B.P.S.MAHILA VISHWAVIDALAYA

KHANPUR KALAN (SONEPAT)

Scheme of Examination and Curriculum for

B.Sc. (Computer Science) Programme

BPS IHL, Khanpur Kalan,

2018-2019

B. P. S. Mahila Vishwavidyalaya, Khanpur Kalan (Sonepat)

(State University Established Under the Legislative Act No 31/2006)

Course Curriculum & Scheme of Examination

For

B.Sc. Computer Science

(w.e.f. 2017-18)

The Bachelor of Science in Co mputer Science is a three year full time programme. The course structure of the programme is given under:-

Semester – 1

S. No.	Code	Course Title	Hours /Week			Total Credits	Max Marks		
			L	T	P		Interna Marks	External Marks	Tota Marks
Theory									
1	CSC - 101A	Computer Fundamentals	3	-	-	3	10	40	50
2	CSC - 101B	Logical Organization of Computer	3	-	-	3	10	40	50
Lab									
3	CSP - 101	Computer Fundamentals Lab.	-	-	4	2	10	40	50
Total			6	-	4	8	30	120	150

Total Contact Hours=10

Total Credits=8

Note: Minimum passing marks for any subject (paper) shall be 40% in the external examination and 40% in the aggregate of internal and external examinations of the subject.

11/8/17

11/8/17

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Paper Code: CSC – 101A

1st Semester

Computer Fundamentals

L – T – P

3 – – – –

Time-3 Hrs

Total Credits: 03
External Marks: 40
Internal Marks: 10

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt Five questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit-1

Introduction to computer - Evolution of computers, classification of computers, model of a digital computer, functioning of a digital computer, usefulness of computers. Human being Vs computers, applications of computers (desktop publishing, sports ,design and manufacturing research, military robotics, planning & management, marketing, medicine & health care, arts, communication etc.).

Unit 2

Input/Output devices: Punch cards, card-readers, Keypunching machines, keyboards, mouse, joysticks, trackball, Digitizer, Voice-recognition devices, Scanner and terminal.

Hard copy devices - Types of printer: Impact printer (DMP, Daisy wheel, line, drum printer, chain printer), Non Impact printer (laser, Inkjet, thermal), plotters, soft copy devices, monitor, video standards.

Memory & Mass Storage devices: Characteristics of memory system, types of memory : RAM, ROM, Magnetic disks, floppy disk ,hard disk, optical disk, optical disk CD, CD-ROM, magnetic tapes, concept of virtual & cache memory.

Unit 3

Software Concepts: Introduction, types of software - System & Application software; Language translators- Compiler, Interpreter, Assembler; System utilities - Editor, Loader, Linker.

11/08/2017 11/9/17 11/09/2017 11/08/2017 11/2/2017 11/8/17

Overview of operating system: Definition, functions of operating system, concept of multiprogramming, multitasking, multithreading, multiprocessing, time-sharing, real time, single-user & multi-user operating system.

Unit 4

Features of Microsoft Windows: 98, XP, Windows–2003, Windows -7, Windows - 10.

MS-WORD: Text manipulation (change the font size and type, aligning and justification of text, Underlining the text, indenting the text, Usages of numbering, bullets, footer and headers. Usages of spell check and find and replace, difference between .doc and .docx.

Tables and manipulation: Creation, insertion, deletion (columns & rows) and usage of auto format, creation of documents using templates, Mail merge concept, macros.

Suggested Readings:

1. Gill. Nasib S.: Essentials of Computer and Network Technology, Khanna Book Publishing Co.,New Delhi.
2. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
3. Chhillar, Rajender S.: Application of IT in Business, Ramesh Publishers, Jaipur.
4. Donald Sanders: Computers Today, McGraw-Hill Publishers.
5. Davis: Introduction to Computers, McGraw-Hill Publishers.
6. V. Rajaraman : Fundamental of Computers, Prentice-Hall India Ltd., New Delhi.
7. Learning MS-Office2000 by R Bangia (Khanna Book Pub)
8. Teach yourself MS-Office by Sandlers (BPB Pub).
9. Using MS-Office by Bott(PHI).

