

Bachelor of Computer Applications

Programme Code: BCA

Duration – 3 Years Full Time

**Programme Structure
and
Curriculum & Scheme of Examination
2018-21**

**AMITY UNIVERSITY
RAJASTHAN**

PREAMBLE

Amity University aims to achieve academic excellence by providing multi-faceted education to students and encourage them to reach the pinnacle of success. The University has designed a system that would provide rigorous academic programme with necessary skills to enable them to excel in their careers.

This booklet contains the Programme Structure, the Detailed Curriculum and the Scheme of Examination. The Programme Structure includes the courses (Core and Elective), arranged semester wise. The importance of each course is defined in terms of credits attached to it. The credit units attached to each course has been further defined in terms of contact hours i.e. Lecture Hours (L), Tutorial Hours (T), Practical Hours (P). Towards earning credits in terms of contact hours, 1 Lecture and 1 Tutorial per week are rated as 1 credit each and 2 Practical hours per week are rated as 1 credit. Thus, for example, an L-T-P structure of 3-0-0 will have 3 credits, 3-1-0 will have 4 credits, and 3-1-2 will have 5 credits.

The Curriculum and Scheme of Examination of each course includes the course objectives, course contents, scheme of examination and the list of text and references. The scheme of examination defines the various components of evaluation and the weightage attached to each component. The different codes used for the components of evaluation and the weightage attached to them are:

<u>Components</u>	<u>Codes</u>	<u>Weightage (%)</u>
Case Discussion/ Presentation/ Analysis	C	05 - 10
Home Assignment	H	05 - 10
Project	P	05 - 10
Seminar	S	05 - 10
Viva	V	05 - 10
Quiz	Q	05 - 10
Class Test	CT	10 - 15
Attendance	A	05
End Semester Examination	EE	70

It is hoped that it will help the students study in a planned and a structured manner and promote effective learning. Wishing you an intellectually stimulating stay at Amity University.

July, 2018

PROGRAMME STRUCTURE

Programme Structure Bachelor of Computer Application -BCA 2018-21

FIRST SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCA101	Digital Electronics	CC	2	1	-	3
BCI102	Basic Mathematics	CC	2	1	-	3
BCI103	Introduction to Computer Networking	CC	2	1	-	3
BCI104	Programming and Problem solving through 'C' Language	CC	2	1	-	3
BCI105	Computer Concepts and Problem Solving	CC	2	1	-	3
BCI124	Programming and Problem solving through 'C' Language Lab	CC	-	-	2	1
BCI125	Computer Concepts and Problem Solving Lab	CC	-	-	2	1
VALUE ADDED COURSES						
BCS 101	English	VA	1	-	-	1
BSS 103	Behavioral Science – I	VA	1	-	-	1
	Foreign Language - I	VA	2	-	-	2
FLT 101	French					
FLG 101	German					
FLS 101	Spanish					
FLC 101	Chinese					
	TOTAL					21

SECOND SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCA201	Discrete Mathematical Structures with Application to CS	CC	2	1	-	3
BCI202	Introduction to Systems Analysis & Design	CC	2	1	-	3
BCI203	Data Structures using C	CC	2	1	-	3
BCI204	Introduction to Database Management Systems	CC	2	1	-	3
BCI223	Data Structures using C LAB	CC	-	-	2	1
BCI224	Introduction to Database Management Systems LAB	CC	-	-	2	1
DE Elective: Choose any one course from the following courses						
BCI231	Networking for Home & Small Business	DE	2	1	-	3
BCI232	Internet Fundamental					
BCI233	Cyber Security					
OPEN ELECTIVE						
	Open Elective	OE	2	1	-	3
BCS 201	English	VA	1	-	-	1
BSS 203	Behavioral Science – II	VA	1	-	-	1
	Foreign Language - II	VA	2	-	-	2
FLT 201	French					
FLG 201	German					
FLS 201	Spanish					
FLC 201	Chinese					
	TOTAL					24

SUMMER PROJECT – I

THIRD SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCA301	Computer Oriented Statistical & Optimization Methods	CC	2	1	-	3
BCA302	Advance Database Management Systems	CC	2	1	-	3
BCI303	Object Oriented Programming Concepts Using C++	CC	2	1	-	3
BCA351	Summer Project – I	CC	-	-	-	3
BCA322	Advance Database Management Systems Lab	CC	-	-	2	1
BCI323	Object Oriented Programming Concepts Using C++ Lab	CC	-	-	2	1
EVS 001	Environmental Studies	CC	4	-	-	4
Domain Elective : Choose any one from the following courses						
BCI331	Working at a Small-to-Medium Business or ISPs	DE	2	1	-	3
BCI332	Web Designing	DE				
BCI333	Advance Technologies in Computer Science	DE				
OPEN ELECTIVE						
	Open Elective	OE	2	1	-	3
VALUE ADDED COURSES						
BCS 301	Communication Skills – I	VA	1	-	-	1
BSS 303	Behavioral Science - III	VA	1	-	-	1
	Foreign Language - III	VA	2	-	-	2
FLT 301	French					
FLG 301	German					
FLS 301	Spanish					
FLC 301	Chinese					
	TOTAL					28

FOURTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCI401	Computer Graphics	CC	2	1	-	3
BCI402	Design & Analysis of Algorithms	CC	2	1	-	3
BCI403	Operating Systems	CC	2	1	-	3
BCA404	Computer Oriented Numerical Methods	CC	2	1	-	3
BCA405	Software Engineering	CC	2	1	-	3
BCA450	Minor Project	CC				3
BCI421	Computer Graphics Lab	CC	-	-	2	1
Domain Elective : Choose any one from the following courses						
BCI431	Introduction to .NET Technologies	DE	2	1	-	3
BCI432	Introduction to Open Source Technologies (PHP, MySql)	DE				
BCI433	Introducing Routing & Switching in the Enterprise	DE				
BCA434	Cloud Computing	DE				
BCA435	Big Data Analytics	DE				
BCI441	Introduction to .NET Technologies Lab	DE	-	-	2	1
BCI442	Introduction to Open Source Technologies (PHP, MySql) Lab	DE				
BCI443	Introducing Routing & Switching in the Enterprise Lab	DE				
BCA444	Cloud Computing Lab	DE				
BCA445	Big Data Analytics Lab	DE				
OPEN ELECTIVE						
	Open Elective	OE	2	1	-	3
VALUE ADDED COURSES						
BCS 401	Communication Skills - II	VA	1	-	-	1
BSS 403	Behavioral Science - IV	VA	1	-	-	1
	Foreign Language - IV	VA	2	-	-	2
FLT 401	French					
FLG 401	German					
FLS 401	Spanish					
FLC 401	Chinese					
	TOTAL					30

SUMMER PROJECT – II

FIFTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCA501	Systems Software	CC	2	1	-	3
BCI502	Java Programming	CC	2	1	-	3
BCI503	UNIX Operating System & Shell Programming	CC	2	1	-	3
BCA551	Summer Project – II	CC	-	-	-	3
BCI522	Java Programming Lab	CC	-	-	2	1
BCI523	UNIX Operating System & Shell Programming Lab	CC	-	-	2	1
Domain Elective : Choose any one from the following courses						
BCI531	Designing & Supporting Computer Network	DE	2	1	-	3
BCI532	Data Warehousing & Data Mining	DE				
BCI533	Android Programming	DE				
BCA534	Web Programming	DE				
BCI541	Designing & Supporting Computer Network Lab	DE	-	-	2	1
BCI542	Data warehousing & Data Mining Lab	DE				
BCI543	Android Programming Lab	DE				
BCA544	Web Programming Lab	DE				
OPEN ELECTIVE						
	OPEN ELECTIVE	OE	2	1	-	3
VALUE ADDED COURSES						
BCS 501	Communication Skills - III	VA	1	-	-	1
BSS 503	Behavioural Science - V	VA	1	-	-	1
FLT 501	Foreign Language - V	VA	2	-	-	2
FLG 501	French					
FLG 501	German					
FLS 501	Spanish					
FLC 501	Chinese					
	TOTAL					25

SIXTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCA601	Web Technologies	CC	2	1	-	3
BCA602	Introduction to Python Technologies	CC	2	1		3
BCA621	Web Technologies Lab	CC	-	1	2	1
BCA622	Introduction to Python Technologies Lab	CC	-	-	1	1
BCA660	Major Project	CC	-	-	-	15
	TOTAL					23

DIGITAL ELECTRONICS

Course Code: BCA 101

Credit Units: 03

Course Objective:

An entry level course in digital electronics covering number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic. Emphasis will be on circuit logic analysis and design of digital circuits. The student will explain the operation of digital logic gates and use Boolean algebra and Karnaugh mapping to express logic operations and minimize logic circuits in design. The student will construct, analyze combinational logic circuits & sequential circuits; create a truth table for standard digital logic gates; and add, subtract, multiply and divide using the binary numbering system. Student will also be able to understand about digital to analog conversion and vice versa.

Course Contents:

Module I: Number System

Decimal, Binary, Octal, Hexadecimal Number Systems and Conversion of the bases.

Introduction to logic systems

Positive and negative logic, Logic functions - NOT, AND, OR, NOR, EX-OR, EX NOR

Truth tables Boolean algebra, De Morgan's theorems Standard forms for Logical Expressions - Sum of Products,

Product of Sums Specification of Logical functions in terms of Minterms and Maxterms, Karnaugh Maps,

Simplification of Logical functions, Introduction of "don't care" states.

Module II: Combinational Building Blocks

Multiplexers, Decoders, Encoders

Arithmetic circuits

Half Adders and Full Adders, Half Subtractor and Full Subtractor, Representation of negative numbers, revisited

Module III: Flip-flops

The RS latch, the clocked RS flip-flop, JK Flip Flop, the Master-Slave JK flip-flop, Delay and Toggle flip-flops

Flip-flops in counter circuits

Asynchronous (ripple) Counters (UP/DOWN), Synchronous Counter design (UP/DOWN), Non Sequential Counting

Module IV: Shift Registers

Shift registers in general, Ring Counters, Johnson Counter

Introduction to Memory

Primary: RAM, Static RAM, Dynamic RAM, ROM, PROM, EPROM, Secondary: Floppy Disk, Hard Disk, CDROM

Module V: DACs and ADCs

Binary weighted resistor DAC, Resolution, linearity and settling time of DACs, Successive approximation ADC

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

- R.P Jain, Mordern Digital Electronics

References:

- Malvino& Leach, Digital Electronics
- Floyd, Digital Fundamentals
- M.M Mano, Digital Logic and Computer Design
- Gothman ,Digital Electronics

BASIC MATHEMATICS

Course Code: BCI 102

Credit Units: 03

Course Objective:

The objective of this course is to provide an introduction to the fundamentals and concepts of basic mathematics covering sets, functions, differentiation, integration, differential equations, vectors and matrices. This course aims to assist the students to develop confidence in handling mathematical concepts and techniques and to understand the principles and uses of differential and integral calculus.

Course Contents:

Module I: Matrix

Matrices: Matrix, Sub matrix, types of matrices, such as symmetric, square, diagonal matrices, singular and nonsingular matrices. Addition, Subtraction, multiplication of matrices, determinant, inverse of matrix, matrix equation, Solution by Cramer's rule, Matrix inversion Method.

Module II: Continuity and Differentiation

Limit and Continuity: Concept of limit, definition of continuity, kinds of discontinuity, simple problem based on continuity .

Differentiation of function, Derivative of some common functions, polynomial, rational, exponential, logarithmic and trigonometric functions.

Successive differentiation, Leibnitz theorem.

Module III: Integration

Integration as inverse process of differentiation, integration of simple functions, method of change of variable and substitution for integrals, integration by parts and partial fraction. definite integrals.

Module IV: Differential equations

Differential equations of first order, Differential equations of second order with constant coefficients

Module V: Vectors and 2-Dimensional Geometry

Vector, Vector Algebra: addition, subtraction, Scalar Multiplication. Magnitude, Vector multiplication, Simple application of Vectors.

Straight line and Circle: Concept of straight line, slope form , intercept form and problem based on Circle.

Examination Scheme:

Components	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & References:

Text:

Engineering Mathematics, E. Kreyig

References:

Higher Engineering Mathematics, B. S. Grewal

Differential Calculus, Shanti Narayan

INTRODUCTION TO COMPUTER NETWORKING

Course Code: BCI 103

Credit Units: 03

Course Objective:

The objective of the course is to provide introductory concepts in Communications such as Signaling, Encoding, Modulation, Error Detection & Correction.

The course is also aimed at providing basic understanding of Computer networks starting with OSI Reference Model, Protocols at different layers with special emphasis on IP, TCP & UDP and Routing algorithms.

Course Contents:

Module I

Introduction to Data Communication, Networks-protocols, advantages, disadvantages & applications, Line Configuration, topology, Transmission mode, Classification of networks.

Parallel & Serial Transmissions, Analog & Digital Signals, Periodic & Aperiodic Signals, Modulation---Amplitude Modulation, Frequency Modulation, Phase Modulation, Pulse Amplitude Modulation, Pulse Code Modulation, Sampling.

Module II

Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, Bit/ Baud Comparison, DTE-DCE Interface, 56 K Modem, Cable Modem.

OSI Model, Transmission Media-Twisted Pair Cable, Coaxial Cable, Fiber-Optics Cable, Radio frequency Allocation, Terrestrial Microwave, Infrared rays, Satellite Communication, Cellular Telephony. Introduction to ISDN.

Module III

Framing, Line Discipline, Types of Errors, Error Detection & Correction (VRC, LRC, CRC, Checksum, Hamming Code), Flow Control (Stop-and-wait & Sliding Window), Error Control (Stop & Wait ARQ, Sliding Window ARQ using Go-back n method and Selective-Reject).

CSMA/CD, Project 802, IEEE Standards-802.3, Token Bus (802.4), Token Ring (802.5), Introduction to Bridges.

Module IV

Internal Organization of Network Layer, Routing Algorithms-Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing, General Principles of Congestion, Congestion Prevention Policies.

Duties of Transport Layer, Connection Establishment & Connection Termination.

Module V

Introduction to TCP/IP, Data Link Layer in Internet-SLIP & PPP, Network Layer in Internet-IP protocol, IP addressing, Subnetting & Internet Control Protocols, Transport Layer in Internet-TCP & UDP.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

- Behrouz ., Forouzan., "Data Communication and Networking", TMH
- W. Stallings, "Data and Computer Communication" PHI
- A.S. Tanenbaum, "Computer Networks" , PHI
- Kennedy, "Electronics Communication System", TMH

PROGRAMMING AND PROBLEM SOLVING THROUGH 'C' LANGUAGE

Course Code: BCI 104

Credit Units: 03

Course Objective:

The primary objective of this course is to understand all the components of C, including the C language, the C Preprocessor, and the C Standard Library. An understanding of some advanced practical issues, including memory management, testing and debugging, complex declarations and expression evaluation, building and using libraries, and evaluating tradeoffs, such as size vs. speed and speed vs. complexity. The ability to write C code and create and manipulate linked lists.

Course Contents:

Module I: Introduction to Computer Fundamentals

Basic Computer Organization, Computer Hardware Components, Disk, Primary and Secondary Memory, Keyboard, Mouse, Printer, Monitor, CD etc. Computer Software: Introduction to Application software, System Software, Compilers, Interpreters etc. Basic Operating System Concepts, Functional knowledge of MSDOS and WINDOWS. Number System-Binary, Hexadecimal, Octal, and Decimal. Conversion from one number system to another. Computer Codes - ASCII

Module II: Introduction to 'C' Language

Character set, Variables Identifiers, Data type, Arithmetic operation, Constant, operators, Expression, Assignments, basic input/output statements, Simple 'C. Programs.

Decision making in program, Relational Logical operators, if statements, if -else, nested if-else statements, Switch, case loop, Do-While, While, for loop and nesting of loop.

Module III: Arrays and Functions

One Dimensional Arrays, Arrays Manipulation, Sorting, Searching, Problems solving Top down Approach, Modular Programming and functions, Passing Arguments, call by value and call by references, Recursive function, .Recursion,

Module IV: Pointers

Pointers: Declaration, Pointer assignments, initialization, Pointers and Dynamic Memory Allocation , Discuss Array of Pointers .

