HINDI MAHAVIDYALAYA
(AUTONOMOUS & NAAC RE-ACCREDITED)
(Affiliated to Osmania University)
Nallakunta, Hyderabad-44

B.Sc. III YEAR SEMESTER V & VI

DEPARTMENT OF COMPUTER SCIENCE

2018-2019/19-20

20 - 21

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
BOARD OF STUDIES
DEPARTMENT OF COMPUTER SCIENCE

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Head – Department of Computer Science
Hindi Mahavidyalaya
Nallakunta, Hyderabad.

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Dr. M. Rangamma
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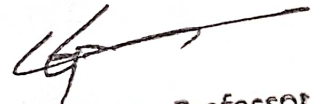Department of Mathematics,
Osmania University, Hyderabad

M. Ran———

20-8-2018

CHAIRMAN
Board of Studies in Computer Science
Dept. of Mathematics
Osmania University, Hyd.

Associate Professor
Dept of Maths O.U

Members of BOS

1. Dr. C. Goverdhan
    Associate Professor
    Departmet of Mathematics
    Osmania University, Hyderabad.

2. Mrs. B. Ramani
    Subject Expert
    Andhra Mahila Sabha Arts and Science College
    Osmania University, Hyderabad.

3. Mr. Y. Raghunath,
    Consultant ,
    Industry Expert
    TCS, Hyderabad.

4. Smt. K.Chaitanya
    Asst. Prof. ,
    Dept. of Computer Science

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD

(AUTONOMOUS)

BOARD OF STUDIES

DEPARTMENT OF COMPUTER SCIENCE

COMPOSITION OF THE BOARD OF STUDIES IN AN AUTONOMOUS COLLEGE

I. **Composition : Department of Computer Science**

1. **Head of the department concerned (Chairperson)**
   Smt. P.Lavanya - Department of Computer Science

2. **The entire faculty of each specialization**
   Smt. P. Lavanya – HOD, Dept. of Computer Science

   Smt. K.Chaitanya – Asst. Prof. , Dept. of Computer Science

3. **One expert to be nominated by the vice-chancellor from a panel if six recommended by the College Principal**

   1. Dr. M. Rangammaa ,Chairman - BOS.
      Department of Computer Science

      M. Ran⎯⎯

      CHAIRMAN &
      Board of Studies in Computer Science
      Dept. of Mathematics
      Osmania University, Hyd.

4. **Three Experts in the subject from outside the college to be nominated by the Academic Council**

   1. Dr. C. Goverdhan , Associate Prof., Dept of Mathematics

      Associate Professo
      Dept. of Maths O.(

   2. Mrs. B. Ramani, Subject Expert – Department of Computer Science

   3. Mr. Raghunath, Industry Expert – Consultant - TCS

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
AGENDA OF THE MEETING
20/8/2018

1) A review of semester examination results.

2) Preparation of Scheme of instruction and Evaluation.

3) Revision of existing courses/syllabus.

4) Panel of Paper Setters and valuers for the existing Year 2018-2019.

5) Any other Matter

M. Ram 20-8-2018

CHAIRMAN
Board of Studies in Computer Science
Dept. of Mathematics
Osmania University, Hyd.

Associate Professor
Dept. of Maths O.U

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
BOARD OF STUDIES
Academic Year – 2018-19
Minutes of BOS Meeting

BOS meeting of the Department of Mathematics was held on 20/8/2018, Wednesday at 2:00PM

The following members were present

Dr.M. Rangamma	-	University Nominee
Smt. P. Lavanya	-	Chairperson
Dr. C. Goverdhan	-	Member
Smt.. B. Ramani	-	Member
Mr. Y. Raghunath	-	Member
Smt. K. Chaitanya	-	Member

[handwritten signatures and stamp] M. Ran 20-8-2018 CHAIRMAN Board of Studies in Computer Sc Dept. of Mathematics Osmania University, Hy
Associate Professor Dept of Maths O.U

3.1 Welcome address by the chair
The chair welcomed the University Nominee, Chairperson BOS, O.U Department of Mathematics and Members of B.O.S.

3.2 Previous Meeting details
The CBCS system has been introduced by Osmania University from 2016-17.The Theory and practical syllabus of I & II and III & IV semester, question paper pattern for theory and practical, internal assessment pattern, practical examination scheme and panel of examiners were discussed and approved by all the BOS Members in previous BOS meeting.

3.3 Details of choice based credit system.
Members were informed that TSCHE has referred that from the academic year 2016-17 autonomous institutions have to follow CBCS i.e. From the Academic Year 2016-17 Osmania University has instructed all the Degree colleges including Autonomous Degree colleges to follow CBCS under which after passing the exam student will get the Grade in the Final Result. 3 Credits are given for theory paper and 1 credit is given for practical in each semester.

3.4 Discussion and Distribution of Common Core Syllabus for Semester V & VI

    (i)   Members were informed by the chair that Department of Computer Science, Hindi Mahavidyalaya is following common core syllabus prescribed by Osmania University for Semester V & VI.

    (ii)   The syllabus comprises of 3 units each of core and elective. There are two electives (A & B) for each semester from which any one elective can be chosen.

- Syllabus copy for both the semesters are enclosed.
- Syllabus was approved by the Member of BOS.

3.5 Marks allotted for Internal and End Semester exams.

1. Internal assessment is of 15 marks .In each Semester two internal assessment of 15 Marks will be conducted and an average of both the internal assessments will be added in the marks of Theory exam. (No assignment for 3 credit core).
2. Theory Question paper is of 60 marks.
3. Total allotted marks are 75 for each theory paper DSC / DSE (A&B).
4. Only one internal assessment of 10 Marks will be conducted for SEC & GE and is added to the marks of theory exam.
5. Theory Question paper for SEC & GE is of 40 marks.
6. Total allotted marks are 50 for each SEC & GE.

The distribution of marks was approved by the Member of BOS.

3.5.1 Discussion on Pattern and Model Paper of Semester Exam, SEC 3 & 4, GE 1 &2 and Model Paper of Internal Exam

1. It was informed by the department that as per Osmania University CBCS guidelines there is no assignment for 3 credits core and elective papers. In each Semester Two Internal exams will be conducted for 15 marks. The internal assessment will have three sections.

   Section– A   10 Multiple choice questions, each carries ½ marks (10X½ = 5M)
   Section– B   10 Fill in the blanks, each carries ½ marks (10X ½ = 5M) and
   Section– C   05 short notes, each 1mark (5X1=5)

   Average of marks of these two internal exams will be taken.

2. Semester exam will be conducted as per the Almanac which will be provided by the exam branch. Internal exam duration will be 30 Minutes and Semester exam duration will be of 3 hrs.

3. Model Question paper for Semester V and Semester VI was discussed. Theory paper for each Semester will have 2 sections.
   (i) Section A contains 8 short Questions. The student has to answer any five questions. Each Question carries 3 Marks (5X3=15 Marks).
   (ii) Section B contains 3 Essay type Questions with internal choice. Each Question carries 15 Marks (3X15=45 Marks).

4. Model Question paper for SEC & GE Semester V and Semester VI was discussed. Theory paper for each SEC & GE will have 2 sections.
   (i) Section A contains 2 short Questions. The student has to answer TWO questions. Each Question carries 5 Marks (2X5=10 Marks).
   (ii) Section B contains 2 Essay type Questions with internal choice. Each Question carries 15 Marks (2X15=30 Marks)

- Pattern of Model Theory Question Papers for DSC (V &VII), DSE (VI E& VIII F), and SEC Paper 3 and 4 & GE 1 and 2 papers are enclosed.

- Pattern of Model Theory Question Papers for DSC, DSE, GE & SEC was approved by Members of BOS.

3.7 Discussion on Practical Exam Model paper.
It was decided in BOS meeting that 50 Marks Practical Exam of 2 hrs will be held in each Semester and 1 credit will be given for Practical in each Semester.

The Practical model paper of Sem III & IV, Sem V(Paper V & VI) and Sem VI(Paper VII & VIII) was approved by the Member of BOS.

3.8 Panel of Examiners
The panel of examiners was approved by the members. List is enclosed.

3.9 Any other matter.
1. It is resolved to follow that the practical examinations held for B.Sc. II Years from the academic year 2018-19 onwards will have the pattern of 25 marks scheme and the credits will remain the same i.e. 1 credit. The duration of the exam will be 2 hours.

3.10 Vote of Thanks

Meeting concluded with the Vote of Thanks by Smt. P.Lavanya.

M. Ron 20-8-2018

Chairperson　　　**University Nominee**　　　**Members**　　　**Principal**

CHAIRMAN
Board of Studies in Computer Science 1.
Dept. of Mathematics
Osmania University, Hyd.

2. Associate Professor
Dept of Maths O.U

3.

HINDI MAHAVIDYALAYA
(AUTONOMOUS)
Affiliated to Osmania University
Nallakunta, Hyderabad-44
2018-19 CBCS STRUCTURE

B.SC. (MPCs/MSCs.)

