Course Title: **Mobile Programming (3 Cr.)**
Course Code: **CACS351**
Year/Semester: **III/VI**
Class Load: **6Hrs. /Week (Theory: 3Hrs, Practical 3Hrs.)**

Course Description
This course provides the comprehensive knowledge related to the Mobile programming, which encompasses integrated development environment, infrastructure, design, and develop and testing of mobile application, which communicate with database to solve real word problem.

Objectives: The general objectives of this course is to develop mobile application that solve real word problem with use of current mobile technology.

Unit -1
Introduction to Mobile and Mobile Programming [2 HRS]
Mobile Device (Features, Categories, History, Brands, Models and Platforms), Introduction to Mobile Programming.

Unit -2
Introduction to Android Programming [4 HRS]
Android Platform, History of Android, Environment Setup, Creating an android project, Laying out the user interface (The view hierarchy, widget attributes, creating string resources, previewing the layout), Creating a new class, Setting up the project, Running on the Emulator.

Unit -3
Designing the User Interface [5 HRS]
Android layout types (Linear, Relative, Table, Absolute, Constraint), Layout attributes, Android widgets (Textview, Edittext, Checkbox, Radiobutton, Spinner etc.) and its attributes, Event Handling, working with string, string array and colors, working with resources and drawable, adding icon to the project.

Unit -4
Android Activity [4 HRS]
The Activity life cycle, Creating multiple activities, Declaring activities in the manifest, Connecting activities with intents, Passing data between activities, Getting a result back from a child activity, Getting and setting data to/from the layout file.

Unit -5
UI Fragments, Menus and Dialogs [6 HRS]
The need for UI flexibility, Introduction to fragments, Lifecycle of fragment, Creating a UI fragment, Creating a fragment class, Wiring widgets in fragment, Introduction to fragment manager, Difference between Activity and Fragments. Menus (Introduction, Types, Implementing menu in an application) Dialogs (Introduction, Creating a dialog fragment, Setting a dialog's content)

Unit -6

Listview, Gridview and Recyclerview [6 HRS]

Listview (Introduction, Features, Implementing listview in an application)
Gridview (Introduction, Features, Implementing gridview in an application)
Recyclerview (Introduction, Features, Implementing recyclerview in an application)

Unit -7

Advance Android Concepts [10 HRS]

Local database with SQLite (Establishing connection, creating database and tables, data manipulation), Introduction to API, API Types, Introduction to JSON, Retrieving contents from remote server, Sending contents to remote server, Implementing Google Maps in android application, Procedure for publishing application on Google Play Store.

Unit -8

Introduction to ios Programming [8 HRS]

Introduction to ios and ios programming, ios platform, Environment setup, Creating an Xcode project, Building the interface, Making connections, Running on the simulator.
Introduction to Swift language, Views and the view hierarchy, Storyboard and view controllers, working with widgets and its attributes, Creating a simple ios application.

Laboratory Works

Laboratory works should be done covering all the topics listed above and a small project work should be carried out using the concept learnt in this course. Project should be assigned on individual basis.

Teaching Methods

The general teaching pedagogy includes class lectures, group discussions, case studies, guest lectures, research work, project work, assignments (theoretical and practical), and examinations (written and verbal), depending upon the nature of the topics. The teaching faculty will determine the choice of teaching pedagogy as per the need of the topics.

References

1. Bill Phillips, Chris Stewart, Brian Hardy, and Kristin Marsicano, *Android Programming: The Big Nerd Ranch Guide*, Big Nerd Ranch LLC, 2nd edition, 2015.
2. 2. Christian Keur and Aaron Hillegass, *iOS Programming: The Big Nerd Ranch Guide*, 5th edition, 2015.
3. Brian Fling, *Mobile Design and Development*, O'Reilly Media, Inc., 2009.
4. Maximiliano Firtman, *Programming the Mobile Web*, O'Reilly Media, Inc., 2nd ed., 2013.

Course Title: Distributed Systems (3 Cr.)
Course Code: CACS352
Year/Semester: III/VI
Class Load: 4 Hrs. / Week (Theory: 3Hrs. Tutorial: 1 Hr.)

