SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
(Engineering College), VIDISHA M.P.
(An Autonomous Institute Affiliated to RGPV Bhopal)
DEPARTMENT OF CYBER SECURITY AND IOT

Semester/Year		IV/II		Program		B.Tech – CSE-Internet of Things				
Subject Category	DC	Subject Code:	IO 401	Subject Name	Microprocessors and Microcontrollers					

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
ES	MS	Assignment	Quiz	ES	LW	Quiz		L	T	P	
60	20	10	10	30	10	10	150	3	0	2	4

Prerequisites:

Basic Computing and Logical reasoning.

Course Objective:

- To make students familiar with the basic blocks of 8 bit Microcontroller & 16 bit microprocessor device in general.
- To provide comprehensive knowledge of the architecture, features and interfacing with peripheral devices.
- To use assembly and high level languages to interface the microcontroller to various devices.

Course Outcomes:

- **CO 1:** Acquire and demonstrate fundamental knowledge of microprocessors or interfacing and programming
- **CO 2:** Understanding the fundamentals of 8051 microcontroller.
- **CO 3:** Apply the arithmetic and logical operations with the help of instructions.
- **CO 4:** Analyze the concept of Timer, Serial Communication and interrupt.
- **CO5:** To understand the interfacing of 8051 microcontroller with peripheral devices.

CO-PO Mapping:

COs	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_1	PO_{11}	PO_{12}	PSO1	PSO2
CO-1	2	2	1										1	2
CO-2	2	2	2										1	2
CO-3	2	2	2	1									1	2
CO-4	3	2	2	1									1	2
CO-5	2	2	1	1									1	2

UNITs	Descriptions	Hrs.
I	Introduction to 16 bit Microprocessor-Introduction to 8086 Microprocessor family Architecture, Pin diagram, Instruction set, Assembler directive, Addressing modes, Maximum and Minimum Mode operation, Elementary 8086 Programming.	8
II	Microcontrollers and Embedded processors, overview of 8051 family. 8051 microcontroller hardware, oscillator and clock, CPU registers, Register banks and stack, flags, PSW, SFR's, I/O ports, internal memory, 8051 pin description. 8051 programming model, Assembly, Language programming, Data types, directives. Addressing modes of 8051, memory access using various addressing modes, Bit addresses for I/O and RAM, I/O port programming.	8
III	Arithmetic Operations with 8051: Arithmetic instructions, signed number concepts and arithmetic operations. Branch Instructions: Jump Loop and Call Instructions, Time delay calculations. Logical Operations & Bit manipulation instructions: Logic and compare instructions rotate and swap instructions, data serialization, single bit instructions, operations with carry, reading input pins.	8
IV	Timers: Programming, Counter programming, Serial communication, RS232, 8051 programming for serial port, Serial Port programming, 8051 Interrupts, programming timer interrupts, external hardware interrupts, serial communication interrupts, interrupt priority in 8051, Interrupt programming.	8
V	Interface 8051, LCD Interfacing, memory address decoding, interfacing with external ROM, data memory space, accessing external memory in C, Interfacing 8255, programming 8255, modes of 8255, 8255 connection to stepper motor, LCD,& ADC, 8051 programming for 8255.	8
Total Hours		40

Text Book

1. A K Ray & K M Bhurchandi, Advanced Microprocessor and Peripheral, Tata McGraw-Hill Publishing Company Limited.
2. M A Mazidi, J G Mazidi and R D McKinley, The 8051 Microcontroller and Embedded Systems: Using Assembly and C, Pearson.

Reference Books

1. Ramesh S Goankar, Microprocessor Architecture, Programming & Applications with the 8085, Penram International Publishing (India) Pvt. Ltd., Fourth Edition, 2002.
2. Douglas V. Hall, Microprocessors and interfacing programming and hardware Gregg Division, McGraw-Hill, 1986

List/Links of e-learning resource

- https://archive.nptel.ac.in/courses/108/105/108105102/

Modes of Evaluation and Rubric

The evaluation modes consist of performance in two mid semester Tests, Quiz/Assignments, term work, end semester practical examination.