Module V: Structure and Union

Structure definition, Declaration, structure Assignments, Arrays in structure, Structure Arrays, Pointer Structure, Nested Structure, Arrays and Arrays of Structure, Union and File Handling

Examination Scheme:

Components	Quiz	Presentation	Assignment	Attd	EE
Weightage (%)	5	10	10	5	70

Text & References:

Text:

- Problem Solving through C language, E. Balagurusamy, TMH publication.
- Peter Nortons, "Introduction to Computers", TMH

References:

- Let us C, Yashwant Kanetkar, BPB Publication.
- P.K. Sinha, "Computer Fundamentals", BPB Publications
- V. Rajaraman, "Computer Fundamentals", Prentice Hall
- Y. Kanetkar, "Let us C", BPB Publications.

COMPUTER CONCEPTS & PROBLEM SOLVING

Course Code: BCI 105

Credit Units: 03

UNIT I FUNDAMENTALS OF COMPUTERS

Evolution of Computers, Inputs/Outputs devices, Alternative Methods of Input, Organization of Modern Digital Computers, Operating System, Multitasking OS, Graphical User Interface.

UNIT II WORD PROCESSING

Word Processing Programs and Their Uses, Word Processor's Interface, Editing Text Formatting Text, Macro, Special Features of Word, Desktop Publishing Service, Converting doc into www pages.

UNIT III SPREADSHEET SOFTWARE

Spreadsheet Programs, Applications, Spreadsheet package features, attributes, structure, label, data, importing data, formula, functions, data handling, Managing workbooks.

UNIT IV INTRODUCTION TO COMPUTER PROBLEM SOLVING

Introduction, Problem Solving aspects, Top-Down Design-Implementation of Algorithms, Program Verification-Efficiency of Algorithm, Analysis of Algorithm fundamental algorithm, factorial computation, generation of Fibonacci sequence.

UNIT V FACTORING AND ARRAY TECHNIQUES

Factoring Methods, finding the square root of a number, generating prime numbers, Array techniques, array order reversal, Finding the maximum number in a set, Removal of duplicates from an ordered Array-finding the kth smallest element.

Books:

REFERENCES:

1. V.Rajaraman "Computer Programming in C" Prentice Hall of India, New Delhi, 2001
2. Kamthane, A.N., "Programming with ANSI and Turbo C", Pearson Education, Delhi, 2006.
3. Yashavant P. Kanetkar "Pointers In C", BPB Publications, NewDelhi, 2002
4. E.Balagurusamy "Programming in ANSI C", Tata McGraw Hill, 2004
5. Deitel and Deitel "C How to Program", Addison Wesley, 2001

PROGRAMMING AND PROBLEM SOLVING THROUGH 'C' LANGUAGE LAB

Course Code: BCI 124

Credit Units: 01

1. Write a program to find the area and perimeter of (I) square (ii) rectangle.
2. Write a Program to find the sum of first n natural numbers.
3. Write a program to calculate the average of n numbers.
4. Write a program to check whether the number is even or odd.
5. Write a program to find largest of three numbers.
6. Write a program to swap the values of two given variables.
7. Write a program to find the square of a given number.
8. Write a program to calculate the roots of a quadratic equation.
9. Write a program to compute the sum of squares of n natural numbers.
10. Write a program to reverse a given number and also calculate the number of digits in the number.
11. Write a program to calculate the sum of digits of a given number.
12. Write a program to calculate the factorial of a given positive number.
13. Write a program to generate fibonaaci series upto n terms.
14. Write a program to find the GCD and LCM of two given positive numbers.
15. Write a program to print first n prime numbers.
16. Write a program to print 1 if input character is capital, 2 if input character is a lowercase alphabet, 3 if input character is a digit and 4 if some other special character.
17. Write a C program to check whether a number is an Armstrong number.
18. Write a C program to find the power of a number.
19. Write a C program to find the sum of n terms of the series: $n \cdot n^2/2! + n^3/3! - n^4/4! + \dots$
20. Write a C program to find the maximum/minimum number in a given array.
21. Write a C program to search a number in an array using linear search.
22. Write a C program to sort a given array using Bubble sort.
23. Write a C program to concatenate two one-dimensional arrays.
24. Write a C program to add, subtract and multiply two m by n matrices.
25. Write a C program to detect the occurrence of a character in a given string.
26. Write a C program to count the number of characters in a given string with and without using strlen () function,
27. Write a C program to copy the contents of one string to another with and without using strcpy () function.
28. Write a C program to determine whether the entered character string is palindrome or not.
29. Write a C program to enter the marks, address of several students and prepare the mark sheet of each student. Use structures.
30. Write a C program to calculate net salary / printing of salary statement of an employee. Use Structures.
31. Write a C program to calculate the factorial of a number using recursion.
32. Write a C program to generate a fibonacci series using recursion.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

ENGLISH

Course Code: BCS 101

Credit Units: 01

Course Objective:

The course is intended to give a foundation of English Language. The literary texts are indented to help students to inculcate creative & aesthetic sensitivity and critical faculty through comprehension, appreciation and analysis of the prescribed literary texts. It will also help them to respond form different perspectives.

Course Contents:

Module I: Vocabulary

Use of Dictionary

Use of Words: Diminutives, Homonyms & Homophones

Module II: Essentials of Grammar - I

Articles

Parts of Speech

Tenses

Module III: Essentials of Grammar - II

Sentence Structure

Subject -Verb agreement

Punctuation

Module IV: Communication

The process and importance

Principles & benefits of Effective Communication

Module V: Spoken English Communication

Speech Drills

Pronunciation and accent

Stress and Intonation

Module VI: Communication Skills-I

Developing listening skills

Developing speaking skills

Module VII: Communication Skills-II

Developing Reading Skills

Developing writing Skills

Module VIII: Written English communication

Progression of Thought/ideas

Structure of Paragraph

Structure of Essays

Module IX: Short Stories

Of Studies, by Francis Bacon

Dream Children, by Charles Lamb

The Necklace, by Guy de Maupassant

A Shadow, by R.K.Narayan

Glory at Twilight, Bhabani Bhattacharya

Module X: Poems

All the Worlds a Stage

To Autumn

O! Captain, My Captain

Where the Mind is Without Fear

Psalm of Life

Shakespeare

Keats

Walt Whitman

Rabindranath Tagore

H.W. Longfellow

Examination Scheme:

Components	A	CT	HA	EE
Weightage (%)	05	15	10	70

Text & References:

- Madhulika Jha, Echoes, Orient Long Man
- Ramon & Prakash, Business Communication, Oxford.
- Sydney Greenbaum Oxford English Grammar, Oxford.
- Successful Communications, Malra Treece (Allyn and Bacon)
- Effective Technical Communication, M. Ashraf Rizvi.

*** 30 hrs Programme to be continued for Full year**

BEHAVIOURAL SCIENCE – I (UNDERSTANDING SELF FOR EFFECTIVENESS)

Course Code: BSS 103

Credit Units: 01

Course Objective:

This course aims at imparting an understanding of:
Self and the process of self exploration
Learning strategies for development of a healthy self esteem
Importance of attitudes and its effect on personality
Building emotional competence

Course Contents:

Module I: Self: Core Competency

Understanding of Self
Components of Self – Self identity
Self concept
Self confidence
Self image

Module II: Techniques of Self Awareness

Exploration through Johari Window
Mapping the key characteristics of self
Framing a charter for self
Stages – self awareness, self acceptance and self realization

Module III: Self Esteem & Effectiveness

Meaning & Importance
Components of self esteem
High and low self esteem
Measuring your self esteem

Module IV: Building Positive Attitude

Meaning and Nature of Attitude
Components and Types of Attitudes
Relevance and Importance of Attitudes

Module V: Building Emotional Competence

Emotional Intelligence – Meaning, Components, Importance and Relevance
Positive and Negative Emotions
Healthy and Unhealthy expression of Emotions

Module VI: End-of-Semester Appraisal

Viva based on personal journal
Assessment of Behavioural change as a result of training
Exit Level Rating by Self and Observer

Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success (JOS)
Weightage (%)	20	05	20	30	25

Text & References:

- Dressler, David and Cans, Donald: The Study of Human Interaction
- Lindzey, G. and Borgatta, E: Sociometric Measurement in the Handbook of Social Psychology, Addison – Welsley, US.
- J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 2, Group (1996); Pfeiffer & Company

FRENCH - I

Course Code: FLT 101

Credit Units: 02

Course Objective:

To familiarize the students with the French language

- with the phonetic system
- with the syntax
- with the manners
- with the cultural aspects

Course Contents:

Module A: pp. 01 to 37: Unités 1, 2, Unité 3 Objectif 1,2

Only grammar of Unité 3: objectif 3, 4 and 5

Contenu lexical: Unité 1: Découvrir la langue française: (oral et écrit)

1. se présenter, présenter quelqu'un, faire la connaissance des autres, formules de politesse, rencontres
2. dire/interroger si on comprend
3. Nommer les choses

Unité 2: Faire connaissance

1. donner/demander des informations sur une personne, premiers contacts, exprimer ses goûts et ses préférences
2. Parler de soi: parler du travail, de ses activités, de son pays, de sa ville.

Unité 3: Organiser son temps

1. dire la date et l'heure

Contenu grammatical:

1. organisation générale de la grammaire
2. article indéfini, défini, contracté
3. nom, adjectif, masculin, féminin, singulier et pluriel
4. négation avec « de », "moi aussi", "moi non plus"
5. interrogation: Inversion, est-ce que, qui, que, quoi, qu'est-ce que, où, quand, comment, quel(s), quelle(s)
Interro-négatif: réponses: oui, si, non
6. pronom tonique/disjoint- pour insister après une préposition
7. futur proche

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- le livre à suivre: Campus: Tome 1

GERMAN - I

Course Code: FLG 101

Credit Units: 02

Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

Course Contents:

Module I: Introduction

Self introduction: heissen, kommen, wohnwn, lernen, arbeiten, trinken, etc.

All personal pronouns in relation to the verbs taught so far.

Greetings: Guten Morgen!, Guten Tag!, Guten Abend!, Gute Nacht!, Danke sehr!, Danke!, Vielen Dank!, (es tut mir Leid!),

Hallo, wie geht's?: Danke gut!, sehr gut!, prima!, ausgezeichnet!,
Es geht!, nicht so gut!, so la la!, miserabel!

Module II: Interviewspiel

To assimilate the vocabulary learnt so far and to apply the words and phrases in short dialogues in an interview – game for self introduction.

Module III: Phonetics

Sound system of the language with special stress on Diphthongs

Module IV: Countries, nationalities and their languages

To make the students acquainted with the most widely used country names, their nationalitie and the language spoken in that country.

Module V: Articles

The definite and indefinite articles in masculine, feminine and neuter gender. All Vegetables, Fruits, Animals, Furniture, Eatables, modes of Transport

Module VI: Professions

To acquaint the students with professions in both the genders with the help of the verb “sein”.

Module VII: Pronouns

Simple possessive pronouns, the use of my, your, etc.

The family members, family Tree with the help of the verb “to have”

Module VIII: Colours

All the color and color related vocabulary – colored, colorful, colorless, pale, light, dark, etc.

Module IX: Numbers and calculations – verb “kosten”

The counting, plural structures and simple calculation like addition, subtraction, multiplication and division to test the knowledge of numbers.

“Wie viel kostet das?”

Module X: Revision list of Question pronouns

W – Questions like who, what, where, when, which, how, how many, how much, etc.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

Text & References:

- Wolfgang Hieber, Lernziel Deutsch
- Hans-Heinrich Wangler, Sprachkurs Deutsch
- Schulz Griesbach, Deutsche Sprachlehre für Ausländer
- P.L Aneja, Deutsch Interessant- 1, 2 & 3
- Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2
- Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

SPANISH – I

Course Code: FLS 101

Credit Units: 02

Course Objective:

To enable students acquire the relevance of the Spanish language in today's global context, how to greet each other. How to present / introduce each other using basic verbs and vocabulary.

Course Contents:

Module I

A brief history of Spain, Latin America, the language, the culture...and the relevance of Spanish language in today's global context.

Introduction to alphabets

Module II

Introduction to 'Saludos' (How to greet each other. How to present / introduce each other).

Goodbyes (despedidas)

The verb *llamarse* and practice of it.

Module III

Concept of Gender and Number

Months of the years, days of the week, seasons. Introduction to numbers 1-100, Colors, Revision of numbers and introduction to ordinal numbers.

Module IV

Introduction to *SER* and *ESTAR* (both of which mean To Be).Revision of 'Saludos' and 'Llamarse'. Some adjectives, nationalities, professions, physical/geographical location, the fact that spanish adjectives have to agree with gender and number of their nouns. Exercises highlighting usage of *Ser* and *Estar*.

Module V

Time, demonstrative pronoun (Este/esta, Aquel/aquella etc)

Module VI

Introduction to some key AR /ER/IR ending regular verbs.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Español, En Directo I A
- Español Sin Fronteras

CHINESE – I

Course Code: FLC 101

Credit Units: 02

Course Objective:

There are many dialects spoken in China, but the language which will help you through wherever you go is Mandarin, or Putonghua, as it is called in Chinese. The most widely spoken forms of Chinese are Mandarin, Cantonese, Gan, Hakka, Min, Wu and Xiang. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

Show pictures, dialogue and retell.

Getting to know each other.

Practicing chart with Initials and Finals. (CHART – The Chinese Phonetic Alphabet Called “Hanyu Pinyin” in Mandarin Chinese.)

Practicing of Tones as it is a tonal language.

Changes in 3rd tone and Neutral Tone.

Module II

Greetings

Let me Introduce

The modal particle “ne”.

Use of Please ‘qing’ – sit, have tea etc.

A brief self introduction – Ni hao ma? Zaijian!

Use of “bu” negative.

Module III

Attributives showing possession

How is your Health? Thank you

Where are you from?

A few Professions like – Engineer, Businessman, Doctor, Teacher, Worker.

Are you busy with your work?

May I know your name?

Module IV

Use of “How many” – People in your family?

Use of “zhe” and “na”.

Use of interrogative particle “shenme”, “shui”, “ma” and “nar”.

How to make interrogative sentences ending with “ma”.

Structural particle “de”.

Use of “Nin” when and where to use and with whom. Use of guixing.

Use of verb “zuo” and how to make sentences with it.

Module V

Family structure and Relations.

Use of “you” – “mei you”.

Measure words

Days and Weekdays.

Numbers.

Maps, different languages and Countries.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

“Elementary Chinese Reader Part I” Lesson 1-10

DISCRETE MATHEMATICAL STRUCTURES WITH APPLICATIONS TO CS

Course Code: BCA 201

Credit Units: 03

Course Objective:

This course is aimed to solve standard topical text book-level problems by analytical means. Apply multiple concepts in the solution of a more sophisticated problem, which may be derived from a scientific application or from basic application. Model a topical problem from math, solve the problem, and report the results in the original problem context.

Module I: Set Theory

Sets, Types of Sets, Basic Operations on Sets, Venn diagram, Cartesian product of two sets, Distributive law, De Morgan's Law.

Functions: Interval and sub-intervals. Definition of function and examples, polynomial, rational, exponential, logarithmic and trigonometric functions.

Module II: Mathematical Logic and circuits

Basic Concepts, Propositions or Statements, Truth Table, Connectives and Compound Propositions, Implication, Bi-conditional of Connectives, Converse, Inverse and Contra positive of an Implication, Tautology, Logical Equivalence, Switching Circuits

Module III: Modern Algebra

Binary Operations, Properties of Binary Operations, Semi group, Monoid, Groups, Finite and Infinite Groups, Algebra of Groups, Subgroups and other Groups.

Module IV: Graph Theory

Graph, Multi Graph, Complete Graph, Bi Graph, Degree, Degree Sequence, Matrices of graphs, tree, spanning trees

Module V: Data Analysis

Data and Statistical Data, Frequency Distribution, Graphical Representation, Measure of the Central Tendency, Measures of Dispersion (Mean Deviation and Standard Deviation)

Examination Scheme:

Components	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & References:

Text:

- Elements of Discrete Mathematics: C.L. Liu
- Graph Theory: Wilson
- S.C Gupta & V.K. Kapoor, Fundamentals of Mathematical Statistics.