Course Description

The course introduces basic knowledge to give an understanding how modern distributed systems operate. The focus of the course is on distributed algorithms and on practical aspects that should be considered when designing and implementing real systems. Some topics covered during the course are causality and logical clocks, synchronization and coordination algorithms, transactions and replication, and end-to-end system design. In addition, the course explores recent trends exemplified by current highly available and reliable distributed systems.

Course objectives

The objective of the course is to make familiar with different aspect of the distributed system, middleware, system level support and different issues in designing distributed algorithms and finally systems.

Course Contents

Unit 1. Introduction — **4 Hrs.**
- 1.1 Characteristics
- 1.2 Design Goals
- 1.3 Types of Distributed Systems
- 1.4 Case Study: The World Wide Web

Unit 2. Architecture — **4 Hrs.**
- 2.1 Architectural Styles
- 2.2 Middleware organization
- 2.3 System Architecture
- 2.4 Example Architectures

Unit 3. Processes — **6 Hrs.**
- 3.1 Threads
- 3.2 Virtualization
- 3.3 Clients
- 3.4 Servers
- 3.5 Code Migration

Unit 4. Communication — **5 Hrs.**
- 4.1 Foundations
- 4.2 Remote Procedure Call
- 4.3 Message-Oriented Communication
- 4.4 Multicast Communication
- 4.5 Case Study: Java RMI and Message Passing Interface (MPI)

Unit 5. Naming — **5 Hrs.**
- 5.1 Name Identifiers, and Addresses
- 5.2 Structured Naming

5.3 Attribute-based naming
5.4 Case Study: The Global Name Service

Unit 5. Coordination **7 Hrs.**

6.1 Clock Synchronization
6.2 Logical Clocks
6.3 Mutual Exclusion
6.4 Election Algorithm
6.5 Location System
6.6 Distributed Event Matching
6.7 Gossip-based coordination

Unit 7. Consistency and Replication **5 Hrs.**

7.1 Introduction
7.2 Data-centric consistency models
7.3 Client-centric consistency models
7.4 Replica management
7.5 Consistency protocols
7.6 Caching and Replication in Web

Unit 8. Fault Tolerance **5 Hrs.**

8.1 Introduction to fault tolerance
8.2 Process resilience
8.3 Reliable client-server communication
8.4 Reliable group communication
8.5 Distributed commit
8.6 Recovery

Unit 9. Security **4 Hrs.**

9.1 Introduction to security
9.2 Secure channels
9.3 Access control
9.4 Secure naming
9.5 Security Management

Teaching Methods

The teaching faculties are expected to create environment where students can update and upgrade themselves with the current scenario of computing and information technology with the help of topics listed in the syllabus. The general teaching pedagogy that can be followed by teaching faculties for this course includes class lectures, laboratory activity, group discussions, case studies, guest lectures, research work, project work, assignments (Theoretical and Practical), and written and verbal examinations.

Evaluation System

Examination Scheme		
Internal Assessment	**External Assessment**	**Total**
40%	60% (3 Hrs.)	100%

References:

1. A.S. Tanenbaum, M. VanSteen, "Distributed Systems", Pearson Education.
2. George Coulouris, Jean Dollimore, Tim Kindberg, "Distributed Systems Concepts and Design", Third Edition, Pearson Education.
3. Mukesh Singhal, "Advanced Concepts in Operating Systems", McGraw-Hill Series in Computer Science.
4. Ajay D. Kshemkalyani, Mukesh Singhal, "Distributed Computing: Principles, Algorithms, and Systems", Cambridge University Press
5. Christian Cachin, Rachid Guerraoui, Luís, "Introduction to Reliable and Secure Distributed Programming", Springer

Course Title: Applied Economics (3 Cr.)
Course Code: CAEC353
Year/ Semester: III/VI
Class Load: 3 Hrs./Week (Theory: 3 Hrs.; Tutorial: 1Hr.)

Course Description

This course of Applied Economics consists of the introduction to economic theories and application. It consists of theory of demand and supply, theory of consumer's behavior, theory of production, cost and revenue curves, theory of product pricing and factor pricing as well as contemporary macroeconomics like national income accounting, money banking and international trade with reference to Nepal.