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

11/08/2017 11/8/17 11/08/17 11/08/2017

11/8/2017 11/8/17

Paper Code: CSC – 101B Logical Organization of Computer

L – T – P
3 – – –

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT I

Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floating-point representation of numbers, BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC, Unicode.

UNIT II

Binary Logic: Boolean algebra, Boolean Theorems, Boolean Functions and Truth Tables, ; De Morgan's theorem, Simplifying logic circuits—sum of product and product of sum form, algebraic simplification, Karnaugh simplifications.

UNIT III

Digital Logic: Basic Gates – AND, OR, NOT, Universal Gates – NAND, NOR, Other Gates –XOR, XNOR etc, NAND, NOR, AND-OR-INVERT and OR-AND-INVERT .

Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type, JK, T type, Race Around condition and Master-Slave flip flops.

UNIT IV

Combinational Circuits: Half-Adder, Full-Adder, Half-Subtractor, Full-Subtractor, Encoders, Decoders, Multiplexers , Demultiplexers, Comparators, Code Converters, BCD to Seven-Segment, Decoder.

Suggested Readings:

1. M. Mano: Computer System Architecture, Prentice-Hall of India Ltd., New Delhi.

15/08/2017 11/8/17 11/8/17 11/8/17 11/8/2017

...ill N.S. and Dixit J.B.: Digital Design and Computer Organization, University Science Press (An imprint of Laxmi Publications), N. Delhi)

3. William Stallings: Computer Architecture and Organization, Maxell Publication.

4. Mano, M.M.: Digital Design, 2nd ed., Prentice-Hall of India.

5. Salivahanan and Arivazhagan: Digital Circuits and Design, Vikas Publ. House Pvt. Ltd.,

6. J.P. Hayes: Computer Architecture and Organization by J.P. Hayes, Tata McGraw-Hill, New Delhi.

7. Gear C.W.: Computer Organization and Architecture, Prentice Hall of India Ltd., New Delhi.

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

11/08/2017 11/8/17 11/08/2017 11/08/2017 11/8/2017 11/8/17

Code: CSP – 101

Computer Fundamentals Lab.

Total Credits: 02

Time-3Hrs
External Marks: 40
Internal Marks: 10

Practical Based on CSC-101 (Windows, Ms-Office)

Internal Assessment Marks (For Theory Papers)

Sr.No.	Criteria	Marks
1	One mid term exam	5
2	Seminar/Assignment	2.5
3	Attendance	2.5
	Total	10

Internal Assessment Marks (For Practical)

Sr.No.	Criteria	Marks
1	Practical Sheet/Program Execution	5
2	Practical File/Viva-Voce	2.5
3	Lab Attendance	2.5
Total		10

11/8/17 11/08/2017 11/07/2017 11/10/2017

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B.P.S. Institute of Higher Learning

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Course Curriculum & Scheme of Examination

For

B.Sc. Computer Science

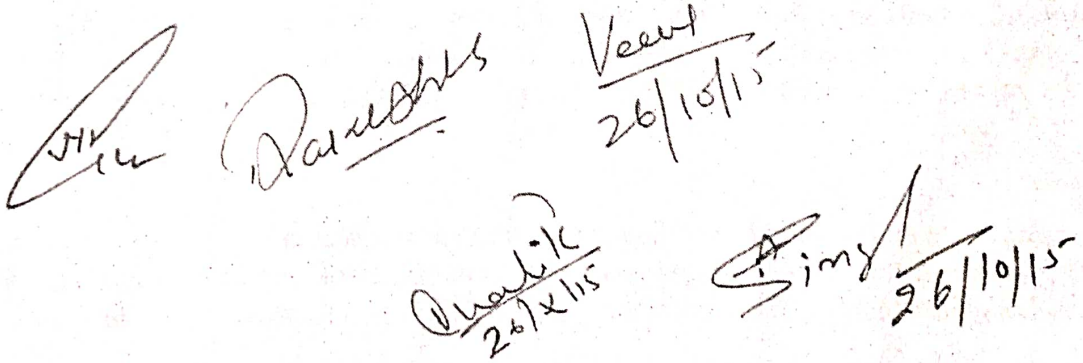
(w.e.f. 2015-16)

Semester – 2

S. No.	Code	Course Title	Hours /Week			Total Credits	Max Marks		
			L	T	P		Interna Marks	External Marks	Total Marks
Theory									
1	CSC - 102A	Programming in C	3	-	-	3	10	40	50
2	CSC - 102B	Computer Networks	3	-	-	3	10	40	50
Lab									
3	CSP - 102	Programming in C ~~Practical~~ Lab	-	-	4	2	10	40	50
Total			6	-	4	8	**30**	**120**	**150**

Total Contact Hours=10 **Total Credits=8**

Note: Minimum passing marks for any subject (paper) shall be 40% in the external examination and 40% in the aggregate of internal and external examinations of the subject.



