M. Sc. (IT) - 1st Year
Semester-II

Syllabus of
Subject Code: 180801201
Subject Name: Distributed Operating System

Course Objective:

1. To make student aware about distributed operating systems.
2. To understand the principles underlying the functioning of distributed systems.
3. To understand how principles of Distributed OS are applied in distributed systems.
4. To understand problems and challenges faced in Distributed OS.

Course Duration:

The course duration is single semester. It will have 50 sessions, each session of 60 minutes.

Course Content:

Module No.	Modules/Sub-Modules	No. of Sessions	% Weightage
I	**Fundamentals of Distributed Computing System:** Introduction, Evolution of Distributed Computing Systems, Models of Distributed Computing Systems, Introduction to Distributed Operating Systems, Distributed Computing Environment. **Message Passing:** Introduction, Features of message passing system, Issues of IPC for Message Passing, Synchronizing, Buffering, Multi datagram Messages, Encoding and Decoding of Message Data, Process Addressing, Failure Management, Group Communication	10	20%
II	**Remote Procedure Calls:** Introduction, RPC Model, Transparency of RPC, Implementing RPC Mechanism, Stub Generation, RPC Messages, Server Management, Parameter-Passing Semantics, Call Semantics, Communication Protocols for RPCs, Complicated RPCs, Client-Server Binding, Exception Handling,	10	20%
III	**Distributed Shared Memory:** Introduction, General Architecture of DSM Systems, Design and implementation of DSM, Granularity, Structure of Shared Memory Space, Consistency Models, Replacement Strategy, Thrashing **Synchronization:** Introduction, Clock synchronization, Event Ordering, Mutual Exclusion, Deadlock	10	20%

IV	**Resource Management:** Introduction, Desirable features of scheduling algorithms, Task assignment approach, Load-balancing approach, Load-sharing approach **Process Management:** Introduction, Process migration, Threads	10	20%
V	**Distributed File System:** Introduction, Desirable features of distributed file system, File models, File accessing models, File sharing semantics, File caching schemes, File replication, Atomic transactions, Design principles	10	20%

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lectures & Discussions
2. Assignments
3. Case Studies
4. Practical implementation

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignments / Presentations/ Quizzes / Class Participation/ Practical Assignments / Case Analysis)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Basic Text Book:

Sr. No.	Author	Title	Publisher	Edition
1.	Pradeep K. Sinha	Distributed Operating Systems Concepts and Design	PHI	Latest

Reference Books:

Sr. No.	Author	Title	Publisher	Edition
1.	Mukesh Singhal & N.G.Shivaratri	Advanced concepts in Operating Systems	Tata McGraw Hill	Latest
2.	Andrew S. Tanenbaum	Distributed System Principles and Paradigms	PHI	Latest
3.	Sunita Mahajan, Seema Shah	Distributed Computing	OXFORD University Press	Latest

M. Sc. (IT) – 1st Year
Semester-II
Syllabus of
Subject Code: 180801202
Subject Name: Object Oriented Analysis and Designing

Course Objective:

- To understand and analyze the system using Object Oriented Approach
- To help students to identify the objects and apply Object Oriented Analysis and Designing.
- To enable students to prepare the Models based on UML for a given system

Course Duration:

The syllabus is divided in to five modules. Total 50 lectures to be conducted to cover the whole syllabus and each lecture will be of 60 minutes.

Course Content:

Module No.	Topics/Chapter Name	No. of Sessions	% Weightage
I	**Introduction to UML and Unified Process** What is UML?, History and future of UML, Objects and UML, UML structures, UML building blocks, UML common mechanism, Architecture, What is Unified Process?, The birth of UP, Axioms, structure and phases of UP, UP – incremental and iterative process	10	20%
II	**Requirements** The requirement workflow, The importance of requirements, Defining requirements, Finding requirement, Use Case modeling, Finding activity and use cases, Detail a use case, Actor Generalization, Use case Generalization, <<include>>, <<extend>>	10	20%
III	**Analysis** What are objects, UML Object Notation, What are classes?, UML class Notation, What is Relationship?, What is a link?, What is an association?, What is Dependency?, Generalization and class Inheritance, Polymorphism, Advanced Generalization, What is a package?, Packages and Namespace, Nested Packages, Packages Dependency, Package Generalization	10	20%
IV	**Analysis with Realization** Interactions, Lifelines, Messages, Interaction Diagrams, Sequence Diagrams, Combined fragment and operators, Communication Diagrams, What are Activity Diagrams, Activities, Activity semantics, Control Nodes, Object Nodes	10	20%

