Detailed Program

Bachelor of Technology (B.Tech.)
(Computer Science Engineering)

Semester-V

(2017-21)

DOC201906170037

RNB GLOBAL UNIVERSITY

GLOBAL UNIVERSITY

Educating stars for tomorrow

RNB GLOBAL UNIVERSITY

RNB Global City, Ganganagar Road,
Bikaner, Rajasthan 334601

OVERVIEW

RNB Global University follows Semester System. Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June).** Besides this, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for B.Tech. Program for (July-December) Odd Semester, 2019 along with examination pattern is as follows:

Course Scheme

Semester -V

S. No.	Course Code	Course Title	L	T	P	Credits
1.	19007400	Micro processor	3	0	0	3
2.	19007500	Micro processor Lab	0	0	2	1
3.	19007600	Analysis and Design of Algorithm	3	0	0	3
4.	19007700	Analysis and Design of Algorithm Lab	0	0	2	1
5.	19007800	Database Management Systems	3	0	0	3
6.	19007900	Database Management Systems Lab	0	0	2	1
7.	19008000	Computer Graphics	3	0	0	3
8.	19008100	Computer Graphics Lab	0	0	2	1
9.	19008200	Core Java	3	0	0	3
10.	19008300	Core Java Lab	0	0	2	1
11.	19008400	Elective -I PHP & My SQL	3	0	0	3
12.	19008500	Elective-I PHP & My SQL Lab	0	0	2	1
13.	19006300	Ability & Skill Enhancement – V	2	0	0	2
14.	19007300	Summer Internship and Report	0	0	8	4
15.	99002700	Human Values & Social Service/NCC/NSS	-	-	-	1
16.	99002800	Workshops & Seminars	-	-	-	1
Total			**20**	**0**	**20**	**32**

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of B.Tech would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

Internal Assessment

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
Mid Term	Two Mid-term Sessional of 15 marks each (15+15)	30
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	15
Attendance	75%+ : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of B.Tech would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

Internal Assessment

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical	Average of marks obtained	45
Attendance	75%+ : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- WORKSHOPS & SEMINARS & NCC/NSS

1. NCC/NSS will be completed from Semester I – Semester IV. It will be evaluated internally by the institute. The credit for this will be given at the end of each Semester.

2. The students have to join club/clubs with the active participation in different activities of club. The students would be continuously assessed from Semester-I to Semester-IV and credits and marks would be given after the end of each Semester.

CURRICULUM

Course Name: Microprocessor

Course Code: 19007400

Objectives:

- Microprocessor is heart of any computer. If we do not learn microprocessor, we cannot know how the computer works. To know working about computer we must to study microprocessor.

Course Outline

Unit I: Introduction to Microprocessors
Need for Flexible Logic and Evolution of Microprocessors, Applications, Generic Architecture of a Microprocessor; INTEL 8085 Microprocessor: Pin Functions, Architecture, Addressing Modes, Instruction Set, Timing Diagrams, Interrupts, Programming Examples.

Unit II: Basic Input/output Techniques
Serial I/O, Parallel I/O, Programmed I/O, Interrupt Driven I/O, Direct Memory Access. Peripheral Controllers: USART (8251), RS-232C, Programmable Peripheral Interface (8255), Programmable Interrupt Controller (8259), Programmable Timer (8253/8254), Programmable Keyboard and Display Interface, DMA Controller (8257, 8237).

Unit III: INTEL 8086 Microprocessor
Pin Functions, Architecture, Characteristics and Basic Features of Family, Segmented Memory, Addressing Modes, Instruction Set, Data Transfer Instructions, Arithmetic, Logical, Shift & Rotate Instructions, String Instructions, Flag Control Instructions, Transfer of Control Instructions, Processor Control Instructions, Interrupt Structures, Multitasking and Multiprogramming, Programming Examples.
INTEL 8086 System Configuration: Clock Generator (8284), Bus Controller (8288), MIN/MAX Modes of 8086 and System Configurations.

