

## देवी अहिल्या विश्वविद्यालय, इन्दौर

विश्वविद्यालय भवन

इन्दौर 452001

दिनांक

5 OCT 2019

क.शैक्ष./पाठ्य/अधि./2019/2727

// अधिसूचना //

एतद्वारा सर्व सम्बन्धितों की सूचनार्थ यह अधिसूचित किया जाता है, कि दिनांक 6/9/2019 को सम्पन्न कम्प्युटर साईंस एण्ड आय.टी.अध्ययन मण्डल की बैठक के निर्णय अनुसार बी.एस.सी कम्प्युटर साईंस (आनर्स) तृतीय वर्ष 2019-20 के पाठ्यक्रम में संशोधन किया गया है । संशोधित पाठ्यक्रम संलग्न है ।

संलग्न:- उपरोक्तानुसार

आदेशानुसार

कुलसचिव

क./पृष्ठां/शैक्ष./अधि./ 2019/2727  
प्रतिलिपि :-

इन्दौर,दिनांक

5 OCT 2019

1. प्राचार्य/प्राचार्या समस्त,सम्बन्धित महाविद्यालय, दे.अ.वि.वि.इन्दौर।
2. विभागाध्यक्ष, आय.टी. सेन्टर की ओर इस निवेदन के साथ की वे इस अधिसूचना को पाठ्यक्रम के साथ देवी अहिल्या विश्वविद्यालय की वेबसाइट पर अपलोड करें ।
3. कुलपति के सचिव / कुलसचिव के निज सहायक ।
4. उपकुलसचिव/सहायक कुलसचिव (परीक्षा/गोपनीय)
5. सम्बन्धित सहायक संकाय (परीक्षा/गोपनीय)
6. निदेशक,महाविद्यालयीन विकास परिषद दे.अ.वि.वि. इन्दौर ।
7. अधिष्ठाता, छात्र कल्याण दे.अ.वि.वि. इन्दौर ।

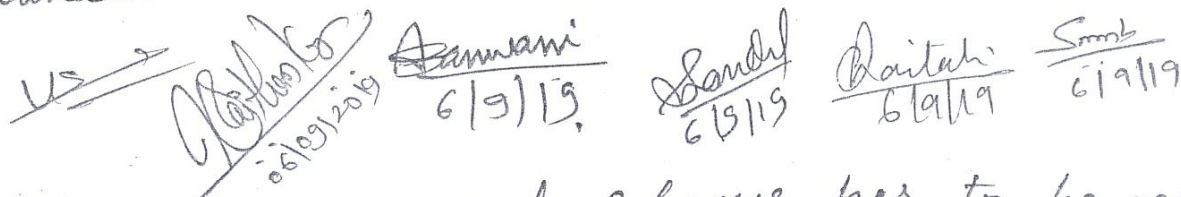
उप.कुलसचिव (शैक्ष.)

## Proposed Syllabus and Scheme

### B.Sc. –III year Computer Science (HONS) Effective from 2019-20

Course Name	Theory		Total	Practical	Grand Total
	Internal	External			
B.Sc.- III year Computer Science (HONS)					
B.Sc. CS Hons:Database Management System	10	40	100	50	150
B.Sc. CS Hons: Operating System	10	40			
B.Sc. CS Hons(303H):JAVA Programming	10	40	50	50	100
B.Sc. CS Hons(304H):Computer Network	10	40	50	50	100
B.Sc. CS Hons(305H): Software Eng.	10	40	50	----	50
<del>B.Sc. CS Hons(306H): (Minor Project)</del>	----	----	----	50	50
B.Sc. CS Hons(307H): <del>Major</del> project using JAVA	----	----	----	100	100
				Total	550

✓ Foundations



Note: Syllabus and scheme has to be re-submitting with foundation course, other computer Sc. Subjects and additional Hons. course.