V	**Design** State machines, State machines and UP, State Machine Diagram, State, Transitions, Events, Composite state, Submachine states, Submachine communication**.**	10	20%

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lectures & Discussions
2. Assignments
3. Case Studies

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignment / Presentation / Quiz / Class Participation)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Basic Text Book:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
T1	Jim Arlow & Ila Neustadt	UML 2 and the Unified Process	Pearson	Latest

Topic Distribution:

Module No.	Topics / Chapters Name	No. of Sessions	% Weightage
I	**Chapter 1:** 1.2, 1.3, 1.4, 1.6, 1.7, 1.8 – 1.8.1, 1.8.2, 1.8.3, 1.9 – 1.9.1, 1.9.2, 1.9.3, 1.9.4, 1.10 **Chapter 2:** 2.2, 2.3, 2.6, 2.7 – 2.7.1, 2.7.2, 2.8, 2.9 – 2.9.1 to 2.9.12	10	20%
II	**Chapter 3 :** 3.2, 3.5, 3.6 – 3.6.1 to 3.6.5, 3.7 – 3.7.1 to 3.7.4 **Chapter 4:** 4.2, 4.3 – 4.3.1 to 4.3.4, 4.4 **Chapter 5:** 5.2, 5.3, 5.4, 5.5 – 5.5.1, 5.5.2, 5.5.3	10	20%
III	**Chapter 7:** 7.2 – 7.2.1, 7.2.2, 7.3 – 7.3.1, 7.4 – 7.4.1, 7.4.2, 7.5 – 7.5.1 to 7.5.4	10	20%

	Chapter 9: 9.2, 9.3 – 9.3.1, 9.3.2, 9.4 – 9.4.1 to 9.4.6, 9.5 – 9.5.1, 9.5.2 **Chapter 10:** 10.2, 10.3 - 10.3.1, 10.3.2, 10.3.2, 10.4, 10.5 – 10.5.1, 10.5.2 **Chapter 11:** 11.2, 11.3, 11.4, 11.5, 11.6		
IV	**Chapter 12:** 12.5, 12.6, 12.7 – 12.7.1, 12.7.2, 12.7.3, 12.8, 12.9– 12.9.1, 12.9.2, 12.9.3, 12.9.4, 12.10 – 12.10.1, 12.10.2, 12.11 – 12.11,1, 12.11.2 **Chapter 14:** 14.2, 14.4, 14.5, 14.8 – 14.8.1, 14.8.2, 14.8.3, 14.9 – 14.9.1, 14.9.2, 14.9.3	10	20%
V	**Chapter 21:** 21.2 – 21.2.1, 21.2.2, 21.3, 21.4, 21.5, 21.6 – 21.6.1, 21.6.2, 21.7 – 21.7.1 to 21.7.4 **Chapter 22:** 22.2 – 22.2.1, 22.2.2, 22.3, 22.4	10	20%

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
1.	Grady Booch, James Rumbaugh and Ivar Jacobson	The Unified Modeling Language User Guide	Pearson Education	Latest
2.	Michael Blaha James Rumbaugh	Object-Oriented Modeling and Design with UML	Pearson	Latest
3.	Simon Bennet Steve McRobb Ray Farmer	Object Oriented Systems Analysis and Design Using UML	Tata McGraw Hill	Latest
4.	Craig Larman	Applying UML and Patterns	Pearson	Latest
5.	Martin Flower	UML Distilled: A Brief Guide to Standard Object Modeling	Pearson	Latest
6.	**Video Links:** • http://nptel.ac.in/courses/106105153/35 • http://nptel.ac.in/courses/106105153/36 • http://nptel.ac.in/courses/106105153/38 • http://nptel.ac.in/courses/106105153/39 • http://nptel.ac.in/courses/106105153/44			

M. Sc. (IT) – 1st Year
Semester-II
Syllabus of
Subject Code: 180801203
Subject Name: Computer Communication and Networking

Course Objective:

- To make students learn fundamentals of networking.
- To understand the functionality of each layer of the OSI reference model and
- TCP/IP models.
- To understand the interaction and type of services exchanged between each layer.
- To gain insight in how to develop a program related to computer networks.