Course Objective

This course of Applied Economics aims to enhance understanding of the economic theories and application to develop skills of students in personal and professional decision making related to business, IT and management.

Unit 1: Introduction **6 Hrs.**

a. Concept and types of microeconomics and macroeconomics
b. Distinction between microeconomics and macroeconomics
c. Goals and instruments of macroeconomics

Unit 2: Elasticity of Demand and Supply **6 Hrs.**

a. Concept and types of price, income and cross elasticity of demand
b. Measurement of price, income and cross elasticity of demand: Total outlay method and Point method
c. Uses of price, income and cross elasticity
d. Concept of elasticity of supply and its measurement
(Numerical exercise using excel)

Unit 3: Theory of Consumer Behavior **6 Hrs.**

a. Concept of cardinal and ordinal utility analysis
b. Cardinal utility analysis: assumptions, consumer's equilibrium, criticisms and derivation of demand curve
c. Ordinal utility Analysis: Concept, properties of Indifference curve, marginal rate of substitution, Price Line and consumer's equilibrium, Price effect: Derivation of PCC, Income effect: Derivation of ICC, Substitution effect, Decomposition of price effect into income and substitution effect, Derivation of demand curve (Hicksian approach)
(Numerical exercise)

Unit 4: Cost and Revenue Curves **6 Hrs.**

a. Concept of cost: actual cost and opportunity cost, implicit cost and explicit cost, accounting and economic cost.
b. Derivation of short run and long run cost curves (total, average, marginal) and shape of short run and long run average cost curves.
c. Relationship between short run and long run AC and MC curves

d. Concept of revenue: total revenue, average revenue, and marginal revenue, revenue curves under perfect and imperfect competition, relation between average and marginal revenue
(Numerical exercise using excel)

Unit 5: Market Structure **9 Hrs.**

a. **Perfect competition-** meaning and characteristics of perfect competition, short run and long run equilibrium of the firm and industry(TR-TC approach and MC-MR approach), derivation of short run and long run supply curve of a firm and industry.
b. **Monopoly:** Meaning and characteristic of monopoly; pricing under monopoly: equilibrium of firm in short run and long run (TR-TC approach and MC-MR approach); Price discrimination and degree of price discrimination.
c. **Monopolistic Competition:** Meaning and characteristics of monopolistic competition; Pricing under monopolistic competition: equilibrium of firm in short run and long run; equilibrium of firm under product variation and selling expenses
d. **Oligopoly:** Meaning and characteristic of oligopoly; Pricing under cartel (aiming at joint profit maximization)

(Numerical exercise using excel)

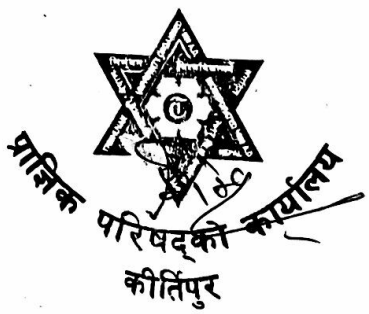
Unit 6: National Income Accounting **6 Hrs.**

a. Circular flow of income and expenditure in two sector, three sector and four sector economy
b. Meaning and different concept of national income: GDP, NDP, GNP, NNP, national income at factor cost (NI), personal income (PI), disposable personal income (DI), per capita income (PCI)
c. Real and nominal GDP, GDP deflator
d. Computation of National income: Product, Income and Expenditure method

(Numerical exercise **using excel)**

Unit 7: Money, Banking and International Trade **6 Hrs.**

a. Concept and functions of money- value of money-money supply –components of money supply (M_1, M_2, etc.)
b. Inflation : Types, causes and effects of inflation
c. Banking: role and functions of commercial banks , role and functions of central bank with reference to Nepal Rastra Bank
d. International Trade: Distinction between internal and international trade, balance of trade and balance of payment.



Reference Books

Ackley, Gardener. (1978). Macroeconomics: Theory and Policy. New York: Mac Milan Publishing Co.

Caves, Frankel, Jones, World Trades and Payments: (9th Ed.) Pearson Education

Dominick Salvatore, International Economics: (8th Ed.) . Wiley India.