2nd Semester

Paper Code: CSC- 102A **Programming in 'C'**

L – T – P
3 -- --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all.Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit-I

Basic concepts of programming, techniques of problem solving, algorithm designing and flowcharting, concept of structured programming-Top-Down design, Development of efficient program; Program correctness; Debugging and testing of programs

Unit-II

Overview of C: History of C, Importance of C, Structure of a C Program Elements of C: C character set, identifiers and keywords, Data types: declaration and definition. Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators and their hierarchy & associatively, input/output statements, Arithmetic Expression, Evaluation of Arithmetic Expression, Type-casting and Conversion.

Unit-III

Decision making & branching: Decision making with if statement, if-else statement, nested if, else-if ladder, switch statement, goto statement. Decision making & looping: for, while, and do-while loop; Jumps in loop, break, continue. Functions: Definition, prototype, passing parameters, Recursion.

Unit-IV

Pointers: Declaration, operations on pointers, array of pointers, pointers to arrays. Data Structures: Arrays: One Dimensional, Multidimensional, Pointers and arrays. Strings: String Constants, Input & Output, String Functions. Structure & Unions. File Handling: Standard I/O text File, Writing to File, Reading a File.

Suggested Readings:

1. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
2. Gottfried: C Programming (Schaum's Outline Series), Tata McGraw-Hill Publishers.
3. Kanetkar: Let Us C, BPB Publications, New Delhi.
4. E. Balagurusamy: C Programming (Tata McGraw-Hill Publishers)
5. Donald Sanders: Computers Today, McGraw-Hill Publishers.

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Paper Code. CSC-102B Computer Networks

L – T – P
3 -- --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all.Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit I

Basic concepts: Components of data communication. Line configuration, transmission mode, OSI TCP/IP Models: Layers and their functions, comparison of models.

Digital transmission: Interfaces and modems: DTC-DEC Interfaces, modems cable modem.

Transmission media: Guided and unguided attenuation, distortion, noise, throughput, propagation speed and time, wavelength, Channel Capacity, Shannon capacity.

Unit II

Introduction to signals. Analogue and digital signals, Periodic and aperiodic signals, time and frequency domains, composite signals

Encoding and modulation: Digital to digital conversion analogue to digital conversion. Analogue to Analogue conversion

Multiplexing, error detection and correction: Many to one, many to many, WDM, TDM, FDM, Telephone system, DSL, CDMA, FTTC

Unit III

Data link control protocols: Line discipline, flow control, error control, synchronous and asynchronous protocols, character and bit oriented protocols, Ethernet. Token Bus, token ring, FDDI, SMDS

Switching: Circuit switching packet switching, message switching.

Unit IV

Internetworking: Repeaters, bridges, gateways, Switch/Hub, Router, Tunnelling, Fragmentation, Firewalls

Network Security: Cryptography-Public Key, secret Key, DNS- E-mail and WWW, E-mail Architecture.

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Suggested Readings.

1. B.A. Forouzan: Data Communication and Networks 2nd Edition Tata Mc Graw Hill
2. A.S. Tanenbaums. Computer Networks Prentics Hall of India
3. J.E. Hayes, Modeling and Analysis of Computer Communication Networks, press.
4. D.E. Comer. Internetworking with TCP/IP, Vol. I. Prentice Hall of India.
5. W. Sralling. Data & Computer Communication, Maxwell Miamian Intranation Edition.