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Department of Higher Education, Government of Madhya Pradesh  
 Yearly Syllabus for Undergraduates  
 As recommended by Central Board of Studies of Computer Science and  
 Approved by H E the Governor of M.P.  
 Session 2017-18  
 B.Sc. III YEAR COMPUTER SCIENCE  
 PAPER I: DATABASE MANAGEMENT SYSTEM

Max. Marks : 40

Min. Marks: 13

UNIT-I

Purpose of database system, views of data, data models: relation, network, hierarchical, instances and schemas, data dictionary, types of database languages:-DDL, DML, structure of DBMS, advantages and disadvantages of DBMS, 3-level architecture proposal:-external, conceptual & internal levels.

UNIT-II

Entity relationship model as a tool of conceptual design: entities & entities set, relationship and relationship set, attributes and mapping constraints, keys, ER diagram:-strong and weak entities, generalization, specialization & aggregation, reducing ER diagram to tables

UNIT-III

Fundamentals of set theoretical notations: relations, domains, attributes, tuples, concept of keys: primary key, super key, alternate key, candidate key, foreign key, fundamentals of integrity rules: entity & referential integrity ,extension and intension, relational algebra: select, project, cartesian product, different types of joins: theta, equi, natural, outer joins, set operations.

UNIT-IV

Functional Dependencies, Good & Bad Decomposition and Anomalies as a database: A consequences of bad design, Universal relation, Normalization: 1NF, 2NF, 3NF &BCNF normal forms, multivalued dependency, join dependency, 4NF, 5NF.

UNIT-V

Basic concepts: -Indexing and Hashing, B-tree Index files, Hashing: Static & Dynamic hash function, Index definition in SQL: Multiple key accesses.

Text Books-

Database System Concepts by Henry Korth and A. Silberschatz.  
 Simplified approach to DBMS, Prateek Bhatia, Gurvinder Singh Kalyani Publication

Reference Books-

An Introduction to Database System by Bipin Desai  
 An Introduction to Database System by C.J.Date.

R.K. Kataria 28-4-2017  
 Bapna 28-4-17  
 Jm 28.4.17  
 (Whuber) 28-4-17  
 Rajesh Bhardwaj 28.4.17  
 (P. S. Yadav)  
 Chand 28.4.17  
 Singh 28/4/17  
 10 | Kumar 28/4/17  
 Singh 28/4/17

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Department of Higher Education, Government of Madhya Pradesh  
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Session 2017-18

**Suggested list of programs for practical**

Create the appropriate table and apply the following queries

1. WAQ to insert some new records in emp table.
2. WAQ to list the number of employees whose name is not 'ford', 'jams' or 'jones,
3. WAQ to list the name and salary and sort them in descending order of their salary
4. WAQ to list the details of employees whose name is starts from 'a'
5. WAQ to delete all records from emp table
6. WAQ to insert values in 3 fields.
7. WAQ to list the student name having 'd' as second character.
8. WAQ to list the name and salary and sort them in descending order of their salary
9. WAQ to list the name and salary and sort them in descending order of their salary
10. WAQ in employee table find all the manager who earns between 1000 and 2000.
11. Display record of employee who have salary between 1000 and 2000.
12. List the name salary and department number of the employee and order them by their salary in descending order.
13. In employee table change the city of employee from existing one to new one.
14. Add a column salary of datatype 'number' & having size '5' with default value 1000.
15. WAQ to find the employee who earns the lowest salary in each department. Display in ascending order of salary.
16. List the employee who earns maximum salary in their department. Find the name of all employee who works for 'first bank corporation'. Display the record of employee whose name start with 's' & age is greater than 18.
17. Find the name, street & city of residence of all employee who works for 'fbc'
18. WAQ to update the salary of employee number 1902 to Rs. 10,000
19. WAQ to find the name, street and city of all employee who works for 'fbc' and who earn more than 1000.
20. WAQ to increase the salary by 2000 and rename the column as "newsalary"
21. WAQ to find the name, street and city of all employee who works for 'fbc' and who earn more than 1000.
22. WAQ to find total of salaries of all employees from emp table
23. WAQ to decrease the salary of emp from 5000 and rename column as 'newsalary'
24. List the employee number of employee who belone to department 10,20.
25. List the employe no of employees who earn greater than 2000
26. Insert new field called category in emp table.
27. Display different jobs in departments 20,30
28. List the names of employees having two 'aa' in the name
29. Print the name , emp no, sal of employees in emp table.
30. List the names of employees who do the job of clerks or salesman.