Code	Course Title	Course Type	HPW	Credits	Semester End exam Duration in HRS	Semester End exam Marks	Continuous Internal Evaluation Exam Duration	Continuous Internal Evaluation Marks	Total	Practical 3 HRS
THIRD YEAR SEMESTER-V										
BS501	Information Technology - 1	GE-1	2 T	2	2	40	30 min	10	50	-
BS502	E : Python - 1 F :Computer Organization	SEC-3	2	2	2	40	30 min	10	50	-
BS503	Mathematics - V	DSC-1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS504	Physics / Statistics - V	DSC-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS505	Computer Science - V Programming in Java	DSC-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS506	Mathematics -VI	DSE- 1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS507	Physics / Statistics - VI	DSE-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS508	Computer Science - VI A - Operating System ✓ B - Software Engineering	DSE-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		400		100	800	

B.SC. (MPCs/MSCs)

Code	Course Title	Course Type	HPW	Credits	Semester End exam Duration in HRS	Semester End exam Marks	Continuous Internal Exam Duration	Continuous Internal Marks	Total	Practical 3 HRS
THIRD YEAR SEMESTER-VI										
BS601	Information Technology - 2	GE-2	2 T	2	2	40	30 min	10	50	-
BS602	G: Python - 2 ✓ H : Information Security	SEC-4	2	2	2	40	30 min	10	50	-
BS603	Mathematics - VII	DSC-1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS604	Physics / Statistics - VII	DSC-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS605	Computer Science - VII Computer Networks	DSC-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS606	Mathematics -VIII	DSE- 1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS607	Physics / Statistics - VIII	DSE-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS608	Computer Science - VIII A - PHP with MySQL B -Web Technology	DSE-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		400		100	800	
	TOTAL Credits			166						

M. Ran—— 28-8-2018

Chairperson

University Nominee

CHAIRMAN 1
Board of Studies in Computer Science
Dept. of Mathematics
Osmania University, Hyd.

Members

Principal
Associate Professor
Dept of Maths O.U

2018 - CSVI - DS
2018 - CS VIII - WT

HINDI MAHAVIDYALAYA
(AUTONOMOUS)
Affiliated to Osmania University
Nallakunta, Hyderabad-44
2018-19 CBCS STRUCTURE

B.SC. (MPCs/MSCs.)

THIRD YEAR SEMESTER-V

Code	Course Title	Course Type	HPW	Credits	Semester End exam Duration in HRS	Semester End exam Marks	Continuous Internal Evaluation Exam Duration	Continuous Internal Evaluation Marks	Total	Practical 3 HRS
BS501	Information Technology - 1	GE-1	2 T	2	2	40	30 min	10	50	-
BS502	E : Python - 1 F :Computer Organization	SEC-3	2	2	2	40	30 min	10	50	-
BS503	Mathematics - V	DSC-1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS504	Physics / Statistics - V	DSC-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS505	Computer Science - V Programming in Java	DSC-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS506	Mathematics -VI	DSE- 1E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS507	Physics / Statistics - VI	DSE-2E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS508	Computer Science - VI A - Operating System B - Software Engineering	DSE-3E	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
			34	28		400		100	800	

B.SC. (MPCs/MSCs)

THIRD YEAR SEMESTER-VI

Code	Course Title	Course Type	HPW	Credits	Semester End exam Duration in HRS	Semester End exam Marks	Continuous Internal Exam Duration	Continuous Internal Marks	Total	Practical 3 HRS
BS601	Information Technology - 2	GE-2	2 T	2	2	40	30 min	10	50	-
BS602	G: Python - 2 H : Information Security	SEC-4	2	2	2	40	30 min	10	50	-
BS603	Mathematics - VII	DSC-1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS604	Physics / Statistics - VII	DSC-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS605	Computer Science - VII Computer Networks	DSC-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS606	Mathematics -VIII	DSE- 1F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS607	Physics / Statistics - VIII	DSE-2F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
BS608	Computer Science - VIII A - PHP with MySQL B -Web Technology	DSE-3F	3 T + 2P = 5	3+1=4	3	60	30 min	15	75	50
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M. Ram
30-8-2018
University Nominee
CHAIRMAN
Board of Studies in Computer Science
Dept. of Mathematics
Osmania University, Hyd.

Chairperson

Members

Principal
Associate Professor
Dept of Maths O.U

2018 - CS VI - OS
2018 - CS VIII - WT

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
SEMESTER V
GENERIC ELECTIVE (GE) COURSE - I

INFORMATION TECHNOLOGIES-1

Code: BS501   **30 Hrs**

HPW: 2T   **Credits: 2**

Objective: To get an exposure of Information Technology.
To develop detailed knowledge of Computers Components, Hardware, Software.

Outcome :
  ➢ Knowledge of Computer Peripherals, Input, Output, Memory Devices.
  ➢ Knowledge of Operating System & its functions.

Unit – I

Introduction to Computers: What is a Computer? Characteristics of Computers, Generations of Computers, Classification of Computers, Basic Computer Organization, Applications of Computers.

Input and Output Devices: Input Devices, Output Devices, Soft Copy Devices, Hard Copy Devices.

Computer Memory and Processors: introduction, Memory Hierarchy, Processor Registers, Cache Memory, Primary Memory, Secondary Storage Devices, Hard Disks, Optical Drives, USB Flash Drives, Memory Cards.

Unit – II

Computer Software: Introduction, Classification of Computer Software, System Software, Applications Software, Firmware, Middleware, Acquiring Computer Software.

Operating Systems: Introduction, Evolution of OS, Process Management, Memory Management, File Management, Device Management, Security Management, Command Interpreter, Windows, Linux.

Text   Reema Thareja, *Fundamentals of Computers*

Reference   P. K. sinha, *Computer Fundamentals*

Anita Goel, *Computer Fundamentals*

V. Rajaraman, *Fundamentals of Computers*

E. Balagurusamy, *Fundamentals of Computers*

J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

M. Ram 30-8-201 ᵍ

Chairperson   University Nominee   Members   **Principal**

CHAIRMAN   1.

Board of Studies in Computer Science   Associate Professor

Dept. of Mathematics   Dept of Maths O.U

Osmania University, Hyd. **2.**

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
SEMESTER V
GENERIC ELECTIVE (GE) COURSE - I

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M. Ron 30-8-2018

Chairperson   University Nominee   Members   Principal

CHAIRMAN   1.

Board of Studies in Computer Science   Associate Professor

Dept. of Mathematics   Dept of Matns O.U

Osmania University, Hyd. 2.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC. COMPUTER SCIENCE III YEAR
SEMESTER - V
SKILL ENHANCEMENT COURSE- 3(E)
PYTHON-1

Code: BS502
HPW: 2T

30 Hrs
Credits: 2

OBJECTIVES
1. Upon the successful completion of this course, the student will be able to:
2. Install and run the Python interpreter
3. Create and execute Python programs *

Course Outcomes:
1. Implement a given algorithm as a computer program (in Python)
2. adapt and combine standard algorithms to solve a given problem (includes numerical as well as non-numerical algorithms)
3. adequately use standard programming constructs: repetition, selection, functions, composition, modules, aggregated data (arrays, lists, etc.)

Unit – I
Introduction to Python: Python, Features of Python, Execution of a Python Program, Viewing the Byte Code, Flavors of Python, Python Virtual Machine, Frozen Binaries, Memory Management in Python, Garbage Collection in Python, Comparisons between C and Python, Comparisons between Java and Python.

Writing Our First Python Program: Installing Python for Windows, Installing numpy, Setting the Path to Python, Writing Our First Python Program, Executing a Python Program, Getting Help in Python, Getting Python Documentation Help, Reopening the Python Program in IDLE.

Data types in Python: Comments in Python, Doc strings, How Python Sees Variables, Data types in Python, Built-in data types, bool Data type, Sequences in Python, Sets, Literals in Python, Determining the Data type of a Variable, What about Characters, User-defined Data types, Constants in Python, Identifiers and Reserved words, Naming Conventions in Python.

Unit – II
Operators in Python: Arithmetic Operators, Assignment Operators, Unary Minus Operator, Relational Operators, Logical Operators, Boolean Operators, Bitwise Operators, Membership Operators, Identity Operators, Operator Precedence and Associativity, Mathematical Functions.Input and Output: Output statements, Input Statements, Command Line Arguments.

Control Statements: Control Statements, The if Statement, A Word on Indentation, The if ... else Statement, The if ... elif ... else Statement, The while Loop, The for Loop, Infinite Loops, Nested Loops, The else Suite, The break Statement, The continue Statement, The pass Statement, The assert Statement, The return Statement.

