

Sandip University

Neelam Vidya Vihar, Vill.: Sijoul. P.O. : Mailam, Dist.:Madhubani, Bihar -847235

Website : <http://www.sandipuniversity.edu.in>

Toll-Free No.- 1800-313-2714 Ph: 7549991044.

School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester -III
Course: Database Management System	Course Code: BCA301
Theory: 3 Hours/Week	Max. University Theory Examination: 60 Marks
	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2:30 Hrs	Credit: 4

Objectives :

1	To Know the Fundamentals of Databases and its advantages.
2	To Understand designing of databases using E-R diagrams.
3	To comprehend the concept of relational database and implement it.
4	To be able to normalize a database using various normal forms.
5	To understand and apply syntax and semantics of SQL.

Unit Number	Details	Hours
1	DBMS : Definition: Databases, DBMS, Problems with traditional file processing system, Objectives of the database systems, Three level architectures of DBMS, Component of DBMS, Database Administrator, Database Users, Data model, Different types of data models, Concepts of Hierarchical, Network Models.	10
2	E-R Models : Basic Concepts, Entity, Attributes, Relation Ship, Mapping, Keys, Weak and Strong Entity Set, Problems on E-R Diagrams, Extended E-R Features: Specialization, Generalization, Aggregation, Problems on Reduction of an E-R Schema to Tables, Tabular representation of Strong, Weak entity Sets and Relationship Sets.	11
3	Relational Model: Structure, Relational Algebra, Fundamental Operations, Set –Intersection, Natural Join, Division and Assignment Operation. Extended Relational Algebra Operations, Aggregate Functions.	7
4	Functional Dependency , Fully Functional Dependency, Partial Dependency, Transitive Dependency, Multi Valued Dependency. Normalization, Normal Forms (1NF, 2NF, 3NF, BCNF, 4NF, 5NF). Problems on Normal forms	8

5	<p>Introduction to SQL: Data Definition Commands, Data Manipulation Commands, Select queries, Advanced Data Definition Commands, Advanced Select queries, Joining Database Tables.</p> <p>Advanced SQL: Relational Set Operators, SQL Join Operators, Sub queries and correlated queries, SQL Functions, Oracle Sequences, Updatable Views, and Procedural SQL.</p>	9
Total (Hrs)		45

Course Outcome

Student Should be able to :

CO1	Students will be able to understand the fundamental concepts of DBMS.
CO2	Students will design E-R models, and apply different functions on it.
CO3	Students will be able to develop suitable relations amongst various DB objects.
CO4	Students will be able to apply various principles of normalization to a given dataset.
CO5	Students will be able to design and query database using commands of SQL.

Resources

Recommended Books	<ol style="list-style-type: none"> 1. Data Base System Concepts By A SilbersChatz By Henry Korth and S.Sudarshan [Mcgraw-Hill ltd. New Delhi] 3rd Edition. 2. Introduction to Data Base Management by NAVEEN PRAKASH [Tata McGrawHillltd] 3. Bipin C. Desai, An Introduction to Database Systems, Galgotia Publications.
Reference Books	<ol style="list-style-type: none"> 1. Raghu Ramakrishnan & Johannes Gerhrke, "Data Base Management Systems", 2. McGraw Hill International Edition, 2000 Muzumdar, Introduction to Database Management Systems. TMH Publication Pvt. Ltd.

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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester -III
Course: Operating System	Course Code:BCA302
Theory : 3 Hrs/Week	Max. University Theory Examination: 60 Marks
Tutorial : 1Hr/Week	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2:30 Hrs	Credit: 4

Objectives :

1	To make the computer system convenient to use in an efficient manner.
2	To hide the details of the hardware resources from the users.
3	To provide users a convenient interface to use the computer system.
4	To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.