Course Duration:

The syllabus is divided in to five modules. Total 50 lectures to be conducted to cover the whole syllabus and each lecture will be of 60 minutes.

Course Content:

Module No.	Topics/Chapter Name	No. of Sessions	% Weightage
I	**Introduction** Internetworks,Network Software, Reference Models, A comparison of OSI/TCP IP Model. **The Physical Layer** The Maximum Data Rate of a Channel, Guided Transmission Media, Wireless Transmission, Digital Modulation and Multiplexing	10	20%
II	**The Data Link Layer** Data Link Layer Design Issues, Error Detection and Correction Elementary Data Link Protocols, Sliding Window Protocols	10	20%
III	**The Medium Access Control** The Channel Allocation Problem, Multiple Access Protocols, Ethernet,Wireless LANS, Bluetooth	10	20%
IV	**The Network Layer** Network Layer Design Issues, Routing Algorithms (The Optimality Principle, Shortest Path Algo, Flooding, Distance Vector Routing, Link State Routing), Internetworking, The Network Layer in the Internet(IP Addresses, Classful Addressing, Subnets, Introduction to IPv6, ICMP, NAT, ARP)	10	20%
V	**The Transport Layer & The Application Layer** The Transport service (Services provided to the upper	10	20%

	layers, Transport Service Primitives), Elements of Transport Protocols(Addressing,Connection Establishment, Connection Release), Internet Transport Protocols(Introduction to UDP,RPC), Internet Transport Protocols(Introduction to TCP, TCP Service Model, The TCP Protocol, The TCP Segment Header,TCP Connection Establishment, TCP Connection Release, TCP Connection Management Modeling, TCP Sliding Window), Domain Name System, Content Delivery		

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lectures
2. Discussions
3. Assignments
4. Case Studies

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignment / Presentation / Quiz / Class Participation)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Basic Text Book:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
T1	Andrew S. Tanenbaum David J. Wetherall	Computer Networks	Pearson	5th

Topic Distribution:

Module No.	Topics / Chapters Name	No. of Sessions	% Weightage
I	**Chapter 1:** 1.2.5, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.5, 1.4.1, 1.4.2, 1.4.4 **Chapter 2:** 2.1.3, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.3.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5	10	20%
II	**Chapter 3:** 3.1.1, 3.1.2, 3.1.3, 3.1.4, 3.2.1, 3.2.2, 3.3.1, 3.3.2, 3.3.3, 3.4.1, 3.4.2, 3.4.3	10	20%
III	**Chapter 4:** 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5,	10	20%

	4.3.1, 4.3.2, 4.3.4, 4.3.5, 4.3.6, 4.3.7, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.6.1, 4.6.2, 4.6.3, 4.6.4, 4.6.5, 4.6.6		
IV	**Chapter 5:** 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.2.1, 5.2.2, 5.2.3, 5.2.4, 5.2.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.6.2, 5.6.3, 5.6.4	10	20%
V	**Chapter 6:** 6.1.1, 6.1.2, 6.2.1, 6.2.2, 6.2.3, 6.4.1, 6.4.2, 6.5.1, 6.5.2, 6.5.3, 6.5.4, 6.5.5, 6.5.6, 6.5.7, 6.5.8 **Chapter 7:** 7.1.1, 7.1.2, 7.1.3, 7.5.1, 7.5.2, 7.5.3, 7.5.4	10	20%

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
1.	Behrouz A. Forouzan	Data Communications and Networking	Tata Mcgraw- Hill	Latest
2.	Behrouz A. Forouzan Firouz Mosharraf	Computer Networks	Tata Mcgraw- Hill	Latest
3.	Prakash C. Gupta	Data Communications and Computer Networks	PHI Learning	Latest
4.	James F. Kurose Keith W. Ross	Computer Networking: A Top-Down Approach	Pearson	Latest
5.	Bhushan Trivedi	Computer Networks	Oxford Higher Education	Latest
6.	**Video Links:** • http://www.nptelvideos.com/lecture.php?id=5712 • http://www.nptelvideos.com/lecture.php?id=5713 • http://www.nptelvideos.com/lecture.php?id=5726 • http://www.nptelvideos.com/lecture.php?id=5737 • http://www.nptelvideos.com/lecture.php?id=5724			

M. Sc. (IT) – 1st Year
Semester-II
Syllabus of
Subject Code: 180801204
Subject Name: Introduction to Blockchain

Course Objective:

- To understand the basic concepts of Blockchain.
- To understand different Blockchain frameworks .