Dwibedi, D.N. (2001). Macroeconomic Theory and Policy. Tata McGraw-Hill Publishing Company Limited, New Delhi

G, Mankiw. (2007). Economics: Principles and Applications. South Western of Cengage Learing.

Gupta, S.B. Monetary Economics, S.Chand & Co;New Delhi.

Koutsoyianis, A. (1991). Modern Microeconomics. Hongkong: ELBS

Lipsey and Chrystal. Economics. Oxford University Press. (eleventh edition or latest one).

Mankiw, N. Gregory. (2009). Principles of Microeconomics. Cengage Learning India Private Limited, New Delhi (4th edition)

P. Samuelson and W. Nordhaus. Economics, Mc GrawHill International Editions. (14th edition or latest one)

Paul R. Krugman, Maurice Obstfeld, International Economics: (8th Ed.) Pearson Education

Pindyck, Robort S. and Daniel, Rubinfield. (2001). Microeconomics. New Delhi: Prentice Hall of India

Salvatore, Dominic. (2009). Principles of Microeconomics. Publish in India Oxford University Press, New Delhi

Shapiro, Edward. (2004). Macroeconomic Analysis. New Delhi: Galgotia Publication (P) Ltd.

Practical Works

Excel or other relevant statistical software should be used to compute numerical exercise.

Teaching Methods:

The general teaching pedagogy includes class lectures, presentations, group works, case studies, guest lectures research works, project works, assignments (Theoretical and practical). The teaching faculty will determine the choice of teaching pedagogy and statistical tools as per the requirements of topics.

Evaluation

Examination Scheme				Total
Internal Assessment (40)		External Assessment (60)		100
Theory	Practical	Theory	Practical	
30	10	40	20	

Course Title: **Advanced Java Programming (3 Cr.)**
Course Code: **CACS354**
Year/Semester: **III/VI**
Class Load: **6 Hrs. / Week (Theory: 3 Hrs., Practical: 3 Hrs.)**

Course Description:
This course covers advanced features of Java programming language including, GUI programming, database programming, JavaBeans, JSP, Servlet, and Remote Method Invocation (RMI).

Course Objectives:
The primary objective of this course is to provide concepts of advanced features of Java programming and make students familiar with their uses and applications.

Course Contents:

Unit 1: GUI Programming (12 Hrs.)
Introducing Swing; Creating a Frame; Displaying Information in a Component; Working with 2D Shapes; Using Color; Using Special Fonts for Text; Displaying Images; Event Handling: Event Handling Basics, Event Classes, Event Listeners and Adapter Classes; Swing and the MVC Design Pattern; Layout Management; Basic Swing Components

Unit 2: Database Programming (7 Hrs.)
The Design of JDBC: JDBC Driver Types and Typical Uses of JDBC; the Structured Query Language; JDBC Configuration; Working with JDBC Statements; Query Execution; Scrollable and Updatable Result Sets; Row Sets

Unit 3: JavaBeans (7 Hrs.)
What Is a Java Bean? Advantages of Java Beans; Introspection; Properties, Events, and Methods Design Patterns; Using BeanInfo Interface; Bound and Constrained Properties; Persistence; Customizers; the Java Beans API; Writing JavaBeans

Unit 4: Servlets and JSP (14 Hrs.)
Background; The Life Cycle of a Servlet; A Simple Servlet; The Servlet API; The javax.servlet Package; Reading Servlet Parameters; The javax.servlet.http Package; Handling HTTP Requests and Responses; Using Cookies; Session Tracking; Introduction to JSP; Using JSP; Comparing JSP with Servlet; Java Web Frameworks

Unit 5: RMI (5 Hrs.)
What is RMI? The Roles of Client and Server; Remote Method Calls; Stubs and Parameter Marshalling; the RMI Programming Model; Interfaces and Implementations; the RMI Registry; Parameters and Return Values in Remote Methods; Remote Object Activation; Simple Client/Server Application using RMI; Comparing RMI with CORBA

Laboratory Work: The laboratory work includes writing Java programs

- To create GUI applications using swing, event handling, and layout management
- To create applications to work with databases
- To create JavaBeans