Unit Number	Details	Hours
1	Introduction to operating systems, System structures: What operating systems do; Computer System organization; Computer System architecture; Operating System structure; Operating System operations; Process management; Memory management; Storage management; Protection and Security; Distributed system; Special-purpose systems; Computing environments. Operating System Services; User - Operating System interface; System calls; Types of system calls; Process Management Process concept; Process scheduling; Operations on processes; Inter process communication	10
2	Multi-threaded Programming: Overview; Multithreading models; Thread Libraries; Threading issues. Process Scheduling: Basic concepts; Scheduling Criteria; Scheduling Algorithms; Multiple-processor scheduling; Thread scheduling. Process Synchronization: Synchronization: The critical section problem;	10

	Peterson's solution; Synchronization hardware; Semaphores; Classical problems of synchronization; Monitors.	
3	Deadlocks : Deadlocks; System model; Deadlock characterization; Methods for handling deadlocks; Deadlock prevention; Deadlock avoidance; Deadlock detection and recovery from deadlock. Memory Management: Memory management strategies: Background; Swapping; Contiguous memory allocation; Paging; Structure of page table; Segmentation.	10
4	Virtual Memory Management: Background; Demand paging; Copy-on-write; Page replacement; Allocation of frames; Thrashing. File System, Implementation of File System: File system: File concept; Access methods; Directory structure; File system mounting; File sharing; Protection: Implementing File system: File system structure; File system implementation; Directory implementation; Allocation methods; Free space management.	10
5	Secondary Storage Structures, Protection: Mass storage structures; Disk structure; Disk attachment; Disk scheduling; Disk management; Swap space management. Protection: Goals of protection, Principles of protection, Domain of protection, Access matrix, Implementation of access matrix, Access control, Revocation of access rights, Capability- Based systems. .	10
Total (Hrs)		50

Course Outcome

Student Should able to :

CO1	Demonstrate need for OS and different types of OS
CO2	Discuss suitable techniques for management of different resources
CO3	Illustrate processor, memory, storage and file system commands
CO4	Explain the different concepts of OS in platform of usage through case studies

Resources

Recommended Books	1.Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Principles 7 th edition, Wiley-India, 2006.edition, Wiley-India, 2006. 2.Tanenbaum A.S., "Operating System Design & Implementation", Practice Hall NJ.
Reference Books	1 Ann McHoes Ida M Fylnn, Understanding Operating System, Cengage Learning, 6 th Edition 2.D.M Dhamdhare, Operating Systems: A Concept Based Approach 3rd Ed, McGraw- Hill,2013.

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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester –III
Course: Numerical Methods	Course Code: BCA303
Theory : 3 Hrs/Week	Max. University Theory Examination: 60 Marks
Tutorial : 1Hr/Week	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2:30 Hrs	Credit: 4

Objectives :

1	To learn the basic concepts of Number Representation and Errors.
2	To be able to learn the methods for solving Non Linear equation.
3	To be able to learn the methods for solving Linear equation.
4	To be able to solve the interpolation and curve fitting problem.
5	To be able to learn the Numerical differentiation and Integration problem and solving.

Unit Number	Details	Hours
1	Number Representation and Errors: Numerical Errors; Floating Point Representation; Finite Single and Double Precision Differences; Machine Epsilon; Significant Digits.	9
2	Numerical Methods for Solving Nonlinear Equations: Method of Bisection, Secant Method, False Position, Newton-Raphson's Method, Multidimensional Newton's Method, Fixed Point Method and their convergence.	8
3	Numerical Methods for Solving System of Linear Equations: Norms; Condition Numbers, Forward Gaussian Elimination and Backward Substitution; Gauss-Jordan Elimination; FGE with Partial Pivoting and Row Scaling; LU Decomposition; Iterative Methods: Jacobi, Gauss Siedal; Power method and QR method for Eigen Value and Eigen vector.	10
4	Interpolation and Curve Fitting: Introduction to Interpolation; Calculus of Finite Differences; Finite Difference and Divided Difference Tables; Newton-Gregory Polynomial Form; Lagrange Polynomial Interpolation;	9