Course Duration:

The syllabus is divided in to five modules. Total 50 lectures to be conducted to cover the whole syllabus and each lecture will be of 60 minutes.

Course Content:

Module No.	Topics/Chapter Name	No. of Sessions	% Weightage
I	**Introduction** Blockchain basics, How Blockchain works, Mining, Types of Nodes, Usage of Public and Private keys in Blockchain, Threats and Challenges, Introduction to Bitcoin	10	20%
II	**Ethereum** Turing machine, Ethereum virtual machine (EVM), Smart contracts, Solidity, Gas, Consensus Mechanism, Parity **Enterprise Blockchain Beyond** Identity management, Social Networking, Education, Uses cases of Finance, Travel, Supply chain and other domains, Fraud Prevention, Enterprise Blockchain requirements and Framework.	10	20%
III	**Quorum, Multichain and R3 Corda** Quorum Components, Node, Constellation, Transaction Manager and Processing, Quorum Clientele. Comparison, Features, Deployment, Digital Audit Trail, Sharing Data. Features, IOU Model, Flows, Contracts, Deploying Corda, Accounting Use cases	10	20%
IV	**Ripple, HyperLedger and IOTA the 3rd Generation Blockchain** Technologies used to implement Ripple, Fundamentals of HyperLedger and its use cases, Tangle, Trinary System, IOTA Reference Implementation (IRI)	10	20%
V	**Neo, COCO Framework and Use Case Scenarios** Initial Coin Offer, Crowd Funding, Real Time Gross Settlement, Various Use Cases, Smart City where	10	20%

	Blockchain Meets IOT. **Blockchain in Practice** Comparison of Frameworks, Blockchain-As-A-Service		

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lectures
2. Discussions
3. Assignments
4. Case Studies
5. Implementation

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignment / Presentation / Quiz / Class Participation)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Basic Text Book:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
T1	Blockchain : From Concept to Execution	Debajani Mohanty	BPB Publication	Latest

Topic Distribution:

Module No.	Topics / Chapters Name	No. of Sessions	% Weightage
I	Chapter 1 and 2	10	20%
II	Chapter 3 and 4	10	20%
III	Chapter 5, 6 and 7	10	20%
IV	Chapter 8, 9 and 10	10	20%
V	Chapter 11, 12, 13 and 14	10	20%

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
1.	Melanie Swan	Blockchain: Blueprint for a New	O'REILY	Latest

		Economy		
2.	Don Tapscott, Alex Tapscott	Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies is Changing the World	PENGUIN	Latest
3.	Tiana Laurence	Blockchain For Dummies	John Wiley & Sons, Inc.	Latest
4.	**Video Links:** • http://blockchain.mit.edu/ • http://nptel.ac.in/courses/106105184/			

M. Sc. (IT) – 1st Year
Semester-II
Syllabus of
Subject Code: 180801205
Subject Name: Date Warehousing and Data Mining

Course Objective:

- To understand the basic concepts of data warehousing.
- To understand the basic concepts data mining.
- To study different applications of Data mining.

Course Duration:

The syllabus is divided in to five modules. Total 50 lectures to be conducted to cover the whole syllabus and each lecture will be of 60 minutes.

Course Content:

Module No.	Topics/Chapter Name	No. of Sessions	% Weightage
I	Need for data warehouse, Operational Vs. DSS, Data warehousing - the only viable solution, Data warehouse: A blend of many technologies Evolution of BI. Defining features, Data warehouse and Data marts, Overview of components, Metadata in data warehouse. Significant Trends - Real time data warehousing, Multiple data types, Data Warehouse and ERP, Data Warehousing and CRM, Data Warehousing and KM, Web Enabled data warehouse.	10	20%
II	Introduction to data mining, what kinds of data and patterns can be mined, which technologies are used? Major issues in data mining. Introduction to data preprocessing, data cleaning, data integration and transformation, data reduction, data decentralization and concept hierarchy generation.	10	20%
III	Data Warehouse Modeling: Data cube and OLAP. Data cube computation: preliminary concepts, Data Cube computation methods. Mining frequent Patterns, Associations, and Correlation: basic concepts, frequent item set mining methods.	10	20%
IV	Classification: basic concepts, decision tree induction, Bayes classification methods, rule-based classification. Classification: advanced methods – Bayesian Belief	10	20%