Text   R. Nageswara Rao, *Core Python Programming*, Dreamtech Press

Reference   Mark Lutz, *Learning Python*
Tony Gaddis, *Starting Out With Python*
Kenneth A. Lambert, *Fundamentals of Python*
James Payne, *Beginning Python using Python 2.6 and Python 3*
Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

Chairperson   University Nominee   Members   Principal

CHAIRMAN

Board of Studies in Computer Science   Associate Professor
Dept. of Mathematics   Dept. of Maths O.U

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC. COMPUTER SCIENCE III YEAR
SEMESTER - V
SKILL ENHANCEMENT COURSE- 3(E)
PYTHON-1

Code: BS502   **30 Hrs**

HPW: 2T   **Credits: 2**

OBJECTIVES
1. Upon the successful completion of this course, the student will be able to:
2. Install and run the Python interpreter
3. Create and execute Python programs •

Course Outcomes:
1. Implement a given algorithm as a computer program (in Python)
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Introduction to Python: Python, Features of Python, Execution of a Python Program, Viewing the Byte Code, Flavors of Python, Python Virtual Machine, Frozen Binaries, Memory Management in Python, Garbage Collection in Python, Comparisons between C and Python, Comparisons between Java and Python.

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Data types in Python: Comments in Python, Doc strings, How Python Sees Variables, Data types in Python, Built-in data types, bool Data type, Sequences in Python, Sets, Literals in Python, Determining the Data type of a Variable, What about Characters, User-defined Data types, Constants in Python, Identifiers and Reserved words, Naming Conventions in Python.

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Control Statements: Control Statements, The if Statement, A Word on Indentation, The if ... else Statement, The if ... elif ... else Statement, The while Loop, The for Loop, Infinite Loops, Nested Loops, The else Suite, The break Statement, The continue Statement, The pass Statement, The assert Statement, The return Statement.

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Reference	Mark Lutz, *Learning Python*
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	Kenneth A. Lambert, *Fundamentals of Python*
	James Payne, *Beginning Python using Python 2.6 and Python 3*
	Paul Gries, *Practical Programming: An Introduction to Computer Science using Python 3*

M. Ra—— 20-8-2018

Chairperson   **University Nominee**   **Members**   **Principal**
                    CHAIRMAN   1.

Board of Studies in Computer Science   Associate Professor
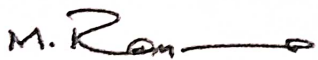   Dept. of Mathematics   2.   Dept of Maths O.U
          Osmania University, Hyd.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER V
SEC-3E
Python-I
PRACTICAL

Code: BS502

(1) Using the Operating system (logging, creating – deleting folders, creating-deleting files, using editors etc.)

(2) Installing python and setting up environment. Simple statements like printing the names, numbers, mathematical calculations,etc.

(3) Simple programs containing variable declaration and arithmetic operations

(4) Programs based on conditional constructs

(5) Programs based on loops

M. R̶o̶m̶

Chairperson

University Nominee
CHAIRMAN
Board of Studies in Computer Science
Dept. of Mathematics
Osmania University, Hyd.

Members
1.
2.
3.

Principal

Associate Professor
Dept of Maths O.U

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC. COMPUTER SCIENCE III YEAR
SEMESTER – V
SKILL ENHANCEMENT COURSE- 3(F)

COMPUTER ORGANIZATION

Code: BS502   **30 Hrs**

HPW: 2T   **Credits: 2**

Objective:

Unit – I

Latches and Flip-Flops: Introduction, Set-Reset Latch, Gated Latches, Edge-Triggered D Flip-Flop, S-R Flip-Flop, J-K Flip-Flop, T Flip-Flop, Flip-Flops with Additional Inputs, Asynchronous Sequential Circuits. Registers and Counters: Registers and Register Transfers, Shift Registers, Design of Binary Counters, Counter Design Using D Flip-Flops, Counter Design Using S-R and J-K Flip-Flops, Derivation of Flip-Flop Input Equations.

Unit – II

Sequential Circuit Design: Design Example—Code Converter, Design of Iterative Circuits, Design of Sequential Circuits Using ROMs and PLAs, Simulation and Testing of Sequential Circuits, Computer-Aided Design. Circuits for Arithmetic Operations: Serial Adder with Accumulator, Design of a Binary Multiplier, Design of a Binary Divider.

Text	Charles H. Roth, Jr. and Larry L. Kinney, *Fundamentals of Logic Design (7e)*
	M. Morris Mano, Michael D. Ciletti, *Digital Design (4e)*
Reference s	A. Saha and N. Manna, *Digital Principles and Logic Design*
	M. Rafiquzzaman, *Fundamentals of Digital Logic and Microcontrollers (6e)*
	Elliott Mendelson, *Theory and Problems of Boolean Algebra and Switching Circuit*
	M. Morris Mano, Charles R. Kime, Tom Martin, *Logic and Computer Design Fundamentals*

M. Ron
20-8-2018

Chairperson   University Nominee   **Members**   **Principal**
                         CHAIRMAN   1.
                         Board of Studies in Computer Science
                         Dept. of Mathematics   Associate Professor
                         Osmania University, Hyd. 2.   Dept of Maths O.U

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER V
PAPER-V
PROGRAMMING IN JAVA

Code: BS505

HPW: 3T+2P

DSC- 1E/A

Credits: 3T+1P

45hrs

OBJECTIVE: Be able to use the JDK environment to create, debug and run simple java programs. To learn the essentials of java class libraries.

Outcome :

 ➢ Knowledge of the structure and model of the Java programming language, (knowledge)
 ➢ use the Java programming language for various programming technologies (understanding)

Unit – I

Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Type Conversion, Casting, Conditional Statements, Loops, Branching Mechanism, Classes, Objects, Class Declaration, Creating Objects, Method Declaration and Invocation, Method Overloading, Constructors– Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects, Class Variables & Methods-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class.

Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keywords, Abstract classes, Interfaces, Abstract Classes Verses Interfaces.

Unit – II

Packages–Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception.

Multithreading: Introduction, Main Thread, Creation of New Threads – By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority, Synchronization.

Input/Output: Introduction, java.io Package, File Class, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

Unit – III

Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output.

Event Handling: Introduction, Types of Events, Example. AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts. Swing: Introduction, Differences between Swing and AWT, Jframe, Japplet, Jpanel, Components in Swings, Layout Managers, Jtable, Dialog Box.

Database Handling Using JDBC: Introduction, Types of JDBC Drivers, Load the Driver, Establish Connection, Create Statement, Execute Query, Iterate Resultset, Scrollable Resultset, Developing a JDBS Application.

Text	Sachin Malhotra, Saurabh Choudhary, *Programming in Java (2e)* Bruce Eckel, *Thinking in Java (4e)*
References	Herbert Schildt, *Java: The Complete Reference (9e)* Y. Daniel Liang, *Introduction to Java Programming (10e)* Paul Deitel, Harvey Deitel, *Java: How To Program (10e)* Cay S. Horsttnann, *Core Java Volume I – Fundamentals (10e)* C. Thomas Wu, *An introduction to object-oriented programming with Java (5e)* Tony Gaddis, *Starting Out with Java From Control Structures Through Objects (6e)* Jeanne Boyarsky, Scott Selikoff, *OCA: Oracle Certified Associate Java SE 8 Programmer–I Study Guide*

M. Zan

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(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER V
PAPER-V
PRACTICAL

Code: BS505P   **30 h (2h/w)**
HPW: 2   **Credits:1**

JAVA LAB

Write java programs to find the following
1. a) largest of given three numbers b) reverses the digits of a number
   c) given number is prime or not d) GCD of given two integers

Write java programs that implement the following
2.

   a) default constructor b) parameterized constructor c) constructor overloading

3. a) Write a java program to find the smallest of given list integers using array and scanner class.

   b) Write a java program for multiplication of two matrices.

4. a) Write a java program for demonstrating an inner classes or nested classes.
   b) Write a java program to implement method overloading, method overriding, dynamic method dispatch

5. Write a java program to implement single, multilevel, hierarchal, multiple, hybrid inheritances.

6. Write java programs that demonstrate the use of abstract, this, super, static, final keyword

7. a) Write a java program for creating a package and using a package.
   b) Write a java program to demonstrate the use of wrapper classes.

8. a) Write a java program using all five keywords of exception handling mechanism.
   b) Write a java program for creating customized (user) exception

9. a) Write a java program that checks whether a given string is a palindrome or not.
   b) Write a java program for sorting a given list of names in ascending order.

10. a) Write a java program to create a file, write the data and display the data.
    b) Write a java program that reads a file name from user and displays its information.

11. a) Write a java program for controlling main thread.
    b) Write a java program for creating new thread by extending Thread class.

12. a) Write a java program for creating new thread by implementing Runnable interface.
    b) Write a java program for thread synchronization.

13. a) Write a java program to create following AWT components: Button, Checkbox, Choice, and List.
    b) Write java programs to create AWT application using containers and layouts.