	Theoretical Errors in Interpolation; Spline Interpolation; Approximation by Least Square Method.	
5	Numerical Differentiation and Integration: Discrete Approximation of Derivatives: Forward, Backward and Central Finite Difference Forms, Numerical Integration, Simple Newton-Cotes Rules: Trapezoidal and Simpson's (1/3) Rules; Gaussian Quadrature Rules: Gauss-Legendre, Gauss-Laguerre, Gauss-Hermite, Gauss-Chebychev.	10
Total (Hrs)		40

Course Outcome

Student Should able to :

CO1	Explain the basic concepts of numerical methods.
CO2	Develop the methods which can be solved by numerically.
CO3	Understand the basic concepts of Linear and Non-linear Equation.

Resources

Recommended Books	<ol style="list-style-type: none"> 1. K. E. Atkinson, Numerical Analysis, John Wiley, Low Price Edition (2004). 2. S. D. Conte and C. de Boor, Elementary Numerical Analysis - An Algorithmic Approach, McGraw-Hill, 2005
Reference Books	<ol style="list-style-type: none"> 1. J. Stoer and R. Bulirsch, Introduction to Numerical Analysis, 2nd Edition, Texts in Applied Mathematics, Vol. 12, Springer Verlag, 2002. 2. J. D. Hoffman, Numerical Methods for Engineers and Scientists, McGraw-Hill, 2001. 3. M.K Jain, S.R.K Iyengar and R.K Jain, Numerical methods for scientific and engineering computation (Fourth Edition), New Age International (P) Limited, New Delhi, 2004. 4. S. C. Chapra, Applied Numerical Methods with MATLAB for Engineers and Scientists, McGraw-Hill 2008.
E-Resources	http://nptel.ac.in/

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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester -III
Course: Principles of Management	Course Code: BCA304
Theory : 3 Hrs/Week	Max. University Theory Examination: 60 Marks
	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2:30 Hrs	Credit: 4

Objectives :

1	To provide the fundamental knowledge about working of business organization.
2	To make students well acquainted with management process, functions and principles.
3	To make the students familiar with recent trends in management.
4	To teach students the role of planning and organizing in a business environment.
5	To help students understand the role of leadership in an organization, and its controlling activities.

Unit Number	Details	Hours
1	Introduction to Management : Definition of Management, nature and importance of management, Functions Planning, Organizing, Staffing, Directing, Controlling. Levels of management, Management as a Profession, Role of Manager in Organization, Contribution of F.W. Taylor, Henry Fayol, Max Weber Elton Mayo and Peter Drucker to management theory.	11
2	Planning & Organizing: Meaning, Nature and Importance and limitation of planning, Types of plans, steps in planning. Organizing: - Meaning, definition, Importance, principles of organizing. Formal & Informal organization, Virtual organization.	9
3	Staffing & Motivation: Staffing:- Meaning, Definition, Characteristics, Process of Staffing, Sources of Recruitment & Scientific Selection Procedure Training & Development, Performance appraisal. Motivation:- Meaning, definition & importance of motivation, Theories of	10

	motivation –Need Theory , Two factor theory & Theory X & Y.	
4	Leading Meaning, Definition, Important aspects of Leading: function, Supervision, Leadership, Challenges of Leadership, Functions of a Leader, Leadership Styles, Team Leadership.	8
5	Controlling: Meaning, Importance, Steps in Control Process, Types of control Feed forward control, Concurrent control & feedback control, Techniques of control	7
Total (Hrs)		45

Course Outcome	
Student Should able to :	
CO1	Discuss and communicate the management evolution and how it will affect future managers.
CO2	Observe and evaluate the influence of historical forces on the current practice of managements.
CO3	Practice the process of management's four functions: planning, organizing, leading, and controlling
CO4	Identify and properly use vocabularies within the field of management to articulate one's own Position on a specific management issue and communicate effectively with varied audiences.
CO5	Evaluate leadership styles to anticipate the consequences of each leadership style.
CO6	Gather and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