Suggestive list of experiments:

1. WAP to add a data byte located at the offset address 0500H in the segment 2000H to another data byte located at the offset address 0600H in the segment 3000H.
2. WAP to move 0500H to register BX and CX, add 05H to each of them and store the result in 0700H. Segment address: 5000H.
3. WAP to add the contents of 2000H: 0500H to the contents of 3000H: 0600H and store the result in 5000H: 0700H.
4. WAP to find the square of a given number.
5. WAP to find the 2's compliment of a given number.
6. WAP to find the square root of a given number.
7. WAP to arrange the given set of bytes in ascending order.
8. WAP to arrange the given set of bytes in the descending order.
9. WAP to find out the largest number in the given set of 8-bit number stored at memory location 0500H in the segment 2000H.
10. WAP to find out the even and odd numbers from the given set of 10 data bytes stored at memory location 4000H: 0400H.

Recommendation by Board of studies on	
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Subject handled by department	Department of Cyber Security and IoT

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DEPARTMENT OF CYBER SECURITY AND IOT

Semester/Year	IV/II	Program	B.Tech – CSE-Internet of Things

Subject Category	DC	Subject Code:	IO 402	Subject Name	Database Management System

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
ES	MS	Assignment	Quiz	ES	LW	Quiz		L	T	P	
60	20	10	10	30	10	10	150	3	0	2	4

Prerequisites:

Basic Knowledge of Mathematics and Programming

Course Objective:

- To understand the different issues involved in the design and implementation of a database system.
- To represent a database system using ER diagrams and to learn normalization techniques
- To learn the fundamentals of data models, relational algebra, and SQL.
- To understand the basic issues of transaction processing and concurrency control.
- To become familiar with database storage structures and access techniques

Course Outcomes:

- **CO-1**: Understand the basic concepts, principles and applications of database systems.
- **CO-2**: Discuss the components of DBMS, data models, Relational models.
- **CO-3**: Use knowledge to find the functional dependencies and differentiate between different normal forms.
- **CO-4**: Execute transaction concepts and concurrency protocols
- **CO-5**: Articulate the basic concept of storage and access techniques.

CO-PO Mapping:

COs	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_1	PO_{11}	PO_{12}	PSO1	PSO2
CO-1	1	1	2										1	2
CO-2	3	2	2										1	2
CO-3	2	1	2		2								1	2
CO-4	2	1	2											2
CO-5	2	2	2											1

UNITs	Descriptions	Hrs.
I	Introduction: Purpose of Database System -– Views of data – data models, database management system, three-schema architecture of DBMS, components of DBMS. E/R Model - Conceptual data modeling - motivation, entities, entity types, attributes relationships, relationship types, E/R diagram notation, examples.	8
II	Relational Model: Relational Data Model - Concept of relations, schema-instance distinction, keys, referential integrity and foreign keys, relational algebra operators, SQL - Introduction, data definition in SQL, table, key and foreign key definitions, update behaviors. Querying in SQL, notion of aggregation, aggregation functions group by and having clauses.	8
III	Database Design: Dependencies and Normal forms, dependency theory - functional dependencies, Armstrong's axioms for FD's, closure of a set of FD's, minimal covers, definitions of 1NF, 2NF, 3NF and BCNF, decompositions and desirable properties of them, algorithms for 3NF and BCNF normalization, 4NF, and 5NF.	8
IV	Transactions: Transaction processing and Error recovery - concepts of transaction processing, ACID properties, concurrency control, locking based protocols for CC, error recovery and logging, undo, redo, undo-redo logging and recovery methods.	8
V	Implementation Techniques: Data Storage and Indexes - file organizations, primary, secondary index structures, various index structures - hash-based, dynamic hashing techniques, multi-level indexes, B+ trees.	8
Total Hours		40

Text Book

1. Ramez Elmasri and Shamkant B. Navathe, Fundamentals of Database Systems , Pearson Education
2. Silberschatz, Korth, “Data base System Concepts”, 7th ed., McGraw hill.

Reference Books

1. C. J. Date, “An Introduction to Database Systems”, 8th ed., Pearson.

2. Raghu Ramakrishnan and Johannes Gehrke, Database Management Systems McGraw Hill.
3. Peter Rob and Carlos Coronel, Database System- Design, Implementation and Management , Cengage Learning.

List/Links of e-learning resource

- https://nptel.ac.in/courses/106/104/106104135/
- https://nptel.ac.in/courses/106/106/106106220

Modes of Evaluation and Rubric

The evaluation modes consist of performance in two mid semester Tests, Quiz/Assignments, term work, end semester practical examination.