14. a) Write java programs to create a simple Applet and create swing based Applet.
    b) Write a java program to handle different types of events in a swing application

15 Write java programs to create a swing application using swing components and layouts.
16 Write a java program to store and retrieve data from database using JDBC.

Note

Write the program using simple text editors (not IDE), compile and run from command prompt.

Encourage students to develop small java applications using IDE, like giving as assignment.
Write a small java application using some features of java.

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER V
PAPER-VI
OPERATING SYSTEMS

Code: BS508
HPW: 3T+2P

DSE- 1E/A
Credits: 3T+1P
45hrs

Objectives: To learn about the operating system functions, design and implementation. It serves as strong foundation for other courses like networks, compiler design, data base systems.

Outcomes:

- Understand the basics of operating systems like kernel, shell, types and views of operating systems various CPU scheduling algorithms and remove deadlocks.
- Explain various memory management techniques and concept of thrashing
- Use disk management and disk scheduling algorithms for better utilization of external memory.
- Recognize file system interface, protection and security mechanisms.
- Explain the various features of distributed OS like Unix, Linux, windows etc

Unit – I

Introduction: Computer-System Architecture, Computing Environments. Operating-System Structures: Operating-System Services, User Interface for Operating-System, System Calls, Types of System Calls, Operating System Structure.

Process Management: Process Concept, Process Scheduling, Operations on Processes, Inter process Communication, Examples–Producer-Consumer Problem.
Process Synchronization: Critical-Section Problem, Peterson's Solution, Synchronization, Semaphores, Monitors.

Unit – II

CPU Scheduling: Concepts, Scheduling Criteria, Scheduling Algorithms.
Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock.

Unit – III

Main Memory: Introduction, Swapping, Contiguous Memory Allocation, Segmentation, Paging.
Virtual Memory: Introduction, Demand Paging, Page Replacement, Allocation of Frames, Thrashing.
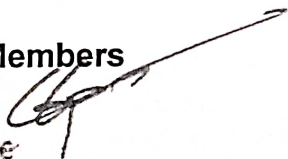Mass-Storage Structure: Overview, Disk Scheduling, RAID Structure.
File Systems: File Concept, Access Methods, Directory and Disk Structure, File-System Mounting, Protection.
File System Implementation, Directory Implementation, Allocation Methods, Free-Space Management.

Text   Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, *Operating System Concepts* (9e)

Reference s   Naresh Chauhan, *Principles of Operating Systems*
Thomas W. Doeppner, *Operating Systems in Depth*
Andrew S. Tanenbaum, *Modern Operating Systems*
William Stallings, *Operating Systems – Internals and Design Principles*
Dhananjay M. Dhandhere, *Operating Systems – A Concept Based Approach*

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SEMESTER V
PAPER-VI
OPERATING SYSTEMS LAB
PRACTICAL

Code: BS508P

HPW: 2

30 h (2h/w)

Credits: 1

1   a) Use vi editor to create different files, writing data into files, modifying data in files.

  b) Use different types of Unix commands on the files created in first program.

2   Write shell programs using 'case', 'then' and 'if' & 'else' statements.

3   Write shell programs using while, do-while and for loop statements.

4
  a) Write a shell script that accepts two integers as its arguments and computers the value of first number raised to the power of the second number.
  b) Write a shell script that takes a command –line argument and reports on whether it is directory, a file, or something else.

5
  a) Write a shell script that accepts a file name, starting and ending line numbers as arguments and displays all the lines between the given line numbers..
  b) Write a shell script that deletes all lines containing a specified word in one or more files supplied as arguments to it.

6
  a) Write a shell script that displays a list of all the files in the current directory to which the user has read, write and execute permissions.
  b) Develop an interactive script that ask for a word and a file name and then tells how many times that word occurred in the file.

7   Write a program that simulate the following Unix commands like ls, mv, cp.

8   Write a program to convert upper case to lower case letters of a given ASCII file.

9   Write a program to program to search the given pattern in a file.

10   Write a program to demonstrate FCFS process schedules on the given data.

11   Write a program to demonstrate SJF process schedules on the given data.

12   Write a program to demonstrate Priority Scheduling on the given burst time and arrival times.

13   Write a program to demonstrate Round Robin Scheduling on the given burst time and arrival times.

14   Write a program to implementing Producer and Consumer problem using Semaphores.

15   Write a program to simulate FIFO, LRU, LFU Page replacement algorithms.

16   Write a program to simulate Sequential, Indexed, and Linked file allocation strategies.

Note
  Recommended to use Open Source Software like Fedora, Ubuntu, CentOS, etc...

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SEMESTER V
PAPER-VI
SOFTWARE ENGINEERING

Code: BS508
HPW: 3T+2P

DSE- 2E/B
Credits: 3T+1P
45hrs

Course Obvjectives :

1. To help students to develop skills that will enable them to construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain
2. To foster an understanding of why these skills are important

Unit – I

Software Engineering – Introduction, Program Versus Software, Software Engineering, Software Development Process and its Stages, Generic Software Development Process Models, Code of Ethics and Professional Practice, Software Development and Maintenance Cost Breakup.

Requirement Engineering Processes – Requirement Engineering Process, Feasibility Study, Cost and Benefit Analysis, Requirement Specification, Characteristics of a Good Requirement and Validation Techniques, Requirements Management Planning, Process of Requirement Change Management.

Software Requirement Specifications – Introduction, Stakeholder Analysis, Software Requirements Document, IEEE Standard of Software Requirement Specifications, Organizing Functional Requirements, Traceability and Validation of Specifications.

Unit – II

Architectural Styles – Introduction, Architecture Styles, Object Oriented Architecture, Inter-organizational Communication, Cloud Computing Architecture Style, Core, Configurable and Customizable Architecture, Design Models, Architectural Design Principles.

Object Oriented System Analysis – Introduction, Object Oriented Design, Object Oriented Design Models, Object Oriented Analysis, Data Modeling, Comparison Between Top Down Structured and Object Oriented Analysis, Description of Logical and Static Modeling, Identification of Class Relationships.

Object Oriented Design Using UML – Introduction, Sequence Diagram, State Machine Diagram, Timing Diagram, Describing Detailed Object Oriented Design, Decision Tree and Decision Table, Composite Structure Diagram, Generating Test Cases, Moving Towards Physical Design, Structured Methods.

Unit – III

Software Development – Introduction, Good Coding Practices, Code Reuse, Design Pattern, Generator Based Reuse, Application/Software Developed on Product Lines Approach, Component Based Software Engineering, Agile Methods.

Verification, Validation and Software Testing – Introduction, Software Verification and Validation Process, Software Testing, System Testing, Object Oriented Testing Strategy, Test Cases, Equivalence Partitioning (Black Box Testing), Art of Debugging.

Measurement and Metrics for Assessing Software Quality – Introduction, ISO 9126 Quality Standards, Quality Management Models, Ways to Build Quality in Software, Software Quality Control and Metrics, Defect Density Metrics, Chidamber and Kemerer Metric Suites for Object Oriented System, Class Coupling Metric-Coupling Between Objects, Monitoring Dynamic Quality Attributes (Visible Externally) of a Software.

Text Reference

Rajesh Narang, *Software Engineering: Principles and Practices*
Ian Sommerville, *Software Engineering*
R. Mall, *Fundamentals of Software Engineering*
Pankaj Jalote, An Integrated *Approach to Software Engineering*

Frank Tsui, Orlando Karam, Barbara Bernal, *Essentials of Software Engineering* Roger S Pressman, B R Maxim, *Software Engineering – A Practitioner's Approach* Grady Booch, *The Unified Modeling Language User Guide*

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER V
PAPER-VI
SOFTWARE ENGINEERING LAB
PRACTICAL

Code: BS508P

HPW: 2

30 h (2h/w)

Credits: 1

Case Studies:
1. Banking System
2. Hotel management system
3. Inventory Control System
4. Library management system
5. Railway Reservation System

Choose any two of above case studies and do the following exercises for that case studies
1. Write the complete problem statement
2. Write the software requirements specification document
3. Draw the entity relationship diagram
4. Draw the data flow diagrams
5. Draw use case diagrams
6. Draw activity diagrams for all use cases
7. Draw sequence diagrams for all use cases
8. Draw collaboration diagram
9. Assign objects in sequence diagrams to classes and make class diagram.

Note

:

To draw dataflow diagrams using Microsoft Visio Software, SmartDraw, etc...

To draw UML diagrams using Rational Rose Software, StarUML, etc...

The teacher should define the boundaries for the above case study problems and make the practice of problems mentioned.

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
GENERIC ELECTIVE (GE) COURSE - 2

INFORMATION TECHNOLOGIES - 2

BA, Bt&BC - 4E

Code: BS601
HPW: 2T

30 Hrs
Credits: 2

Objective:

Unit – I

Introduction to Algorithms and Programming Languages: Algorithm, Control Structures, Flowcharts, Pseudo code, Programming Languages, Generations of Programming Languages.
Database Systems: File Oriented Approach, Database Oriented Approach, Database Views, Three-Schema Architecture, Database Models, Components of DBMS, Introduction of SQL Queries.