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

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Programming in C [illegible]

L – T – P
- -- - 4
Time-3Hrs
External Marks: 40
Internal Marks: 10

Total Credits: 02
Total Marks: 50

Note:

Practical ("C" Language)

Internal Assessment Marks (For Theory Papers)

Sr.No.	Criteria	Marks
1	One mid term exam	5
2	Seminar/Assignment	2.5
3	Attendance	2.5
	Total	**10**

Internal Assessment Marks (For Practical)

Sr.No.	Criteria	Marks
1	Practical Sheet/Program Execution	5
2	Practical File/Viva-Voce	2.5
3	Lab Attendance	2.5
Total		**10**

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Course Curriculum & Scheme of Examination

For

B.Sc. Computer Science

(w.e.f. 2015-16)

Semester – 3

S. No.	Code	Course Title	Hours /Week			Total Credits	Max Marks		
			L	T	P		Interna Marks	External Marks	Tota Mark
Theory									
1	CSSC--201A	Data & File Structure using C	3	-	-	3	10	40	50
2	CSSC--201B	Computer System Architecture	3	-	-	3	10	40	50
Lab									
3	CSSP -201	Data & File Structure using C Practical Lab	-	-	4	2	10	40	50
Total			6	-	4	8	30	120	150

Total Contact Hours=10

Total Credits=8

Note: Minimum passing marks for any subject (paper) shall be 40% in the external examination and 40% in the aggregate of internal and external examinations of the subject.

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3rd Semester

Paper Code: CSC – 201 A **Data & File Structure using 'C'**

L – T – P

3 - - - -

Time: 3 Hrs.

Total Credits: 03
External Marks: 40
Internal Marks: 10

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attemp four more questions selecting one question from each Unit.

Unit I

Introduction to data structures ,memory management techniques ,data structure Operations ,Algorithr notations ,complexity of algorithm & time space trade off, arrays , different operations on arrays.

Unit II

Stack, memory representation of stacks ,operation of stack, application of stack (Polish notations recursion ,Queues, Operations on Queues, types of Queues ,liked lists, representation of liked list ,types of linked list.

Unit III

Searching (Internal External) , Searching techniques (Linear, Binary search)

Sorting techniques : Bubble Sort ,Selection Sort ,Insertion sort ,Quick sort. merge sort .

Unit IV

Introduction to files : components of file. Reasons for structuring files, logical data organization concepts o keys _types of files (According to function ,Access mode), file operations, file system .

Suggested Readings:

1. Lipschutz: Data Structures (Schaum's Outline Series), Tata McGraw-Hill.

2. Adam Drozdek: Data Structures and Algorithms in C++, Vikas Pub. House (Thmpson), New Delhi.

3. Gupta Amit: Data Structures Through C, Galgotia Booksource Pvt. Ltd., New Delhi.

4. Bohat S.: Data Structures With C and C++, Khanna Book Pub. Co.(P) Ltd, N. Delhi.
5. Dromey R.G: How to Solve it by Computer ?, Prentice Hall India.
6. Loomis: Data Structure and File Management, Prentice-Hall India Ltd.
7. Tannenbaum: Data Structure Using C, Tata McGraw-Hill.

Note: Latest and additional good books may be suggested and added from time to time, coverin
syllabus.

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26/10/15

Paper Code: CSC – 201B

Computer System Architecture

L – T – P
3 - - - --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT I

Sequential Circuits: Designing registers – Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), Parallel Input Serial Output (PISO), Parallel Input Parallel Output (PIPO)
State table, state diagram and state equations. Flip-flop excitation tables

UNIT II

Shift registers. Designing counters – Asynchronous and Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters

UNIT III

Memory & I/O Devices: Memory Parameters. Semiconductor RAM, ROM. Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers.

UNIT IV

Instruction Design & I/O Organization: Machine instruction, Instruction set selection, Instruction cycle, Instruction Format and Addressing Modes. I/O Interface, Interrupt structure, Program controlled, Interrupt-controlled & DMA transfer, I/O Channels, IOP.