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S. Kumar  
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Department of Higher Education, Government of Madhya Pradesh  
Yearly Syllabus for Undergraduates  
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Session 2017-18

**B.Sc. III YEAR COMPUTER SCIENCE**  
**PAPER II: OPERATING SYSTEM CONCEPTS**

Max. Marks : 40

Min. Marks: 15

**UNIT I**

Operating system definitions, its components, evolution of operating system, types of operating systems: batch, multiprogramming, multitasking, multiprocessor, real time, client-server, peer-to-peer, distributed, clustered, operating system services, system calls, protection of I/O, memory and CPU.

**UNIT II**

Process scheduling: concept of a process, process states, PCB, process life cycle, operations on processes, context switch, types of schedulers, CPU burst- I/O burst cycles, dispatcher, scheduling criteria, scheduling algorithms – FCFS, SJF, STRN, Round Robin, priority, event driven, multilevel queue. Performance evaluation of algorithms through deterministic modelling.

**UNIT III**

Memory Management: address binding, logical and physical address space, dynamic loading and linking. Contiguous memory allocation: static and dynamic partitioned memory, fragmentation, swapping relocation, compaction, protection. Non-contiguous memory allocation: Paging Segmentation. Virtual Memory: demand paging, page fault, page replacement algorithms- FIFO, LRU, optimal. Thrashing, page fault frequency.

**UNIT IV**

Interprocess communication need for synchronization, Deadlocks- definition, avoidance, prevention, detection and recovery. Disk organization, Directory structure, disk space management- contiguous and non-contiguous allocation strategies, disk address translation, disk caching, disk scheduling algorithms. Device Management: dedicated devices, shared devices. Security and protection : security threats and goals, penetration attempts. Security policies and mechanisms, authentication, protection and access control.

**UNIT V**

Linux: History and features of Linux, Linux architecture, file system of Linux, hardware requirements, Linux standard directories, Linux Kernel.  
Working with Linux: KDE and Gnome graphical interface, various types of shells available in Linux. Vi editor, Linux commands. File security in Linux.

**TEXT BOOKS AND REFERENCE BOOKS**

1. Operating system Concepts: by Silberschatz, Galvin and Gagne.
2. Operating system Design and Concepts, by Milan Milenkovic
3. Operating system by Andrew Tanenbaum
4. Operating system by Peterson
5. Linux Bible by Christopher Negus
6. Linux by Sumitabh Das

**Suggested Practical**

Basic Linux Commands and vi editor

R.K. icatere

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12/28-4-2017  
Rajendra Singh 28.4.17  
Chubers 28.4.17  
Rajendra Singh 28/4/17  
@handy 28.4.17  
Soni 28/4

# B.Sc. (Computer Science HONS) (CS-303H) – JAVA Programming

Paper - III

Max.Marks:40

Min.Marks:13

Internal Marks:10

Min Marks:04

OBJECTIVE : Introduce to basics of JAVA EXAMINATION The internal examination will carry 20% marks i.e. 10 marks. The external examination will be of 80% marks i.e. 40 marks. The question will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (numerical/objectives/conceptual/analytical/theoretical) combination of subsection in each question.

## UNIT I:

Primitive data types – integer, Short, Long, byte, float, double, Unicode, Character set, Boolean, their ranges, defaults initial values, wrapping of integer arithmetic, casting comments, identifiers and reserved words, local variables.

Operators: Arithmetic, Relational, Logical Assignments, Increment and Decrement, Conditional, Bitwise, Special, Expressions & its evaluation.

## UNIT II

Statements simple and compound: If statement, if...else... statement, Nesting of if...else... statements, else...if Ladder, Switch? Operators, Loops – While, Do, For, Jumps in Loops, Labeled Loops, switch, break, case continue, label, class type data : String, Arrays, example and exercises.

## UNIT III

Definitions and naming conventions for the members of the JAVA classes, instance fields and methods, Constructors, Methods Overloading, Static Members, Nesting of Methods, Inheritance: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract methods and Classes, Visibility Control.