References:

- Discrete Mathematics: Harikishan & ShivrajPundir
- Discrete Mathematics: J.K. Sharma.

INTRODUCTION TO SYSTEMS ANALYSIS & DESIGN

Course Code: BCI 202

Credit Units: 03

Course Objective:

This course addresses both what is required of an Information System and how this can be achieved. Studying the practices, processes, activities and technologies involved in the development of an Information system provide an excellent insight to develop skills for employment & professional life. Students are involved in activities ranging from the front-end of requirements analysis and system design to the development of User Interfaces and testing & maintenance of software.

Course Contents:

Module I: System Concepts and the Information Systems Environment

What is System?, Important System Characteristic, Business Systems, Business, Information Systems, Categories of Information Systems, Transaction, Processing System, MIS, DSS, and Scope of Information system.

The Role of System Analyst: Overview of System Analysis and Design, Multifaceted role of System analyst: Analytical Skill, Technical Skills, and Interpersonal Skills.

Module II: System Development Life Cycle

The System Development Life Cycle, Structured Analysis Development Method, and Systems Prototype Method. System planning and Initial Investigation: System Planning: Information System Committee Method, User Group Committee Method, Initial Investigation, Feasibility Study: Operational, Technical and Economical Feasibility Cost Benefit Analysis: Data Analysis, Cost Benefit Analysis, The system proposal.

Module III: Determining System Requirements

Performing Requirements Determination, Traditional Method, Modern' Methods, and Radical Methods. The Tools of Structured Analysis: Process Modeling: DFD, Logical Modeling: Structured English, Decision Trees, and Data Modeling: ER Diagram

Module IV: Process and Stages of System Design

The process of design: logical design, physical design, Structured Design, Functional Decomposition, and Structured Walkthrough. Input/Output and Forms Design: Input design, output design, *forms* design, types of *forms*, layout considerations and *forms* control.

Module V: File organization and Database Design

File structure, file organization, -objectives of database, data structure, normalization, the role of database administrator. Automated Tools *for* Systems Development: CASE Tools

Examination Scheme:

Components	Presentation	Assignment / Case Study	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & References:

- P-analysis & Design of Information Systems James A. Senn
- Modern System Analysis & Design: Jeffery A. Hoffer, Joey F. George, Joseph S. Valacich
- Elements of System Analysis & Design: Elias Awad.

DATA STRUCTURES USING C

Course Code: BCI 203

Credit Units: 03

Course Objective:

This course is an introduction to the use, design, and analysis of data structures in computer programs. The very commonly used data structures like arrays, stacks, queues, lists, trees, and graphs will be discussed in detail. Sorting and hashing are important topics in the study of algorithms. They are also closely related to the design of data structures. Several algorithms to implement these techniques are included in the syllabus.

Course Contents:

Module I: Basic concepts of data representation

Abstract data types: Fundamental and derived data types, Representation, Primitive Data Structures.

Module II: Arrays

Representation of arrays single and multi dimensional arrays. Address calculation using column and rows major ordering. Various operations on arrays, Vector, Application of arrays: matrix multi multiplication, sparse polynomial and addition.

Module III: Stacks and Queues

Representation of stacks and queues using arrays and linked list. Circular queues, priority queue and D-queue. Application of stacks: conversion from infix to postfix expression, Evaluation of postfix expression using stacks.

Module IV: Linked List

Singly linked list; operations on list. Linked stacks and queue. Polynomial representations and manipulation using linked lists, doubly linked list, addition of two polynomial list.

Module V: Trees

Binary trees traversal method: preorder, in-order, post-ordered traversal. Recursive and non-recursive algorithm for above mentioned Traversal methods. Representation of trees and its application: Binary tree representation of a tree, Binary search tree: height balanced (AVL) tree

Module VI: Searching, sorting and complexity

Searching: Sequential and binary search, indexed search, Sorting: insertion, selection, bubble, quick, merge, heap sort.

Module VII: Graphs

Graph representation: adjacency list, adjacency multicasts, adjacency lists. Traversal scheme: Depth first search, Breadth first search. Spanning tree: definition, minimal spanning tree algorithms.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

- T. Langsam, M.J Augenstein and A.M. Tanenbaum, "Data structure using C and C++ Second edition, 2000, Prentice Hall of India.
- R.Kruse, G.L. Tonodo and B. Leung," Data structures and program design in C", Second Edition, 1997, Pearson education.
- S. Chotopadhyay, D. Ghoshdastidar & M. Chotopadhyay. Data structures through language", First edition, 2001, BPB Publication.

References:

- G.L. Heileman, Data structures, Algorithms and object oriented programming," First Edition 2002, Tata McGraw Hill.
- E. Horowitz, Sahni and D. Mehta," Fundamentals of data structures in C++,"200 Galgotia Publication

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

Course Code: BCI 204

Credit Units: 03

Course Objective:

The objective of this course is to expose the students to the fundamentals & basic concepts in Data Base Management Systems. This course discusses architecture of Database Systems with concept of relational model & ER model. This course explains techniques for database design, Normalization and database recovery and protection.

Course Contents:

Module I: Introduction to DBMS

Definition of DBMS, Data Independence, DBMS Architecture, Levels, Database Administrator, File System Approach Vs DBMS Approach, Advantages of Using a DBMS, Data Models, Schemas, and Instances.

Module II: Relational Database & ER Model

Relational System, Codd's Rule, Relational Model, Optimization, Tables and Views, Entity, Types of Entity, Weak Entity Attributes, Entity sets, Entity – Relationship Diagrams.

Module III: Relational Model Objects

Domains and Relations, Relations and predicates, Relational Data Integrity ; Primary Key, Candidate Key, Foreign Key and their rules; Relational operators, Relational Algebra, Relational Calculus, SQL Language, Data definition, Data retrieval and update operations.

Module IV: Database Design

Definition Of Functional Dependencies, Process Of Normalization, First Normal Form, Second Normal Form, Third Normal Form. Boyce Codd Normal Form, Fourth Normal Form, Fifth Normal Form.

Module V: Data Recovery & Protection

Recovery-Transaction recovery, System recovery, Media Recovery, Concurrency Control Techniques, Locking, Dead Lock, Serializability; Security - Introduction.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

- Elmasari, Navathe, "Fundamentals of Database Systems", Addison Wesley.
- Korth, Silbertz, Sudarshan, "Database Concepts". McGraw Hill.
- Majumdar & Bhattacharya, "Database Management System", Tata McGraw Hill.
- Date C.J." An Introduction to Database Systems", Addison Wesley.

Data Structures using C LAB

Course Code: BCI 223

Credit Units: 01

List of Data Structure Programs

1. Write a program to generate Fibonacci Series, using recursion.
2. Write a program to calculate Factorial of nth number, using recursion.
3. Write a program to implement Tower of Hanoi, using recursion.
4. Write a program to calculate GCD of two numbers, using recursion.
5. Write a program to calculate power of a number, using recursion.
6. Write a program to reverse a given string, using recursion.
7. Write a program to swap two elements without using third variable.
8. Write a program to remove all the duplicate elements present in the given array.
9. Write a program to search an element using Linear Search.
10. Write a program to search an element using Binary Search.
11. Write a program to sort the given array using Bubble Sort.
12. Write a program to sort the given array using Selection Sort.
13. Write a program to sort the given array using Insertion Sort.
14. Write a program to insert a new element in the given unsorted array at kth position.
15. Write a program to insert a new element in the given sorted array at proper place.
16. Write a program to delete an element from given sorted array.
17. Write a program to merge to given sorted arrays.
18. Write a program to perform addition of two matrices.
19. Write a program to perform multiplication of two matrices.
20. Write a program to check whether given matrix is diagonal matrix, upper triangular matrix, lower triangular matrix.
21. Write a program to find out transpose of a given matrix.
22. Write a program using array of pointers, sort the given array of strings, using bubble sort.
23. Write a program to implement Stack using array, also show overflow and underflow in respective push and pop operations.
24. Write a program to implement Queue using array, which shows insertion and deletion operations.
25. Write a program to implement Circular Queue using array, which shows insertion and deletion operations.
26. Write a program to implement Linear Linked List, showing all the operations, like creation, display, insertion, deletion and searching.
27. Write a program to implement Stack, using Linked List. Implement Push, Pop and display operations.
28. Write a program to implement Queue, using Linked List. Implement Insertion, deletion and display operations.
29. Write a program to count the number of times an item is present in a linked list.
30. Write a program to increment the data part of every node present in a linked list by 10. Display the data both before incrementation and after.
31. Write a program to implement Doubly Linked List, showing all the operations, like creation, display, insertion, deletion and searching.
32. Write a program to create a Binary Search Tree and display its contents using preorder, postorder and inorder traversal.
33. Write a program to implement insert, delete and search operations in a Binary Search Tree

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

INTRODUCTION TO DATABASE MANAGEMENT SYSTEM LAB

Course Code: BCI 224

Credit Units: 01

Course Contents:

Module I: Introduction to oracle

Tools of Oracle, Features of oracle.

- 1) Create a table "PRODUCTS" with the below mentioned structure:

Product ID	NUMBER(11)
Supplier ID	NUMBER(11)
Category ID	NUMBER(11)
Quantity Per Unit	VARCHAR2(20)
Unit Price	NUMBER(11)
Units In Stock	NUMBER(11)
Units On Order	NUMBER(11)

Product ID should be the Primary Key.

Module II: SQL

Overview of SQL, Component of SQL (DDL, DML, DCL), Advantage of SQL, Basics of syntax writing, Data Definition Language, Create command, Data type, Constraints, ALTER & DROP, UPDATE & DELETE Commands, Substitutions variables, Run time Environments variables, SELECT Commands Basic Constructs, Functions, Nested Queries, Correlated queries, Views, Sequence, Synonymous, User Management Commands.

- 2) Consider the following tables:

WORKS(Pname,Cname,Salary)
LIVES(Pname,Street,City)
LOCATED_IN(Cname,City)
MANAGER(Pname,Mgrname)

Where Pname=Person name, Cname= Company name and Mgrname = Manager name.

Write the SQL for the following:

- List the names of the people who work for the company Wipro along with the cities they live in.
 - Find the people who work for the company "Infosys" with a salary more than Rs. 50000/-. List the names of the people , along with the street and city addresses.
 - Find the names of the persons who live and work in the same city.
 - Find the names of the persons who did not work for "Infosys".
 - Find the persons whose salaries are more than that of all of the "Oracle" employees.
 - Find the names of the companies that are located in every city where the company "Infosys" is located.
- 3) Create table EMP and DEPT with the below mentioned structure

Structure for EMP table

EmpID	NUMBER(4)
DeptID	VARCHAR2(10)
EmpName	CHAR(10)
Job	CHAR(10)
HireDate	DATE
Salary	NUMBER(7, 2)
Commission	NUMBER (7, 2)

Structure for DEPT table

DeptId	VARCHAR2(10)
Deptname	VARCHAR2(20)
No_of_Faculties	NUMBER(2)

In table EMP: EmpID should be the Primary Key and DeptID should be the foreign key.

In table DEPT: DeptId should be the primary key.

- 4) INSERT the following values in the EMP table:
 - a) 1001,SET_01,Harrey,SE,01-Jan-2009,15000,3
 - b) 1002,SET_02, Ron, SSE,15-Feb-1998,20000,4
 - c) 1003,SEM_05, Peter, Manager,15-April-1999,40000,5
 - d) 1002,SED_07, Jolie,Assistant Manager,15-Dec-1998,50000,5
 - e) 1008,SET_08, Santy, SSE,15-Feb-2000,20000,4
 - f) 1008,SED_10, San, SE,10-Feb-2009,22000,5

- 5) Considering the above table i.e EMP write the queries for the following:
 - a) Find out the number of employees having “manager” as job.
 - b) Display only the jobs with maximum salary greater than or equal to 3000
 - c) Find all those employees whose job does not start with ‘M’.
 - d) Find the names of the employees whose name starts with ‘S’.
 - e) Find the names of the employees who are Managers and their date of joining is after “02-Jan-2006”.
 - f) For describing the structure of the EMP table and DEPT table.
 - g) For getting the average salary of the employees from EMP table.
 - h) For displaying the current date and give the column a name “DATE”.
 - i) For converting the name of the employee into uppercase where the employee name is “Santy”
 - j) Create a sequence with name SEQ_EMP , which will generate numbers from 1 to 99 in ascending order with an interval of 1. The sequence must start from 1 after generating the number 99.
 - k) Displaying the names of the employees who have an a and an e in their names.

- 6) Considering the table DEPT in question 3, find the total number of departments.

- 7) Alter the EMP table for the changing the width of the field EmpID from 4 to 10.

- 8) Alter the DEPT table for changing the width of the field No_of_Faculties from 2 to 4.

- 9) Delete all the records from the EMP table where the EmpName starts with “S”,

- 10) Insert some values in the PRODUCTS table created in Question 1 and then DROP the table PRODUCTS.

- 11) Update the EMP table for the following values:
 - a) Increase the salary of all the employees by 10% where the job is SE and SSE.
 - b) Change the hiredate of the employee “Harry” to 01-Feb-2009.
 - c) Update the salary of the employees to an increase of 15% where deptid is SED_07.

- 12) Alter the table EMP for the following:
 - a) Add one more field in the table i.e DOB DATE
 - b) Drop the column named Commission from the EMP table.

- 13) Write a query to select all the records from the EMP table.

- 14) Write a query to select all the records from the DEPT table.

- 15) Write a query to select the distinct deptid from EMP table.

- 16) Write a query to find the name and salary of the employee from EMP table where the salary is maximum.

- 17) Create a view named v_EMP on the table EMP,DEPT by selecting the following fields

Emp ID, Dept ID, Emp Name, Job

Where the EMP.Dept ID = DEPT. Dept Id.

- 18) Create a synonym S_EMP on the table EMP.

Module III

Basic features, Block Structure of a PL/SQL Programs, Control Structures, Exception Handling, Cursor, Procedure, function and Triggers, Internet features of Oracle, Overviews of SQLJ

19) Write a PL/SQL program for:

- a) Printing the Fibonacci series from 1 to 50.
- b) Printing the smallest number among any three numbers.
- c) Printing the table of any specific number entered.

20) Create a trigger named "Client_Master" which keeps track of records deleted or updated when such operations are carried out. Records in this table are inserted into table "Audit" when database trigger fires due to an update or delete statement fired on this table "Client".

Table: Client

<i>Column name</i>	<i>Data type</i>	<i>Size</i>
Client_no	Varchar2	6
Name	Varchar2	20
Address	Varchar2	30
Balance_Due	Number	10,2

21) Write a sql query to drop the table EMP, can we drop a table with data in it.

Examination Scheme:

Components	CT1	A/C/Q	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

- SQL, PL/SQL Ivan Bayross BPB Publication

DOMAIN ELECTIVE

NETWORKING FOR HOME & SMALL BUSINESS

Course Code: BCI 231

Credit Units: 03

Course Objective:

This course is aimed to provide a fundamental understanding of Computer Networking, Operating System, Connecting to the networks, network addressing, network services and Wireless technologies etc. After the completion of the course you will understand the core concepts around which computer networks revolve.

Course Contents:

Module I: Personal Computer Hardware

Personal Computers and Applications, types of Computers, Binary Representation of Data, Computer Components and Peripherals, Computer System Components

Module II: Operating System

Choosing the Operating Systems, Installing the Operating System, Maintaining the Operating System.