Unit – II

Computer Networks: Introduction, Connection Media, Data Transmission Mode, Data Multiplexing, Data Switching, Network Topologies, Types of Networks, Networking Devices, OSI Model. The Internet: Internet Services, Types of Internet Connections, Internet Security.

Emerging Computer Technologies: Distributed Networking, Peer-to-peer Computing, Grid Computing, Cloud Computing, Utility Computing, On0demand Computing, Wireless Network, Bluetooth, Artificial Intelligence.

Text	Reema Thareja, *Fundamentals of Computers*
References	P. K. sinha, *Computer Fundamentals*
	Anita Goel, *Computer Fundamentals*
	V. Rajaraman, *Fundamentals of Computers*
	E. Balagurusamy, *Fundamentals of Computers*
	J. Glenn Brookshear, Dennis Brylow, *Computer Science An Overview*

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PYTHON-2 ✓ SEC

Code: BS602

HPW: 2T

30 Hrs

Credits: 2

Objective: COURSE OBJECTIVES

1. Upon the successful completion of this course, the student will be able to:
2. Understand the concepts of file I/O
3. Be able to read data from a text file using Python
4. Plot data using appropriate Python visualization libraries

Course Outcomes:

➢ Adapt and combine standard algorithms to solve a given problem Adequately use standard programming constructs: repetition, selection, functions, composition, modules, aggregated data explain what a given program (in Python) does

➢ identify and repair coding errors in a program

Unit – I

Arrays in Python: Array, Advantages of Arrays, Creating an Array, Importing the Array Module, Indexing and Slicing on Arrays, Processing the Arrays, Types of Arrays, Working with Arrays using numpy, Creating Arrays using array(), line space, log space, arange(), zeros() and ones() Functions, Mathematical Operations on Arrays, Comparing Arrays, Aliasing the Arrays, Viewing and Copying Arrays, Slicing and Indexing in numpy Arrays, Dimensions of Arrays, Attributes of an Array, The reshape() Method, The flatten() Method, Working with Multi-dimensional Arrays, Indexing in Multi-dimensional Arrays, Slicing the Multi-dimensional Arrays, Matrices in numpy, Getting Diagonal Elements of a Matrix, Finding Maximum and Minimum Elements, Finding Sum and Average of Elements, Products of Elements, Sorting the Matrix, Transpose of a Matrix, Matrix Addition and Multiplication, Random Numbers.

Strings and Characters: Creating Strings, Length of a String, Indexing in Strings, Slicing the Strings, Repeating the Strings, Concatenation of Strings, Checking Membership, Comparing Strings, Removing Spaces from a String, Finding Sub Strings, Counting Substrings in a String, Strings are Immutable, Replacing a String with another String, Splitting and Joining Strings, Changing Case of a String, Checking Starting and Ending of a String, String Testing Methods, Formatting the Strings, Working with Characters, Sorting Strings, Searching in the Strings, Finding Number of Characters and Words, Inserting Sub String into a String.

Unit – II

Functions: Difference between a Function and a Method, Defining a Function, Calling a Function, Returning Results from a Function, Returning Multiple Values from a Function, Functions are First Class Objects, Pass by Object Reference, Formal and Actual Arguments, Positional Arguments, Keyword Arguments, Default Arguments, Variable Length Arguments, Local and Global Variables, The Global Keyword, Passing a Group of Elements to a Function, Recursive Functions, Anonymous Functions or Lambdas, Function Decorators, Generators, Structured Programming, Creating our Own Modules in Python, The Special Variable name.

Lists and Tuples: List, Creating Lists using range() Function, Updating the Elements of a List, Concatenation of Two Lists, Repetition of Lists, Membership in Lists, Aliasing and Cloning Lists, Methods to Process Lists, Finding Biggest and Smallest Elements in a List, Sorting the List Elements, Number of Occurrences of an Element in the List, Finding Common Elements in Two Lists, Storing Different Types of Data in a List, Nested Lists, Nested Lists as Matrices, List Comprehensions, Tuples, Creating Tuples, Accessing the Tuple Elements, Basic Operations on Tuples, Functions to Process Tuples, Nested Tuples, Inserting Elements in a Tuple, Modifying Elements of a Tuple, Deleting Elements from a Tuple.

Dictionaries: Operations on Dictionaries, Dictionary Methods, Using for Loop with Dictionaries, Sorting the Elements of a Dictionary using Lambdas, Converting Lists into Dictionary, Converting Strings into Dictionary, Passing Dictionaries to Functions, Ordered Dictionaries.

Text

Reference s

R. Nageswara Rao, *Corer Python Programming,* Dreamtech Press
Mark Lutz, *Learning Python*
Tony Gaddis, *Starting Out With Python*
enneth A. Lambert, *Fundamentals of Python*
James Payne, *Beginning Python using Python 2.6 and Python 3*
Paul Gries,*Practical Programming: An Introduction to Computer Science using Python 3*

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
SEC-3G
Python-2
PRACTICAL

Code: BS602

1. Programs related to string manipulation
2. Programs related to Lists, Tuples
3. Programs related to dictionaries
4. Programs related to functions &modules
5. Programs to read & write file.
6. Program to demonstrate exception handling
7. Program to demonstrate the use of regular expressions
8. Program to draw shapes
9. Program to show GUI controls and processing-I
10. Program to show GUI controls and processing-II
11. Program to show database connectivity
12. Programs to do searching and sorting

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B.SC III YR COMPUTER SCIENCE
SEMESTER – VI
SKILL ENHANCEMENT COURSE- 4 (H)
INFORMATION SECURITY

Code: BS602

HPW: 2T

30 Hrs

Credits: 2

Objective: To have knowledge of various Information Threats, and to understand need for information security.

Unit – I

Introduction to Information Security – Need for Information Security, Threats to Information Systems, Information Assurance, Cyber Security.

Introduction to Application Security and Counter Measures – Introduction to Application Security, Data Security Considerations, Security Technologies, Security Threats, Security Threats to E-Commerce, E-Cash and Electronic Payment System.

Unit – II

Credit/Debit/Smart Cards, Digital Signature, Cryptography and Encryption, Information Security Governance and Risk Management.

Introduction to Security Policies and Cyber Laws – Need for an Information Security Policy, Introduction to Indian Cyber Law, Objective and Scope of the IT Act, 2000, Intellectual Property Issues, Overview of Intellectual-Property- Related Legislation in India, Patent, Copyright.

Text	Dr. Surya Prakash T, Ritendra G, Praveen Kumar S, KLSI, *Introduction to information security and cyber laws (Dreamtech Publication)*
References	Anderson, Ross, *Security Engineering*
	G.R.F. Snyder, T. Pardoe, *Network Security*
	Mark Stamp, *Information Security: Principles and Practice*
	A. Basta, W.Halton, *Computer Security: Concepts, Issues and Implementation*
	Mark S. Merkow, Jim Breithaupt, *Information Security: Principles and Practice*

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
PAPER-VII
COMPUTER NETWORKS

2016

Code: BS605
HPW: 3T+2P

DSC-3F
Credits: 3T+1P

45hrs

Course Objectives:
1. At the end of the course, the students will be able to
2. Build an understanding of the fundamental concepts of computer networking.
3. Familiarize the student with the basic taxonomy and terminology of the computer networking area.
4. Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
5. Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

Learning Outcomes: After completing this course the student must demonstrate the knowledge and ability to: Independently understand basic computer network technology.
1. Understand and explain Data Communications System and its components.
2. Identify the different types of network topologies and protocols.
3. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
4. Identify the different types of network devices and their functions within a network
5. Understand and building the skills of subnetting and routing mechanisms.
6. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

Unit – I

Introduction: Data Communication Components, Line Configuration, Topologies, Transmission Mode, Categories of Networks, ISO Reference Model–Layered Architecture, Functions of Layers, TCP/IP Reference Model.

Transmission Media: Guided Media–Twisted Pair Cable, Coaxial Cable, Optical Fiber, Unguided Media– Satellite Communication, and Cellular Telephony.
Multiplexing: Frequency–Division Multiplexing, Time–Division Multiplexing.

Unit – II

Data Link Layer: Error Detection–VRC, LRC, CRC, Checksum, Error Correction–Hamming Code, Burst Error Correction, Line Discipline–ENQ/ACK, Poll/Select, Flow Control–Stop-and-Wait, Sliding Window, Error Control–Stop-and-Wait ARQ, Sliding Window ARQ, Go-Back-n ARQ, Selective-Reject ARQ.

Local Area Networks: Introduction to IEEE 802, Ethernet-CSMA/CD, Implementation, Token Ring,-Token Passing, Implementation.
Switching: Circuit Switching, Packet Switching, Message Switching.