Suggested Readings:

1. M. Morris Mano, Digital Logic and Computer Design, Prentice Hall of India Pvt. Ltd.
2. V. Rajaraman, T. Radhakrishnan, An Introduction to Digital Computer Design, Prentice Hall of India Pvt. Ltd.
3. Andrew S. Tanenbaum, Structured Computer Organization, Prentice Hall of India Pvt. Ltd.
4. Nicholas Carter, Schaum's Outlines Computer Architecture, Tata McGraw-Hill

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper Code: CSP – 201
L – T – P
-- -- 4
Time-3Hrs
External Marks: 40
Internal Marks: 10

Data & File Structure Using 'C' Practical Lab
Total Credits: 02
Total Marks: 50

Note: Practical (Data Structure Using "C" Language)

Internal Assessment Marks (For Theory Papers)

Sr.No.	Criteria	Marks
1	One mid term exam	5
2	Seminar/Assignment	2.5
3	Attendance	2.5
	Total	10

Internal Assessment Marks (For Practical)

Sr.No.	Criteria	Marks
1	Practical Sheet/Program Execution	5
2	Practical File/Viva-Voce	2.5
3	Lab Attendance	2.5
Total		10

26/10/15

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Course Curriculum & Scheme of Examination

For

B.Sc. Computer Science

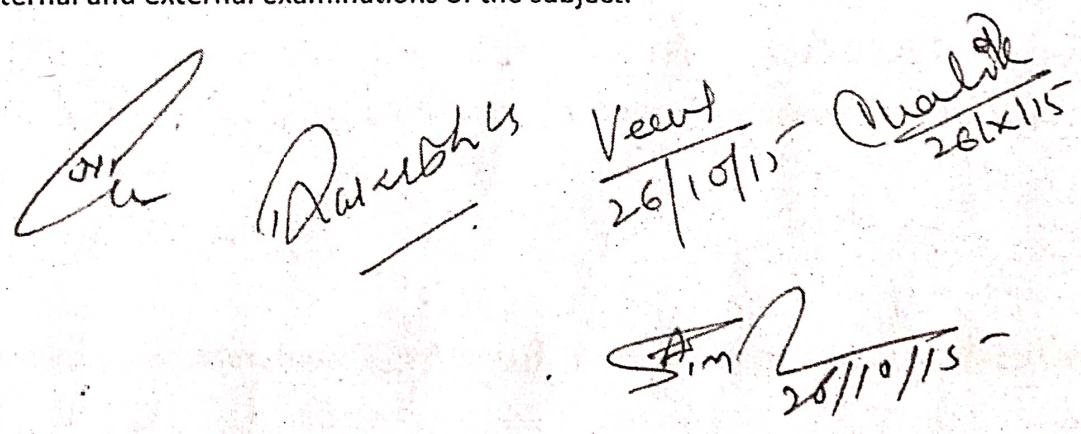
(w.e.f. 2015-16)

Semester – 4

S. No.	Code	Course Title	Hours /Week			Total Credits	Max Marks		
							Interna Marks	External Marks	Total Marks
			L	T	P				
Theory									
1	CSC- 202A	Advanced Data and File Structure	3	-	-	3	10	40	50
2	CSC- 202B	Object Oriented Programming with C++	3	-	-	3	10	40	50
Lab									
3	CSP- 202	Object Oriented Programming with C++ Practical- Lab	-	-	4	2	10	40	50
Total			6		4	8	30	120	150

Total Contact Hours=10 **Total Credits=8**

Note: Minimum passing marks for any subject (paper) shall be 40% in the external examination and 40% in the aggregate of internal and external examinations of the subject.



4th Semester

Paper Code: CSC – 202A **Advanced Data and File Structure**

L – T – P
3 -- --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all.Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit I

Graphs: Representation of Graphs in Memory, Traversing of Graphs, Binary Tree, Storage Representation, Tree Traversal, Binary Search Tree, Searching & Inserting in BST

Unit II

Introduction to Files: Types of Files (According to function, Access mode), files Operations, file System, Storage devices, Magnates tape (Blocking & De –Blocking), tape utilization, Size of Block, Application Areas of Magnetic tape, Advantage & Disadvantage of tape, Timing Determination, Magnetic Disk (Access time, Advantage & Disadvantages), floppy disk, Comparison between different Storage Devices

Unit III

File Organization: Types of File Organization :Serial Sequential, Direct, (ISAM) Indexed sequential AccessMethod) ,Hashing algorithm, Collision & Synonym., Choice of file organization Methods.