Unit IV: Interfacing with 8086
Interfacing with RAMs, ROMs along with the explanation of timing diagrams; Interfacing with peripheral ICs like 8255, 8254, 8279, 8259, 8259 etc.; Main Memory System Design: Types of Main Memories, Memory Organization, CPU Read/Write Timing Diagrams, RAM and ROM Interface Requirements, DRAM Interfacing and DRAM Controller (8203);

Suggested Readings:

1. Gaonkar, Ramesh., Microprocessor Architecture, Programming and Applications with the 8085, Penram International Publishing India PVT.LTD. (2005) 5th Ed.
2. Hall, D.V., Microprocessor and Interfacing, Tata McGraw Hill Publishing Company, (2006) 2nd ed.
3. Rafiquzzaman, M., Microprocessors and. Microcomputer-Based System Design, CRC Press, (1995) 2nd ed.
4. Gibson, Glenn A., Liu, Yu-Cheng., Microcomputer Systems: The 8086/8088 Family Architecture Programming And Design, Pearson, (2001) Ist ed.

Course Name: Microprocessors Lab

Course Code: 19007500

Course Outline:

Laboratory Work:

1. Introduction to INTEL kit, Programming examples of 8085 and 8086.
2. Interfacing using 8085, 8086 kits, Interfacing of LED seven segment display,
3. ADC, DAC, 8253, Printer, UP- PC Interface. Microprocessor based project.

Course Name: Analysis and Design of Alogrithm

Course Code: 19007600

Objectives:

- To explain the concept of algorithm designing and how these algorithms are analyzed. Discuss so many algorithms with their time complexities and perform a comparison between these algorithms.

Course Outline:

Unit I: Basics of Algorithm Analysis & Design
Stacks, queues, trees, heaps, sets and graphs; Algorithm Definition, Analyzing algorithms, order arithmetic, time and space complexity.
Algorithm Design Techniques: Divide and Conquer; general method, merge sort, selection problem, Recurrences, Solving Recurrences by Substitution method, Recursive Tree Method.

UnitII: Greedy method
Job Sequencing with Deadlines, Knapsack problem, Optimal merge patterns, Optimal Storage on tapes, Minimum spanning trees, Huffman Encoding.
Dynamic Programming: Use of table instead of recursion, all pair shortest Path, 0/1 knapsack, Matrix Chain Multiplication, optimal binary search tree, Longest Common Subsequence, Travelling Salesperson Problem.

Unit III: Search and Traversal
Search techniques: breadth first search, depth first search, code optimization, Insertion Sort, Quick Sort, Merge Sort, Selection Sort, Binary Search, Linear Search.**Backtracking:** 8 queens problem, sum of subsets, graph coloring.

Unit IV: Problem clauses
P, NP, NP- Hard and NP-complete, Proving NP-Complete Problems - Satisfiability problem and Vertex Cover Problem; Approximation Algorithms for Travelling Salesman Problem;

Suggested Readings:

1. E.Horowitz & S.Sahani, Fundamentals of Computer Algorithms. Galgotia Publications.
2. **Goodrich, Tamassia, Algorithm Analysis & Design, Wiley.**
3. Corman, Leiserson & Rivest, Introduction to Algorithms, MIT Press.
4. Sara Basse, A.V. Geider, Computer Algorithms, Introduction to Design and Analysis.
5. Robert Lafore, Data Structures & Algorithms in Java, Pearson Education Asia.

Course Name: Analysis and Design of Algorithm Lab

Course Code: 19007700

Course Outline:

Laboratory work:

Implementation of all the algorithmic techniques studied.

Course Name: Data Base Management Systems

Course Code: 19007800

Objectives

- To understand the different issues involved in the design and implementation of a database system.
- To study the physical and logical database designs, database modeling, relational, hierarchical, and network models.
- To understand and use data manipulation language to query, update, and manage database.
- To develop an understanding of essential DBMS concepts such as: database security, Integrity, concurrency, distributed database, and intelligent database, Client/Server (Database Server), Data Warehousing.
- To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Course Outline

Unit I: Introduction
Data, data processing requirement, desirable characteristics of an ideal data processing system, traditional file based system, its drawback, concept of data dependency, Def of database, database management system, 3-schema architecture, database terminology, benefits of DBMS, Database development process - conceptual data modeling, logical database design, physical database design, database implementation, database maintenance.

Unit II : Database Analysis
Conceptual data modeling using E-R data model -entities, attributes, relationships, generalization, specialization, specifying constraints. 5 – 6 practical problems based on E-R data model.

Database Design: Logical database design and relational data model: Introduction to relational database theory: *def* of relation, relational model operators, relational model integrity rules, Normalization- 1NF, 2NF, 3NF, 4NF, BCNF & practical problems based on these forms. Denormalization.

Unit III: Database Implementation
Introduction to SQL, DDL aspect of SQL, DML aspect of SQL – update, insert, delete & various form of SELECT- simple, using special operators, aggregate functions, group by clause, sub query, joins, co-related sub query, union clause, exist operator, PL/SQL - cursor, stored function, stored procedure, triggers, error handling, package.

