जननायक चन्द्रशेखर विश्वविद्यालय, बलिया-277001 (उ.प्र.)
Jananayak Chandrashekhar University, Ballia-277001 (U. P.)

FACULTY OF SCIENCE
Proposed Common Uniform Syllabus

For

Bachelor of Science (B.Sc.)

Subject Computer Science

ACADEMIC SESSION -2020-21

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

Computer science is one of the most profitable education options for students seeking a challenging and rewarding career. Continuing advances in Computer Science create an almost unlimited demand for people with a background in this area. Computer jobs pay a lucrative salary and are expected to be in demand for several years. After the completion of B.Sc. (Computer Science) three year program, the student shall have ample chance to be Software engineer, Application Analyst, Database Administrator, Games Developer, Information Systems Manager, IT Consultant, Systems Analyst, Web Designer in government and private organization.

Learning Objective & Outcome of B.Sc. (CS) First year

Learning Objective of B.Sc. (Computer Science) First year

B.Sc. (Computer Science) first year course comprises three theory papers and one practical. The first paper provides basic knowledge of computers, its organizations and its generation-wise development to students. Additionally, it furnishes the recent development details to students in the field of information technology. The second paper System Analysis and Design helps to develop the skills to form basic structure of software and data flow among its various components and to validate the software accordingly. Third paper, programming in C helps students to create the programs, their validations and organizing them to form software. The practical part makes the students capable to develop programs as per requirement, executing them to get desired output to meet objectives

Outcome of B.Sc. (Computer Science) First year

The B.Sc. (Computer Science) first year course provides students a great opportunity to know the basics of computers, its utilization in the field of Computer science and to enter the real world where aspiring computer science professionals can showcase their talent.

Learning Objective & Outcome of B.Sc. (CS) Second year

Learning Objective of B.Sc. (Computer Science) Second year

B.Sc. (Computer Science) second year course consist of three theory papers and one practical. The first paper Data Structure Using C++ helps students to know the basic organization and storage of data in computer memory effectively and to extract the stored data efficiently. It helps to develop understanding among students about writing algorithms and step by step approach in solving problems. Second paper operating system helps to understand the services provided by and the design of an operating system. This paper furnish the details about the structure and organization of file system and makes the students able to grasp the knowledge about process, its scheduling and synchronization. The third paper links computer science subject with information technology and provides ample chance to students to know the structure and formation of internet. The practical work of second year makes the students able to develop effective and efficient algorithm and to design program accordingly to develop most appropriate solution of any real time problem through Python.

Outcome of B.Sc. (Computer Science) Second year

Computer science is one of the most profitable education options for students seeking a challenging and rewarding career. The B.Sc. second year course offers opportunity to students to learn data organization

within minimum memory so that it can be searched and retrieved quickly. In this year students learn the functioning of various operating systems, their filing system, scheduling and serialization in order to connect application software with the computer hardware. Students become able to connect their systems with World Wide Web (W3) and participate in various social, educational and personal activities.

Learning Objective & Outcome of B.Sc. (CS) Third year

Learning Objective of B.Sc. (Computer Science) third year

The field of Computer Science does not complete without database management. The first paper of B.Sc. (Computer Science) third year is Database and software engineering. The purpose to incorporate database subject in course is to impart the knowledge of basic organization of data and its flow in software and their security as well. The software engineering helps the students to test, verify and validate software as per requirement and their cost estimation too. The second paper in third year is computer architecture and microprocessor which makes the student able to analyze, design, writing and to test assembly language programs with minimum time-complexity and space complexity. The third paper Application Development with Java and .NET framework makes the student able to develop real time software with the latest technologies and meet the real time challenges of this digital world. The practical work of this year benefits the students to develop real time projects using Object Oriented Languages concepts and motivate the students to not only deal with coding but with memory and accessibility at the same time.