- To create server side web programs using Servlet and JSP
- To create distributed applications using RMI

Text Books:

1. Core java Volume I – Fundamentals, Tenth Edition, Cary S. Horstmann, Prentice Hall
2. Core java Volume II – Advanced Features, Tenth Edition, Cary S. Horstmann, Prentice Hall
3. Java: The Complete Reference, 10th, Herbert Schildt, McGraw-Hill

Reference Books:

1. Advanced Java Programming, Uttam K. Roy, Oxford University Press
2. Java: Advanced Features and Programming Techniques, Nathan Clark

Teaching Methods:

The teaching faculties are expected to create environment where students can update and upgrade themselves with the current scenario of computing and information technology with the help of topics listed in the syllabus. The general teaching pedagogy that can be followed by teaching faculties for this course includes class lectures, laboratory activity, group discussions, case studies, guest lectures, research work, project work, assignments (Theoretical and Practical), and written and verbal examinations.

Evaluation:

Internal Assessment Format [FM = 20] – Subject Teacher

Term Examination		Assignment	Attendance	Total
Mid-Term	Pre-Final			
5	5	5	5	20

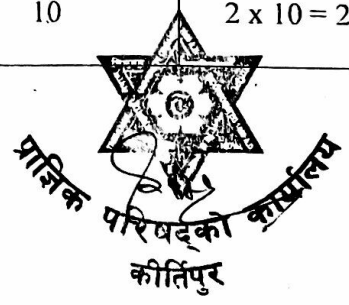
Practical Assessment Format [FM = 20] – External Examiner will be assigned by Dean Office, FOHSS.

Practical	Viva	Lab Reports	Total
10	5	5	20

Note: Assignment may be subject specific case study, seminar paper preparation, report writing, project work, research work, presentation, problem solving etc.

Final Examination Questions Format [FM = 60, Time = 3 Hrs.]

SN	Question Type	Number of Questions	Marks per Question	Total Marks
1	Group – 'A' Objective Type Questions (Multiple Choice Questions) Attempt all the questions.	10	1	10 x 1 = 10
2	Group – 'B' Short Questions (Attempt any **SIX** questions.)	7	5	6 x 5 = 30
3	Group – 'C' Long Questions (Attempt any **TWO** questions.)	3	10	2 x 10 = 20



Course Title: Network Programming (3 Cr.)
Course Code: CACS355
Year/Semester: III/VI
Class Load: 5 Hrs. / Week (Theory: 3Hrs. Practical: 2 Hrs.)

Course Description

This course is designed to extend students' knowledge and practice in analysis and design of computer networks by focusing on computer network programming. It includes introduction, Internet Address, URLs and URIs, HTTP, URLConnections, Socket Programming, IP Multicast and RMI. The JAVA programming language will be used throughout the course. It does not entirely focus on theoretical concept but also strongly focuses on practical skill based knowledge.

Course objectives

The general objectives of this course are to provide theoretical as well as practical knowledge of network programming to make students capable of developing, implementing, managing and troubleshooting the issues of network programming in their personal as well professional life.

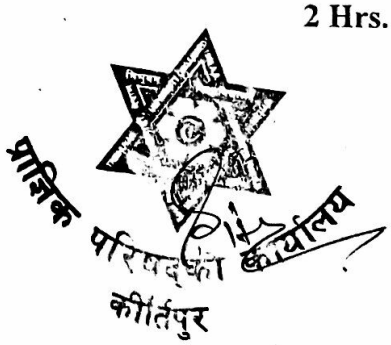
Course Contents

Unit 1: Introduction **3 Hrs.**
- 1.1 Network Programing Features and Scope
- 1.2 Network Programming Language, Tools & Platforms
- 1.3 Client and Server Applications
- 1.4 Client server model and software design

Unit 2: Internet Addresses **4 Hrs.**
- 2.1 The InetAddress Class: Creating New InetAddress Objects, Getter
- 2.2 Methods, Address Types, Testing Reachability and Object Methods
- 2.3 Inet4Address and Inet6Address
- 2.4 The Network Interface Class: Factory Method & Getter Method
- 2.5 Some Useful Programs: SpamCheck, Processing Web Server Logfiles