Suggestive list of experiments:

1. Design a Database and create required tables. For e.g. Bank, College Database
2. Apply the constraints like Primary Key , Foreign key, NOT NULL to the tables
3. Write a sql statement for implementing ALTER,UPDATE and DELETE
4. Write the queries to implement the joins
5. Write the query for implementing the aggregate functions
6. Write the query to implement the concept of Integrity constraints
7. Write the query to create the views
8. Perform the queries with group by and having clauses
9. Perform the following operation for demonstrating the insertion , updation and deletion using the referential integrity constraints
10. Write the query for creating the users and their role

Recommendation by Board of studies on	
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Subject handled by department	Department of Cyber Security and IoT

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DEPARTMENT OF CYBER SECURITY AND IOT

Semester/Year		IV/II		Program		B.Tech – CSE-Internet of Things					
Subject Category	DC	Subject Code:		IO 403	Subject Name	Signals and Systems					
Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
ES	MS	Assignment	Quiz	ES	LW	Quiz		L	T	P	
60	20	10	10	30	10	10	150	3	0	2	4

Prerequisites:

Engineering Mathematics

Course Objective:

- Understand the fundamentals of the Signals and systems.
- Understand linear time invariant systems and able to obtain mathematical modelling of the system.
- Apply the concepts of frequency domain representations to analyze continuous and discrete time signals/systems
- Understand and apply the Z-Transform, to the analysis and description of LTI discrete-time systems.
- Able to apply the knowledge to model a system

Course Outcomes:

- **CO 1:** Acquire knowledge of basics, fundamentals of signal
- **CO 2:** Understanding the fundamentals for LTI system.
- **CO3:** To know the concept of Fourier Series.
- **CO4:** To know the concept of Fourier Transform.
- **CO5:** Apply the fundamentals of Z-Transform.

CO-PO Mapping:

COs	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_1	PO_{11}	PO_{12}	PSO1	PSO2
CO-1	3	2	1										1	2
CO-2	2	2	1	1									1	2
CO-3	3	1	2	1									1	2
CO-4	3	1	2	1									1	2
CO-5	3	2	1										1	2

UNITs	Descriptions	Hrs.
I	An Introduction to Signals and Systems: Definition of signal and systems, Classification of signals: continuous time and discrete time signal, even and odd, periodic and non-periodic, deterministic and non-deterministic, energy and power. Elementary signals/Functions: exponential, sine, unit impulse, unit step and its properties, ramp, rectangular, triangular, signum. Operations on signals: Amplitude scaling, addition, multiplication, differentiation, integration, time scaling, time shifting, and time folding. System properties: linearity, additively and homogeneity, causality, stability, reliability. Introduction to different types of systems like causal & non causal systems, static& dynamic, stable &unstable, linear& nonlinear, time variant &time invariant systems.	8
II	Linear Time- Invariant Systems: Introduction, Convolution: impulse response representation for LTI systems, properties of the impulse response representation for LTI systems, differential and difference equation for LTI Systems, Singularity functions.	8
III	The response of LTI system to complex exponential, Fourier series(FS) representation of continuous time periodic signals, convergence of Fourier series, Properties of CT-FS, FS representation of Discrete Time(DT) periodic Signal, Properties of DT-FS.	8
IV	Representation of periodic signals: the continuous time Fourier Transform (CT-FT), FT for periodic signals, Properties of CT-FT, the convolution property. Representation of DT-FT (for periodic and aperiodic signals), properties of DT-FT, Sampling Theorem, and Representation of CT signals by its samples, reconstruction of a signal from its samples, aliasing.	8
V	The z transform Basic principle of z-transform, definition, region of convergence, system functions, poles and zeros of systems and sequences, properties of ROC, properties of z-transform, inverse z-transform using, Analysis and characterization of LTI system using Z-transform.	8

Total Hours	40

Text Book & Reference Books-

1. T. K. Rawat, Signals and Systems, Oxford University Press.
2. A.V. Oppenheim, A.S. Willsky and I.T. Young, "Signals and Systems", Prentice Hall.