Unit IV : Allied Topics
Transaction processing - introduction, concurrency control techniques, database recovery, Overview of: client-server database environment, distributed databases, Object-relational database, object-oriented database, web technology and database, data warehousing and data mining. Comparative study of various DBMS products;

Suggested Readings:

1. H. F. Korth & A. Silverschatz, Database Concepts, Tata Mcgraw Hill.
2. Elmasri & Navathe, Fundamentals of Database Systems, Pearson Education Asia.
3. Hoffer, prescott, McFadden, Modern Database Management, Pearson Education Asia.
4. C. J. Date, Database Systems, Pearson Education Asia.
5. Martin Gruber, Understanding SQL, BPB Publication.
6. Val Occardi, Relational Database: Theory &Practice, BPB Publication, New Delhi.
7. Scott Urman, Oracle PL/SQL Programming, Tata Mcgraw Hill.
8. Ivan Bayross, SQL and PL/SQL, BPB Publication.

Course Name: Data Base Management Systems Lab

Course Code: 19007900

Course Outline

Laboratory work:
1. Data Definition Language (DDL) commands in RDBMS
2. Data Manipulation Language (DML) and Data Control Language (DCL)
3. High level language extensions with cursors
4. High level language extension with Triggers
5. Procedures and Functions
6. Embedded SQL
7. Design and implementation of Banking system
8. Design and implementation of Ticket booking.
9. Design and implementation of banking System.
10. Design and implementation of hostel Management or hotel management
11. Design and implementation of hospital management.
12. Design and implementation of Library Information System

Course Name: Computer Graphics

Course Code: 19008000

Objectives

- Identify and explain the core concepts of computer graphics.
- Apply graphics programming techniques to design, and create computer graphics scenes.
- Create effective OpenGL programs to solve graphics programming issues, including 3D transformation, objects modeling, colour modeling, lighting, textures, and ray tracing.

Course Outline

Unit I: Introduction
The Advantages of Interactive Graphics, Representative Uses of Computer Graphics, Classification of Application Development of Hardware and software for computer Graphics, Conceptual Framework for Interactive Graphics, Overview, Scan: Converting Lines, Scan Converting Circles, Scan Converting Ellipses.

Unit II: Hardcopy
Technologies, Display Technologies, Raster-Scan Display System, Video Controller, Random-Scan Display processor, Input Devices for Operator Interaction, Image Scanners, Working exposure on graphics tools like Dream Weaver, 3D Effects etc, **Clipping** Southland- Cohen Algorithm, Cyrus-Beck Algorithm, Midpoint Subdivision Algorithm.

Unit III: Geometrical Transformation
2D Transformation, Homogeneous Coordinates and Matrix Representation of 2D Transformations, composition of 2D Transformations, the Window-to-Viewport Transformations, Introduction to 3D Transformations Matrix.

Unit IV: Introductory Concepts
Multimedia Definition, CD-ROM and the multimedia highway, Computer Animation (Design, types of animation, using different functions),Uses of Multimedia, Introduction to making multimedia – The stage of Project, hardware &software requirements to make good multimedia skills and Training opportunities in Multimedia Motivation for Multimedia usage.

Suggested Readings:

1. D.Hearn & P.Baker , Computer Graphics, Pearson Education Asia.
2. Foley, Van Dam, Feiner, Hughes, Computer Graphics, Pearson Education Asia.
3. Rogers, Adams, Mathematical Elements for Computer Graphics, Tata McgrawHill.
4. Newman, Sproull, Principles of Interactive Computer Graphics, Tata McgrawHill.
5. Zhigang Xiang, Roy A Plastock, Schaum's Outlines Computer Graphics,Mcgraw *Hill.*

Course Name: Computer Graphics Lab

Course Code: 19008100

Course Outline:

Laboratory Work:

1. Writing programs for implementing basic algorithms for line, circle etc.,

2. 2D transformations, clipping, 2D representations, algorithms for back face detection procedure, depth buffer method to display the visible surfaces in a scene containing any number of polyhedrons,

3. A-buffer algorithm to display a scene containing both opaque and transparent surfaces, depth sorting method to display the visible surfaces in a scene containing several polyhedrons.

Course Name: Core Java

Course Code: 19008200

Objectives:

- Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
- Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- Be aware of the important topics and principles of software development.
- Have the ability to write a computer program to solve specified problems.
- Be able to use the Java SDK environment to create, debug and run simple Java programs.