Outcome of B.Sc. (Computer Science) Third year

In B.Sc. (Computer Science) Third year, the students learn how to manage Data, its security and duplicity filtering. Several important software phases like requirement analysis, design, coding, testing and implementation are taught to verify the functioning of software and to validate them as per requirement. The application development part helps students to implement the coding phase of projects.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. in Computer Science Yearly Syllabus

B.Sc. (COMPUTER SCIENCE)

COURSE STRUCTURE

FIRST YEAR

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper-101	Computer Fundamentals	80	20	100
Paper-102	System Analysis and Design	80	20	100
Paper-103	Programming in C	80	20	100
Paper-104	Practical-(C Language and MS Office)	80	20	100
			Total	400

SECOND YEAR

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper-201	Data Structure Using C+++	80	20	100
Paper-202	Operating System	80	20	100
Paper-203	Data Communication and Computer Network	80	20	100
Paper-204	Practical-(Data Structure usingC+++,Python)	80	20	100
			Total	400

THIRD YEAR

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper-301	Data Base and Software Engineering	80	20	100
Paper-302	Computer Architecture and Microprocessor	80	20	100
Paper-303	Application development with JAVA and NET Framework	80	20	100
Paper-304	Practical-(JAVA,NET Framework, Microprocessor 8086, Database	80	20	100
			Total	400
		Grant Total		1200

Note: There will be 9 questions in each paper and candidate has to attempt only 5 questions. **Q.1** will carry short answers and will be **compulsory** based on units I - IV. **Two** questions will be set from **each unit**, out of which one question has to be attempted. Candidate must obtain minimum pass marks in Theory and Practical Examinations separately. * Based on papers I – III

Theory- All papers of 100 MM, each with following distribution of marks.

20- Internal assessment based on Project work/assignment/ activities/attendance.

80- Annual examination theory paper.

Practical-Practical in all three year of 100 marks, each with following distribution of marks-

20-Practical record and Viva-voce(held during annual practical exam)

80- Assessment of identification, evaluation and experimental skill during annual practical exam.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. First Year

Computer Science Syllabus

Paper Title: Computer Fundamentals	Paper Number: First
Paper Code: B.Sc.-101	Maximum Marks: 80

Unit -I
Computer Definition, Evolution of Computers, Generation of Computers, Classification of Computers, Hardware and Software, Analog Digital and Hybrid Computers, Classification of Computers according to size, Super Computers, Mainframe Computers, Personal Computers, Different Terminals , Characteristics and Limitations of Computers, Basic Organization & Block Diagram of a Digital Computer, Difference between Computer and Calculator, Input devices, Output Devices, Optical Devices, Optical Character Recognition (OCR), Optical Mark Recognition (OMR), Magnetic Ink Character Reader (MICR), Printers and plotters, Basic Input/ Output System (BIOS)
Unit –II
Definition and Purpose of Different Programming Languages, Compiler, Interpreter, Assembler, Classification of software, Flowchart, Pseudo code, Algorithm, Number system (Decimal, Binary, Octal and Hexadecimal) and their Conversion, Binary addition, Binary Subtraction, Binary Multiplication, 1's Complement, 2's Complement, 9's Complement and 10's Complement, BCD codes, ASCII Code.
Unit –III
Logic Gates and its application, Universal Gates, Boolean Algebra, Boolean Laws, De-Morgan's theorem based expression Problems, Simplification of expression using Boolean Laws, Karnaugh Map, SOP & POS techniques, Simplification of expression using Karnaugh Map (2 variables, 3 variables and 4 variables)
Unit –IV
Computer Memory, Memory Hierarchy, classification of memory, Semiconductor memory, Magnetic Memory, Optical Memory, Cache Memory, Different types of secondary Memory, virtual memory, Graphical User Based operating system, Command line Based operating system, Disk Operating System, External and Internal Command in DOS.

Referenced Books:

[1] Pradeep K. Sinha and Priti Sinha, "Computer Fundamentals", BPB Publication, Sixth Edition.
[2] M. Morris Mano, "Degital Logic and Computer Design", PHI publication.
[3] M. Morris Mano, "Computer System Architecture", PHI publication.

