **Cartographic Modeling:** Model Components, The Cartographic Models, Types of Cartographic Models, Inductive and Deductive Modeling, Factor Selection, model Flowcharting, Model implementation, Model Verification		23
4	**GIS Output** **The Output from Analysis:** Output: The Display of Analysis, Cartographic Output, Noncartographic Output		5
		Total	**48**

Learning Outcomes:

Understand the spatial aspects of an external client's GIS needs and develop a plan for addressing those needs Design, compile, and develop a spatial database and a set of analytical tools into a system appropriate to the problem. Demonstrate a mastery of geographic analysis and cartographic skills communicate the GIS project process and the results in written, oral, and graphic Medias at a professional level. By completing the course the

student will have a basic, theoretical understanding of GIS, and be able to work independently with various types of geographical data in GIS.

Teaching & Learning Methodology:

Using multimedia in a problem-based learning environment. The institute provides an excellent academic environment with accent on self-learning. The teaching and learning methodologies follow a rigorous regime that involves intensive and extensive working on challenging academic assignments.

Books Recommended:

1. Fundamentals of Geographic Information Systems, **Michael N DeMers**, Wiley India Education
2. Introduction to Geographic Information Systems, **Kang-tsung Chang**, McGraw-Hill Publication
3. Concepts and Techniques of Geographic Information Systems, **YEUNG, ALBERT K. W., LO, C. P.,** PHI Learning

E-Resources:

http://hcl.harvard.edu/libraries/maps/gis/tutorials.html

http://en.wikipedia.org/wiki/Geographic_information_system

http://www.gislounge.com/what-is-gis/

http://freepdfdb.com/ppt/gis-tutorial-1

C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
FACULTY OF:- Master of Computer Application
SEMESTER: - V
CODE: - 5CS05MOB2
NAME – Programming Technique-IX (MOB)

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
		Th	Tu	Pr	Total		Sessional Exam		University Exam		Internal		University	Total
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05MOB2	**Programming Technique-IX (MOB)**	0	0	4	4	2	0	0	0	0	20	-	80	**100**

Objectives:-
- Find tips and tricks to streamline the development process and take advantage of unique features of mobile based application development.
- To provide comprehensive guidance on designing, developing, testing, debugging, and distributing professional mobile based applications.

Prerequisites:-
- Fundamentals knowledge of Core Java Programming, GUI Controls, Database Terminologies.

Course outline:-

Sr. No.	Experiments
1.	1. Demo of setting up development environment, installing eclipse, ADT plugin, Setting Emulator, package. 2. Simple android app with displaying text on the screen in color, left, right, bottom, center, middle of the screen.
2.	Perform experiments on 1. Launching a new activity by class name 2. Launching an activity belonging to another application. 3. Passing additional information using intents.
3.	Perform experiments on 1. Designing a primary entry point activity using an intent filter 2. Configuring other intent filters 3. Setting up manifest.xml for managing application & activity settings using the application tab, enforcing application permission using the permission tab, managing test instrumentation using the instrumentation tab.
4.	Perform experiments on 1. Specifying supported input methods 2. Specifying required device features 3. Specifying supported screen sizes 4. Registering activities and other application components 5. Permissions.

5.	Perform experiments on 1. Setting up simple resource values using eclipse 2. Accessing resources programmatically 3. Working with string resources 4. Working with string arrays
6.	Perform experiments on 1. Working with integer resources 2. Working with colors 3. Working with dimensions 4. Working with simple drawables
7.	Perform experiments on 1. Working with images 2. Working with Animation
8.	Perform experiments on 1. Working with Menu
9.	Perform experiments on 1. Working with XML files 2. Working with Raw files 3. Working with resources 4. working with Layouts 5. Working with Style
10.	Perform experiments on 1. TextView, Configuring layout and sizing, Creating contextual links
11.	Perform experiments on 1. EditText, Retriving data from users, auto completion, input filters
12.	Perform experiments on 1. Spinner, giving users input choices 2. Buttons, check boxes and Radio Buttons
13.	Perform experiments on 1. Getting Dates and Times from users. 2. ProgressBar, SeekBar: using indicators to display data to users.
14.	Perform experiments on 1. RatingBar 2. Chronometer 3. Digital clock
15.	Perform experiments on 1. Options and context menu 2. Handling user events
16.	Perform experiments on 1. Working with Dialogs 2. Working with Style 3. Working with Themes
17.	Perform experiments on 1. Creating layouts programmatically 2. View / ViewGroup 3. FrameLayout, LinearLayout, RelativeLayout, TableLayout 4. Multiple Layouts on the Screen.
18.	Perform experiments on