Module III: Connecting to the Networks

Introduction to Networking, Principals of Communication, Communicating on a Local Wired Network, Building the Access Layer of an Ethernet Network, Building the Distribution Layer of Network, Plan and Connect a Local Network

Module IV: Connecting to the Internet through ISP

The Internet and How We Connect To It Sending Information across the Internet
Networking Devices in a NOC Cables and Connectors Working with Twisted Pair Cabling

Module V: Network Addressing

Addresses and Subnet Masks, Types of IP Addresses, How IP Addresses are obtained
Address Management

Module VI: Network Services

Clients/Servers and Their Interactions, Application Protocols and Services, Layered Model and Protocols

Module VII: Wireless Technologies

Wireless Technology, Wireless LANs, Security Considerations on a Wireless LAN
Configuring an Integrated AP and Wireless Client

Module VIII: Basic Security

Networking Threats, Methods of attack, Security Policy, Using Firewalls

Module IX: Trouble Shooting your Network

Troubleshooting Process, Troubleshooting Issues, Common Issues, Troubleshooting and the Helpdesk

Examination Scheme:

Components	CT1	A/C/Q	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

- CCNA-Discovery 4.0, module 1, Cisco Certified Networking Academy

References:

- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

INTERNET FUNDAMENTALS

Course Code: BCI 232

Credit Units: 03

Course Objective: The course provides introduction to internet and a deep insight into the basics of internet, world wide web, security risks over internet, basics of various languages used over internet. With this course students would be able to know the basics of each and every introductory internet and computer features which would prove to be very helpful throughout their degree, and would prove helpful in understanding other related subjects also.

Course Contents:

Module 1: Internet Basics

Introduction to Internet, History of Internet, Internet Working, Modes of Connecting to Internet, Internet Service Providers(ISPs), Differentiate between Internet, Intranet and Extranet, Protocol, Internet address, IP addressing, standard address, domain name, DNS, internet tool, TCP/IP and UDP, OSI reference model.

Module 2: Electronic Mail

Introduction to E-mail, advantages and disadvantages of e-mails, structure of an e-mail address, message components, message composition, mailer features, Internal working of E-mail, E-mail management, MIME types, Newsgroups, mailing lists, chat rooms, secure-mails, SMTP,POP, PICO, Pine, Gopher.

Module 3: World Wide Web

Introduction to www, Miscellaneous Web Browser details, searching www: Search engines and meta search engines, search fundamentals, search strategies, working of search engines, Telnet, FTP, HTTP, Introduction to Browser, Coast-to-coast surfing, HTML, Web page installation and setup , Basics of HTML, formatting & hyperlink creation. Using and installing Plug-ins.

Module 4: Introduction to Languages and Servers

Basics of java script language, Client/Server Side Programming in java script, Using Forms and data entry using java script, XML and DHTML basics, Creating Static and dynamic web pages. Web Servers: PWS, IIS, Apache, Advantages and limitations of using these servers.

Module 5: Privacy and security

Introduction to security over internet,Network Attacks, security and privacy levels, security policy, virus worms andd Trozan horses, Cryptography: Encryptionand Decryption techniques, SecureWeb document, Digital Signatures, Firewalls and its types, IDS.

Examination Scheme:

Components	CT1	A/C/Q	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

- Fundamentals of the Internet and the World Wide Web, Raymond Greenlaw and Ellen Hepp – 2001, TMH
- Internet & World Wide Programming, Deitel,Deitel & Nieto, 2000, Pearson Education

References:

- Complete idiots guide to java script,. Aron Weiss, QUE, 1997
- Atul Kahate, “Cryptography and Network Security”, Tata McGraw-Hill, 2003

CYBER SECURITY

Course Code: BCI 233

Credit Units: 03

Course Objective:

The goal of the Cyber Security course is to provide an awareness of cyber threats and vulnerabilities, risk factors present in the cyber world. It will provide the student with basic knowledge of cyber crime dynamics and is aware to the students desiring Security Systems

Course Contents:

Module I: Introduction to Cyber Security

Introduction to Cyber Security, Cyber Crime / Social Theories, Threats to security, Government requirements, Information Protection and Access Controls, Computer security efforts, Standards, Computer Security mandates and legislation, Privacy considerations, International security activity, Intrusion Detection , Malicious Software Use and Detection

Module II: Information Technology Law

The Information Technology Legal Framework in India, Cyber Crime, Digital Evidence, Technological Standards under the Information Technology Law, Liability of companies under the Information Technology Act

Module III: Network Security

Intrusion Detection & Prevention systems, Firewalls and Firewall Policy, Computer Security Log Management, Securing WiMAX Wireless Communications

Module IV: Information security

Fundamentals, Employee responsibilities, information classification, Information handling, Tools of information security, Information processing, secure program, administration.

Module V: Information Technology Act Compliance

IT Act compliance for e-Commerce Sector, Education Sector, Healthcare Sector, Hospitality Sector, Outsourcing Sector, Retail Sector

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text Book:

- Rick Lehtinen and G.T. Gangemi, Computer Security Basics, 2nd ed. (2006), O'Reilly Media Inc.

Reference Book:

- McClure, Stuart & Scambray, Joel, Hacking Exposed 5th ed. et al (2005), McGraw-Hill Osborne Media.
- Ortmeier, P. J., Security Management: An Introduction, 2nd ed. (2005), Prentice Hall.

ENGLISH

Course Code: BCS 201

Credit Units: 01

Course Objective:

The course is intended to give a foundation of English Language. The literary texts are indented to help students to inculcate creative & aesthetic sensitivity and critical faculty through comprehension, appreciation and analysis of the prescribed literary texts. It will also help them to respond from different perspectives.

Course Contents:

Module I: Vocabulary

Use of Dictionary

Use of Words: Diminutives, Homonyms & Homophones

Module II: Essentials of Grammar - I

Articles

Parts of Speech

Tenses

Module III: Essentials of Grammar - II

Sentence Structure

Subject -Verb agreement

Punctuation

Module IV: Communication

The process and importance

Principles & benefits of Effective Communication

Module V: Spoken English Communication

Speech Drills

Pronunciation and accent

Stress and Intonation

Module VI: Communication Skills-I

Developing listening skills

Developing speaking skills

Module VII: Communication Skills-II

Developing Reading Skills

Developing writing Skills

Module VIII: Written English communication

Progression of Thought/ideas

Structure of Paragraph

Structure of Essays

Module IX: Short Stories

Of Studies, by Francis Bacon

Dream Children, by Charles Lamb

The Necklace, by Guy de Maupassant

A Shadow, by R.K.Narayan

Glory at Twilight, Bhabani Bhattacharya

Module X: Poems

All the Worlds a Stage

To Autumn

O! Captain, My Captain

Where the Mind is Without Fear

Psalm of Life

Shakespeare

Keats

Walt Whitman

Rabindranath Tagore

H. W. Longfellow

Examination Scheme:

Components	A	CT	HA	EE
Weightage (%)	05	15	10	70

Text & References:

- Madhulika Jha, Echoes, Orient Long Man
- Ramon & Prakash, Business Communication, Oxford.
- Sydney Greenbaum Oxford English Grammar, Oxford.
- Successful Communications, Malra Treece (Allyn and Bacon)
- Effective Technical Communication, M. Ashraf Rizvi.

BEHAVIOURAL SCIENCE – II

(PROBLEM SOLVING AND CREATIVE THINKING)

Course Code: BSS 203

Credit Units: 01

Course Objective:

To enable the students:

Understand the process of problem solving and creative thinking.

Facilitation and enhancement of skills required for decision-making.

Course Contents:

Module I: Thinking as a tool for Problem Solving

What is thinking: The Mind/Brain/Behaviour

Thinking skills

Critical Thinking and Learning:

Making Predictions and Reasoning

Memory and Critical Thinking

Emotions and Critical Thinking

Module II: Hindrances to Problem Solving

Perception

Expression

Emotion

Intellect

Work environment

Module III: Problem Solving Process

Recognizing and Defining a problem

Analyzing the problem (potential causes)

Developing possible alternatives

Evaluating Solutions

Resolution of problem

Implementation

Module IV: Plan of Action

Construction of POA

Monitoring

Reviewing and analyzing the outcome

Module V: Creative Thinking

Definition and meaning of creativity

The nature of creative thinking

Convergent and Divergent thinking

Idea generation and evaluation (Brain Storming)

Image generation and evaluation

Debating

The six-phase model of Creative Thinking: ICEDIP model

Module VI: End-of-Semester Appraisal

Viva based on personal journal

Assessment of Behavioural change as a result of training

Exit Level Rating by Self and Observer

Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success (JOS)
Weightage (%)	20	05	20	30	25

Text & References:

- Michael Steven: How to be a better problem solver, Kogan Page, New Delhi, 1999
- Geoff Petty: How to be better at creativity; Kogan Page, New Delhi, 1999
- Phil Lowe Koge Page: Creativity and Problem Solving, New Delhi, 1996
- Bensley, Alan D.: Critical Thinking in Psychology – A Unified Skills Approach, (1998), Brooks/Cole Publishing Company.

FRENCH - II

Course Code: FLT 201

Credit Units: 02

Course Objective:

To enable the students to overcome the fear of speaking a language and take position as a foreigner speaking French. To make them learn the basic rules of French Grammar.

Course Contents:

Module A: pp.38 – 47: Unité 3: Objectif 3, 4, 5, 6

Module B: pp. 47 to 75 Unité 4, 5

Contenu lexical: Unité 3: Organiser son temps

1. donner/demander des informations sur un emploi du temps, un horaire SNCF – Imaginer un dialogue
2. rédiger un message/ une lettre pour ...
 - i) prendre un rendez-vous/ accepter et confirmer/ annuler
 - ii) inviter/accepter/refuser
3. Faire un programme d'activités
imaginer une conversation téléphonique/un dialogue
Propositions- interroger, répondre

Unité 4: Découvrir son environnement

1. situer un lieu
2. s'orienter, s'informer sur un itinéraire.
3. Chercher, décrire un logement
4. connaître les rythmes de la vie

Unité 5: s'informer

1. demander/donner des informations sur un emploi du temps passé.
2. donner une explication, exprimer le doute ou la certitude.
3. découvrir les relations entre les mots
4. savoir s'informer

Contenu grammatical:

1. Adjectifs démonstratifs
2. Adjectifs possessifs/exprimer la possession à l'aide de:
 - i. « de »
 - ii. A+nom/pronom disjoint
3. Conjugaison pronominale – négative, interrogative - construction à l'infinitif
4. Impératif/exprimer l'obligation/l'interdiction à l'aide de « il faut.... »/ «il ne faut pas... »
5. passé composé
6. Questions directes/indirectes

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- le livre à suivre: Campus: Tome 1

GERMAN – II

Course Code: FLG 201

Credit Units: 02

Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

Introduction to Grammar to consolidate the language base learnt in Semester I

Course Contents:

Module I: Everything about Time and Time periods

Time and times of the day.

Weekdays, months, seasons.

Adverbs of time and time related prepositions

Module II: Irregular verbs

Introduction to irregular verbs like to be, and others, to learn the conjugations of the same, (fahren, essen, lessen, schlafen, sprechen und ähnliche).

Module III: Separable verbs

To comprehend the change in meaning that the verbs undergo when used as such

Treatment of such verbs with separable prefixes

Module IV: Reading and comprehension

Reading and deciphering railway schedules/school time table

Usage of separable verbs in the above context

Module V: Accusative case

Accusative case with the relevant articles

Introduction to 2 different kinds of sentences – Nominative and Accusative

Module VI: Accusative personal pronouns

Nominative and accusative in comparison

Emphasizing on the universal applicability of the pronouns to both persons and objects

Module VII: Accusative prepositions

Accusative prepositions with their use

Both theoretical and figurative use

Module VIII: Dialogues

Dialogue reading: 'In the market place'

'At the Hotel'

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Wolfgang Hieber, Lernziel Deutsch
- Hans-Heinrich Wangler, Sprachkurs Deutsch
- Schulz Griesbach, Deutsche Sprachlehre für Ausländer
- P.L Aneja, Deutsch Interessant- 1, 2 & 3
- Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2
- Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

SPANISH – II

Course Code: FLS 201

Credit Units: 02

Course Objective:

To enable students acquire more vocabulary, grammar, Verbal Phrases to understand simple texts and start describing any person or object in Simple Present Tense.

Course Contents:

Module I

Revision of earlier modules.

Module II

Some more AR/ER/IR verbs. Introduction to root changing and irregular AR/ER/IR ending verbs

Module III

More verbal phrases (eg, Dios Mio, Que lastima etc), adverbs (*bueno/malo, muy, mucho, bastante, poco*). Simple texts based on grammar and vocabulary done in earlier modules.

Module IV

Possessive pronouns

Module V

Writing/speaking essays like my friend, my house, my school/institution, myself....descriptions of people, objects etc, computer/internet related vocabulary

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Español, En Directo I A
- Español Sin Fronteras

CHINESE – II

Course Code: FLC 201

Credit Units: 02

Course Objective:

Chinese is a tonal language where each syllable in isolation has its definite tone (flat, falling, rising and rising/falling), and same syllables with different tones mean different things. When you say, “ma” with a third tone, it mean horse and “ma” with the first tone is Mother. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

Drills

Practice reading aloud

Observe Picture and answer the question.

Tone practice.

Practice using the language both by speaking and by taking notes.

Introduction of basic sentence patterns.

Measure words.

Glad to meet you.

Module II

Where do you live?

Learning different colors.

Tones of “bu”

Buying things and how muchit costs?

Dialogue on change of Money.

More sentence patterns on Days and Weekdays.

How to tell time. Saying the units of time in Chinese. Learning to say useful phrases like – 8:00, 11:25, 10:30 P.M. everyday, afternoon, evening, night, morning 3:58, one hour, to begin, to end etc.

Morning, Afternoon, Evening, Night.

Module III

Use of words of location like-li, wais hang, xia

Furniture – table, chair, bed, bookshelf,.. etc.

Description of room, house or hostel room.. eg what is placed where and how many things are there in it?

Review Lessons – Preview Lessons.

Expression ‘yao’, ‘xiang’ and ‘yaoshi’ (if).

Days of week, months in a year etc.

I am learning Chinese. Is Chinese difficult?

Module IV

Counting from 1-1000

Use of “chang-chang”.

Making an Inquiry – What time is it now? Where is the Post Office?

Days of the week. Months in a year.

Use of Preposition – “zai”, “gen”.

Use of interrogative pronoun – “duoshao” and “ji”.

“Whose”??? Sweater etc is it?

Different Games and going out for exercise in the morning.

Module V

The verb “qu”

– Going to the library issuing a book from the library

– Going to the cinema hall, buying tickets

– Going to the post office, buying stamps

– Going to the market to buy things.. etc

– Going to the buy clothes Etc.

Hobby. I also like swimming.

Comprehension and answer questions based on it.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- “Elementary Chinese Reader Part I” Lesson 11-20

COMPUTER ORIENTED STATISTICAL AND OPTIMIZATION METHODS

Course Code: BCA 301

Credit Units: 03

Course Objective:

The objective of this course is to expose students to the fundamentals and concepts of statistical and optimization methods, in particular, with reference to frequency distribution and measures of central tendency, measures of dispersion, skewness and kurtosis, theory of probability, linear programming problems, transportation, assignment and game problems. This course is designed with an aim of helping the students to understand important theorems, different formulae and practical applications of these statistical and optimization methods in the field of Computer Sciences and Applications.

Course Contents:

Module I

Collection of Data, Sampling and Sampling Designs, Classification and Tabulation of Data, Graphical representation of Data, Measures of Central Value, Measures of Dispersion. Moments, Skewness, Kurtosis, Correlation and Regression.

Module II: Probability

Classical Definition of Probability, Algebra of Events, Probability Axioms, Conditional Probability.

Probability Distributions: Discrete and Continuous Distributions, Binomial Distribution, Poisson distribution, Normal Distribution.

Module III: Linear Programming

Mathematical Formulation of Linear Programming models and its Graphical Solutions, Simplex Method, Charné's Big M method, Two Phase Method.

Module IV: Transportation Problem

General Transportation model, Starting basic Solutions:-North west Corner Method, Least Cost Method, Vogel's Approximation Method, Test of optimality, unbalanced Problem.

Assignment Problems

Module V: Game Theory

Two-Person Zero Sum Games, Maximin-Minimax Principal, Pure Strategies, Mixed Strategies, Expected Pay off, Concept of Dominance, Graphical Solution of $m \times 2$ and $2 \times n$ Games.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- P.K. Gupta & Manmohan, Linear Programming and Theory of Games.
- S.C Gupta & V.K. Kapoor, Fundamentals of Mathematical Statistics.

References:

- Hogg, Probability and Statistical Inference.
- Alexander. M. Mood, Introduction to the Theory of Statistics
- Franklin. A. Graybill, Dane. C. Boes
- Taha, Handy A, Operations Research
- G. Hadley, Linear Programming.