1. B.P. Lathi, "Signal Processing and Linear Systems", Oxford University Press.
2. Douglas K. Lindner, "Introduction to Signals and Systems", McGraw Hill International Edition.
3. J. Nagrath, S. N. Sharan, R. Ranjan, S. Kumar, "Signals and Systems", Tata McGraw Hill Publishing Company Ltd., New Delhi

List/Links of e-learning resource

- https://archive.nptel.ac.in/courses/108/104/108104100/

Modes of Evaluation and Rubric

The evaluation modes consist of performance in two mid semester Tests, Quiz/Assignments, term work, end semester practical examination.

Suggestive list of experiments:

1. Introduction to MATLAB
2. Generation of continuous time signals.
3. Basic operations on the signals.
4. Systems and their properties.
5. Convolution of signals.
6. Transformation of signals into time and frequency domains.

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Subject handled by department	Department of Cyber Security and IoT

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DEPARTMENT OF CYBER SECURITY AND IOT

Semester/Year		IV/II		Program		B.Tech – CSE-Internet of Things				
Subject Category	DC	Subject Code:	IO 404	Subject Name	Foundation of IoT					

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
ES	MS	Assignment	Quiz	ES	LW	Quiz		L	T	P	
60	20	10	10	-	-	-	100	3	1	0	4

Prerequisites:

NA

Course Objective:

- To make students know the IoT ecosystem.
- To provide an understanding of the technologies and the standards relating to theInternet of Things.
- To develop skills on IoT technical planning.

Course Outcomes:

- **CO1:** To understand the Fundamentals of IoT.
- **CO2:** To know about the networking concepts of IoT.
- **CO3:** To know about the different connectivity technologies.
- **CO4**: To know about the WSN and UAV network.
- **CO5**: To know about the various applications of IoT.

CO-PO Mapping:

COs	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_1	PO_{11}	PO_{12}	PSO1	PSO2
CO-1	2	1	2										1	2
CO-2	2	1	1										1	2
CO-3	2	1	1										1	2
CO-4	2	1	1	1									1	2
CO-5	2	1	1	1									1	2

UNITs	Descriptions	Hrs.
I	Introduction & concepts: definition and characteristics of IoT, physical design of IoT, Logical Design of IoT, IoT enabling technologies, IoT levels and development templates, IoT and M2M, IoT design Methodology.	8
II	IoT Networking: Connectivity Technologies, Gateway Prefix Allotment, Impact of Mobility on Addressing, Multihoming, Deviations from Regular Web, IoT identification and Data Protocols(IPv4, IPv6, MQTT, CoAP, XMPP and AMQP)	8
III	Connectivity Technologies: Introduction, IEEE 802.15.4, ZigBee, 6LoWPAN, RFID, HART and Wireless HART, NFC, Bluetooth, Z-Wave, ISA 100.11A.	8
IV	Wireless Sensor Network: Introduction, Components of Sensor Node, Modes of Detection, Challenges in WSN. UAV Network: Introduction, UAV Network (Feature, Challenges and Topology) FANET: Introduction, FANET design consideration.	8
V	Application of IoT: Smart Homes – Introduction, Origin of Smart Homes, Smart Home Technologies. Smart Cities – Characteristics of Smart Cities, Smart City Framework, Challenges in Smart Cities. Connected Vehicles – Introduction, levels of Automation, Vehicle to Everything(V2X) Paradigm, Vehicular Ad-hoc Network (VANETs)	8
Total Hours		40

Text Book

1. Arshdeep Bagha and Vijay Madisetti, "Internet of Things – A hands-on approach", Orient Blackswan Private Limited - New Delhi.
2. Dr. Jeeva Jose, Internet of Things, Khanna Publishing House.
3. Nitesh Dhanjani, Abusing the Internet of Things, Shroff Publisher/O'Reilly Publisher.

Reference Books

1. Internet of Things, RMD Sundaram Shriram K Vasudevan, Abhishek S Nagarajan,John Wiley and Sons.
2. Internet of Things, Shriram K Vasudevan, Abhishek S Nagarajan, RMD Sundaram,John Wiley & Sons.
3. Cuno Pfister, "Getting Started with the Internet of Things", Shroff Publisher/MakerMedia.

4. Francis daCosta, “Rethinking the Internet of Things: A Scalable Approach toConnecting Everything”, 1 st Edition, Apress Publications.
5. Massimo Banzi, Michael Shiloh Make: Getting Started with the Arduino, ShroffPublisher/Maker Media Publishers.