	Networks, Classification by back propagation, Support vector machine**.**		
V	Mining complex data types, Data mining trends and research frontiers: methodologies of data mining – visual and audio data mining, Data mining Applications, data mining and society.	10	20%

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lectures
2. Discussions
3. Assignments
4. Case Studies

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignment / Presentation / Quiz / Class Participation)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Basic Text Book:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
T1	Paulraj Ponniah	Data warehousing fundamentals: a comprehensive guide for IT professionals	Wiley	Latest
T2	Jiawei Han Micheline Kamber	Data mining concepts and techniques (e-book in form of PDF is available)	Elsevier	Third

Topic Distribution:

Module No.	Topics / Chapters Name	No. of Sessions	% Weightage
I	Chapter 1, Chapter 2, Chapter 3 (Textbook 1)	10	20%
II	**Chapter 1:** 1.2,1.3,1.5,1.7 (Textbook 2) **Chapter 3:** 3.1, 3.2, 3.3 (3.3.1, 3.3.3, 3.3.4), 3.4 (3.4.1, 3.4.4, 3.4.5, 3.4.7, 3.4.8, 3.4.9), 3.5 (3.5.1, 3.5.4, 3.5.5, 3.5.6)	10	20%

III	**Chapter 4:** 4.2, **Chapter 5:** 5.1, 5.2 **Chapter 6:** 6.1, 6.2.1, 6.2.2,6.2.5	10	20%
IV	**Chapter 8:** 8.1, 8.2 (8.2.1 (without algorithm), 8.2.3, 8.2.4), 8.3, 8.4 (8.4.1, 8.4.2,), 8.6 (8.6.2, 8.6.3 (without algorithm)) **Chapter 9:** 9.1, 9.2 (9.2.1, 9.2.2, 9.2.3 (without algorithm)), 9.3, 9.5, 9.6	10	20%
V	**Chapter 13:** 13.1, 13.2.3, 13.3, 13.4.2	10	20%

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
1.	Stephen Haag, Maeve Cummings, Amy Philips, Pang-Ning Tan, Michael Steinbach Vipin Kumar	Introduction to Data Mining	Pearson	Latest
2.	Alex Berson Stephen J. Smith	Data Warehousing, Data Mining & OLAP	Tata McGraw – Hill Publication	Latest
3.	**Video Links:** • http://nptel.ac.in/courses/106106093/31			

M. Sc. (IT) – 1st Year
Semester-II
Syllabus of
Subject Code: 180801206
Subject Name: Web Programming using Python

Course Objective:

- To gain the knowledge of MVT architecture.
- To acquaint the students with web programming using Python Framework.
- To acquaint the students about Git Hub usage.

Course Duration:

The syllabus is divided in to five modules. Total 50 lectures to be conducted to cover the whole syllabus and each lecture will be of 60 minutes.

Course Content:

Module No.	Topics/Chapter Name	No. of Sessions	% Weightage
I	**Introduction** to Django: Django Installation, Features, Creating Project and overview of the first App, Creating web apps with MVT architecture.	10	20%
II	**Models:** Introduction to Model, Database Setup, Creating Models, Activating Models, Database API, filtering Database Result, Admin Interface. **Views:** Introduction to view, writing view, connecting view to the database.	10	20%
III	**Template:** Introduction to Template, rendering template, adding forms to the template. **Session Management:** Session, Users, Registration	10	20%
IV	**REST Framework:** Introduction to REST API, Project Setup, Serializers, views, URLs, Settings, Testing Rest API.	10	20%
V	**Bootstrap:** Displaying Content and Integrating Bootstrap. **Git Hub:** Introduction to Git Hub, Applications and usage of Git Hub. Setting up Git Hub repository and various operations like Pull, Push, Commit etc. Usage of Source Tree.	10	20%

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lab sessions
2. Assignments

3. Presentations
4. Projects

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignment / Presentation / Quiz / Class Participation)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
1.	Adrian Holovaty, Jacob K. Moss	Django: The Definitive Guide to Django: Web Development Done Right	Apress	Latest
2.	Nigel George	Mastering Django	Packt Publishing Ltd	Latest
3.	Sanjeev Jaiswal, Ratan Kumar	Learning Django Web Development	Packt Publishing Ltd	Latest

M. Sc. (IT) – 1st Year
Semester-II
Syllabus of
Subject Code: 180801207
Subject Name: Web Programming using Java

Course Objective:

- To gain the knowledge of swing, applet, JDBC concept using advance java programming.
- To acquaint the student with web programming using Java technologies like servlet and JSP.