Unit – III

Networking and Internetworking Devices: Repeaters, Bridges, Routers, Gateways, Brouters, Switches, Distance Vector Routing Algorithm, Link State Routing Algorithm. Transport Layer: Duties of Transport Layer, Connection.
Upper OSI Layers: Session Layer, Presentation Layer, Application Layer.

Text	Behrouz A. Forouzan, *Data Communication and Networking (2e Update)*
Reference s	S.S. Shinde, *Computer Networks*
	William Stallings, *Data and Computer Communications*
	Andrew S. Tanenbaum, David J Wetherall, *Computer Networks*
	Behrouz A Forouzan, Firouz Mosharraf, *Computer Networks A Top-Down Approach*
	James F. Kurose, Keith W. Ross, *Computer Networking: A Top-Down Approach Featuring the Internet*

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
PAPER-VII
NETWORKS LAB
PRACTICAL — P_7 – lab

Code: BS605P   30 h (2h/w)
HPW: 2   **Credits: 1**

1. Write a program to create a socket and implement connect function.
2. Write a program to get MAC address.
3. Write a program to display hello world using signals.
4. Write a program for socket pair system call using IPC.
5. Write a program to implement the sliding window protocol.
6. Write a program to identify the category of IP address for a given IP address.
7. Write a program to print details of DNS host.
8. Write a program to implement listener and talker.
9. Write a program to implement TCP echo using client–server program.
10. Write a program to implement UDP echo using client–server program.
11. Write a UDP client–server program to convert lowercase letters to uppercase letters.
12. Write a TCP client–server program to convert a given string into reverse.
13. Write a UDP client–server program to convert a given string into reverse.
14. Write a program to implement TCP iterative client–server program.
15. Write a program to implement time service using TCP client–server program.
16. Write a program to implement time service using UDP client–server program.

Note
   Write above program using C language on Unix/Linux systems.

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SEMESTER VI
PAPER-VIII (A)
PHP with MySQL

no

Code: BS608
HPW: 3T+2P

DSE-1F/A
Credits: 3T+1P

45hrs

Objectives :Understand how server-side programming works on the web.
* Creating conditional structures,Storing data in arrays
* Using PHP built-in functions and creating custom functions
* Understanding POST and GET in form submission.
* How to receive and process form submission data.
* Reading and writing cookies.
* Security tips (i.e. SQL Injection)
* Create a database in php MyAdmin.
* Read and process data in a MySQL database.

Course Outcomes:
web designer, web developer, webmaster, web application developers

Unit – I

Introducing PHP – What is PHP? Why use PHP? Evolution of PHP, Installing PHP, Other ways to run PHP, Creating your first script. PHP Language Basics – Using variables, Understanding Data Types, Operators and Expressions, Constants. Decisions and Loops – Making Decisions, Doing Repetitive Tasks with Looping, Mixing Decisions and Looping with HTML.

Strings – Creating and Accessing Strings, Searching Strings, Replacing Text with Strings, Dealing with Upper and Lowercase, Formatting Strings. Arrays – Creating Arrays, Accessing Array Elements, Looping Through Arrays with for-each, Working with Multidimensional Arrays, Manipulating Arrays.

Unit – II

Functions – What is a Function? Why Functions are useful? Calling Functions, Working with Variable Functions, Writing your own Functions, Working with References, Writing Recursive Functions.

Objects – Introduction OOP Concepts, Creating Classes and Objects in PHP, Creating and using Properties, Working with Methods, Object Overloading with _get(), _set() and _call(), Using Inheritance to Extend Power of Objects, Constructors and Destructors, Automatically Loading Class Files, Storing as Strings.

Handling HTML Forms with PHP – How HTML form works, Capturing Form Data with PHP, Dealing with Multi-Value Fields, Generating Web Forms with PHP, Storing PHP Variables in Forms, Creating File Upload Forms, Redirecting After a Form Submission.

Unit – III

Working with Files and Directories - Getting Information on Files, Opening and Closing Files, Reading and Writing to Files, Copying, Renaming, and Deleting Files, Working with Directories. Introducing Databases and SQL – Deciding How to Store Data, Understanding Relational Databases, Setting Up MySQL, A Quick Play with MySQL, Connecting MySQL from PHP.
Retrieving Data from MySQL with PHP – Setting Up the Book Club Database, Retrieving Data with SELECT, Creating a Member Record Viewer. Manipulating MySQL Data with PHP – Inserting, Updating, and Deleting Records, Building a Member Registration Application.

Text	Matt Doyle, *Beginning PHP 5.3* (Wrox – Wiley Publishing)
References	Ellie Quigley, *PHP and MySQL by Example*
	Joel Murach, Ray Harris, *Murach's PHP and MySQL*
	Brett McLaughlin, *PHP & MySQL: The Missing Manual*
	Luke Welling, Laura Thomson, *PHP and MySQL Web Development*
	W. Jason Gilmore, *Beginning PHP and MySQL From Novice to Professional*
	Andrew Curioso, Ronald Bradford, Patrick Galbraith, *Expert PHP and MySQL*

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HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
PAPER-VIII (A)
PHP with MySQL Lab
PRACTICAL

Code: BS608P

HPW: 2

30 h (2h/w)

Credits: 1

1. a) Write a PHP script to find the factorial of a given number.
    b) Write a PHP script to find the sum of digits of a given number.
2. a) Write a PHP script to find whether the given number is a prime or not.
    b) Write a PHP script to demonstrate the use of break, continue statements using nested loops.
3. a) Write a PHP script to display the Fibonacci sequence with HTML page.
    b) Write a PHP script to create a chess board.
4. a) Write a PHP script using built-in string function like strstr(), strops(), substr_count(), etc...
    b) Write a PHP script to transform a string to uppercase, lowercase letters, make a string's first character uppercase.
5. a) Write a PHP script that inserts a new item in an array in any position.
    b) Write a PHP function to check whether all array values are strings or not.
6. a) Write a PHP script to count number of elements in an array and display a range of array elements.
    b) Write a PHP script to sort a multi-dimensional array set by a specific key.
7. a) Write a PHP script using a function to display the entered string in reverse.
    b) Write a PHP script using function for sorting words in a block of text by length.
8. a) Write a PHP script for creating the Fibonacci sequence with recursive function.
    b) Write a PHP script using pass by value and pass by reference mechanisms in passing arguments to functions.
9. a) Write a PHP script to demonstrate the defining and using object properties.
    b) Write a PHP script to demonstrate the inheritance.
10. a) Write a PHP script to demonstrate the object overloading with _get(), _set(), and _call().
    b) Write a PHP script to demonstrate the overloading property accesses with _get() and _set().
11. a) Write a PHP script to demonstrate the method overloading and method overriding mechanisms.
    b) Write a PHP script to demonstrate the use of final classes and final methods.
12. a) Write a PHP script to demonstrate the use interfaces.
    b) Write a PHP script using constructors and destructors.
13. Write a PHP application to handling HTML forms with PHP script.
14. a) Write a PHP script to create a file, write data into file and display the file's data.
    b) Write a PHP script to check and change file permissions, copying, renaming and deleting files.

15. a) Write a PHP application for connecting to MySQL and reading data from database table.

    b) Write a PHP application for inserting, updating, deleting records in the database table.
16. Write a PHP application for student registration form.

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
PAPER-VIII (B)
WEB TECHNOLOGIES — P_g

Code: BS608
HPW: 3T+2P

DSE-2F/B
Credits: 3T+1P

45hrs

Course Objectives:
Students will be provided with an up-to-date survey of developments in Web Technologies. Enable the students to know techniques involved to support real-time Software development.
Students are able to develop a dynamic webpage by the use of java script and

Course Outcomes:
1. Students will be able to connect a java program to a DBMS and perform insert
2. Students will be able to write a well formed / valid XML document.
3. DHTML. Students will be able to write a server side java application called Servlet to catch
4. update and delete operations on DBMS table. Students will be able to write a server side java application called JSP to catch form
5. form data sent from client, process it and store it on database. data sent from client and store it on database.

Unit – I

Structuring Documents for the Web: Introducing HTML and XHTML, Basic Text Formatting, Presentational Elements, Phrase Elements, Lists, Editing Text, Core Elements and Attributes, Attribute Groups Links and Navigation: Basic Links, Creating Links with the <a> Element, Advanced E- mail Links.

Images, Audio, and Video: Adding Images Using the <img> Element, Using Images as Links Image Maps, Choosing the Right Image Format, Adding Flash, Video and Audio to your web pages. Tables: Introducing Tables, Grouping Section of a Table, Nested Tables, Accessing Tables Forms: Introducing Forms, Form Controls, Sending Form Data to the Server

Frames: Introducing Frameset, <frame> Element, Creating Links Between Frames, Setting a Default Target Frame Using <base> Element, Nested Framesets, Inline or Floating Frames with <iframe>.