## UNIT IV


Creating Threads, Extending the Threads Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface, synchronized, Exception (try-catch-final blocks examples.).

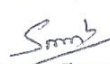
## UNIT V

Java Virtual machine concept, Java Platform overview, Local and Remote Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets.

Prof. Pravin Kumar Sharma, Maharaja Ranjit Singh College of Professional Science, Indore











TEXT BOOK

1. Complete Reference (Java 2) – Herbert Schildt - Tata McGraw Hill

REFERENCE BOOKS :

1. Joseph O'Neil, Teach yourself java, Tata McGraw Hill, New Dehli, 2001.

2. Programming with java E. Balagurusamy Tata McGraw Hill, New Dehli, 2nd edition 2002.

3. Java script : Don Gosselin, Thomson Learning ( vikas Publication) 4. Java in a nut shell – Flanagan – Orielly Publication

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Sandilya

Banwani

Smit

Kaitali

Karankumar

## PRACTICAL (JAVA)

Max. Marks :50

Min. Marks : 17

1. Exercises related to use of Primitive data types \_ Integer, short, long, byte, float, double, Unicode character set, Boolean, their ranges, defaults initial values wrapping of integer arithmetic casting.
2. Exercises related to use of comments, Identifiers and reserved words, local variables operators and operator precedence
3. Exercises related to use of statement simple and compound, Use of control do, for, while, switch, break, case of continue, label.
4. Exercises related to use of exercises related to use class type data : String, Arrays, Object Arrays, Examples of use of class type data
5. Exercises related to use of instance fields and methods, static Fields and methods, exercises related to use of Initialization by Constructor, Initialization bay default constructor.
6. Exercises related to use of Creation of object, access method.
7. Exercises related to use of Inheritance, super class, subclass, Method Overloading.
8. Exercises related to use of interface
9. Exercises related to use of thread, multithreading examples, synchronized.
10. Exercises related to use of Exception (try-catch-final blocks examples.)

V/S

Sandil

Sammani

Smit

Rantah

Chhoker



# B.Sc. (Computer Science Hons) (CS-304H)-Computer Network

Paper -IV

Max.Marks:40

Min.Marks:13

Internal Marks:10

Min Marks:04

OBJECTIVE: To introduce the concept of Computer Network EXAMINATION The internal examination will carry 20% marks i.e. 10 marks. The external examination will be of 80% marks i.e. 40 marks. The question will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (numerical/objectives/conceptual/analytical/theoretical) combination of subsection in each question.

## UNIT-I

Computer Network, Goals and Applications. Network hardware – LAN, MAN and WAN and topologies, LAN components – File server, Workstations, Network Adapter Cards. Connection Oriented and Connection less services.

Data communication system, data communication links, character codes, digital data rates, serial data formats, encoded data formats, telephones systems, error detection & correction.

## UNIT-II

Transmission media- guided and unguided media, Switching Techniques – Circuit Switching, Packet Switching, Message Switching, networking medium twisted pairs, coaxial cable, optical fibers, system network architecture, SNA operating system. Reference models – OSI and TCP/IP. A Comparative study.

## UNIT-III

Limits of communication, RS449 interface standards, RS422 & RS423, F5K & V0 modems, multiplexing methods, sampling theorem and quantization, delta modulation, digital T carrier, CODEC.

## UNIT-IV

The HTML programming basics, Syntax and rules, Tables, Frames, Forms, Example of HTML page, Choice of colour, banners, Linking with HTML page, Div, Span, met tags, span, Introduction to DHTML, JavaScript, Use of JavaScript, JavaScript Syntax, Data type, Variable , Array , Operator and Expressions.

Data link protocol, character oriented protocol & bit oriented protocol, network architecture protocols, Ethernet & token ring.

## UNIT-V

Internet basics: - Elements of the web, viewing web pages with a browser, using a browser for a mail, News and chat, security and privacy issues. Internet: advantage and disadvantage, Internet Security issues, Embedded and Software based firewall, Data encryption and Digital Signature and Certificates .

Integrated services & routing protocols, B-ISDN, DSL& ATM.