ADVANCE DATABASE MANAGEMENT SYSTEMS

Course Code: BCA 302

Credit Units: 03

Course Contents:

To familiarize students with the advance database management system fundamentals and make students enable to deal with advance SQL query, indexing, optimization, concurrency control etc. and ADBMS administration works.

Course Contents

Module I Design Theory for Relational Database

Functional Dependencies, Decomposition of Relation Schemes, Normal Forms for Relations, Schemes, Multivalued and other kinds of Dependencies, Transactions and Concurrency Control.

Module -II: Basics of PL/SQL

PL/SQL basics, blocks, architecture, variables, constants, attributes, character set, JOIN and its types with queries, data types, control structure, conditional and sequential control statements.

Module -III: Advanced PL/SQL

PL/SQL precompiler, cursors, type of cursors, exceptions, Indexing, View, triggers, PL/SQL Stored procedures and packages00

Module IV Query Optimization and Database Protection

Basic Optimization Strategies, Algebraic Manipulation, Optimization of Selections in System, Exact Optimization for a Subset of Relational Queries, Optimization under Weak Equivalence. Integrity, Constraints in Query-by-Example, Security, Security in Query-by- Example, Security in Statistical Databases.

Module V Object and Object Relational Databases

Concepts for Object Databases, Object Identity, Object structure, Type Constructors, Encapsulation of Operations, Methods, Persistence, Type and Class Hierarchies, Inheritance, Complex Objects, Object Database Standards, Languages and Design: ODMG Model – ODL – OQL – Object Relational and Extended – Relational Systems, Object Relational features in SQL/Oracle – Case Studies.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text Books:

1. J.D.Ullman- Principles of Database Systems, Galgotia, New Delhi.
2. S.Ceri and G. Relagatti- Distributed Databases, McGraw-Hill.

Reference Books:

1. M.T.Ozsu & P.Valduriez-Principles of Distributed Database Systems, 2nd Edn, Pearson Education, New Delhi-2001.
2. Elmasri & Navathe- Fundamentals of Database Systems, 3rd Edn, Pearson Education, New Delhi, 2001

OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

Course Code: BCI 303

Credit Units: 03

Course Objective:

C++ is one of the most widely used programming languages for solving problems. The objective of this course is to provide object oriented programming fundamentals using C++. Topics to be covered include fundamentals of syntax & semantics of C++, loops & decisions, functions, classes and structures and features of classes such as overloading and inheritance, files, streams, pointers etc.

Course Contents:

Module I: Overview of C++

What is Object Oriented Programming, Characteristics of OOP, Difference between C and C++.

Basics:-Input/Output in C++ using cin/cout, Preprocessor Directives, Data Types-Integer, Float, character, Enumerated data types, library functions, comments, storage classes, manipulators, type conversion, arithmetic operators, arrays and strings

Module II: Loops and Decisions

Relational operators, Logical operators, Decisions-if, if-else and switch. Loops-for, while, do-while and nested loops, precedence summary, break, continue and goto statements.

Functions: Simple functions, passing arguments to functions, returning values from functions, reference arguments, returning by reference, Overloaded functions, Inline functions

Module III: Structures

A simple Structure, specifying the Structure, defining the structure variable, assessing members of structure, structure within structure, assessing structure members using pointers

Classes and objects: A simple class, C++ objects as physical objects, Constructors, Destructors, objects as function arguments, returning objects from functions, static class data, array as class data member, array of objects.

Module IV: Operator Overloading & Inheritance

Overloading unary operator, Overloading binary operator, data conversion. Inheritance: Derived and Base class, Derived class Constructor, types of Inheritance , Abstract base class , public and private Inheritance, level of Inheritance, Ambiguity in multiple inheritance .

Module V: Pointers and Virtual functions

Pointers and Arrays, pointers and strings, pointers and functions, pointers to objects, virtual functions, friend functions, static functions, this pointer.

Files and Streams: streams, string I/O, character I/O, object I/O, file pointer, error handling, command line arguments.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

- Programming with C++, Ravi Chandran
- Mastering C++, Venugopal
- Programming in C++, SCHAUM's series
- The complete reference C++, Herbert Schildt
- Turbo C++, Robert Lafore

SUMMER PROJECT – I (Evaluation)

Course Code: BCA 351

Credit Units: 03

Course Objective:

The objective of project work is to provide students, exposure about the technology they have learnt in previous and current semesters and their applications in real time situations. Appropriate application software as assigned by the project guide to be developed individually or in-groups.

They are supposed to follow the following technologies:

C,
C++
DBMS

Guidelines:

There are certain phases of every Intern's professional development that cannot be effectively taught in the academic environment. These facets can only be learned through direct, on-the-job experience working with successful professionals and experts in the field. The internship program can best be described as an attempt to institutionalize efforts to bridge the gap between the professional world and the academic institutions. Entire effort in internship is in terms of extending the program of education and evaluation beyond the classroom of a university or institution. The educational process in the internship course seeks out and focuses attention on many latent attributes, which do not surface in the normal classroom situations. These attributes are intellectual ability, professional judgment and decision-making ability, inter-disciplinary approach, skills for data handling, ability in written and oral presentation, sense of responsibility etc.

In order to achieve these objectives, each student will maintain a file (**Internship File**). The Internship File aims to encourage students to keep a personal record of their learning and achievement throughout the Programme. It can be used as the basis for lifelong learning and for job applications. Items can be drawn from activities completed in the course modules and from the workplace to demonstrate learning and personal development.

The File will assess the student's analytical skills and ability to present supportive evidence, whilst demonstrating understanding of their organization, its needs and their own personal contribution to the organization.

The **layout guidelines** for the Project & Seminar Report:

1. File should be in the following specification

- A4 size paper
- Font: Arial (10 points) or Times New Roman (12 points)
- Line spacing: 1.5
- Top & bottom margins: 1 inch/ 2.5 cm
- Left & right margins: 1.25 inches/ 3 cm

2. Report Layout: The report should contain the following components

Front Page
Table of Content
Acknowledgement
Student Certificate
Company Profile (optional)
Introduction
Main Body
References / Bibliography

The File will include *five sections* in the order described below. The content and comprehensiveness of the main body and appendices of the report should include the following:

1. **The Title Page**--Title - An Internship Experience Report For (Your Name), name of internship organization, name of the Supervisor/Guide and his/her designation, date started and completed, and number of credits for which the report is submitted.
2. **Table of Content**--an outline of the contents by topics and subtopics with the page number and location of each section.
3. **Introduction**--short, but should include how and why you obtained the internship experience position and the relationship it has to your professional and career goals.
4. **Main Body**--should include but not be limited to daily tasks performed. Major projects contributed to, dates, hours on task, observations and feelings, meetings attended and their purposes, listing of tools and materials and their suppliers, and photographs if possible of projects, buildings and co-workers.
5. **References / Bibliography** --This should include papers and books referred to in the body of the report. These should be ordered alphabetically on the author's surname. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system

ASSESSMENT OF THE INTERNSHIP FILE

The student will be provided with the Student Assessment Record (SAR) to be placed in front of the Internship File. Each item in the SAR is ticked off when it is completed successfully. The faculty will also assess each item as it is completed. The SAR will be signed by the student and by the faculty to indicate that the File is the student's own work. It will also ensure regularity and meeting the delaines.

STUDENT ASSESSMENT RECORD (SAR)

1. **Range of Research Methods used to obtain information**
2. **Execution of Research**
3. **Data Analysis**
 - Analyse Quantitative/ Qualitative information
 - Control Quality
4. **Draw Conclusions**

Examination Scheme:

Components	V	S	R	FP
Weightage (%)	20	20	20	40

V – Viva, S – Synopsis, FP – Final Presentation, R - Report

ADVANCE DATABASE MANAGEMENT SYSTEMS LAB

Course Code: BCA 322

Credit Units: 01

INSTRUCTIONS TO STUDENTS

1. Students should be regular and come prepared for the lab practice.
2. In case a student misses a class, it is his/her responsibility to complete that missed experiment(s).
3. Students should bring the observation book, lab journal and lab manual. Prescribed textbook and class notes can be kept ready for reference if required.
4. They should implement the given experiment individually.
5. While conducting the experiments students should see that their programs would meet the following criteria:
 - Programs should be interactive with appropriate prompt messages, error messages if any, and descriptive messages for outputs.
 - Programs should perform input validation (Data type, range error, etc.) and give appropriate error messages and suggest corrective actions.
 - Comments should be used to give the statement of the problem and every function should indicate the purpose of the function, inputs and outputs
 - Statements within the program should be properly indented
 - Use meaningful names for variables and functions.
 - Make use of Constants and type definitions wherever needed.
6. Once the experiment(s) get executed, they should show the program and results to the instructors and copy the same in their observation book.
7. Questions for lab tests and exam need not necessarily be limited to the questions in the manual, but could involve some variations and / or combinations of the questions.

LAB CONTENTS

SL NO.	TITLE OF EXPERIMENT	WEEKS
1.	SQL BASICS	2 weeks
2.	Analyzing given system and preparing ERmodel and converting it to relational schema.	1 week
3.	SQL Advanced Commands	2 weeks
4.	PL/SQL BASICS & Cursor	1 week
5.	Cursors continued & exception handling	1 week
6.	Triggers	1 week
7.	Procedures, Functions, Packages	2 weeks
8.	Interfacing DB with any latest front end	1 week
9.	Implementation	1 week

LIST OF PROGRAMS

1. Week 1 SQL

1.1 Create table EMP with following columns and constraints>Note:

Note: Give descriptive enough name to the constraints

Name	Type	Constraint
EMPNO	NUMBER(4)	Make this as primary key after creating table
ENAME	VARCHAR2(10)	
JOB	VARCHAR2(9)	CLRK/MGR/A.MGR/GM/CEO, default CLRK
MGR_ID	NUMBER(4)	References EMP
DATE_BIRTH	DATE	Must be less than joining Date
SAL	NUMBER(7,2)	More than 20000,default 20001
COMM	NUMBER(7,2)	DEFAULT 1000
DEPTNO	VARCHAR2(3)	References DEPT
DATE_OF_JOIN	DATE	

Add a primary key constraint to EMP table after creating the table

1.2 Create table DEPT with following columns and constraints

Name	Type	Constraint
DNO	VARCHAR2(3)	Primary Key and Starts from 'D'
DNAME	VARCHAR2(10)	Unique
LOCATION	VARCHAR2(9)	BNG/MNG/MUB/HYD/CHN, default BNG

1.3 Create table PROJECTs with following constraints

Combination of DNO and PRJ_NO is primary key

Name	Type	Constraint
DNO	VARCHAR2(3)	References DEPT ,NOT NULL
PRJ_NO	VARCHAR2(5)	Starts from 'P' , NOT NULL
PRJ_NAME	VARCHAR2(10)	
PRJ_CREDITS	NUMBER(2)	Range from 1 to 10
STRT_DATE	DATE	
END_DATE	DATE	END_DATE > START_DATE

Add a column to EMP table named PRJ_ID. Add a foreign key constraint to EMP table on

(DeptNo,Proj_Id) referencing PROJECTS. Indicates -an employee from which department is working on which project/s.

1.4 Insert records into EMP table

In the following records take any valid values to the columns left blank, columns with null must be entered with null values only

Empno	Ename	Job	MgR_ID	Date_ofBirth	Sal	comm	Dep tno	Prj_ Id	Dateof join
100	Ravi	MGR	111	10-10-1985	32000		D1	P1	2-10-2001
102	Raviraj	CLRK	100	10-12-1980	24000		D1	P3	12-11-2000
111	Raghu	GM	150	10-12-1974	45000	15000	null	null	3-12-1985
150		CEO	null	10-12-1970	60000	30000	null	null	3-12-1990
103		A.CLRK	111	10-12-1980			D1	P1	2-10-2001
103		CLRK	111	2-10-1980			D1	P3	2-10-2002
125	Manu	A.MGR	150	10-12-1980			D4	P2	2-10-2002
104		CLERK	100	2-10-1980			D2	P1	2-10-2005
106		MGR	100	2-10-1986			D2		2-10-1985
123	Mahesh	CLRK	106	10-12-1974	25000		D3	P2	2-10-2002
108		CLRK	106	10-12-1970			D9		2-10-1985
103		CLRK	111	10-12-1980			D1	P3	2-10-2001
null		CLRK	106	10-12-1980	18000				10-12-1980

1.5 Insert records into DEPT table

DNO	DName	Location
D1	Marketing	CHN
D2	Research	MNG
D3	Administrator	BNG
D4		BGG
D5	IT	BNG
Null	Corporate	HYD

Write the reason if some records are not inserted. Insert your own 2 records

1.6 Insert records into PROJECTS

Dno	Prj_No	Prj_Name	Prj_Credits
D1	P1		2
D2	P1		2
D3	P2		7
D1	P3		5
D4	P2		7

Insert your own 2 records

2. Week 2

2.1 Display all records from EMP,DEPT and PROJECTS table

2.2 Display records of Employees who have salary more than 25000 or working in department D2

2.3 Delete employee records working on project P2 and confirm the result. Type ROLLBACK to restore records back if records are deleted.

2.4 Delete department Marketing from DEPT table, confirm the result with reason. Type ROLLBACK to restore records back if records are deleted.

2.5 Delete records of employees working under Manger with ID 100 and in project P1.

2.6 Update the DNO of first record in PROJECTS to D5, confirm the result with reason.

2.7 Update the Job of employee with EmpNo 123 to MGR, salary to 35000 and his manager as 111.

2.8 List all employee names and their salaries, whose salary lies between 25200/- and 35200/- both inclusive.

2.9 List all employee names reporting to employees 100,125,150

2.10 List all employees whose name starts with either M or R.

2.11 List the name of employees whose name do not starts with M.

2.12 List all kind jobs available in employee table, avoid displaying duplicates.

2.13 List minimum, maximum, average salaries in company.

2.14 Display the number of employees working in each project.

2.15 List the Employees name and their manager's names

2.16 List Employees Name, their department name and Projects Name in which they are working.

2.17 List the employee names, salary of employees whose first character of name is R, 2nd and 3rd characters are 'v','i' and remaining characters are unknown.

3. Week 3

3.1 List the Projects name undertaken by Marketing Department.

3.2 Display current date, 53, absolute value of -45 and current date as date with format MONTH-YY.

3.3 Display the employees name and salary in descending order by salary.

3.4 List the name of departments which are working with more than 1 project

3.5 Display department name, Max salary and Min salary in each department.

3.6 List the employees whose experience is more than 5 years.

3.7 List the Employees number, Name and their Age and retirement date(assume 60 years retirement age).

3.8 List the Employees who born on December month.

3.9 List the Employees names who born on a given year.

3.10 List the Employees names who joined on day 12.

3.11 List the Employees names having service experience more than 10 years.

- 3.12 List the projects which have duration more than 1 year.
- 3.13 List the Employees Name who is working at Locations (BNG,MUB,HYD)7
- 3.14 Update the COMM column of EMP table based on the SAL. Use $COMM=CMM+SAL*10/100$
- 3.15 List employee names, padded to right with a series of three periods and space up to a width of 30, and project credits of projects in which they are working.(Use RPAD,LPAD)
- 3.16 List the name of employees who are working in project with credit more than 7 and display name with only first letter capital and replace the character 'a'(if present) in the name by '\$'.
- 3.17 Display department Name and Total amount spent on each department by the company as Salary.
- 3.18 List Employee numbers, $SAL *12$ (rename as ANNUAL_SAL), $SAL*12 *0.1$ (as TAX) , display ANNUAL_SAL and TAX in the format of \$12,34,456.90.

4. Week 4

Analyzing the given system and designing ER –Model and converting the ER-model to relational scheme and implementing in Oracle. Listing the functionalities to be implemented and designing application logic(pseudo code) for the functionalities.