	1. Screen with Tabs, TabActivity	
	2. Adding scrolling support	
19.	Perform experiments on	
	1. Working with Canvases and Paints	
	2. Working with Animation	
	3. Working with Bitmaps	
	4. Working with Shapes	
20.	Perform experiments on	
	1. Data & Storage APIs	
21.	Perform experiments on	
	1. Working with SQLite databases	
22.	Perform experiments on	
	1. Working with SQLite databases	
23.	Perform experiments on	
	1. Content providers	
	2. Browsing the Web with WebView	
24.	Perform experiments on	
	1. Phone Numbers, Phone Call, Monitoring signal strength, service information, Call state	
	2. Using SMS: Sending & Receiving	

Reference Books:

1. Android Wireless Application Development, **Lauren Darcey and Shane Conder**, Pearson Education, 2nd Ed.

FACULTY OF:-Computer Science
FACULTY OF:- Master of Computer Application
SEMESTER: - V
CODE: -5CS05WNS2
NAME: - **Programming Technique -X (WNS)**

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
							Sessional Exam		University Exam		Internal		University	Total
		Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05WNS2	**Programming Technique –X (WNS)**	0	0	4	4	2	0	0	0	0	20	-	80	**100**

Course outline:-

Sr. No.	Experiments
1.	Demonstration of Wi-Fi model.
2.	Demonstration of Wireless LAN.
3.	Demonstration TCP Dump.
4.	Demonstration of WireSharks,
5.	Demonstration NS2 .
6.	Using C socket programming demonstrates implementation of **Ceaser cipher**. Sender side reads data from file and then encrypts it using ceaser cipher method and sends it to the receiver. Receiver side must able to decrypt and display original message received via socket.
7.	Using C socket programming demonstrates implementation of **Transposition cipher** technique. Sender side reads data from file and then encrypts it using transposition cipher method and sends it to the receiver. Receiver side must able to decrypt and display original message received via socket.
8.	Using C Socket Programming demonstrate implementation of **Mono-alphabetic cipher**. Sender side reads data from file and then encrypts it using mono – alphabetic substitution cipher method and sends it to the receiver. Receiver side must able to decrypt and display original message received via socket.
9.	Using C Socket Programming demonstrate implementation of **One-time Pad**. Sender side reads data and pad from file and then encrypts the data using one – time pad method and sends both data and the pad to the receiver. Receiver side must able to decrypt and display original message received via socket.

10.	Using C Socket Programming demonstrate implementation of **Product Cipher**. Sender side reads data and pad from file and then encrypts the data using one – time pad method and sends both data and the pad to the receiver. Receiver side must able to decrypt and display original message received via socket.
11.	Using C Socket Programming demonstrate implementation of **S-Box**. Sender side reads data from file and then encrypts the data using S – Box method and sends it to the receiver. Receiver should decrypt the data and store data in output file. C security packages are not to be used.
12.	Using C Socket Programming demonstrate implementation of **P-Box**. Sender side reads data from file and then encrypts the data using P – Box method and sends it to the receiver. Receiver should decrypt the data and store data in output file.
13.	Using C security package APIs and socket programming demonstrate implementation of Symmetric DES with ECB mode. Sender side reads data from file and sends both, the encrypted data and the key used, to the receiver. Receiver side must able to decrypt and display original message received via socket.
14.	Using C security package APIs and socket programming demonstrate implementation of AES with CFM mode. Sender side reads data from file and sends both, the encrypted data and the key used, to the receiver. Receiver side must able to decrypt and display original message received via socket.
15.	Using C security package APIs and socket programming demonstrate implementation of RSA. Sender side reads data from file and sends both, the encrypted data and the key used, to the receiver. Receiver side must able to decrypt and display original message received via socket.
16.	Using C security package APIs and socket programming demonstrate implementation of Stream Cipher implementation of Triple DES with CBC mode. Sender side reads data from file and sends both, the encrypted data and the key used, to the receiver. Receiver side must able to decrypt and display original message received via socket.

C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF:-Computer Science
FACULTY OF:- Master of Computer Application
SEMESTER: -   V
CODE: - 5CS05LMB1
NAME – Lession from Motivational Books

Teaching and Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
							Theory				Practical (Marks)			
							Sessional Exam		University Exam		Internal		University	Total
		Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
5CS05LMB1	**Lession from Motivational Books**	0	2	0	2	1	-	-	-	-	-	50	-	**50**

Guidelines:

- Students have to identify non-technical book of their interest and read entire contents.

- Prepare brief review of the same in approximately 12 to 15 pages.

- Two times in an academic term, need to present their work progress. Prepare power point presentation of 15 minutes. 25 marks given for each presentation.

- During first presentation; Name of Book identified, Author, Theme of book, Publisher, Year of Publication.

- During second presentation; highlight the motivational statements noted during reading time.

- Submit descriptive report at the end of academic term in soft & hard copy to the Institute which includes, title page, Index, Introduction, Motivational Statements & Paragraphs from the book, message for the individual / society found in the book.

- Formatting specification for reports:
  - .doc file
  - Font size: 12 for Regular text, 14 for subtitles & 16 for titles
  - Font type: Times New Roman
  - Line Spacing: 1.5
  - Margin: 1.5 inch to Left and 1 inch to others sides
  - Pages: A4
  - Alignment: Justify