Prof. Pravin Kumar Sharma, Maharaja Ranjit Singh College of Professional Science, Indore

*Handwritten signatures and initials:*  
CS  
Samb  
Bantali

TEXT BOOKS:

1. Computer Network by Andrew S. Tannenbaum PHI, Fourth Edition
2. Computer Networks, Cyber Tech Publications, New Delhi

REFERENCE BOOKS:

1. Data & Network Communication by Michael A. Miller
2. Understanding of Data Communication & Networks by William A. Shay

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## Practical Computer Network

Max.Marks:50

Min.Marks:17

1. Create a webpage that prints your name to the screen.
2. Create a webpage that print the numbers 1 - 10, each number being a different colour.
3. Print a paragraph with 4 - 5 sentences. Each sentence should be a different font.
4. Print two lists with any information you want. One list should be an ordered list, the other list should be an unordered list.
5. Print a paragraph that is a description of a book, include the title of the book as well as its Author. Names and titles should be underlined, adjectives should be italicized and bolded
6. Print some preformatted text of your choosing
7. Create a page with a link at the top of it that when clicked will jump all the way to the bottom of the page. At the bottom of the page there should be a link to jump back to the top of the page
8. Display an image that has a border of size 2, a width of 200, and a height of 200.
9. Display five different images. Skip two lines between each image. Each image should have a title
10. Display an image that when clicked will link to a search engine of your choice
11. Add a simple table to for storing Train information (Train No, Name, Source, Destination, Time) without borders. Do the following 1. Add border value of 1, save and view. 2. Add a border value of 5, save and view. 3. Make the top row a table header, save and view. 4. Align all data elements to the middle of their cells, save and view. 5. Divide Time into Departure Time, Arrival Time.
12. Write a JavaScript, which calculate sum or product depending on the drop down menu selection of two numbers, accepted using textbox and display the result in the third textbox. The action performs on click event on button.
13. Write a JavaScript which displays current date and time when page loads.
14. Write a JavaScript that prompts the user for his or her name as the page load (via dialog box) and then welcome the user by name in the body of the page.

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Sandil

Rajendra

Somik      Pantari

# B.Sc.(Computer Science Hons) SOFTWARE ENGINEERING

Paper - V

Max.Marks:40

Min.Marks:13

Internal Marks:10

Min Marks:04

OBJECTIVE : Introduce with the concept of software engineering and system analysis EXAMINATION The internal examination will carry 20% marks i.e. 10 marks. The external examination will be of 80% marks i.e. 40 marks. The question paper will contain questions equally distributed in all units. The balance of the paper will be maintained by including appropriate (numerical/objective/conceptual/analytical/theoretical) combination of subsection in each question.

## UNIT – I

General business environment, Business system concept, system analysis, system development life cycle. A generic view of Software Engineering,, Software Characteristics, Application, Linear Sequential model,the prototyping model, RAD Model, Spiral & evolutionary model.

## UNIT – II

Project selection: Source of project request, managing project review & selection, preliminary investigation, system requirement specification & analysis: fact finding technique, Feasibility study, Cost & Benefit analysis

## UNIT – III

Structured system analysis, Tools of Structured analysis, Software Design Fundamental, Data Flow Diagram, Object Oriented Design & Data Oriented design method.

## UNIT – IV

Software Quality Assurance, Software testing techniques, software testing fundamentals, White Box Testing (Basis path Testing, Control Structured testing), Black Box Testing, Software Testing Strategies : A Strategic approach to software testing, Strategic issue unit testing, integration testing, Validation testing, System Testing, The art of Debugging.

## UNIT – V

System Implementation & Software Maintenance, Hardware & Software Selection.

## TEXT BOOK

1.System Analysis & design by Elias M. Awad, Galgotia Pub.

~~2. Software Engineering concept and Practices, Dr. Ugrasen Suman, Cengage~~

## REFERENCE BOOKS :

2. Software Engineering by Roger S. Pressman, Mc- Graw Hill.

3. An Integrated Approach to Software Engineering Pankaj Jalote, Nakoda Publication House

Note: B.Sc. Computer Science (HONS) I and II year Syllabus is same as B.Sc. Computer Science I & II as recommended by Central board of Studies and HE Govt. Bhopal

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