Unit IV

Concepts of index, Levels of index, Multi Key Access, Inverted File Organization, Multi list Organization

Suggested Readings:

1. Lipschutz: Data Structures (Schaum's Outline Series), Tata McGraw-Hill.
2. Adam Drozdek: Data Structures and Algorithms in C++, Vikas Pub. House (Thmpson), New Delhi.
3. Gupta Amit: Data Structures Through C, Galgotia Booksource Pvt. Ltd., New Delhi.
4. Sofat S.: Data Structures With C and C++, Khanna Book Pub. Co.(P) Ltd, N. Delhi.

5. Dromey R.G: How to Solve it by Computer ?, Prentice Hall India.

6. Loomis: Data Structure and File Management, Prentice-Hall India Ltd.

7. Tannenbaum: Data Structure Using C, Tata McGraw-Hill.

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper Code: CSC – 202B **Object Oriented Programming with C++**

L – T – P
3 -- --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit-I

Object Oriented Programming: Software evolution. Object oriented Languages and Applications.

Object oriented concepts: Class, Object, Abstraction, Inheritance, Polymorphism, Overriding, Abstract Class & methods. Generalization, Aggregation, Associations.

Unit-II

Introduction to Programming C++: Object-Oriented Features of C++, data types in C++, variables, operators, flow control, recursion, array, Pointers and their manipulation, strings, structures, Class and Objects, Data Hiding & Encapsulation, Data members and Member functions, Inline Functions ,Friend Functions, Comparing C with C++.

Unit- III

Inheritances: Single Inheritance, Multiple Inheritance, Hierarchical, Hybrid Inheritance, polymorphism, pointers, virtual functions, console I/O operations.

Unit- IV

Files: classes for file stream Operations-opening, closing and processing file, End of file detection, file pointers, updating a file, Error Handling during file Operations.

Suggested Readings:

1. Balagurusamy, E.: Object-Oriented Programming With C++, Tata McGraw-Hill.
2. Subburaj, R.: Object-Oriented Programming With C++, Vikas Pub. House, New Delhi.
3. Rumbaugh, J. et. al.: Object-Oriented Modelling and Design, Prentice Hall of India.
4. Booch, Grady: Object-Oriented Analysis & Design, Addison Wesley.
5. Chndra, B.: Object Oriented Programming Using C++, Narosa Pub. House, New Delhi.
6. Stroustrup, B.: The C++ Programming Language, Addison-Wesley.
7. Lippman: C++ Primer, 3/e, Addison-Wesley.
8. Schildt, Herbert: C++: The Complete Reference, 2/e, Tata McGraw-Hill

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

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Paper Code: CSP – 202
L – T – P
- -- - 4
Time-3Hrs
External Marks: 40
Internal Marks: 10

OOPS Using "C++" ~~Practical~~ Lab

Total Credits: 02
Total Marks: 50

Note: Practical (OOPS Using "C++" Language)

Internal Assessment Marks (For Theory Papers)

Sr.No.	Criteria	Marks
1	One mid term exam	5
2	Seminar/Assignment	2.5
3	Attendance	2.5
	Total	**10**

Internal Assessment Marks (For Practical)

Sr.No.	Criteria	Marks
1	Practical Sheet/Program Execution	5
2	Practical File/Viva-Voce	2.5
3	Lab Attendance	2.5
Total		**10**

26/10/15
26/X/15
26/10/15

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Course Curriculum & Scheme of Examination

For

B.Sc. Computer Science

(w .e.f. 2015-16)

S emester – 5

S. No.	Code	Course Title	Hours /Week			Total Credits	Max Marks		
			L	T	P		Interna Marks	External Marks	Total Mark
Theory									
1	CSC- 301A	Data Base Management System	3	-	-	3	10	40	50
2	CSC - 301B	Operating System	3	-	-	3	10	40	50
Lab									
3	CSP -301	Data Base Management System Practical Lab	-	-	4	2	10	40	50
Total			6	-	4	8	30	120	150

Total Contact Hours=10

Total Credits=8

Note: Minimum passing marks for any subject (paper) shall be 40% in the external examination and 40% in the aggregate of internal and external examinations of the subject.