List/Links of e-learning resource

- https://onlinecourses.nptel.ac.in/noc19_cs65/preview

Modes of Evaluation and Rubric

The evaluation modes consist of performance in two mid semester Tests, Quiz/Assignments, term work, end semester practical examination.

Recommendation by Board of studies on	
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Subject handled by department	Department of Cyber Security and IoT

SAMRAT ASHOK TECHNOLOGICAL INSTITUTE
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DEPARTMENT OF CYBER SECURITY AND IOT

Semester/Year		IV/II		Program		B.Tech – CSE-Internet of Things				
Subject Category	DC	Subject Code:		IO 405	Subject Name	Communication Systems				
Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
ES	MS	Assignment	Quiz	ES	LW	Quiz		L	T	P	
60	20	10	10	-	-	-	100	3	1	0	4

Prerequisites:

NA

Course Objective:

- The purpose of the course is to teach the fundamental principle of Communications.
- To equip students with various issues related to analogue communication such as modulation, demodulation, transmitters and receivers and noise performance.

Course Outcomes:

- CO-1: Explain the fundamentals of analog and digital Signals and Communication System
- CO-2: Apply Fourier Transform to communication signals and derive the power spectral density of signals.
- CO-3: Define, formulate and analyze various techniques for amplitude and angle modulation.
- CO-4: Analyze different techniques for digital data transmission and analyze the performance of spread spectrumcommunication systems.
- CO-5: Understand the fundamentals of Information Theory.

CO-PO Mapping:

COs	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_1	PO_{11}	PO_{12}	PSO1	PSO2
CO-1	1	1	2										1	2
CO-2	2	2	2										1	2
CO-3	2	1	2										1	2
CO-4	2	1	2											2
CO-5	2	2	1										1	2

UNITs	Descriptions	Hrs.
I	Signals Analysis: Review of Fourier Transformation, signal transformation and its properties through linear system, signal distortion in transmission, bandwidth and rise time, energy andpower density and Parseval's theorem for energy and power signals, convolution &correlations.	8
II	Linear Modulation: Necessity of modulation, principal of amplitude modulation generation and detection of DSB-SC, SSB-SC and VSB-SC, AM-LC, Comparison of various AM systems, FDM and TDM.	8
III	Angle Modulation - Definition and relationship between PM ad FM frequency deviation, Bessel's function , spectrum and transmission BW of FM , NBFM,WBFM , phase diagram of FM signals in FM system s, comparison of AM and FM systems. Digital Modulation: Block diagram of PCM system, Inter-symbol Interference, Compounding,Delta Modulation (DM), Limitation of DM, ADM, Comparison between PCM & DM, DPCM.	8
IV	Radio transmitter and receiver: Different type of AM and FM transmitters and receivers,AM and FM standard broadcast calculation of noise for signal and cascaded stages. Noise-performance of analog communication systems: SNR, Noise figure. Line Codes. Data Transmission: Generation and Detection of ASK, FSK, PSK, DPSK, QPSK.	8
V	Information Theory: Unit of Information, Entropy, Rate of Information, Joint & Conditional Entropy, Mutual Information, Channel Capacity, Shawn's Theorem, Shannon Harder Theorem, Coding Efficiency, Shannon Fano Coding, Hoffman	8

	Coding, Blocks Codes.	
Total Hours		40

Text Book

1. Taub and Schilling: Principles of Communication System, TMH.
2. Simon Haykin: Digital Communication, John Wiley.

Reference Books

1. G. Kennedy: Electronic Communication System, TMH.
2. J. G. Proakis: Digital Communications, MGH.

List/Links of e-learning resource

- https://onlinecourses.nptel.ac.in/noc19_cs65/preview

Modes of Evaluation and Rubric

The evaluation modes consist of performance in two mid semester Tests, Quiz/Assignments, term work, end semester practical examination.