B.Sc. First Year
Computer Science Syllabus

Paper Title:	**System Analysis and Design**	**Paper Number:**	**Second**
Paper Code:	**B.Sc.-102**	**Maximum Marks:**	**80**

Unit –I

System concept, Definition, System study, system analysis, System approach, Characteristics and Types of system, Elements of system analysis, System models and types of models, system environment and boundaries, system analyst, role of system analyst, qualification and responsibilities, System analyst as an agent of change, Open and Closed System, Formal and Informal Information Systems, Computer based Information Systems, Management Information System, Decision Support System, General Business Knowledge, Interpersonal Communicational System.

Unit –II

System Development Life Cycle and its various phases, Preliminary investigation, Determination of system requirements, Development of software, System testing, Implementation, evaluation and maintenance, system documentation and consideration, Data flow diagram (DFD) and its various levels, system requirement specification (SRS).

Unit –III

System Planning, Feasibility study and its report and importance, various tools and technique, Software Crisis: From programmer's point of view, from users point of view.

Unit –IV

System design and modeling, state of system design, process modeling, logical and physical design, system flow chart and structured charts, data flow diagrams, file organization and data base design, system testing and quantity assurance implementation and software maintenance.

Referenced Books:

[1] Brijendra Singh, "System Analysis and Design", New Age International Publishers.
[2] Elias M. Awad, "System Analysis and Design", Galgotia publications.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. First Year
Computer Science Syllabus

Paper Title:	**Programming in C**	**Paper Number:**	**Third**
Paper Code:	**B.Sc.-103**	**Maximum Marks:**	**80**

Unit –I

History of C, Structure of a C program, The C character set, Constants, Variables, keywords, Data types, arithmetic instructions, Integer and float conversions, Type conversion, Operators in C, Hierarchy of operators, control instructions, Input-Output statements in C (Formatted and Unformatted), Comment statements.

Unit –II

Decision control structures, Logical operators, conditional operator and relational operators, Loop control structures –while, do-while, for loop, Break statement, Continue statement, switch-case control structure, goto statement Bitwise operators, Bitwise AND, OR, exclusive OR, compliment, right shift and left shift operators.

Unit –III

One dimensional and multidimensional array, declaration, initialization and array Manipulations, sorting (Bubble sort) Strings – Basic Concepts, Library Functions, Definition, function definition and prototyping, types of functions, type of arguments, Recursion, passing arrays to functions, storage class in C-automatic, register, external and static variables.

Unit –IV

Pointers Definition, notation, pointers of arrays, array of pointers and functions – call by value and Call by reference, Pointers to pointers. Definition, declaration, accessing structure elements, Array of structure, Pointers and structures, Unions – definition, declaration, accessing union elements, typedef, Enum Bit fields, Types of C preprocessor directives, Macros, data file handling, file opening modes, Text and Binary files.

Referenced Books:

[1] Brian W. Kernighan, Dennis M. Ritchie , "The C Programming Language", Prentice Hall software series, Second Edition.
[2] S.K. Srivastava and Deepali Srivastava, "C in Depth", BPB Publications.
[3] Yashavant Kanetkar , "Let us C", BPB publication, 15th edition.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. First Year
Computer Science Syllabus

B.Sc. -104P **Practical (C Programming & MS-Office)**
MM-100

List of Exercise based on C Programming & MS-Office:

C Programming:

1. Exercise on different operators used in C Language-Arithmetic/Logical/ Relational/Bit wise/Increment-Decrement/Ternary/ Special operators.
2. Data types/variable implementation.
3. Formatted and unformatted I/O function implementation.
4. Branching Statement-if, if-else, nested if-else, Else if ladder, Switch-case.
5. Looping Statement-while, do while, for.
6. Array implementation-single and multidimensional.
7. Structure & Union implementation.
8. Pointer implementation, types-void pointer.
9. Enum and storage classes implementation.
10. Pre-processor Directive, file handling through various functions.