5. Week 5

- 5.1 List Job category and total salary paid for the each jobs category by the company
- 5.2 Display name of the department from which maximum number of employees are working on project P1
- 5.3 Display department names and number of CLRK working in the departments.
- 5.4 Display Employee names who are not working in any of the projects.
- 5.5 Create a View EMP_PRJ_VW to display records of employees of 'marketing' department and project in which they are working.
- 5.6 Display employee names and projects in which they are working using ViewEMP_PRJ_VW
- 5.7 Insert a record into View EMP_PRJ_VW and check the underlying tables for result and confirm result with reason.
- 5.8 Create an unique index on the column name DNAME on DEPT table
- 5.9 Create an index on the columns (name and job) on EMP table.
- 5.10 Create a Sequence STUD_SEQ which starts from 100 to 999 with increments of 3.
- 5.11 Create a table STUD with columns ROLLNO and Name. Insert ROLLNO values by taking values from STUD_SEQ.
- 5.12 Display Location of department and Employees name working in Marketing department or Research (using set operator).
- 5.13 Display the names of the Departments undertaking both projects P1 and P3 (using set operator).

8

6. Week 6 - PL/SQL

6.1 Write a PL/SQL block to insert row into EMP table.

6.2 Write a PL/SQL block for performing money withdrawal operation. Assume that the account has to maintain minimum 2000/- always. Assume current balance is 5000/- display the message- 'WITHDRAWAL COMPLETED' if new balance after withdrawal is \geq 2000 otherwise 'WITHDRAWAL NOT COMPLETED'

6.3 Write a PL/SQL block to check an input string is palindrome or not palindrome.

6.4 Write a PL/SQL block to reverse a given number.

6.5 Write a PL/SQL block to accept employee number and display Employee Name, salary of employees in the format – 'RAVI draws 32000/- as salary'

6.6 *Write a PL/SQL block to input employee number and display employee name, department name and project name on which employee is working for the given employee number.

6.7 Write a PL/SQL block to display ENAME and SAL of all employees drawing salary more than 30000/-.

6.8 Do the exercise 6.7 using cursor for loop.

7. Week 7

7.1 Write PL/SQL block to give salary hike of 10% to first five highest paid employees, create a save point for salary hike given to each of five employees Calculate total amount paid by the company as salary to all employees and it should not exceed 500000/-(this amount can be assumed suitably). If it exceeds, rollback up to the recent previous save point and check again to know whether total salary lies below 500000/- and so on. Commit the changes if total salary lies below 500000/-.

7.2 *Write a PL/SQL block to process Pay roll of all Employees by calculating Bonus(considering Project Credits of projects in which they are working),HRA,PF,TAX,GROSS and NET_SAL. Insert these salary details into a new table PAYROLL(EmpNo, Pay_Date, Salary, Bonus, HRA, GROSS,PF, TAX, NET_SAL). Note Salary is same as Sal from EMP table,
Bonus=Salary*Proj_Credits/100, HRA=10% of Salary, PF=10% of Salary
GROSS=Salary +Bonus + HRA, TAX=10% of GROSS, NET_SAL=GROSS-PFTAX.(Hint: use two cursor one for EMP and another for different projects and their credits)

7.3 Write a PL/SQL block (using parameterized cursor) to display first two employees

- details (Name, Salary, Department Name) in ascending order by their salary and working in Project P1. 7.4 Write a PL/SQL block to accept, Principle, Interest rate and duration (in years) to calculate Interest to be paid. Handle the exceptions if Principle ≤ 1000 , interest rate < 5 , year < 1 and display proper error message for each.9
- 7.5 Write a PL/SQL block to accept employee number from user and display employee details such as Empno, Name, and Sal. Handle the exception raised –
- (i) If user entered a non-existing employee number.
- (ii) If the salary more than 25000/-
- If employee exists and salary is less than 25000/- then update that salary to 25000/-
- 7.6 When the oracle looks for the exception OTHERS and give an example for a PL/SQL block where OTHERS is used and explain it.
- 7.7 * Write a PL/SQL block to insert record into EMP table with exception handling for oracle error numbers ORA-01438,ORA-01722,ORA-00904 and display proper error messages.
- ORA-01438 –if salary value entered more than given digits width.ORA-01722 – if a character value is inserted into Salary (or to any numeric value column) ORA-00904 – if column name entered is incorrect.
8. Week 8
- 8.1 Write a PL/SQL trigger to fire when there is an updation of salary of any Empno and record the Empno, Dept. Name and Old Salary, date on which salary is modified and user name who modified information in the table SAL_MOD (Empno, Dname, Old_Sal, Mod_Date, Modifier)
- 8.2 Write a PL/SQL trigger to fire when there is an insert /update/deletes operation on EMP table; record the information in AUDIT_EMP table which has same structure as that of EMP along with a new column OPERATION (storesUPDATE/INSERT/DELETE depending on operation being done.)
- 8.3 Write a PL/SQL block trigger to do INSERT/UPDATE/DELETE operation onlyduring week days. Raise an exception if the day is SAT or SUN and also display user name who initiated operation.
- 8.4 Write a PL/SQL block trigger to check existence of child records in EMP table on Performing DELETE operation on DEPT table. If child records exists display message and cancel the delete operation otherwise perform delete operation.
- 8.5 Do the program 4.16 using INSTEAD OF option.
- 8.6 *Write PL/SQL block trigger to insert a record into a view EMP_DEPT_VIEW. Create the view containing EMPNO, ENAME, DATE_OF_BIRTH DEPTNO, and DNAME. Use INSTEAD OF option with trigger to make records to insert into underlying tables.
9. Week 9
- 9.1 Write a procedure to calculate simple interest, taking principle, rate and year as inputs.
- 9.2 Write a procedure to take SAL of given Employee as input and calculate HRA, PF,DA, GROSS, TAX and NETSAL and return them to calling PL/SQL block(take EMPNO as keyboard input to get SAL)
- 9.3 Write a function to calculate square of a number and return calculated value to calling PL/SQL block.
- 9.4 Write two functions to calculate age and service experience of all employees and return these values to calling PL/SQL block and display.
- 9.5 Write functions to find department name and number of projects it is handling.Display this information in the calling PL/SQL block.
- 9.6 Write a package containing procedure to calculate area of circle, perimeter and a function to find factorial of a number.

9.7 Write a package containing a procedure to display Employee name, department name, immediate superior name and a function to display retirement date by considering date of birth and retiring age as 65 years.

10. Week 10

Interfacing Oracle database with any latest front end and prepare GUI layout prototypes for the system under consideration.

11. Week 11

Implementing GUI layouts and application logic for the system under consideration.

12. Week 12

Completing the implementation of application for system under considerations and validation, basic functionality testing.

Examination Scheme:

Components	CT1	A/P/C	Attd	EE(PR)
Weightage (%)	10	15	5	70

OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++ LAB

Course Code: BCA 323

Credit Units: 01

1. WAP to find greatest of three numbers.
2. WAP to calculate factorial of a number.
3. WAP to print Fibonacci series of 'n' numbers , where n is given by the programmer
4. WAP to check whether a number is prime or not.
5. WAP to find the number of characters and words in a string.
6. WAP to read a set of numbers in an array & to find the largest of them.
7. WAP to implement bubble sort using arrays.
8. WAP to read a set of numbers from keyboard & to find sum of all elements of the given array using a function.
9. WAP to exchange contents of two variables using call by value.
10. WAP to exchange contents of two variables using call by reference.
11. WAP to find the sum of three numbers using pointer to function method.
12. WAP to display content of an array using pointer arithmetic.
13. Calculate area of different geometrical figures (circle, rectangle, square, triangle) using function overloading.
14. WAP a program to maintain the student record containing roll number , Name, marks1, marks2, marks3 as data member and getdata(), display() and setdata() as member functions(use array of object)
15. WAP to increment the employee salaries on the basis of their designation (Manager-5000, General Manager-10000, CEO-20000, worker-2000). Use employee name, id, designation, salary as data member and inc_sal as member function (Use array of object).
16. Write a class bank, containing data member: Name of Depositor, A/c type, Type of A/c, Balance amount. Member function: To assign initial value, To deposit an amount, to withdraw an amount after checking the balance (which should be greater than Rs. 500) , To display name & balance.
17. WAP to define nested class 'student_info' which contains data members such as name, roll number and sex and also consists of one more class 'date' ,whose data members are day, month and year. The data is to be read from the keyboard & displayed on the screen.
18. WAP to generate a series of Fibonacci numbers using copy constructor, where it is defined outside the class using scope resolution operator.
19. Write a program to add two complex numbers using friend function.
20. Write a class string to compare two strings, overload (==) operator.
21. Write a class to concatenate two strings, overload (+) operator.
22. Create a class item, having two data members x & y, overload '-'(unary operator) to change the sign of x and y.
23. Create a class Employee. Derive 3 classes from this class namely, Programmer, Analyst & Project Leader. Take attributes and operations on your own. Write a program to implement this with array of pointers.
24. Create two classes namely Employee and Qualification. Using multiple inheritance derive two classes Scientist and Manager. Take suitable attributes & operations. Write a program to implement this class hierarchy.
25. Write a program to read data from keyboard & write it to the file. After writing is
26. Completed, the file is closed. The program again opens the same file, reads

ENVIRONMENTAL STUDIES

Course Code: EVS 001

Credit Units: 04

Course Objective:

The term environment is used to describe, in the aggregate, all the external forces, influences and conditions, which affect the life, nature, behaviour and the growth, development and maturity of living organisms. At present a great number of environment issues, have grown in size and complexity day by day, threatening the survival of mankind on earth. A study of environmental studies is quite essential in all types of environmental sciences, environmental engineering and industrial management. The objective of environmental studies is to enlighten the masses about the importance of the protection and conservation of our environment and control of human activities which has an adverse effect on the environment.

Course Contents:

Module I: The multidisciplinary nature of environmental studies

Definition, scope and importance
Need for public awareness

Module II: Natural Resources

Renewable and non-renewable resources:

Natural resources and associated problems

Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Module III: Ecosystems

Concept of an ecosystem

Structure and function of an ecosystem

Producers, consumers and decomposers

Energy flow in the ecosystem

Ecological succession

Food chains, food webs and ecological pyramids

Introduction, types, characteristic features, structure and function of the following ecosystem:

- a. Forest ecosystem
- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

Module IV: Biodiversity and its conservation

Introduction – Definition: genetic, species and ecosystem diversity

Biogeographical classification of India

Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values

Biodiversity at global, national and local levels

India as a mega-diversity nation

Hot-spots of biodiversity

Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts

Endangered and endemic species of India

Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Module V: Environmental Pollution

Definition

- ☐☐☐ Causes, effects and control measures of:
 - a. Air pollution
 - b. Water pollution
 - c. Soil pollution
 - d. Marine pollution
 - e. Noise pollution
 - f. Thermal pollution
 - g. Nuclear pollution

Solid waste management: Causes, effects and control measures of urban and industrial wastes.

Role of an individual in prevention of pollution.

Pollution case studies.

Disaster management: floods, earthquake, cyclone and landslides.

Module VI: Social Issues and the Environment

From unsustainable to sustainable development

Urban problems and related to energy

Water conservation, rain water harvesting, watershed management

Resettlement and rehabilitation of people; its problems and concerns. Case studies.

Environmental ethics: Issues and possible solutions

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.

Wasteland reclamation

Consumerism and waste products

Environmental Protection Act

Air (Prevention and Control of Pollution) Act

Water (Prevention and control of Pollution) Act

Wildlife Protection Act

Forest Conservation Act

Issues involved in enforcement of environmental legislation

Public awareness

Module VII: Human Population and the Environment

Population growth, variation among nations

Population explosion – Family Welfare Programmes

Environment and human health

Human Rights

Value Education

HIV / AIDS

Women and Child Welfare

Role of Information Technology in Environment and Human Health

Case Studies

Module VIII: Field Work

Visit to a local area to document environmental assets-river / forest/ grassland/ hill/ mountain.

Visit to a local polluted site – Urban / Rural / Industrial / Agricultural

Study of common plants, insects, birds

Study of simple ecosystems-pond, river, hill slopes, etc (Field work equal to 5 lecture hours)

Examination Scheme:

Components	CT	HA	S/V/Q	A	EE
Weightage (%)	15	5	5	5	70

Text & References:

- Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
- Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad 380 013, India, Email:mapin@icenet.net (R)

- Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
- Clark R.S., Marine Pollution, Clarendon Press Oxford (TB)
- Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
- De A.K., Environmental Chemistry, Wiley Eastern Ltd.
- Down to Earth, Centre for Science and Environment (R)
- Gleick, H.P. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
- Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
- Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
- Mckinney, M.L. & School, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.
- Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
- Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
- Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
- Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
- Survey of the Environment, The Hindu (M)
- Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science
- Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)
- Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)
- Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p

DOMAIN ELECTIVE

WORKING AT A SMALL-TO-MEDIUM BUSINESS OR ISPs

Course Code: BCI 331

Credit Units: 03

Course Objective:

This course is aimed to provide a fundamental understanding of small to medium business or ISP. After the completion of this, students will know how to plan network upgrade, planning the addressing structure, configuring the network devices and ISP services.

Course Contents:

Module I: The Internet and Its Uses

What is the Internet, Internet Service Providers, and ISP Connectivity

Module II: ISP Help Desk

Help Desk Technicians, OSI Model, ISP Troubleshooting

Module III: Planning a Network Upgrade

Common Issues, Planning the Network Upgrade, Purchasing and Maintaining Equipment

Module IV: Planning the addressing structure

IP Addressing in the LAN, NAT and PAT

Module V: Configuring Network Devices

Initial ISR Router Configuration, Configuring an ISR with SDM, Configuring a Router Using IOS CLI, Initial Cisco 2960 Switch Configuration, Connecting the CPE to the ISP

Module VI: Routing

Enabling Routing Protocols, Exterior Routing Protocols

Module VII: ISP Services

Introducing ISP Services, Protocols that Support ISP Services, Domain Name Service Services and Protocols

Module VIII: ISP Responsibilities

ISP Security Considerations, Security Tools, Monitoring and Managing the ISP Backups and Disaster Recovery

Examination Scheme:

Components	CT1	PR.	ATTD.	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- CCNA-Discovery 4.0, module 2, Cisco Certified Networking Academy

References:

- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

WEB DESIGNING

Course Code: BCI 332

Credit Units: 03

Course Code	L	T	P	Credit
BCA331	2	1	0	3

Course Objective:

This course is aimed to provide a fundamental understanding of web site creation. HTML is the language used for designing most basic web pages. Syllabus include basic and advanced features of HTML which includes images, links, tables, frames and forms etc. It also gives an overview of XML.

Course Contents:

Module I: Introduction to html programming

History of HTML, Structure of HTML, Adding Comments, Formatting Text, Creating List, Creating Definition List, Creating Hyper Text Links, Creating Link Lists, Inserting Inline Images, Creating Image Links, Horizontal Rules, Address Tag, Working with Text, Changing font Sizes and Colors, Using Background Image, Marquee Tag.

Module II

Tables and frames, Creating Tables, Table Element, Adding Border, Adding Column Headings, Adding Spacing and Padding, Adding a Caption, Setting the table Width and Height, Add Row Headings, Aligning Cell contents, Setting Column Width, Centering a Table, Inserting and Image, Spanning Columns, Spanning Rows Assigning Background Colors, Frame Elements, Creation of Frame Based Pages, Noframes Element.

Module III

Forms and Java Script Introduction to Forms, Form Elements, Front level validations using JavaScript

Module IV

Cascading style sheets, Overview of style sheets, Different ways to use style sheets, Selectors DIV and SPAN Elements, Adding style to a Document, Use id Classes and Ids, Style Sheet Properties.

Module V: XML

Introduction to XML, XML Basics, XML Structure, Developing a DTD from XML code, Viewing XML, Viewing XML using the XML Data Source Object, Viewing XML using Style Sheets.

Examination Scheme:

Components	Presentation	Assignment / Case Study	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & References:

- HTML, DHTML, JavaScript, Perl, CGI, Ivan Bayross, BPB Publication.
- HTML Complete Reference, BPB Publication.
- Internet for everyone, Alexis Leon and Mathew Leon, Leon Tech world

ADVANCED TECHNOLOGIES IN COMPUTER SCIENCE

Course Code: BCI 333

Credit Units: 03

Course Code	L	T	P	Credit
BCA332	2	1	0	3

Course Objective

The objective is of this course to make aware the students about emerging technologies and areas in computer science viz Soft computing, Parallel computing, Pervasive computing, High performance computing and Quantum Computing.

Course Contents

Module I: Soft Computing

Introduction of soft computing, soft computing vs. hard computing, various types of soft computing techniques, applications of soft computing.