Veena 26/10/15

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Paper Code: CSC – 301A Data Base Management System

L – T – P
3 -- --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Basic Concepts – Data, Information, Records and files. Traditional file – based Systems-File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions, Advantages and Disadvantages of DBMS. Classification of Database Management System. Roles in the Database Environment - Data and Database Administrator.

UNIT – II

Centralized and Client Server architecture to DBMS. Database System Architecture – Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances. Data Independence – Logical and Physical Data Independence. Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modeling. Hierarchical, network and Relational model

UNIT – III

Entity-Relationship Model – Entity Types, Entity Sets, Attributes and keys, Relationship, relationship sets, Role name & recursive relationship and structural constraints, Conceptual design using E-R Diagrams. Relational Data Model:-Introduction, Properties of Relations, Keys, Integrity Constraints over Relations, Views. Relational Database Design: Functional Dependencies, Normalization:1st to 3rd Normal Form, BCNF, Lossless Join and Dependency preserving decomposition.

UNIT – IV

SQL: Types & components of SQL, Data Definition and data types, Data definition commands, Data manipulation commands, Data Control Commands Specifying Constraints(Primary Constraint,. Foreign key, Unique, Not Null) in SQL, Schema, Basic Queries in SQL, Insert, Delete and Update operations. Inbuilt Date, String functions. Commit, Rollback, Save points. Views: Introduction, Advantages of creating views, Features, Destroying/ Altering table & Views.

Suggested Readings:

1. Elmasri & Navathe, "Fundamentals of Database Systems", 5th edition, Pearson Education.
2. Thomas Connolly Carolyn Begg, "Database Systems", 3/e, Pearson Education
3. C. J. Date, "An Introduction to Database Systems", 8th edition, Addison Wesley N. Delhi.
4. Raghurama Krishnan:Database Management Systems, Johannes Gehrke, TMH.
5. Siberschatz,Korth: Database System Concepts, McGRaw Hill, latest Edition

J. D Ullman, Principal of Date base systems, Golgotha, New Delhi.
J. Wiederhold, Date base Design, Mc Grew Hill
9.R. Elmasri, and S.B. Navathe, Fundamentals of database Systems, Pearson Education Asia.
10.R. Ramakrishna. J. Gemke, Date base Management Systems, Mc Graw-Hill

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper Code: CSC – 301B **Operating System**

L – T – P
3 -- --

Total Credits: 03
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 par (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from ea Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questio in all.Question Number 1 will be compulsory. In addition to compulsory question, student will have to atte four more questions selecting one question from each Unit.

UNIT- I

Introduction: Introductory Concepts: Operating system functions and characteristics, historical evolution of operating systems, types of Operating System: Real time, Multiprogramming, Multiprocessing, Batch processing, O/S service system calls, system programs.

UNIT – II

Process management: Process concepts, operations on processes, Process states and Process Control Block. CPU Scheduling: Scheduling criteria, Levels of Scheduling, Scheduling algorithms, Multiple processor scheduling. Deadlocks: Deadlock characterization, Deadlock prevention and avoidance.

UNIT – III

Concurrent Processes: Critical section problem, Semaphores, Classical process co-ordination problems and their solutions, Inter-process Communications. Storage Management: memory management of single-user and multi-user operating system, partitioning, swapping, paging and segmentation, Thrashing.

UNIT-IV

Memory Management: Mapping address space to memory space, memory allocation strategies, fixed partition, variable partition, segmentation
File management: File Systems: Functions of the system, File access methods, allocation methods Contiguous, allocation, linked, indexed allocation.

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Paper Code: CSP – 301 Data Base Management System Practical Lab

L — T – P

- — - - 4

Time-3Hrs

External Marks: 40

Internal Marks : 10

Total Credits: 02

Total Marks: 50

Note: Practical (Oracle and sql queries)

Internal Assessment Marks (For Theory Papers)

Sr. No.	Criteria	Marks
1	One mid term exam	5
2	Seminar/Assignment	2.5
3	Attendance	2.5
	Total	10

Internal Assessment Marks (For Practical)

Sr.No.	Criteria	Marks
1	Practical Sheet/Program Execution	5
2	Practical File/Viva-Voce	2.5
3	Lab Attendance	2.5
Total		10

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B.P.S. Institute of Higher Learning