MS Office:

1. Creating, Opening, Saving a Document. (Shortcut keys)
2. Formatting a document — setting paragraph, headings, font size and colour, line spacing, indentation, alignment of Document.
3. Mail-merge- envelops labels and documents.
4. Protection of document- Adding Password and Digital Signature. Inspecting and managing a document.
5. Table operations in MS Word.
6. Hyperlinking and linking documents internally and externally.
7. Formatting operations in MS-Word.
8. Spread Sheet formatting.
9. Referencing cell in spreadsheet.
10. Preparing Charts on data fields.
11. Use of functions and formulas in single and multiple spreadsheets.
12. Preparing graph and charts in spreadsheets.
13. PPT-introduction slides & formatting slides, Sound-videos insertion in slide.
14. Animation & graphics implementation in slides.
15. Slide show (Manual/Rehearse Timing).

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Second Year
Computer Science Syllabus

Paper Title:	**Data Structure Using C++**	**Paper Number:**	**First**
Paper Code:	**B.Sc.-201**	**Maximum Marks:**	**80**

Unit –I

OOPs concept, Procedural vs OOP programming, OOP terminology and features, Tokens, Character set, Keywords, Data-types, Data Types declarations, Constants and variables, expressions, Standard Library and header files, Classes and Objects, Operator and Expressions: Arithmetic Operator, Increment/Decrement Operator, Relational Operator, Logical Operator and conditional operators, library functions, Logical Expressions, C++ shorthand.

Unit –II

While, Do-while, For statements nested loops. If-else, switch, break, continue and Go to statements, Classes and Objects: Need for Classes, Declaration of Classes, referencing class Members, Scope of class and its members Nested Classes, Functions in a class: Inline Functions, Constant Member functions, Nesting of Member Functions, Memory allocation of objects, Arrays of objects, Static Class Member, Constructor, Destructor, inheritance, Polymorphism, encapsulation, friend function, this operator, inline function.

Unit –III

Data Structure definition and its classification, objective to study data structure, Algorithms and their complexity related issues, Dynamic Memory Allocation, Malloc () Vs Calloc () functions, Abstract Data Types (ADT), Stack definition, application and Implementation, Polish Notation, Queue definition, application and Implementation, Doubly Ended queue, Circular Queue, Priority Queue, Linked list, Single Linked list and Doubly Linked List, Circular Linked list, Disadvantages of Queue and Stacks, Advantages of Linked list over Queue and Stacks.

Unit –IV

Searching, linear and non-linear searching, Binary searching, sorting, Internal Sorting Vs External Sorting, Insertion sort, selection sort, bubble sort, Hashing and Collision Resolution techniques, Graph, Basic Terminology, Graph Traversal, Minimal Spanning Tree, Binary Trees, In order Traversal, Post order Traversal, Preorder Traversal, Binary Search Trees, Operations on a BST, Complete Binary tree, Strictly Binary tree, AVL tree.

Referenced Books:

[1] Bjarne Stroustrup, "A Tour of C++", C++ in Depth Series.
[2] E. Balagurusamy, "Object Oriented Programming with C++", Mcgraw Hill publication.
[3] Barbara Johnston, "C++ Programming Today", Pearson Education.
[4] R B Patel, "Expert Data Structure with C", Khanna Publication, Fourth Edition.
[5] Seymour Lipschutz, "Data Structures with C", Schaum's Outlines, Mc Graw Hill Publication.
[6] S. K Srivastava and Deepali Srivastava "Data Structure through C In Depth", BPB publication.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Second Year
Computer Science Syllabus

Paper Title:	**Operating System**	**Paper Number:**	**Second**
Paper Code:	**B.Sc.-202**	**Maximum Marks:**	**80**