Resources	
Recommended Books	<ol style="list-style-type: none"> 1. Essential of Management - Harold Koontz and Itinz Wiebritch- McGraw-Hill International 2. Management Theory & Practice – J.N. Chandan 3. Essential of Business Administration – K. Aswathapa, Himalaya Publishing House 4. Principles & Practice of management – Dr. L.M. Prasad, Sultan Chand & Sons – New Delhi. 5. Business Organization & management – Dr. Y.K. Bhushan
Reference Books	<ol style="list-style-type: none"> 1. Management: Concept and Strategies by J.S. Chandan, Vikas Publishing. 2. Principles of Management, By Tripathi, Reddy Tata McGraw Hill 3. Business organization and management by Talloo by Tata Mc Graw Hill. 4. Business Environment and policy – A book on Strategic Management Corporate Planning by Francis Cherunilam, Himalaya Publishing House.
E-Resources	http://nptel.ac.in/

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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester –III
Course: Formal Language & Automata Theory	Course Code: BCA305
Theory : 3 Hrs/Week	Max. University Theory Examination: 60 Marks
Tutorial : 1Hr/Week	Continuous Internal Assessment: 40 Marks
Max. Time for Theory Exam.: 2:30 Hrs	Credit: 4

Objectives :

1	To build concepts regarding the fundamental principles of Grammars, Automata Theory, Turing Machines.
2	To learn formal Programming Language Theory and Regular Expressions.
3	To learn Grammar and Turing Machine Designing.
4	To study the abstract computing model.
5	To study automata theory and types and applications of formal grammar.

Unit Number	Details	Hours
1	Why study the Theory of Computation, Languages and Strings: Strings, Languages. A Language Hierarchy, Computation, Finite State Machines (FSM): Deterministic FSM, Regular languages, Designing FSM, Non-deterministic FSMs, From FSMs to Operational Systems, Simulators for FSMs, Minimizing FSMs Canonical form of Regular languages, Finite State Transducers, Bidirectional Transducers.	10
2	Regular Expressions (RE): what is a RE?, Kleene’s theorem, Applications of REs, Manipulating and Simplifying REs. Regular Grammars: Definition, Regular Grammars and Regular languages. Regular Languages (RL) and Non-regular Languages: How many RLs, To show that a language is regular, Closure properties of RLs, to show some languages are not RLs.	10
3	Context-Free Grammars(CFG): Introduction to Rewrite Systems and Grammars, CFGs and languages, designing CFGs, simplifying CFGs, proving that a Grammar is correct, Derivation and Parse trees, Ambiguity, Nor-	10

	mal Forms. Pushdown Automata (PDA): Definition of non-deterministic PDA, Deterministic and Nondeterministic PDAs, Non-determinism and Halting, alternative equivalent definitions of a PDA, alternatives that are not equivalent to PDA.	
4	Context-Free and Non-Context-Free Languages: Where do the Context-Free Languages(CFL) fit, Showing a language is context-free, Pumping theorem for CFL, Important closure properties of CFLs, Deterministic CFLs. Algorithms and Decision Procedures for CFLs: Decidable questions, Undecidable questions. Turing Machine: Turing machine model, Representation, Language acceptability by TM, design of TM, Techniques for TM construction.	10
5	Variants of Turing Machines (TM), The model of Linear Bounded automata: Decidability: Definition of an algorithm, decidability, decidable languages, Undecidable languages, halting problem of TM, Post correspondence problem. Complexity: Growth rate of functions, the classes of P and NP, Quantum Computation: quantum computers, Church-Turing thesis.	10
Total (Hrs)		50

Course Outcome

Student Should able to :

CO1	Understand the basic concepts of formal languages of finite automata techniques.
CO2	Solve regular expressions and various problems to minimize FA.
CO3	Apply various languages to construct context free grammar .
CO4	Solve various problems of applying normal form techniques, Push down automata and Turing Machines.