Course Outline

Unit I: Introduction
Object oriented programming, characteristics of object orientated languages, classes, **Java Programming:** Introduction, Data types, access specifiers, operators, control statements, arrays. Classes: Fundamentals, objects, methods, constructors. **Inheritance:** Super class, sub class, this and super operator, method overriding, use of final, packages, abstract class, interface. **Polymorphism:** Method overloading, constructor overloading.

Unit II: Exception Handling
Exception Class, built in checked and unchecked exceptions, user defined exceptions, use of try, catch, throw, throws, finally. **Multi threaded programming:** Overview, comparison with multiprocessing ,Thread class and runnable interface, life cycle, creation of single and multiple threads, thread priorities, overview of Synchronization. **Java Library:** String handling (only main functions), String Buffer class. Elementary concepts of Input/Output :byte and character streams, System.in and System. out, print and println, reading from a file and writing in a file.

Unit III: Software Development using Java: Applets
Introduction, Life cycle, creation and implementation, AWT controls: Button, Label, Text Field, Text Area, Choice lists, list, scrollbars, check boxes,Layout managers, Elementary concepts of Event Handling :Delegation Event Model, Event classes and listeners, Adapter classes, Inner classes. **Swings:** Introduction and comparison with AWT controls.

Unit IV: Networking Basics
Socket (datagram and TCP/IP based client and server socket), factory methods, Inet Address **JDBC:** JDBC Architecture, JDBC Drivers, Connecting to the Database **Introduction to Advance Java (Servlets):** Life cycle, Interfaces and classes in javax. servlet package(only description) Creating a simple servlet.

Suggested Readings:

1. Patrick Naughton and Herbert Schildt, "Java-2 The Complete Reference", TMH.
2. Y. Daniel Liang, "Introduction to Java Programming, Comprehensive Version, 7/e"Pearson.
3. Krishnamoorthy R, PrabhuS ,"Internet and Java Programming", New Age Intl.
4. David Flanagan, Jim Farley, William Crawford and Kris Magnusson, "Java Enterprise in aNutshell", O'Reilly.

Course Name: Core Java Lab

Course Code: 19008300

Course Outline

1. Write a program to display "Hello World" in 'JAVA' language

2. Implementation of input and output statements

3. Implementation of control statements.

4. Implementation of functions.

5. Implementation of single dimension, two dimension and three-dimension array.

6. Write a JAVA program that uses a recursive function for solving Towers of Hanoiproblem.

7. Write a JAVA program to implement the matrix ADT using a class. The operations supported by this ADT are:

    a) Reading a matrix.

b) Addition of matrices.

c) Printing a matrix.

d) Subtraction of matrices.

e) Multiplication of matrices.

8. Write a JAVA program that overloads the + operator and relational operators (suitable)to perform the following operations:

a) Concatenation of two strings.

b) Comparison of two strings.

9. Write JAVA programs that illustrate how the following forms of inheritance are supported:

a) Single inheritance

b) Multiple inheritances

c) Multi inheritance

d) Hierarchical inheritance

10. Write a JAVA program that illustrates the order of execution of constructors and destructors when new class is derived from more than one base class.

Course Name: Elective I - PHP & My SQL

Course Code: 19008400

Objectives

- PHP & MYSQL Lab course cover all the practical part of basic or advance programming in php and number of query like create database/table, drop database/table, insert/delete, update data from table, create and remove session/cookie, use basic component of form and string functions etc.

Course Outline

Unit I: Introduction to PHP
What is PHP How PHP better than other Benefits Of Using PHP MYSQL Server Client Environment Web Browse Web Server Installation & Configuration Files.
Development Concept: How PHP Script Work PHP Syntax Write your First PHP Program Embed PHP In HTML/HTML In PHP PHP Data Type Variable In PHP Contents In PHP

Operator In PHP Control Structure: If Statement If......Else Statement If...If Else Statement Nested If Statement Switch Statement

Looping Structure: For Loop While Loop Do...While Loop For each Loop Function: What is function Syntax User Defined Function System Defined Function Parameterized Function Parameterized Function Date & Time Function Hash Function Mail Function

File Inclusion: Include() Require()

Working with Forms What is a Form? Important HTML Tags Super-Global Variable , Different ways to carry form data (GET, POST), isset(), isempty()

Unit II: Array

What is Array Syntax Associative Array Numeric Array Multi-Dimensional Array

String Function Chr() strlen() strpos() strcmp()

Working with File OpeningFile Reading File Writing File Closing File Appending File Uploading File.