Unit 3: URLs and URIs **5 Hrs.**
- 3.1 URIs: URLs and Relative URLs
- 3.2 The URL Class: Creating New URLs, Retrieving Data From a URL, Splitting a URL into Pieces, Equality & Comparison and Conversion
- 3.3 The URI Class: Constructing a URI, The Parts of the URI, Resolving Relative URIs, Equality & Comparison and String Representation
- 3.4 x-www-form-urlencoded: URL Encoder and URL Decoder
- 3.5 Proxies: System Properties, The ProxyClass and The ProxySelector Class
- 3.6 Communicating with Server-Side Programs Through GET
- 3.7 Accessing Password-Protected Sites: The Authenticator Class, The PasswordAuthentication Class and The JPasswordField Class

Unit 4: HTTP **2 Hrs.**
- 4.1 The protocol: Keep-Alive
- 4.2 HTTP Methods
- 4.3 The Request Body



4.4 Cookies: CookieManager and CookiesStore

Unit 5: URLConnections **5 Hrs.**

5.1 Openning URLConnections
5.2 Reading Data from Server
5.3 Reading Header: Retrieving specific Header Fields and Retrieving Arbitrary Header Fields
5.4 Cache: Web Cache for Java
5.5 Configuring the Connection: protected URL url, protected boolean connected, protected boolean allowUserInteraction, protected boolean doInput, protected boolean doOutput, protected boolean ifModificationSince, protected boolean useCaches and Timeouts
5.6 Configuring the Client Request HTTP Header
5.7 Security Considerations for URLConnections
5.8 Guessing MIME Media Types
5.9 HttpURLConnection: The Request Methods, Disconnecting from the Server, Handling Server Responses, Proxies and Streaming Mode

Unit 6: Socket for Clients **5 Hrs.**

6.1 Introduction to Socket
6.2 Using Sockets: Investigating Protocols with telnet, Reading from Servers with Sockets, Writing to Servers with Sockets
6.3 Constructing and connecting Sockets: Basic Constructors, Picking a Local Interface to Connect From, Constructing Without Connecting, Socket Addresses and Proxy Servers
6.4 Getting Information about a Socket: Closed or Connected?, toString()
6.5 Setting Socket Options: TCP_NODELAY, SO_LINGER, SO_TIMEOUT, SO_RCVBUF and SO_SNDBUF, SO_KEEPALIVE, OOBINLINE, SO_REUSEADDER and IP_TOS Class of Services
6.6 Socket in GUI Applications: Whois and A Network Client Library

Unit 7: Socket for Servers **5 Hrs.**

7.1 Using ServerSockets: Serving Binary Data, Multithreaded Servers, Writing to Servers with Sockets and Closing Server Sockets
7.2 Logging: What to Log and How to Log
7.3 Constructing Server Sockets: Constructing Without Binding
7.4 Getting Information about Server Socket
7.5 Socket Options: SO_TIMEOUT, SO_RSUMEADDR, SO_RCVBUF and Class of Service
7.6 HTTP Servers: A Single File Server, A Redirector and A Full-Fledged HTTP Server

Unit 8: Secure Socket **4 Hrs.**

8.1 Secure Communication
8.2 Creating Secure Client Sockets
8.3 Event Handlers
8.4 Session Management
8.5 Client Mode
8.6 Creating Secure Server Socket

8.7 Configure SSLServerSockets: Choosing the Cipher Suits, Session Management and Client Mode

Unit 9: Nonblocking I/O **3 Hrs.**

9.1 An Example Client and Server
9.2 Buffers: Creating Buffers, Filling and Draining, Bulk Methods, Data Conversion, View Buffers, Compacting Buffers, Duplicating Buffers, Slicing Buffers, Marking and Resetting, Object Methods
9.3 Channels: SocketChannel, ServerSocketChannel, The Channels Class, Asynchronous Channels, Socket Options
9.4 Readiness Selection: The Selector Class, The SelectionKey Class