Recommendation by Board of studies on	
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Subject handled by department	Department of Cyber Security and IoT

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DEPARTMENT OF CYBER SECURITY AND IOT

Semester/Year	IV/II	Program	B.Tech – CSE-Internet of Things

Subject Category	DLC	Subject Code:	IO 406	Subject Name	Advanced Java Programming

Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical			Total Marks				
ES	MS	Assignment	Quiz	ES	LW	Quiz		L	T	P	
				60	20	20	100	0	0	4	2

Prerequisites:

Concepts of Object Oriented Programming and core Java

Course Objective:

- To introduce and understand students to programming concepts and techniques using the Java language and programming environment, class and objects.
- To learn about lifetime, scope and the initialization mechanism of variables and improve the ability general problem solving abilities in programming.
- Be able to use the Java SDK environment to create, debug and run simple Java program

Course Outcomes:

- **CO1:** Use the syntax and semantics of java programming language and basic concepts of OOP.
- **CO2:** Write basic Java applications and use arrays.
- **CO3:** Develop reusable programs using the concepts of RMI and JDBC.
- **CO4:** Apply the concepts of Servlet and JSP using advanced tools.
- **CO5:** Design event driven GUI and web related applications which mimic the real word scenarios.

CO-PO Mapping:

COs	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_1	PO_{11}	PO_{12}	PSO1	PSO2
CO-1	2	2	2										1	2
CO-2	2	2	2										1	2
CO-3	2	1	2	1									1	2
CO-4	2	1	2	1										2
CO-5	2	2	1	1									1	2

UNITs	Descriptions	Hrs.
I	Basic Java Features - C++ vs JAVA, JAVA virtual machine, Exception Handling, File and Streams, Visibility, Constructors, Operator and Methods Overloading, Static Members, Inheritance: Polymorphism, Abstract methods and Classes .	**6**
II	Java Collective Frame Work - Generics: Introduction, Overloading Generic Methods, Generic Classes, Collections: Interface Collection and Class Collections, Lists, Array List and Iterator, Linked List, Vector. Collections Algorithms: sort, shuffle, reverse, fill, copy, max and min ,binary Search, Stack Class of Package java. Util, Class Priority Queue and Interface Queue, Maps, Properties Class, Unmodifiable Collections.	8
III	Advance Java Features - Multithreading: Multithreading with GUI, Monitors and Monitor Locks. Networking: Manipulating URLs, Reading a file on a Web Server, Socket programming, Security and the Network, RMI, Networking, Accessing Databases with JDBC.	8
IV	Advance Java Technologies - Servlet: Overview and Architecture, Handling HTTP & HTTPS, get Requests, JDBC, Using JDBC from a Servlet, Java Server Pages (JSP): First JSP Example, JSP elements, JSP tag library, Session tracking, , Java Cryptographic Architecture (JCA).	10
V	Advance Web/Internet Programming (Overview): Struts- Basics of MVC, architecture, action class, interceptors, tag library, validations, Hibernate- basics, architecture, CRUD, Spring- framework introduction.	8
Total Hours		40

Text Book

1. E. Balaguruswamy, “Programming In Java”; TMH Publications
2. The Complete Reference: Herbert Schildt, TMH

Reference Books

1. Deitel & Deitel, ”JAVA, How to Program”; PHI, Pearson
2. Cay Horstmann, Big JAVA, Wiley India
3. Merlin Hughes, et al; Java Network Programming , Manning Publications/Prentice Hall

List/Links of e-learning resource

- https://archive.nptel.ac.in/courses/106/105/106105191/

Modes of Evaluation and Rubric

The evaluation modes consist of performance in two mid semester Tests, Quiz/Assignments, term work, end semester practical examination.

Suggestive list of experiments:

1. Installation of JDK.
2. Write a program to show Scope of Variables
3. Write a program to show Concept of CLASS in JAVA
4. Write a program to show Type Casting in JAVA
5. Write a program to show How Exception Handling is in JAVA
6. Write a Program to show Inheritance
7. Write a program to show Polymorphism
8. Write a program to show Access Specifiers (Public, Private, Protected) in JAVA
9. Write a program to show use and Advantages of CONSTRUCTOR
10. Write a program to show Interfacing between two classes
11. Write a program to Add a Class to a Package
12. Write a program to show Life Cycle of a Thread
13. Write a program to demonstrate AWT.
14. Write a program to Hide a Class
15. Write a Program to show Data Base Connectivity Using JAVA
16. Write a Program to show “HELLO JAVA ” in Explorer using Applet
17. Write a Program to show Connectivity using JDBC
18. Write a program to demonstrate multithreading using Java.
19. Write a program to demonstrate applet life cycle.
20. Write a program to demonstrate concept of servlet.

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