Resources

Recommended Books	1. Elaine Rich, Automata, Computability and Complexity, 1 st Edition, Pearson Education,2012/2013 2. K L P Mishra, N Chandrasekaran , 3 rd Edition, Theory of Computer Science, PhI, 2012.
Reference Books	1. John E Hopcroft, Rajeev Motwani, Jeffery D Ullman, Introduction to Automata Theory, Languages, and Computation, 3 rd Edition, Pearson Education, 2013 2. Michael Sipser : Introduction to the Theory of Computation, 3 rd edition, Cengage learning,2013 3. John C Martin, Introduction to Languages and The Theory of Computation, 3 rd Edition, Tata McGraw –Hill Publishing Company Limited, 2013 4. Basavaraj S. Anami, Karibasappa K G, Formal Languages and Automata theory, Wiley India, 2012 5. C K Nagpal, Formal Languages and Automata Theory, Oxford University press, 2012
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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester -III
Course: Operating System Lab	Course Code: BCA31L
Practical : 3 Hrs/Week	Max. University Practical Examination: 25 Marks
	Lab Continuous Internal Assessment: 25 Marks
Max. Time for Exam.: 3 Hrs	Credit: 1

Objectives:

1	To help the students understand the basic programming concepts of LINUX OS
2	To make student very helpful towards the concepts of LINUX OS.
3	Develop a greater understanding of the issues involved in programming language design and implementation.

1.	Write a C program to simulate the following non-preemptive CPU scheduling algorithms to find turnaround time and waiting time. a) FCFS b) SJF c) Round Robin (pre-emptive) d) Priority
2.	Write a C program to simulate multi-level queue scheduling algorithm considering the following scenario. All the processes in the system are divided into two categories – system processes and user processes. System processes are to be given higher priority than user processes. Use FCFS scheduling for the processes in each queue.
3.	Write a C program to simulate the following file allocation strategies. a) Sequential b) Indexed c) Linked
4.	Write a C program to simulate the MVT and MFT memory management techniques.
5.	*Write a C program to simulate the following contiguous memory allocation techniques a) Worst-fit b) Best-fit c) First-fit
6.	Write a C program to simulate paging technique of memory management.
7.	Write a C program to simulate the following file organization techniques a) Single level directory b) Two level directory c) Hierarchical
8.	Write a C program to simulate Bankers algorithm for the purpose of deadlock avoidance.
9	Write a C program to simulate disk scheduling algorithms a) FCFS b) SCAN c) C-SCAN
10	Write a C program to simulate page replacement algorithms a) FIFO b) LRU c) LFU

11	Write a C program to simulate page replacement algorithms a) Optimal
12	Write a C program to simulate producer-consumer problem using semaphores.
13	Write a C program to simulate the concept of Dining-Philosophers problem.

Term Work

Term Work assessment shall be conducted for the Project, Tutorials and Seminar. Term work is continuous assessment based on work done, submission of work in the form of report/journal, timely completion, attendance, and understanding. It should be assessed by subject teacher of the institute. At the end of the semester, the final grade for a Term Work shall be assigned based on the performance of the student and is to be submitted to the University.

Notes:

1	The experiments from the regular practical syllabus will be performed (15 Marks).
2	The regular attendance of students during the syllabus practical course will be monitored and marks will be given accordingly (5 Marks).
3	Good Laboratory Practices (5 Marks)

Practical/Oral/Presentation:

Practical/Oral/Presentation shall be conducted and assessed jointly by internal and external examiners. The performance in the Practical/Oral/Presentation examination shall be assessed by at least a pair of examiners appointed as examiners by the University. The examiners will prepare the mark/grade sheet in the format as specified by the University.