Unit – II
Cascading Style Sheets: Introducing CSS, Where you can Add CSS Rules.
CSS Properties: Controlling Text, Text Formatting, Text Pseudo Classes, Selectors, Lengths, Introducing the Box Model.
More Cascading Style Sheets: Links, Lists, Tables, Outlines, The :focus and :activate Pseudo classes Generated Content, Miscellaneous Properties, Additional Rules, Positioning and Layout with CSS
Page Layout: Understating the Site's Audience, Page Size, Designing Pages, Coding your Design, Developing for Mobile Devices.
Design Issues: Typography, Navigation, Tables, Forms.

Unit – III

Learning JavaScript: How to Add Script to Your Pages, the Document Object Model, Variables, Operators, Functions, Control Statements, Looping, Events, Built- In Objects,
Working with JavaScript: Practical Tips for Writing Scripts, Form Validation, Form Enhancements, JavaScript Libraries.
Putting Your site on the web: Meta tags, Testing your site, Talking the Leap to Live, Telling the World about your site, Understanding your visitors.
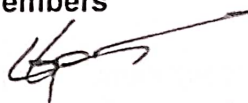
Text References
Jon Duckett, *Beginning HTML, XTML, CSS and JavaScript*
Chris Bates, *Web Programming*
M. Srinivasan, *Web Technology: Theory and Practice* Achyut S. Godbole, Atul Kahate, *Web Technologies*
Kogent Learning Solutions Inc, *Web Technologies Black Book*
Ralph Moseley and M. T. Savaliya, *Developing Web Applications*
P.J. Deitel & H.M. Deitel, *Internet and World Wide Web How to program*

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER VI
PAPER-VIII (B)
WEB TECHNOLOGIES LAB
PRACTICAL ─Pg lab

Code: BS608P
HPW: 2

30 h (2h/w)
Credits: 1

1. a. Write a HTML program using basic text formatting tags, <hn>, <p>, <br>, <pre>.
   b. Write a HTML page for Example Cafe using above text formatting tags.
2. a. Write a HTML program using presentational element tags <b>, <i>, <strike>, <sup>, <sub>,
      <big>, <small>, <hr>
   b. Write a HTML program using phrase element tags <blockquote>, <cite>, <abbr>, <acronym>, <kbd>, <address>
3. a. Write a HTML program using different list types.
   b. Write a HTML page that displays ingredients and instructions to prepare a recipe.
4. a. Write a HTML program using grouping elements <div> and <span>.
   b. Write a HTML Menu page for Example cafe site.
5. a. Write a HTML program using images, audios, videos.
   b. Write a HTML program to create your time table.
6. Write a HTML program to create a form using text inputs, password inputs, multiple line text input buttons, check boxes, radio buttons, select boxes, file select boxes.
7. Write a HTML program to create a frames and links between frames.
8. Write a HTML program to create different types of style sheets.
9. Write a HTML program to create CSS on links, lists, tables and generated content.
10. Write a HTML program to create your college web site using multi column layouts.
11. Write a HTML program to create your college web site using for mobile device.
12. Write a HTML program to create login form and verify username and password using DOM
13. a. Write a JavaScript program to calculate area of rectangle using function.
    b. Write a JavaScript program to wish good morning, good afternoon, good evening depending on the current time.
14. a. Write a JavaScript program using switch case?.
    b. Write a JavaScript program to print multiplication table of given number using loop.
15. a. Write a JavaScript programs using any 5 events.
    b. Write a JavaScript program using JavaScript built in objects.
16. Write a JavaScript program to create registration form and validate all fields using form validation

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
UG (B.Sc.) Scheme of Examinations
Computer Science
(CBCS 2016-17)

Elaborations

Paper	Credits	Theory Exam		Practical Exam
		University Exam	Internal Exam	
DSC	4	80 Marks	20 Marks	25 Marks
DSE	3	60 Marks	15 Marks	25 Marks
SEC	2	40 Marks	10 Marks	No Practical Exam
GE	2	40 Marks	10 Marks	

DSC — Discipline specific core course
DSE — Discipline specific elective course
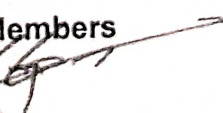SEC — Skill enhancement course
GE — Generic elective

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER – V
PAPER – V
Programming in Java
Theory Model Question Paper

Time - 3 Hrs

Max Marks: 60

SECTION - A

Note: Short Answer Questions

I Attempt any five of the following: 5X3=15 Marks

1. Question from unit I
2. Question from unit I
3. Question from unit II
4. Question from unit II
5. Question from unit III
6. Question from unit III
7. Question from any of the three units
8. Question from any of the three units

SECTION – B

Note: Long Answers Questions:

II   Answer all the questions with internal choice.   3X15=45 Marks

9.   a) Question from unit I
                    OR
        b) Question from unit I

10.   a) Question from unit II
                    OR
        b) Question from unit II

11.   a) Question from unit III
                    OR
        b) Question from unit III

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DEPARTMENT OF MATHEMATICS
B.SC. III YEAR
SEMESTER – V
PAPER -V
JAVA LAB
PRACTICAL MODEL QUESTION PAPER

Time - 2 Hrs

Max Marks: 50

SECTION - A

Note: Each question carries 7 ½ Marks

I. Attempt the following: 4X7½=30 Marks

1.   a) Question from unit I
            OR
     b) Question from unit I

2.   a) Question from unit II
            OR
     b) Question from unit II

3.   a) Question from unit III
            OR
     b) Question from unit III

4.   a) Question from unit IV
            OR
     b) Question from unit IV

II.   Record   10 Marks

III. Vivavoce   10 Marks

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DEPARTMENT OF computer Science
B.SC III YEAR
SEMESTER – V PAPER – VI
DSE-1EA / 2E B

Theory Model Question Paper

Time - 3 Hrs

Max Marks: 60

SECTION - A

Note: Short Answer Questions

I Attempt any five of the following: 5X3=15 Marks

1. Question from unit I
2. Question from unit I
3. Question from unit II
4. Question from unit II
5. Question from unit III
6. Question from unit III
7. Question from any of the three units
8. Question from any of the three units

SECTION – B

Note: Long Answers Questions:

II   Answer all the questions with internal choice.   3X15=45 Marks

9.   a) Question from unit I
                OR
       b) Question from unit I

10.   a) Question from unit II
                OR
       b) Question from unit II

11.   a) Question from unit III
                OR
       b) Question from unit III

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DEPARTMENT OF COMPUTER SCIENCE
B.SC. III YEAR
SEMESTER – V PAPER – VI
DSE-1EA / 2E B

PRACTICAL MODEL QUESTION PAPER

Time - 2 Hrs

Max Marks: 50

Note: Each question carries 7 ½ Marks

I. Attempt the following: 4X7½=30 Marks

1.   a) Question from unit I
              OR
      b) Question from unit I

2.   a) Question from unit II
              OR
      b) Question from unit II

3.   a) Question from unit III
              OR
      b) Question from unit III

4.   a) Question from unit IV
              OR
      b) Question from unit IV

II.   Record   10 Marks

III.   Vivavoce   10 Marks

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DEPARTMENT OF COMPUTER SCIENCE
B.SC. III YEAR
SEMESTER – V

CREDITS – 2

SEC 3(E/F) - MODEL PAPER

TIME: 2 HOURS

MAX MARKS: 40

SECTION-A

Answer the following Questions in short:

2 x 5 = 10 Marks

1. Question from Unit -I
2. Question from Unit -II

SECTION-B

Answer the following essay type questions:

2 x 15 = 30 Marks

3. (a) Question from Unit –I
        Or
    (b) Question from Unit –I

4. (a) Question from Unit –II
        Or
    (b) Question from Unit –II

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER – V
GE 1

INFORMATION TECHNOLOGY - I

Credits – 2

THEORY MODEL PAPER

TIME: 2 HOURS   MAX MARKS: 40

SECTION-A
Answer the following Questions in short: 2x5=10 Marks
1. Question from Unit -I
2. Question from Unit -II

SECTION-B
Answer the following essay type questions: 2x15=30 Marks
3. (a) Question from Unit –I
        Or
    (b) Question from Unit –I

4. (a) Question from Unit –II
        Or
    (b) Question from Unit –II

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YR COMPUTER SCIENCE
SEMESTER – VI
PAPER – VII
COMPUTER NETWORKS
Theory Model Question Paper

Time - 3 Hrs

Max Marks: 60

SECTION - A

Note: Short Answer Questions

I Attempt any five of the following: 5X3=15 Marks
1. Question from unit I
2. Question from unit I
3. Question from unit II
4. Question from unit II
5. Question from unit III
6. Question from unit III
7. Question from any of the three units
8. Question from any of the three units

SECTION – B

Note: Long Answers Questions:

II   Answer all the questions with internal choice.   3X15=45 Marks
9.   a) Question from unit I
                    OR
        b) Question from unit I

10.   a) Question from unit II
                    OR
        b) Question from unit II