B. P. S. Mahila Vishwavidyalaya, Khanpur Kalan (Sonepat)

(State University Established Under the Legislative Act No 31/2006)

Course Curriculum & Scheme of Examination

For

B.Sc. Computer Science

(w.e.f. 2015-16)

Semester – 6

S. No.	Code	Course Title	Hours /Week			Total Credits	Max Marks		
			L	T	P		Interna Marks	External Marks	Total Marks
Theory									
1	CSC - 302A	Visual Basic Programming	3	-	-	3	10	40	50
2	CSC- 302B	Software Engineering	3	-	-	3	10	40	50
Lab									
3	CSP- 302	Visual Basic Programming ~~Practical~~ Lab	-	-	4	2	10	40	50
Total			6	-	4	8	30	120	150

Total Contact Hours=10 **Total Credits=8**

Note: Minimum passing marks for any subject (paper) shall be 40% in the external examination and 40% in the aggregate of internal and external examinations of the subject.

26/10/15

26/10/15

26/10/15

Paper Code: CSC – 302A **Visual Basic Programming**

L – T – P
3 -- --

Total Credits: 3
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all.Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit I

Introduction to VB: Visual & Non-visual programming, Procedural, Object-oriented and event- driven Programming languages, The VB environment: Menu bar, Toolbar, Project explorer, Toolbox, Properties window, Form designer, Form layout, Immediate window. Event driven programming..

Unit II

Textboxes, command buttons, frames, check Boxes, Option Buttons, Images, Setting a Border & Styles, the Shape Control, The line Control, Working with multiple controls and their properties. Designing the user Interface, Keyboard access, Val function

Unit III

Basics of Programming: Variables: Declaration, Types of variables, Converting variables types, User defined data types, Scope & lifetime of variables. Constants: Named & intrinsic. Operators: Arithmetic, Relational & Logical operators. I/O in VB: Various controls for I/O in VB, Message box, , Input Box, Print statement.

Unit IV

Programming with VB: Decisions and conditions: If statement, If-then-else, Select-case. Looping statements: Do-loops, For-next, While-wend, Exit statement. Nested control structures. Arrays: Declaring and using arrays, one-dimensional and multi-dimensional arrays, Static & dynamic arrays, Arrays of array.

Suggested Readings:

(1) Programming in VB 6 by Julia case Bradley, Anita C, Millspaugh, TMH

(2) Visual Basic 6.0 Programming by Content Development Group, TMH

(3) The Complete Reference Visual basic 6 by Noel Jerke, TMH

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

26/10/15

26/10/15

Paper Code: CSC – 302B **Software Engineering**

L – T – P
3 -- --

Total Credits: 3
External Marks: 40
Internal Marks: 10

Time-3Hrs

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all.Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

Unit 1

Software and software engineering:: Software characteristics, Software Processes, software crisis, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models, software engineering paradigms, goals and principles of software engineering.

Unit 2

Software requirement analysis – Structured analysis, object-oriented analysis and data modeling, software requirement specification, validation.
Software requirements Analysis and Specifications: Requirement engineering, requirements analysis using DFD, Data Dictionaries and E-R Diagram, requirement documentation, nature of SRS, characteristics and organization of SRS.

Unit3

Size Metrics, Function point analysis, phases process models, Software process, Software Quality , role of metrics & measurement.

Cost estimation COCOMO model, Project Scheduling Software Quality Assurance, Project monitoring plans

Unit 4

Design and implementation of software- Software design fundamentals, software design principles, Cohesion and Coupling, Classification of Cohesion and Coupling, Function oriented design, object oriented Design, design verification, monitoring and control..

Concept of Software reliability & Availability. Safety of the software, Error, Fault & Failure of software. Reliability Models & limitations.

Suggested Readings:

1) Software Engineering By Nasib Singh Gill, Khanna Publication
2) Software Engg:- Metrics, testing and faults, Rajender Singh Chhillar, Excel Books new Delhi.
3) Software Engg:- Roger, S, Pressman, Mc-Graw hill
4) An Integrated Approach to Software Engg. Pankaj Jolote. Narose

6) Risk Management Economics Bohem B.IEEE Computer Society Press.
7) Software Engineering Economics Bohem B.IEEE Computer Society Press.
8) Software Engineering By Sommerville.

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

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