Unit 10: UDP **5 Hrs.**

10.1 UDP Protocol
10.2 UDP Clients
10.3 UDP Servers
10.4 The DatagramPacket Class: The Constructor, The get Methods, The setter Methods
10.5 The DatagramSocket Class: The Constructor, Sending and Receiving Datagrams, Managing Connections
10.6 Socket Options: SO_TIMEOUT, SORCVBUF, SO_SNDBUF, SO_RSUMEADDR, SO_BROADCAST and IP_TOS
10.7 UDP Applications: Simple UDP Clients, UDPServer and A UDP Echo Client
10.8 DatagramChannel: Using DatagramChannel

Unit 11: IP Multicast **2 Hrs.**

11.1 Multicasting: Multicast Address and Groups, Clients and Servers, Routers and Routing
11.2 Working with Multicast Sockets: The Constructor, Communicating with a Group

Unit 12: Remote Method Invocation (RMI) **2 Hrs.**

12.1 Defining and Implementing RMI Service Interface
12.2 Creating an RMI Server and Client
12.3 Running the RMI System

Laboratory Work

Laboratory work should be done covering all the topics listed above and a small project work should be carried out using the concept learnt in this course using Java programming Language.

Teaching Methods

The teaching faculties are expected to create environment where students can update and upgrade themselves with the current scenario of computing and information technology with the help of topics listed in the syllabus. The general teaching pedagogy that can be followed by teaching faculties for this course includes class lectures, laboratory activity, group discussions, case studies,

guest lectures, research work, project work, assignments (Theoretical and Practical), and written and verbal examinations.

Evaluation

Examination Scheme				
Internal Assessment		External Assessment		Total
Theory	Practical	Theory	Practical	
20	20 (3 Hrs.)	60 (3 Hrs.)	-	

Reference Books:

1. Elliotte Rusty Harold, "Java Network Programming", O'Reilly, 2014.
2. Douglas E. Comer, David L. Stevens, "Internetworking with TCP_IP, Vol. III_ Client-Server Programming and Applications, Linux_Posix Sockets Version" Addison-Wesley, 2000.
3. David Reilly, Michael Reilly, "Java Network Programming and Distributed Computing", Addison-Wesley Professional, 2002
4. Kenneth L. Calvert, Michael J. Donahoo, "TCP-IP Sockets in Java. Practical Guide for Programmers", Morgan Kaufmann, 2008.
5. Andrew S. Tanenbaum, David J. Wetherall, "Computer Networks, 5/e", Prentice Hall, 2011.
6. Kurose, Ross, "Computer Networking: A Top-Down Approach", Pearson Education Limited, 2017.

Course Title: Project II (2 Cr.)
Course Code: CAPJ356
Year/Semester: III/VI
Class Load: 4 Hrs. / Week (Practical: 4 Hrs.)

Course Description

To develop small scale project based on the application development platforms and tools (JAVA, visual c++, PHP , Python or plate form of any current trend. This course provides practical skill based knowledge.

Course objectives

The objectives of this course are to provide project management skills (developing, implementing, managing collaboration) and to learn working as a team. The student will also learn about formulating project documentation.

Course Contents

Unit 1: Project Ideas and proposal guidance 4

1.1 Project concept and Scope
1.2 Proposal writing techniques

Unit 2: Application Development 8

2.1 Object oriented programming
2.2 Frameworks and APIs
2.3 Programming design patterns
2.4 Data collection for project
2.5 Application of GPUS

Unit 3: Project management, team work and collaboration 8

3.1 Project management techniques
  3.1.1 Develop project management plan
  3.1.2 Project implementation, monitor and control

3.2 Collaborative development environment

  3.2.1 Communications planning process

  3.2.2 Organizing and conducting effective meeting,

Unit 4: Project Guidance 5

Unit 5: Project work 30

Unit 6: Project documentation guidance **5**

4.1 documentation format
4.2 Table writing format
4.3 Figure writing format
4.4 Writing equation
4.5 References and citation techniques
4.6 Abstract writing

Reference Books:

1. The Project Manager's Guide to Software Engineering's Best Practices, M. C. Christensen and R.H. Thayer,IEEE computer Society
2. Angelika H. Hofmann, " Scientific Writing and Communication: Papers, Proposals, and Presentations Oxford University Press; 3 edition (November 17, 2016)