Module II: Green Computing

Introduction to Green Computing, Websites, statistics, and government initiatives, Reducing the IT footprint, Computing technology for greener transportation, smarter buildings, Major green initiatives: Sustainable IT, Green Business, Smarter Plant

Module III: Internet of Things

Introduction – Concepts behind the Internet of Things, Trends and characteristics, Technologies behind the Internet of Things, Creative thinking techniques, application areas

Module IV: Civic technology

Civic technology, Smart city, e-democracy, open data, intelligent environment

Module V: Emerging Technologies

Brief introduction to emerging technologies: Quantum Computing, Parallel Computing, Pervasive Computing, High Performance Computing, Cluster computing, cloud computing, Super Computing

Examination Scheme:

Components	Presentation	Assignment / Case Study	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & References:

- Internet and Emerging Technologies 2nd Edition, by FADAIRO SIKIRUA (Author), MOORNING KIM
- Advanced Technologies: Building in the Computer Age (The Information Technology Revolution in Architecture) Paperback – June 1, 2001 by Valerio Travi

OPEN ELECTIVE

COMMUNICATION SKILLS - I

Course Code: BCS 301

Credit Units: 01

Course Objective:

To form written communication strategies necessary in the workplace

Course Contents:

Module I: Introduction to Writing Skills

Effective Writing Skills
Avoiding Common Errors
Paragraph Writing
Note Taking
Writing Assignments

Module II: Letter Writing

Types
Formats

Module III

Memo
Agenda and Minutes
Notice and Circulars

Module IV: Report Writing

Purpose and Scope of a Report
Fundamental Principles of Report Writing
Project Report Writing
Summer Internship Reports

Examination Scheme:

Components	CT1	CT2	CAF	V	GD	GP	A
Weightage (%)	20	20	25	10	10	10	5

CAF – Communication Assessment File

GD – Group Discussion

GP – Group Presentation

Text & References:

- Business Communication, Raman – Prakash, Oxford
- Creative English for Communication, Krishnaswamy N, Macmillan
- Textbook of Business Communication, Ramaswami S, Macmillan
- Working in English, Jones, Cambridge
- A Writer's Workbook Fourth edition, Smoke, Cambridge
- Effective Writing, Withrow, Cambridge
- Writing Skills, Coe/Rycroft/Ernest, Cambridge
- Welcome!, Jones, Cambridge

BEHAVIOURAL SCIENCE - III

(INTERPERSONAL COMMUNICATION AND RELATIONSHIP MANAGEMENT)

Course Code: BSS 303

Credit Units: 01

Course Objective:

This course aims at imparting an understanding of:
Interpersonal communication and relationship.
Strategies for healthy interpersonal relationship
Effective management of emotions.
Building interpersonal competence.

Course Contents:

Module I: Interpersonal Communication

Importance of Behavioural/ Interpersonal Communication
Types – Self and Other Oriented
Rapport Building – NLP, Communication Mode
Steps to improve Interpersonal Communication

Module II: Interpersonal Styles

Transactional Analysis
Life Position/Script Analysis
Games Analysis
Interactional and Transactional Styles
Bridging differences in Interpersonal Relationship through TA
Communication Styles

Module III: Conflict Management and Negotiation

Meaning and Nature of conflicts
Styles and techniques of conflict management
Meaning of Negotiation
Process and Strategies of Negotiation
Interpersonal Communication: Conflict Management and Negotiation

Module IV: Interpersonal Relationship Development

Importance of Interpersonal Relationships
Interpersonal Relationship Skills
Types of Interpersonal Relationships
Relevance of Interpersonal Communication in Relationship Development

Module V: Impression Management

Meaning & Components of Impression Management
Impression Management Techniques
Impression Management Training-Self help and Formal approaches

Module VI: End-of-Semester Appraisal

Viva based on personal journal
Assessment of Behavioural change as a result of training
Exit Level Rating by Self and Observer

Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success (JOS)
Weightage (%)	20	05	20	30	25

Text & References:

- Vangelist L. Anita, Mark N. Knapp, Inter Personal Communication and Human Relationships: Third Edition, Allyn and Bacon
- Julia T. Wood. Interpersonal Communication everyday encounter
- Beebe, Beebe and Redmond; Interpersonal Communication, 1996; Allyn and Bacon Publishers.
- Rosenfeld, P., Giacalone, R.A. and Catherine, A.R. (2003). Impression Management: Building and Enhancing Reputations at Work. Thomson Learning, Singapore.

FRENCH - III

Course Code: FLT 301

Credit Units: 02

Course Objective:

To provide the students with the know-how

To master the current social communication skills in oral and in written.

To enrich the formulations, the linguistic tools and vary the sentence construction without repetition.

Course Contents:

Module B: pp. 76 – 88 Unité 6

Module C: pp. 89 to103 Unité 7

Contenu lexical: Unité 6: se faire plaisir

- acheter: exprimer ses choix, décrire un objet (forme, dimension, poids et matières)
payer
- parler de la nourriture, deux façons d'exprimer la quantité, commander un repas au restaurant
- 3. parler des différentes occasions de faire la fête

Unité 7: Cultiver ses relations

- 1. maîtriser les actes de la communication sociale courante (Salutations, présentations, invitations, remerciements)
annoncer un événement, exprimer un souhait, remercier, s'excuser par écrit.
- 3. caractériser une personne (aspect physique et caractère)

Contenu grammatical:

- 1. accord des adjectifs qualificatifs
- 2. articles partitifs
- 3. Négations avec de, ne...rien/personne/plus
- 4. Questions avec combien, quel...
- 5. expressions de la quantité
- 6. ne...plus/toujours - encore
- 7. pronoms compléments directs et indirects
- 8. accord du participe passé (auxiliaire « avoir ») avec l'objet direct
- 9. Impératif avec un pronom complément direct ou indirect
- 10. construction avec « que » - Je crois que/ Je pense que/ Je sais que

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- le livre à suivre: Campus: Tome 1

GERMAN - III

Course Code: FLG 301

Credit Units: 02

Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

Course Contents:

Module I: Modal verbs

Modal verbs with conjugations and usage
Imparting the finer nuances of the language

Module II: Information about Germany (ongoing)

Information about Germany in the form of presentations or “Referat”– neighbors, states and capitals, important cities and towns and characteristic features of the same, and also a few other topics related to Germany.

Module III: Dative case

Dative case, comparison with accusative case
Dative case with the relevant articles
Introduction to 3 different kinds of sentences – nominative, accusative and dative

Module IV: Dative personal pronouns

Nominative, accusative and dative pronouns in comparison

Module V: Dative prepositions

Dative preposition with their usage both theoretical and figurative use

Module VI: Dialogues

In the Restaurant,
At the Tourist Information Office,
A telephone conversation

Module VII: Directions

Names of the directions
Asking and telling the directions with the help of a roadmap

Module VIII: Conjunctions

To assimilate the knowledge of the conjunctions learnt indirectly so far

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Wolfgang Hieber, Lernziel Deutsch
- Hans-Heinrich Wangler, Sprachkurs Deutsch
- Schulz Griesbach, Deutsche Sprachlehre für Ausländer
- P.L Aneja, Deutsch Interessant- 1, 2 & 3
- Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2
- Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

SPANISH – III

Course Code: FLS 301

Credit Units: 02

Course Objective:

To enable students acquire knowledge of the Set/definite expressions (idiomatic expressions) in Spanish language and to handle some Spanish situations with ease.

Course Contents:

Module I

Revision of earlier semester modules

Set expressions (idiomatic expressions) with the verb *Tener, Poner, Ir....*

Weather

Module II

Introduction to *Gustar...* and all its forms. Revision of *Gustar* and usage of it

Module III

Translation of Spanish-English; English-Spanish. Practice sentences.

How to ask for directions (using *estar*)

Introduction to IR + A + INFINITIVE FORM OF A VERB

Module IV

Simple conversation with help of texts and vocabulary

En el restaurante

En el instituto

En el aeropuerto

Module V

Reflexives

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Español, En Directo I A
- Español Sin Fronteras -Nivel Elemental

CHINESE – III

Course Code: FLC 301

Credit Units: 02

Course Objective:

Foreign words are usually imported by translating the concept into Chinese, the emphasis is on the meaning rather than the sound. But the system runs into a problem because the underlying name of personal name is often obscure so they are almost always transcribed according to their pronunciation alone. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

Drills

Dialogue practice

Observe picture and answer the question.

Introduction of written characters.

Practice reading aloud

Practice using the language both by speaking and by taking notes.

Character writing and stroke order

Module II

Measure words

Position words e.g. inside, outside, middle, in front, behind, top, bottom, side, left, right, straight.

Directional words – beibian, xibian, nanbian, dongbian, zhongjian.

Our school and its different building locations.

What game do you like?

Difference between “hii” and “neng”, “keyi”.

Module III

Changing affirmative sentences to negative ones and vice versa

Human body parts.

Not feeling well words e.g.; fever, cold, stomach ache, head ache.

Use of the modal particle “le”

Making a telephone call

Use of “jiu” and “cai” (Grammar portion)

Automobiles e.g. Bus, train, boat, car, bike etc.

Traveling, by train, by airplane, by bus, on the bike, by boat.. etc.

Module IV

The ordinal number “di”

“Mei” the demonstrative pronoun e.g. mei tian, mei nian etc.

use of to enter to exit

Structural particle “de” (Compliment of degree).

Going to the Park.

Description about class schedule during a week in school.

Grammar use of “li” and “cong”.

Comprehension reading followed by questions.

Module V

Persuasion-Please don't smoke.

Please speak slowly

Praise – This pictorial is very beautiful

Opposites e.g. Clean-Dirty, Little-More, Old-New, Young-Old, Easy-Difficult, Boy-Girl, Black-White, Big-Small, Slow-Fast ... etc.

Talking about studies and classmates

Use of “it doesn't matter”

Enquiring about a student, description about study method.

Grammar: Negation of a sentence with a verbal predicate.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- “Elementary Chinese Reader Part I, Part-2” Lesson 21-30

COMPUTER GRAPHICS

Course Code: BCI 401

Credit Units: 03

Course Objective:

The objective of this course is to present the basic principles for the design, use and understanding of computer graphics systems. Both hardware and software components of graphics systems are discussed here. This course also teaches the students about different algorithms for creating and manipulating graphics displays. Varieties of mathematical methods are used in various computer graphics algorithm.

Course Contents:

Module I: Introduction of Graphics

Development of Computer Graphics, Basic Graphics System and Standards.

Graphics Devices:

Raster and Random Scan Devices, Continual Refresh and Storage Displays, Display Processor, Color Display Techniques, Frame Buffer, Concepts in Raster Graphics.

Module II: Graphics Primitives

Points, Pixels, Scan Conversion, Line Drawing Algorithms, Circle Drawing Algorithms, Anti-aliasing Technique, Character generator

Polygon

Polygon representation, Polygon Filling, Inside/Outside Testing

Module III: Transformation

Scaling, Translation, Rotation, Coordinate Axis Rotation, Reflection, Shears, Composite Transformation, Modeling and Coordinate Transformation

Viewing: Two – Dimensional Viewing, Viewing transformation, Interactive Picture Construction Techniques, Interactive Input/Output Devices,

Module IV: Segment

Segment Table, Creating Deleting and Renaming a Segment, Visibility and Image Transformation

Windowing and Clipping: Window, View-port, Line clipping, polygon clipping, Multiple Windowing

Module V: Three Dimensional Concepts

3-D Representation and Transformation, 3-D Viewing, Algorithm for 3-D Volumes, Introduction to Spline Curves and Surfaces

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Computer Graphics By Donald Hearn And Pauline Baker
- Harrington's "Computer Graphics " A Programming Approach

References:

- Principle of Interactive Computer Graphics By New, W. M. And Spraul
- Foley "Computer Graphics" Addison Wesley
- Rogers' "Procedural Elements Of Computer Graphics " Mc-Grawhill

DESIGN AND ANALYSIS OF ALGORITHMS

Course Code: BCI 402

Credit Units: 03

Course Objective:

The objective of the course is to provide the fundamentals and the concepts of Design & analysis of Algorithms including Mathematical foundations, Sorting & Order Statistics, Data Structures, Advanced Design & Analysis techniques such as Divide & Conquer, greedy method & Dynamic Programming approaches.

Course Contents:

Module I: Introduction

Algorithms, Analyzing algorithms, Designing algorithms.

Mathematical Foundations: Growth of Functions-Asymptotic notation, Recurrence
The substitution Method, Recursion tree method, Master Method.

Module II: Sorting and Order statistics

Divide & Conquer Strategy, Heap Sort, Quick Sort, V. stressen Matrix Multiplication, Sorting in Linear time.

Data Structures: Elementary data structures, hash tables, Binary search trees.

Module III: Advanced Design and Analysis Techniques

Dynamic programming- Elements of

dynamic programming, Chain-matrix multiplication, All pair shortest path (Flayed -algorithm), Optimal Binary Search. Tree.

Greedy algorithms - Elements of the greedy strategy, Huffman codes, Single-source shortest path in a directed graph, Knapsack problem, Minimum Spmming trees- The Algorithm of Kruskals and Prims.

Module IV: Graph Algorithms

Elementary graphs Algorithms, Minimum spanning Trees, Single source Shortest paths, All Pair Shortest Paths.

Selected Topics: Sorting Networks, Algorithms for Parallel Computers.

Module V

Polynomials and tile FFT, String Matching, NP-Completeness, Approximation Algorithms.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Coreman, Rivest, Lisserson, "Algorithms", PHI

References:

- Horowitz & Sahni, "Fundamental of Computer Algorithm", Galgotia. Aho, Hopcroft, Ullman,
- Data Structure & Algoritlull", Addision Wesley.

OPERATING SYSTEMS

Course Code: BCI 403

Credit Units: 03

Course Objective:

The objective of this course is to provide a clear description of the concepts that underlie operating systems. It tells about fundamental concepts that are applicable to a variety of systems. We present a large number of examples that pertain particularly to UNIX and to other popular operating systems. This course basically revolves around process, and it tells about every thing about a process.

Course Contents:

Module I: Operating System as a Resource Manager

Operating System Classifications
Monitor, Multiprogramming, Time Sharing, Real Time Systems,
Multiprocessor Systems and Operating System Services.

Module II: CPU Scheduling

Basic Scheduling Concepts, Process Overviews, Process States, Multiprogramming,
Scheduler and Scheduling Algorithms, Multiple Processor Scheduling

Module III: Memory Management

Bare Machine, Resident Monitor, Partition, Paging and Segmentation, Virtual Memory and Demand Paging,
Replacement Policies, Cache Memory

Module IV: File Systems

File Support, Access Methods
Allocation Methods- Contiguous Linked and Index Allocation

Directory Systems

Single Level, Tree Structured, Acyclic Graph and General Graph Directory, File Protection

Deadlock

Deadlock Characterization, Deadlock Prevention, Deadlock Avoidance and Deadlock Recovery

Module V: Security and Protection

Security Policies and Mechanism
Protection and Access Control-Access Matrix Model of Protection, Access Hierarchies, Access List, Capabilities

Overview of UNIX Operating System

Command-Language User's View of Unix, Implementation of Unix, Unix Summary Etc.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Peterson and Silberschatz, Operating System Concepts

References:

- Tannenbaum A.S., Modern Operating System
- Crowley Charrles , Operating System- A design Approach
- Dietel H.M., Operating Systems

COMPUTER ORIENTED NUMERICAL METHODS

Course Code: BCA 404

Credit Units: 03

Course Objective:

The objective of this course is to provide conceptual understanding of various numerical methods, in particular, with reference to numerical solution of non linear equations and system of linear equations, interpolation, numerical differentiation and integration and numerical solution of ordinary differential equations. Important theorems and different formulae for various numerical methods to be covered with an aim of helping the students to understand the fundamentals, concepts and practical use of these methods in the field of computer sciences and applications.

Course Contents:

Module I: Numeric Computation

Computer Arithmetic- Floating point numbers-operations, Normalization and their Consequences, Absolute, Relative and Percent Error.

Iterative Methods:- Zeros of a single Transacental equations and Zeros of Polynomial Equations using Bisection ,False Position, Newton-Raphson Methods, Convergence of Solution.