Unit –I
Definition of operating system (OS), History of OS, Different types of OS, GUI Vs CLI Interface, Kernel and Shells architecture, Simple Batch Systems, Multiprogramming Vs Multitasking operating system, Multi-programmed Batched Systems, Time-Sharing Systems, Distributed Systems and Real-Time Systems, Operating System Structures-Command Interpreter System, Operating System Services, System Calls, System Programs, Process Concept, Process control Block, process Scheduling,
Unit –II
CPU scheduling-Basic Concepts, Scheduling Criteria, Shortest Job First (SJF) Scheduling, First-Come First-Serve Scheduling (FCFS), Priority Scheduling , Round Robin Scheduling, Multilevel Queue Scheduling.
Unit –III
Memory Partitioning Basic Concepts, Logical and Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Virtual Memory, Demand Paging, Paging Replacement, Fragmentation and its types, Thrashing and Demand Segmentation, File Concept, Access Methods, Directory Structure, Protection, File System Structure. Allocation methods, Free Space Management.
Unit –IV
Deadlock, Deadlock Characterizations, method for Handling Deadlocks, Deadlock prevention, Avoidance, Detection, recovery from Deadlock, Safe state.

Referenced Books:

[1] Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, "Operating System Concepts", WILEY Publication, Ninth Edition.

[2] Andrew S. Tanenbaum, "Modern Operating Systems", Pearson Prentice Hall, Third Edition

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Second Year
Computer Science Syllabus

Paper Title:	**Data Communication and Computer Network**	**Paper Number:**	**Third**
Paper Code:	**B.Sc.-203**	**Maximum Marks:**	**80**

Unit –I
Data, Information, Data Vs Information, Data Communication and its Component, Communication Media, Data transmission Modes, Modem and its major types, Computer network and its advantages, World Wide Web, Internet, LAN, MAN, WAN, Bridge, router, Switch, Repeater.
Unit –II
OSI reference Model, TCP/IP Model, OSI Model Vs TCP/IP Model, Network topologies, IEEE Standards for Local Area Networks, IEEE 802.3 Ethernet Technologies, IEEE 802.4 Token Bus, IEEE 802.5 Token Ring, IEEE 802.6 Distributed, Queue Dual Bus, FDDI.
Unit –III
Sliding Window Protocols, Point-to-Point Protocol (PPP), Multiple Access Protocols, Error Detection and Error Correction, IPV6, IPV4, FTP, SMTP.
Unit –IV
Network Security and AIC triad (availability, integrity and confidentiality),Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis, Public Key Encryption, digital Signatures and Authentication.

Referenced Books:

[1] Brijendra Singh, "Data Communication and Computer Networks", PHI Publication, Fourth Edition.
[2] Brijendra Singh, "Network Security and Management", PHI Publication, Third Edition.
[3] Behrouz A Forouzan, "Data Communication and Networking", McGraw Hill Publication, Fifth Edition.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Second Year
Computer Science Syllabus

B.Sc. -204 P **Practical (Data Structure Using C++, Python Basics)**
MM-100

List of Exercise based on Data Structure using C++, Python:

Data Structure using C++:

1. Implementation of dynamic memory allocation
2. Implementation of single dimensional and multidimensional arrays
3. Structure implementation
4. Stack Implementation with all operations
5. Stack Implementation as abstract data type
6. Stack application for In-fix, Post-fix and Pre-fix polish expression.
7. Implementation of Recursion
8. Queue Implementation with insertion and deletions of elements.
9. De-queue Implementation
10. Circular Queue Implementation
11. Priority Queue Implementation
12. Single linked Creation with all kind of operations in all conditions
13. Implementation of pointers
14. Stack Implementation using linked list
15. Queue Implementation using Linked list
16. Doubly Linked list creation with all kind of operations in all possible conditions.
17. Circular Linked list creation with all kind of operations in all possible conditions.
18. Creation of tree and performing insertion and deletion of nodes.
19. Creation of Binary tree.
20. Traversal of Binary tree (In Order, Pre Order, Post Order)
21. Implementation of sequential search.
22. Implementation of Binary search.
23. Implementation of Insertion sort
24. Implementation of Selection sort
25. Implementation of Bubble sort