Notes:

1	One experiment from the regular practical syllabus will be conducted. (Total 15 Marks).
2	Complete laboratory journal (05 Marks).
3	Viva-voce (05 Marks).

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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester -III
Course: Database Management System Lab	Course Code: BCA 32L
Practical : 3 Hrs/Week	Max. University Practical Examination: 25 Marks
	Lab Continuous Internal Assessment: 25 Marks
Max. Time for Exam.: 3 Hrs	Credit: 1

Description (If any):

- Design, develop, and implement the specified queries for the following problems using Oracle, MySQL, MS SQL Server, or any other DBMS under LINUX/Windows environment.
- Create Schema and insert at least 5 records for each table. Add appropriate database constraints.

Sr. No.	Practical Description
Part A: SQL Programming	
1	Consider the following schema for a Library Database: BOOK(Book_id, Title, Publisher_Name, Pub_Year) BOOK_AUTHORS(Book_id, Author_Name) PUBLISHER(Name, Address, Phone) BOOK_COPIES(Book_id, Branch_id, No-of_Copies) BOOK_LENDING(Book_id, Branch_id, Card_No, Date_Out, Due_Date) LIBRARY_BRANCH(Branch_id, Branch_Name, Address) Write SQL queries to 1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc. 2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017. 3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation. 4. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query. 5. Create a view of all books and its number of copies that are currently available in the Library.

2	<p>Consider the following schema for Order Database:</p> <p>SALESMAN(Salesman_id, Name, City, Commission) CUSTOMER(Customer_id, Cust_Name, City, Grade, Salesman_id) ORDERS(Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> 1. Count the customers with grades above Bangalore's average. 2. Find the name and numbers of all salesman who had more than one customer. 3. List all the salesman and indicate those who have and don't have customers in their cities (Use UNION operation.) 4. Create a view that finds the salesman who has the customer with the highest order of a day. 5. Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.
3	<p>Consider the schema for Movie Database:</p> <p>ACTOR(Act_id, Act_Name, Act_Gender) DIRECTOR(Dir_id, Dir_Name, Dir_Phone) MOVIES(Mov_id, Mov_Title, Mov_Year, Mov_Lang, Dir_id) MOVIE_CAST(Act_id, Mov_id, Role) RATING(Mov_id, Rev_Stars)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> 1. List the titles of all movies directed by 'Hitchcock'. 2. Find the movie names where one or more actors acted in two or more movies. 3. List all actors who acted in a movie before 2000 and also in a movie after 2015 (use JOIN operation). 4. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title. 5. Update rating of all movies directed by 'Steven Spielberg' to 5.
4	<p>Consider the schema for College Database:</p> <p>STUDENT(USN, SName, Address, Phone, Gender) SEMSEC(SSID, Sem, Sec) CLASS(USN, SSID) SUBJECT(Subcode, Title, Sem, Credits) IAMARKS(USN, Subcode, SSID, Test1, Test2, Test3, FinalIA)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> 1. List all the student details studying in fourth semester 'C' section. 2. Compute the total number of male and female students in each semester and in each section. 3. Create a view of Test1 marks of student USN '1BI17CS101' in all subjects. 4. Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students. 5. Categorize students based on the following criterion: <ul style="list-style-type: none"> If FinalIA = 17 to 20 then CAT = 'Outstanding' If FinalIA = 12 to 16 then CAT = 'Average' If FinalIA < 12 then CAT = 'Weak' <p>Give these details only for 8th semester A, B, and C section students.</p>