Course Duration:

The syllabus is divided in to five modules. Total 50 lectures to be conducted to cover the whole syllabus and each lecture will be of 60 minutes.

Course Content:

Module No.	Topics/Chapter Name	No. of Sessions	% Weightage
I	**Swing Components and JApplet** JFrame, JApplet, JPanel, JLabel, JTextField, JButton, JCheckBox, JRadioButton, JSlider, JComboBox, JTabbedPane, JScrollPane, Menus, Jlist **Layout Managers:** Spring Layout, Box Layout **Java Bean**	10	20%
II	**Working with JDBC** JDBC APIs, JDBC Classes and Interfaces Driver Manager Class, Driver Interface, Connection Interface, Statement Interface	10	20%
III	**Introduction to HTML** – only basic structure and tags (upto table tag) of HTML, Overview of Java Script, Primitives, Date and Time, Operations and Expressions, Screen Output and Keyboard Input, Control Statement, Object Creation and Modification, Arrays, Functions, Constructors **Working with Servlets** Creating Simple Servlet, Creating Servlet using Annotation, Introduction of HttpServletRequest and HttpServletResponse Interface, Request Delegation and Request Scope, Session, Session Tracking and its Mechanisms, Java Servlet API for Session Tracking	10	20%
IV	**Java Server Pages (JSP)** JSP Basic Tags and Implicit Objects, JSP Action Tags,	10	20%

	Introduction to JSP Unified EL, Using functions with EL		
V	**Advanced JSP & MVC Architecture** Using <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, Understanding Data Sharing Between Servlets and JSP, JSP Expression Language for Beans , Accessing Scoped Variables, Bean Properties	10	20%

Teaching Methods:

The following pedagogical tools will be used to teach this course:

1. Lab sessions
2. Assignments
3. Presentations
4. Projects

Evaluation:

The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Assignment / Presentation / Quiz / Class Participation)	30% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	20% (Internal Assessment)
3.	External Examination (University Exam / End Semester Exam)	50% (External Assessment)

Basic Text Book:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
T1	M. T. Savaliya	Advance Java Technology	Dreamtech Press	Latest

Reference Books:

Sr. No.	Author/s	Name of the Book	Publisher	Edition
1.	Marty Hall, Larry Brown	Core Servlets and JavaServer Pages Volume – 1	Pearson Education	Second
2.	Marty Hall, Larry Brown, Yaakov Chaikin	Core Servlets and JavaServer Pages Volume – 2	Pearson Education	Second
3.	Sachin Malhotra	Programming in JAVA	OXFORD	2010

	Saurabh Choudhary			
4.	Ivan Bayross	Web Enabled Commercial Application Development Using HTML, DHTML, PERL, Java Script	BPB Publications	Revised Edition
5.	Kogent Learning Solutions Inc.	Web Technologies Black Book	Dreamtech Press	2010
6	C Muthu	Programming With JAVA	Tata McGraw Hill	

M. Sc. (IT) - 1st Year
Semester-II

Syllabus of
Subject Code: 180801208
Subject Name: Summer Assignment

Course Objective:
To learn new technologies that will allow the student to choose the specialization track.

Course Duration:
The course duration is of maximum one month.

Course Content:
The summer assignment can be given on probable topics as mentioned below:

HTML 5
PHP & MySQL
Graph Database
Design Patterns
Python Scripting
Open Source Technologies

Teaching Methods:
The following pedagogical tools will be used to teach this course:
1. Presentation
2. Case Studies
3. Practical implementation

Evaluation:
The students will be evaluated on a continuous basis and broadly follow the scheme given below:

1.	Continuous Evaluation (Practical Assignments / Case Analysis / Presentations)	50% (Internal Assessment)
2.	Internal Examination (Mid Semester Exam)	
3.	End Semester Exam **Note: The End Semester Exam will be conducted by the institute and marks will be sent to the University.**	50% (Internal Assessment)