Python:

1. Implementation of Standard input and output statement
2. Implementation of variables and operators
3. Implementation of conditional and decision making statement
4. Implementation of control and looping structure
5. Implementation of strings and text

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Third Year
Computer Science Syllabus

Paper Title: Database and Software Engineering	**Paper Number: First**
Paper Code: B.Sc.-301	**Maximum Marks: 80**

Unit –I

Data, Information and Knowledge, Introducing Databases and Different kinds of database users, Concept of a Database, Interacting with a Database, Architecture of a Database, Using Relational Databases, Basics of Relational Databases, Using Relational Databases, Identifiers For Relations, characteristics of database, database system concepts and Data Independence, Content of Data Dictionary, Data administration function, DBMS, Concurrency control, Database security, Database recovery.

Unit –II

Traditional Data Model – ANSI/SPRC 3-level Architecture, Overview of three Traditional models, Hierarchical, Network and Relational Models, Comparison of these models, File organization technique—Random file organization technique, Multi key file organization technique, Entity relationship Model, (ER Model), Structured Query Language- Introduction, Data definition, views and queries in SQL, Specifying constraints and indexes in SQL, Data Manipulation, Data maintenance, Multiple Table Operations, Transaction integrity facilities.

Unit –III

Why Software Engineering? Software processes-Software Process model (water Fall model, iterative, spiral model, Prototype Model, COCOMO Model) Software Requirements: Functional and non-functional requirements user requirements, system requirements Software requirement document, DFD, Pert Chart, ER Diagram.

Unit –IV

Software Testing –System testing, Component testing, Integration testing, Black Box testing, White Box testing, alpha testing, Beta testing, Validation Vs Verification, Software requirement specification (SRS) and its characteristics, Cohesion and its types, Coupling and its major types.

Referenced Books:

[1] Korth Silberschatz, Sudarshan, "Database System Concepts", McGraw-Hill Publication.
[2] Bipin C. Desai, "An Introduction to Database System", Galgotia publication.
[3] Pankaj Jalote, " Software Engineering: A Precise Approach", Wiley publication.
[3] Rajib Mall, " Fundamentals of Software Engineering", PHI publication.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Third Year
Computer Science Syllabus

Paper Title:	**Computer Architecture and Microprocessor**	**Paper Number:**	**Second**
Paper Code:	**B.Sc.-302**	**Maximum Marks:**	**80**

Unit –I
Sequential circuit, Combinational Circuit, Flip-Flops (RS, Clocked RS, T, D, JK, Master Slave), Counters and its types, Registers, Encoder and Decoder, Half Adder, Full Adder, Half Sub-tractor, Multiplexer, De-Multiplexer.
Unit –II
Introduction of Microprocessor: Evolution of microprocessor, Embedded microprocessor, Bit-Slice Processor, RISC and CISC Processor, Vector Processor Array processor, Intel 8086 Microprocessor: Pin description of Intel 8086, operating model of 8086, Register organization of 8086, Bus Interface and Execution Unit (BIU and EU), Interrupts 8086 Read and write Bus Cycle.
Unit –III
8086 Instruction Group: Data transfer Instruction , Arithmetic Instruction, Logical Instruction processor Control Instructing, string Instructions, Interrupts instructions, Addressing modes of 8086 Micro-Processor
Unit –IV
Synchronous Data Transfer, Asynchronous Data Transfer, Interrupt Driven Data Transfer DMA Controller Address space partitioning – Memory mapped I/O scheme, I/O mapped I/O scheme.