OOPs Concept Class & Object Access Modifier Properties of Object Encapsulation and abstraction Inheritance Polymorphism Function overriding Abstract class.

State Management Creating Cookies Set Cookies Destroying Cookies Creating Session Set Session Destroying Session

Error Handling & Exception Introduction to Error Try,catch,throw Block Handling.

Unit III: Introduction to MYSQL

What is Database? Understanding an RDBMS Understanding Tables, Record &Fields SQL Language; Working with MYSQL Admin Working with PHP My Admin Types Data Type Creating Database & Tables Dropping Database &Tables Adding Fields Selecting Table Alerting Fields Properties.

MySQL Function in PHP Database Connections Managing Database Connections Performing Queries Closing Connection.

Unit IV: SQL Queries

Create Database & Table Drop Database & Table Insert Record Select Record Deleting Record Modifying Record WHERE Clause Using Operators Sorting Records Eliminating Duplicates Grouping Records, Having Clause Joining Tables Sub queries Using Table And Column Aliases

Suggested Readings:

1. PHP and MySQL Web Development All-in-One Desk Reference For Dummies, Janet Valade with Tricia Ballad, Bill Ballad, Willey 2008
2. PHP and MySQL Web Development (Developer's Library) Kindle Edition, by Luke Welling, Laura Thomson ,Sams Publishing

Course Name: Elective-I - PHP & My SQL Lab

Course Code: 19008500

Course Outline

1. Create a php webpage and print "hello world".
2. Create a php program to find odd or even number from given number.
3. Write a php program to find maximum among three numbers.
4. Write a PHP program to swap two numbers.
5. Write a PHP Program to demonstrate the variable function:
   a. Gettype()
   b. Settype()
6. Write a PHP Program to demonstrate the variable unction
   a. isset()
   b. unset()
7. Give the example of variable function:
   a. strval()
   b. floatval()
   c. intval()
   d. print_r()
   e. var_dump()
8. Give the example of string function
   a. substr()
   b. substr()
   c. strcmp()
   d. strcasecmp()
   e. strpos()
   f. strpos()
9. Write a PHP program that demonstrate form element(input elements).
10. Write a PHP program that demonstrate passing variable using URL.
    i. Write a PHP program that demonstrate use of session:1
    ii. Write a PHP program that demonstrate use of session:2
11. Write a program that demonstrate use of cookies: 1

12. Write a program that demonstrate use of cookies: 2

13. Write a PHP program to create a database using MySQL

14. Write a PHP program to drop a database using MySQL.

15. Write a PHP program to create a table in MySQL.

16. Write a PHP program to insert record into a table using MySQL.

17. Write a PHP program to drop table using MySQL.

18. Write a program to update table:6

19. Write a PHP program to select data and show into table format

20. Create a student Registration in PHP and Save and Display the student Records.

21. Write a program to Develop student registration form and display all the submitted data on another page.

Course Name: Ability & Skill Enhancement - V

Course Code: 19006300

Objectives:

- To make students understand the usage of Grammar in day to day life and improve their fluency and confidence while speaking English.

Course Outline – Final Assessment - Interview with an Entrepreneur /Leader

Unit I: Leadership
What is leadership? Traits of Leadership, Identifying leaders and traits of Leadership, Movie/ Story/ Interviews of leaders: Identify leadership qualities, Debate/ Discussion/ Presentations on leaders.

Unit II: Entrepreneurship
What is Entrepreneurship, Traits of Successful Entrepreneurs, Movie/ Story/Interviews of Entrepreneurs: Identify Entrepreneurial qualities, Debate/ Discussion/Presentation on Entrepreneurs.

Unit III: Organizational Skills & Employability Skills
What are organizational skills, how to develop them, the skills needed to become a successful entrepreneur/administrator, good communication, ambition, courage, hardwork, planning, accountability. Organizational skills can be developed by discipline making a system, rules, delegation of power at workplace, etc.

How to enhance employability; skills, why do we need them, different workplaces, having different needs, different skills, how to recognize different work skills.

Unit IV: Decision making
The process of decision making, its steps, what are its basics, what are the basics of organizational decision making process, entrepreneurial decision making, how to make a right decision at right time, dilemma.

Unit V: Interview Skills
Conducting Interviews with Leaders/ Entrepreneurs, Preparing Questions, Interviewing the fellow person, do's & don'ts while taking interview.

Note: The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

------------------- **End of document**--------------------