5	<p>Consider the schema for Company Database:</p> <p>EMPLOYEE(SSN, Name, Address, Sex, Salary, SuperSSN, DNo) DEPARTMENT(DNo, DName, MgrSSN, MgrStartDate) DLOCATION(DNo,DLoc) PROJECT(PNo, PName, PLocation, DNo) WORKS_ON(SSN, PNo, Hours)</p> <p>Write SQL queries to</p> <ol style="list-style-type: none"> 1. Make a list of all project numbers for projects that involve an employee whose last name is 'Scott', either as a worker or as a manager of the department that controls the project. 2. Show the resulting salaries if every employee working on the 'IoT' project is given a 10 percent raise. 3. Find the sum of the salaries of all employees of the 'Accounts' department, as well as the maximum salary, the minimum salary, and the average salary in this department 4. Retrieve the name of each employee who works on all the projects controlled by department number 5 (use NOT EXISTS operator). 5. For each department that has more than five employees, retrieve the department number and the number of its employees who are making more than Rs. 6,00,000.
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Part B: Mini project	
6	For any problem selected, write the ER Diagram, apply ER-mapping rules, normalize the relations, and follow the application development process.
7	Make sure that the application should have five or more tables, at least one trigger and one stored procedure, using suitable frontend tool.
8	Indicative areas include; health care, education, industry, transport, supply chain, etc.

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Notes	
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2	The regular attendance of students during the syllabus practical course will be monitored and marks will be given accordingly (5 Marks).
3	Good Laboratory Practices (5 Marks)

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3	Viva-voce (05 Marks).

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School: Computer Science & Application	Programme: BCA (Bachelor of Computer Application)
Year: Second Year	Semester -III
Course: Communication Skill	Course Code: BCS313
Theory: 2 Hrs/Week	
Max. Time for Exam.: 3 Hrs	Lab Continuous Internal Assessment: 50 Marks

Practical Objectives :

1	To teach the student about the latest skill about the communication.
2	To develop the strong communication skill in both area oral and written.
3	To enhance the area of communication which the student will use in upcoming days.
4	To give the positive impact on the students about their communication skill.

Unit No.	Details	Hours
1	English Language: Sentence, Parts of speech, Tenses, Active passive voice, Direct Indirect speech, Creative writing& vocabulary, Comprehension passage, Reading of biographies of at least 10 IT business personalities (can be a home assignment or classroom reading).	2
2	Business communication- Types, Medias, Objectives, Modals, Process, Importance Understanding Barriers to communication & ways to handle and improve barriers.	3
3	Presentation skills- Its Purpose in business world, How to find material for presentation, How to sequence the speech with proper introduction and conclusion, How to Prepare PPT& Complete set of required body language while delivering presentation. Reading & writing skills- Importance of reading and writing, improving writing skills through understanding and practicing Notice, E-mail, Tenders, Advertisement, formal letter.	3
4	Listening skills- Its importance as individual and as a leader or as a worker, Its types, barriers to listening & remedies to improve listening barriers. Non verbal Communication- understanding what is called non verbal communication, its importance as an individual, as a student, as a worker and as a leader, its types.	3
5	Introduction to Business Communication Meaning and Definition; process and classification of communication; elements & characteristics of communication; barriers to effective communication.	4

	tion in business organization; Formal and Informal communication; grapevine, importance of effective communication in business house; Principals of effective communication	
6	Writing Skills Inter-office memorandums; faxes; E-mails; writing effective sales letters - to agents; suppliers; customers; report writing; project writing.	3
7	Curriculum Vitae (CV) (09) Drafting a CV; writing job application and other applications; do's and don'ts while appearing for an Interview; types of interview.	2
8	Presentation Skills (09) Introduction; need of good presentation skills in professional life; preparing a good presentations; group discussion; extempore speaking.	3
Total		23

Resources

Recommended Books	1. Effective Business Communication , M.V. RODRIGUEZ 2. Business Communication , Meenakshi Raman, Parkash Singh, Paperback Edition, Oxford University Press.
Reference Books	1. Effective Business Communication - M.V. RODRIGUEZ 2. Business Communication -Meenakshi Raman, Parkash Singh, Paperback Edition, Oxford University Press
E-Resources	http://nptel.ac.in/