Referenced Books:

[1] V. Rajaraman and T. Radhakrishnan, "Digital Logic and Computer Organization", PHI Publication, Fourth Edition.
[2] B. Ram, "Fundamentals of Microprocessor and Microcomputers", Dhanpat Rai Publications, Sixth Edition.
[3] M. Morris Mano, "Computer System Architecture", PHI publication, Third Edition.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Third Year
Computer Science Syllabus

Paper Title: Application Development With java and .NET framework	**Paper Number:** Third
Paper Code: B.Sc.-303	**Maximum Marks:** 80

Unit –I

Introduction, The Origin of .Net Technology, Common Language Runtime (CLR), Common Type System (CTS), Common Language Specification (CLS), Microsoft Intermediate Language (MSIL), Just-In –Time Compilation, Framework Base Classes

Unit –II

HTML Tags, Paragraphing, line Break tag, Bullet and Numbering tag, Text formatting tags, (Bold, Italic, Underline, strike through, subscript, superscript) Marquee tag, Hyperlink tag, Inserting Back ground image, Horizontal Rule, Changing the Background and fore ground color, Creating table, merging cells, splitter cells, Inserting Colum heading table caption etc. Java Script, Cascading Style Sheet (CSS).

Unit –III

Control Flow Statements, Iterations, looping Structure, Array : Accessing Array elements, Multidimensional Arrays, Dynamic Arrays, Lbound and Ubound statements Option Base Statement, Interacting with the basic Controls, Forms, Form Collection, Controlling one form within another MDI form, command Buttons, Label Control, Text Box Control, Capturing the Key Strokes, List Box Controls, Combo Box Controls, more Controls : Radio Buttons, Scrollbars, timer Control, Running Lights Application, Image Control, Drive List Box, Searching a drive the directory list box, file Box copying a file, Deleting a File, Renaming a File, Moving a File.

Unit –IV

Java Programming Language and its oops features, Java features, java and world wide web, java environment and JDK (Java Development toolkit), Process of compilation, Java tokens, Identifiers, operators, variables and its declaration rules, data types, type-casting, java operators, control statement and looping structure in java, exception handling in java, servlet life cycle, swing and java Beans.

Referenced Books:

[1] Christian Nagel, Bill Evjen, Jay Glynn, Karli Watson, Morgan Skinner "Professional C# 2012 and .NET 4.5", Wiley Publication.

[2] Conrad Akunga, "Mastering C# 7.2 and .NET core 2.1 Application Development, Kindle Edition.

[3] Ivan Bayross, "Web enabled commercial application Development using HTML, Javascript, DHTML, and PHP", BPB Publication, 4th Revised Edition.

[3] E Balagurusamy, "Programming with Java a primer", McGraw Hill Publication, 3rd Edition.

JANNAYAK CHANDRASHEKHAR UNIVERSITY, BALLIA

B.Sc. Third Year
Computer Science Syllabus

B.Sc – 304P Practical (Java, .NET framework, Microprocessor 8086, Database)
MM-100

List of Exercise based on Java, .NET framework, Microprocessor 8086, Database:

Java:

1. Input output based simple java program
2. Control statement based java program
3. Looping structure based java program
4. Implementation of arrays and strings
5. Implementation nested loops.
6. Implementation of OOPs Concepts ,
7. Implementation of access modifiers.

HTML and CSS implementation using .NET framework:

1. Implementation of single and paired tags
2. Implementation of tables and frames
3. Implementation of cell spacing and cell padding
4. Implementation of marquee
5. Implementation of row span and column span
6. Implementation of java with HTML
7. CSS attachment and Implementation

Exercise based on Database (Oracle latest version):

1. Database, record and field creation.
2. Schema building
3. Implementation of DDL command
4. Implementation of DML command
5. Primary key, foreign key and composite key Implementation
6. Records insertion and retrieval through queries
7. Database connection to HTML page and inserting and retrieval of records through HTML pages.

Exercise based on Microprocessor 8086:

1. Implementation of Data transfer instructions
2. Implementation of Arithmetic Instructions
3. Implementation of logical instructions
4. Implementation of Branching Instructions
5. Implementation of Adders and Subtractors