11.   a) Question from unit III
                    OR
        b) Question from unit III

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DEPARTMENT OF MATHEMATICS
B.SC. III YEAR
SEMESTER – VI
PAPER –VII
NETWORKS LAB
PRACTICAL MODEL QUESTION PAPER

Time - 2 Hrs   **Max Marks: 50**

SECTION - A

Note: Each question carries 7 ½ Marks

I. Attempt the following: **4X7½=30 Marks**

1. a) Question from unit I
        OR
    b) Question from unit I

2. a) Question from unit II
        OR
    b) Question from unit II

3. a) Question from unit III
        OR
    b) Question from unit III

4. a) Question from unit IV
        OR
    b) Question from unit IV

II.   **Record**   **10 Marks**

III. **Vivavoce**   **10 Marks**

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DEPARTMENT OF COMPUTER SCIENCE
B.SC III YEAR COMPUTER SCIENCE
SEMESTER – VI PAPER – VIII
DSE-1FA / 2FB

Theory Model Question Paper

Time - 3 Hrs   Max Marks: 60

SECTION - A

Note: Short Answer Questions

I Attempt any five of the following: 5X3=15 Marks
1. Question from unit I
2. Question from unit I
3. Question from unit II
4. Question from unit II
5. Question from unit III
6. Question from unit III
7. Question from any of the three units
8. Question from any of the three units

SECTION – B

Note: Long Answers Questions:

II   Answer all the questions with internal choice.   3X15=45 Marks
12.   a) Question from unit I
                    OR
        b) Question from unit I

13.   a) Question from unit II
                    OR
        b) Question from unit II

14.   a) Question from unit III
                    OR
        b) Question from unit III

M. Ram
20-5-2018

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DEPARTMENT OF COMPUTER SCIENCE
B.SC. III YEAR
SEMESTER – VI PAPER – VIII
DSE-1FA / 2FB

PRACTICAL MODEL QUESTION PAPER

Time - 2 Hrs

Max Marks: 50

Note: Each question carries 7 ½ Marks

I. Attempt the following:

4X7½=30 Marks

5. a) Question from unit I
          OR
    b) Question from unit I

6. a) Question from unit II
          OR
    b) Question from unit II

7. a) Question from unit III
          OR
    b) Question from unit III

8. a) Question from unit IV
          OR
    b) Question from unit IV

II. Record   10 Marks

III. Vivavoce   10 Marks

M Ran 20-8-2019

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DEPARTMENT OF COMPUTER SCIENCE
B.SC. III YEAR COMPUTER SCIENCE

SEMESTER – VI

CREDITS – 2

SEC 4(G/H) - MODEL PAPER

TIME: 2 HOURS

MAX MARKS: 40

SECTION-A

Answer the following Questions in short:

2 x 5 = 10 Marks

1. Question from Unit -I
2. Question from Unit -II

SECTION-B

Answer the following essay type questions:

2 x 15 = 30 Marks

3.   (a) Question from Unit –I
          Or
      (b) Question from Unit –I

4.   (a) Question from Unit –II
          Or
      (b) Question from Unit –II

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DEPARTMENT OF COMPUTER SCIENCE
B.SC. III YEAR COMPUTER SCIENCE
SEMESTER – VI/ V
GE 2/1

INFORMATION TECHNOLOGY - 2/1

Credits – 2

THEORY MODEL PAPER

TIME: 2 HOURS   MAX MARKS: 40

SECTION-A

Answer the following Questions in short: 2x5=10 Marks
1.   Question from Unit -I
2.   Question from Unit -II

SECTION-B

Answer the following essay type questions: 2x15=30 Marks
3.   (a) Question from Unit –I
            Or
      (b) Question from Unit –I

4.   (a) Question from Unit –II
            Or
      (b) Question from Unit –II

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B.SC COMPUTER III YEAR
SEMESTER – V &VI

INTERNAL EXAM MODEL PAPER

TIME: ½ HOUR   **MAX MARKS: 15**

SECTION-A

I. MULTIPLE CHOICE QUESTIONS   **10x ½ = 5 Marks**
   TEN (10) MCQ ½ MARK EACH

SECTION-B

II. FILL IN THE BLANKS: **10 x ½ = 5 Marks**
   TEN (10) FIB ½ MARK EACH

SECTION-C

III. SHORT NOTE QUESTIONS: **5 x 1 = 5 Marks**
   FIVE (5) 1(ONE) MARK EACH

M. Ram 30-8-2018

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B.SC COMPUTER III YEAR
SEMESTER – V &VI

INTERNAL EXAM MODEL PAPER

TIME: ½ HOUR   **MAX MARKS: 15**

SECTION-A

I. MULTIPLE CHOICE QUESTIONS   **10x ½ = 5 Marks**
   TEN (10) MCQ ½ MARK EACH

SECTION-B

II. FILL IN THE BLANKS: **10 x ½ = 5 Marks**
   TEN (10) FIB ½ MARK EACH

SECTION-C

III. SHORT NOTE QUESTIONS: **5 x 1 = 5 Marks**
   FIVE (5) 1(ONE) MARK EACH

M. Ram
CHAIRMAN

Chairperson   University Nominee   Members
Principal
                    Board of Studies in Computer Science
                         Dept. of Mathematics
                       Osmania University, Hyd.   1.

                                                         2.   Associate Professor
                                                              Dept of Maths O.U
                                                         3.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD (AUTONOMOUS)

DEPARTMENT OF MATHEMATICS
B.SC. II YEAR Computer Science
SEMESTER – III & IV
2018-19 & ONWARDS

PRACTICAL MODEL QUESTION PAPER

Time - 2 Hrs   Max Marks: 25

SECTION - A

Note: Each question carries 10 Marks

I. Attempt any Two Question from the following: 4X5=20 Marks

   1.   Question from unit I

   2.   Question from unit II

   3.   Question from unit III

   4.   Question from unit IV

II.   **Record**   02 Marks

III.   **Vivavoce**   03 Marks

M. Ram

Chairperson   **University Nominee**   **Members**   **Principal**

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD (AUTONOMOUS)
DEPARTMENT OF MATHEMATICS
B.SC. III YEAR Computer Science
SEMESTER – V & VI
2019-2020 ONWARDS

PRACTICAL MODEL QUESTION PAPER

Time - 2 Hrs

Max Marks: 25

SECTION – A

Note: Each question carries 10 Marks

I. Attempt Any two questions from the following: 2 x10 =20 Marks

$2 \times 7\frac{1}{2} = 15 M$

1. Question from unit I

2. Question from unit II

3. Question from unit III
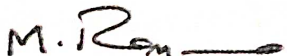
4. Question from unit I,II,III

II.   **Record**   5   02 Marks
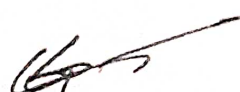
III. **Vivavoce**   5   03 Marks

M. Ram

Chairperson   **University Nominee**   **Members**   **Principal**
               CHAIRMAN
               Board of Studies in Computer Science
               Dept. of Mathematics   1.
               Osmania University, Hyd.   Associate Professor
                                              Dept of Maths O.U

                                           2.

                                           3.

HINDI MAHAVIDYALAYA, NALLAKUNTA, HYDERABAD
(AUTONOMOUS)
Department of Computer Science   V-VI SEM
Panel of Examiners

SNO	NAME	PHONE	Semester
1	Smt.B.Ramani Asst. Prof., Dept. of Computer Science AMS, OU Campus, Hyderabad.	9441214888	I, II, III, IV, V, VI
2	Smt.G. Aparna Asst. Prof., Dept. of Computer Science AMS, OU Campus, Hyderabad.	9440137700	I, II, III, IV, V, VI
3	Smt. N.Veena Asst. Prof., Dept. of Computer Science Nizam College, Hyderabad.	9849743764	I, II, III, IV, V, VI
4	Smt. Sunitha Asst. Prof., Dept. of Computer Science Koti Women College , Hyderabad.	9951944377	I, II, III, IV, V, VI
5	Smt. Vijitha Malini Asst. Prof., Dept. of Computer Science Reddy College Narayan Guda, Hyderabad.	9000323206	I, II, III, IV, V, VI
6	Smt. Bhaskar Rao Asst. Prof., Dept. of Computer Science AV College, Domal Guda, Hyderabad.	9885639321	I, II, III, IV, V, VI
7	Sri. N.Bhaskar Asst. Prof., Dept. of Computer Science Bhavan College, Hyderabad.	9347983943	I, II, III, IV, V, VI
8	Ms. Salma, Asst. Prof. RBVRR College for Women, Hyderabad.	8712960031	I, II, III, IV, V, VI
9	Ms. Vijitha Keshav Memorial, Narayanguda, Hyderabad.	9640508855	I, II, III, IV, V, VI
10	Ms. Kavitha St. Francis college for Women, Hyderabad	9393003871	I, II, III, IV, V, VI

M. Rom

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