Module II: Simultaneous Linear Equations

Solution of Simultaneous Linear Equations. Direct Methods:- Gauss elimination method, Pivoting, Gauss-Jordan Method. Iterative methods:-Jacobi's Methods, Gauss-Seidal Method.

Module III: Polynomial Interpolation

Newtons divided difference, Forward and backward difference Formulae, Difference Tables, Lagrange's Method.

Module IV: Numerical Differentiation and Integration

Formula for first and second order derivatives using newton's- Forward and Backward formula, Numerical Integartion, Newton-Cotes Formula: Trapizoidal rule, Simpson's 1/3rd rule ,Simpson's 3/8th rule, Weddle's rule.

Module V: Numerical Solution of Differential Equations

Basic Terminology of Differential Equations, Picard's Method, Euler's method, Taylor's Series method, Runge-Kutta Methods, Predictor –Connector Method.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Jain M.K, Jain R.K and Iyenger, Numerical Methods for Scientific and Engineering Applications.

References:

- Rajaraman V, Computer Oriented Numerical Methods.
- Krishnamuty, E.V., Sen, S.K, Computer Based Numerical Algorithms.
- Stoer, Bullrich, Computer Oriented Numerical Methods.

SOFTWARE ENGINEERING

Course Code: BCA 405

Credit Units: 03

Course Objective:

The purpose of this course is to acquaint students with the concepts and methods available for software development in industrial environments. Students will be exposed to a variety of topics such as design notations, costing techniques, and testing methods, as well as to the tools which are available to support software specification, design, testing, and maintenance.

Course Contents:

Module I: Software Development Life Cycle

Evolution of Software Engineering, Software Problems, Issues Involved in Software Engineering, Fundamental Qualities of a Software Product, Approaches to Software Engineering, Planning the development Process, Development/Product Life-Cycle Model, Kinds of Software Life-Cycle Model.

Module II: Project Management

Project Management Concepts, Project Management Activities, Size Metrics. Software Requirement analysis and Specification, Cost Models.

Module III: System Design

Design Objectives, Design Principles, Effective Modular Design (Functional Independence, Coupling, and Cohesion), Design Tools and Techniques, Prototyping, Structured Programming.

Module IV: Coding

Programming Practices, Verification, Monitoring and Control.

Module V: Software Testing

Testing Fundamentals, Test case design, Functional Testing, Structural Testing, Test Plan, Activities during testing, Unit System, Integration Testing, Software Maintenance.

Module VI: Software Reliability

Concept of Software Reliability, Software Repair and Availability, Software Errors, Failure and Faults.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Software Engineering, A Practitioner's Approach - Roger S. Pressman.

References:

- An Integrated Approach to Software Engineering, Pankaj Jalote.
- Software Engineering Concepts, Richard Fairley.

MINOR PROJECT

Course Code: BCA 450

Credit Units: 03

Course Objective:

The BCA program aims at generating not only the skills and knowledge among students but also inculcate confidence so that they can deliver goods to any industry. In this course, students have to prepare internal project related to their programming subjects.

GUIDELINES FOR PROJECT FILE

Research experience is as close to a professional problem-solving activity as anything in the curriculum. It provides exposure to research methodology and an opportunity to work closely with a faculty guide. It usually requires the use of advanced concepts, a variety of experimental techniques, and state-of-the-art instrumentation.

Research is genuine exploration of the unknown that leads to new knowledge, which often warrants publication. But whether or not the results of a research project are publishable, the project should be communicated in the form of a research report written by the student.

Sufficient time should be allowed for satisfactory completion of reports, taking into account that initial drafts should be critiqued by the faculty guide and corrected by the student at each stage.

The File is the principal means by which the work carried out will be assessed and therefore great care should be taken in its preparation.

In general, the File should be comprehensive and include

- A short account of the activities that were undertaken as part of the project;
- A statement about the extent to which the project has achieved its stated goals.
- A statement about the outcomes of the evaluation and dissemination processes engaged in as part of the project;
- Any activities planned but not yet completed as part of the project, or as a future initiative directly resulting from the project;
- Any problems that have arisen that may be useful to document for future reference.

Report Layout

The report should contain the following components

1. File should be in the following specification

- A4 size paper
- Font: Arial (10 points) or Times New Roman (12 points)
- Line spacing: 1.5
- Top & bottom margins: 1 inch/ 2.5 cm
- Left & right margins: 1.25 inches/ 3 cm

2. Report Layout: The report should contain the following components

Front Page
Table of Contents
Acknowledgement
Student Certificate
Company Profile
Introduction
Chapters
Appendices
References / Bibliography

➤ **Title or Cover Page or Front Page**

The title page should contain the following information: Project Title; Student's Name; Course; Year; Supervisor's Name.

➤ **Table of Contents**

Titles and subtitles are to correspond exactly with those in the text.

➤ **Acknowledgement**

Acknowledgment to any advisory or financial assistance received in the course of work may be given.

➤ **Student Certificate**

Given by the Institute.

➤ **Company Certificate & Profile**

This is a certificate, which the company gives to the students. A Company Profile corresponds to a file with company-specific data. Company data can be stored there and included in a booking when needed.

➤ **Introduction**

Here a brief introduction to the problem that is central to the project and an outline of the structure of the rest of the report should be provided. The introduction should aim to catch the imagination of the reader, so excessive details should be avoided.

➤ **Chapters**

All chapters and sections must be appropriately numbered, titled and should neither be too long nor too short in length.

The first chapter should be introductory in nature and should outline the background of the project, the problem being solved, the importance, other related works and literature survey. The other chapters would form the body of the report. The last chapter should be concluding in nature and should also discuss the future prospect of the project.

➤ **Appendices**

The Appendix contains material which is of interest to the reader but not an integral part of the thesis and any problem that have arisen that may be useful to document for future reference.

➤ **References / Bibliography**

This should include papers and books referred to in the body of the report. These should be ordered alphabetically on the author's surname. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system.

ASSESSMENT OF THE PROJECT FILE

Essentially, marking will be based on the following criteria: the quality of the report, the technical merit of the project and the project execution. Technical merit attempts to assess the quality and depth of the intellectual efforts put into the project. Project execution is concerned with assessing how much work has been put in.

The File should fulfill the following *assessment objectives*:

1. Writing a critical literature review
 - Search for literature
 - Summarizing and presenting the literature
 - Evaluating key content and theories
2. Collecting and analyzing research material
 - Choosing and designing research method
 - Conducting the research
 - Analyzing, sorting and classifying the data to make decision
3. Interpreting research method and draw conclusion
 - Findings
 - Recommendation
4. Assigning the theories and writing the project report
 - Structuring the project in accordance with the given style
5. Bibliography
 - This refer to the books, Journals and other documents consulting while working on the project

Examination Scheme:

Components	MRP	V	S	FP	R
Weightage (%)	20	20	20	20	20

MRP – Mid Report Presentation, V – Viva, S – Synopsis, FP – Final Presentation, R - Report

COMPUTER GRAPHICS LAB

Course Code: BCI 421

Credit Units: 01

PART - I

Computer Graphics Programmes

- 1) Write a program to change the working mode from text to graphics and plot a pixel.
- 2) Write a program to draw a line of same dimension in three different graphics mode.
- 3) Write a program to display line, rectangle, circle and polyline using graphics command.
- 4) Write a program to draw a line of slope between 0 and 1 using DDA algorithm.
- 5) Write a program to draw a line of slope between 1 and ∞ using DDA algorithm.
- 6) Write a program to draw a line of slope between 0 and 1 using midpoint algorithm.
- 7) Write a program to draw a line of slope between 1 and ∞ using midpoint algorithm
- 8) Write a program to draw a dashed line of slope 1 using any line algorithm
- 9) Write a program to draw a dotted line of slope 1 using DDA algorithm
- 10) Write a program to draw a line of slope between 0 and -1 using midpoint algorithm.
- 11) Write a program to draw a line of slope between -1 and $-\infty$ using midpoint algorithm.
- 12) Write a program to draw an octant of a circle with it's center at point (0,0) a using midpoint circle drawing.
- 13) Write a program to draw a circle with its center at point (0, 0) and radius r using midpoint circle drawing.
- 14) Write a program to draw an octant of a circle with it's center at point (a, b) and radius r using midpoint circle drawing.
- 15) Write a program to a circle with it's center at point (a, b) and radius r using midpoint circle drawing.
- 16) Write a program to fill a polygon using flood-fill method.
- 17) Write a program to fill a polygon using boundary-fill method.
- 18) Write a program to reflect a point in X and Y-axis both.
- 19) Write a program to rotate a point (100, 50) about origin in anti-clock wise direction.
- 20) Write a program to rotate a point (100,150) about point (30, 40) in clock wise direction..

Examination Scheme:

Components	CT1	A/P/C	Attd	EE(PR)
Weightage (%)	10	15	5	70

DOMAIN ELECTIVE

INTRODUCTION TO .NET TECHNOLOGIES

Course Code: BCI 431

Credit Units: 03

Course Objective:

To create web based applications using C# ASP.NET.

Course Contents:

Module I: Introduction to .NET technologies

Features of .NET, .NET Framework, CLR framework, MSIL, .NET class library, .NET Languages, CTS, assemblies, manifest, and metadata, What is ASP.NET?, Difference between ASP and ASP.NET.

Module II: Introduction to C#, Variables and expressions, flow controls, functions, debugging and error handling, OOPs with C#, Defining classes and class members, collections, Type Casting, String functions, Indexers, Delegates and events.

Module III: Controls in ASP.NET

Overview of Dynamic Web page, Understanding ASP.NET Controls, Applications, Web servers, Installation of IIS. Web forms, web form controls -server controls, client controls. Adding controls to a web form, Buttons, Text Box, Labels, Checkbox, Radio Buttons, List Box. Adding controls at runtime. Running a web Application, creating a multiform web project. Form Validation: Client side validation, server Side validation, validation Controls: Required Field Comparison Range. Calendar control, Ad rotator Control, Internet Explorer Control, Dynamic Controls.

Module IV: Overview of ADO.NET and XML

What is ADO.NET, from ADO to ADO.NET? ADO.NET architecture, Accessing Data using Data Adapters and Datasets , using Command & Data Reader, binding data to data bind Controls, displaying data in data grid, XML basics, attributes, fundamental XML classes: Document, text writer, text reader. XML validations, XML in ADO.NET, The XML Data Document.

Module V: ASP.NET Applications and Web services

Creating, tracking, caching, error handling, Securing ASP.NET applications- form based applications, window based application. Introduction, State management- View state, Session state, Application state, Building ASP.NET web services, working with ASP.NET applications, creating custom controls.

Examination Scheme:

Components	CT	HA/V/Q	A	EE
Weight age (%)	15	10	5	70

Text & References:

Text:

- ASP.NET Unleashed by Stephen Walther, SAMS publications

References:

- ASP.NET, Wrox Publications
- ASP.NET and VB.NET, Wrox Publication
- ASP.NET and C#.NET, Wrox publication.

INTRODUCTION TO OPEN SOURCE TECHNOLOGIES (PHP, Mysql)

Course Code: BCI 432

Credit Units: 02

Course Objective:

This course is aimed to provide a fundamental understanding of dynamic web site creation. PHP is the language used for development of most common web sites. Syllabus includes basic and advanced features of PHP which includes detailed introduction of PHP and MYSQL, Arrays, Loops and variables etc. It also gives an overview open source framework like JOOMLA, ZEND etc...

Course Contents:

Module I: Introduction to PHP programming

Introduction to PHP, installation and configuration, Variables, String functions, Numeric functions

Module II: Operator, Loops and Array

Operators, Conditions, Loops, Array, Multidimensional Array, Associative array

Module III: Classes and Functions

Classes, Regular Expr, Working with Datetime, code re-use, require (), include (), and the include-path; filesystem functions, and file input and output; file uploads; error handling and logging; sending mail,

Module IV: Working with database

MYSQL, Introducing MySQL; database design concepts; the Structured Query, Language (SQL); communicating with a MySQL backend via the PHP, MySQL API Building Database Applications,

Module V: Working with Frameworks

Working with Wordpress, Mambo, Joomla, OS Commerce, Zend Framework, Drupal

Examination Scheme:

Components	CT1	PR	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Beginning PHP, Apache, MySQL Web Development
- Michael K. Glass, Yann Le Scouarnec, Elizabeth Naramore, Gary Mailer, Jeremy Stolz, Jason Gerner

References:

- PHP Manual.

INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE

Course Code: BCI 433

Credit Units: 03

Course Objective:

This course focuses networking in enterprise network, switching in enterprise network, addressing in enterprise network, routing & distance vector and link state protocol, and Trouble shooting an enterprise network.

Course Contents:

Module I: Networking in the Enterprise

Describing the Enterprise Network, Identifying Enterprise Applications

Module II: Exploring the Enterprise Network Infrastructure

Describing the Current Network, Supporting the Enterprise Edge, Reviewing Cisco Routing and Switching

Module III: Switching in an Enterprise Network

Describing Enterprise Level Switching, Preventing Switching Loops, Configuring VLANs, Trunking and Inter-VLAN Routing, Maintaining VLANs on an Enterprise Network

Module IV: Addressing in an Enterprise Network

Using a Hierarchical IP Network Address Scheme, Using VLSM, Using Classless Routing and CIDR, Using NAT and PAT

Module V: Routing with a Distance Vector Protocol

Managing Enterprise Networks, Routing Using the RIP Protocol, Routing Using the EIGRP Protocol, Implementing EIGRP

Module VI: Routing with a Link-State Protocol

Routing Using the OSPF Protocol, Implementing Single-Area OSPF, Using Multiple Routing Protocols

Module VII: Implementing Enterprise WAN Links

Connecting the Enterprise WAN, Comparing Common WAN Encapsulations
Using Frame Relay

Module VIII: Filtering Traffic Using Access Control Lists

Using Access Control Lists, Using a Wildcard Mask, Configuring Access Control Lists, Permitting and Denying Specific Types of Traffic, Filtering Traffic Using Access Control Lists

Module IX: Troubleshooting an Enterprise Network

Understanding the Impact of Network Failure, Troubleshooting Switching and Connectivity Issues, Troubleshooting Routing Issues, Troubleshooting WAN Configurations, Troubleshooting Access Control List Issues

Examination Scheme:

Components	CT1	PR.	ATTD.	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- CCNA-Discovery 4.0, module 3, Cisco Certified Networking Academy

References:

- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

CLOUD COMPUTING

Course Code: BCA 434

Credit Units: 03

Course Objective:

- To understand the concept of Virtualization and design of cloud Services
- To introduce the broad perspective of cloud architecture and model
- To learn to design the trusted cloud Computing system
- To apply different cloud programming model as per need.
- To understand the features of cloud simulator
- To be familiar with the lead players in cloud.

Course Contents

MODULE I: CLOUD ARCHITECTURE AND MODEL

Technologies for Network-Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models:- Characteristics – Cloud Services – Cloud models (IaaS, PaaS, SaaS) – Public vs Private Cloud –Cloud Solutions - Cloud ecosystem – Service management – Computing on demand.

MODULE II: VIRTUALIZATION

Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management – Virtualization for Data-center Automation.

MODULE III: CLOUD INFRASTRUCTURE

Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development – Design Challenges - Inter Cloud Resource Management – Resource Provisioning and Platform Deployment – Global Exchange of Cloud Resources.

MODULE IV: PROGRAMMING MODEL

Parallel and Distributed Programming Paradigms – MapReduce , Twister and Iterative MapReduce – Hadoop Library from Apache – Mapping Applications - Programming Support - Google App Engine, Amazon AWS - Cloud Software Environments -Eucalyptus, Open Nebula, OpenStack, Aneka, CloudSim

MODULE V: SECURITY IN THE CLOUD

Security Overview – Cloud Security Challenges and Risks – Software-as-a-Service Security – Security Governance – Risk Management – Security Monitoring – Security Architecture Design – Data Security – Application Security – Virtual Machine Security - Identity Management and Access Control – Autonomic Security.

Examination Scheme:

Components	Quiz	Presentation	Assignment	Attd	EE
Weightage (%)	5	10	10	5	70

Text & References:

- John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.
- Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009.
- Kumar Saurabh, “Cloud Computing – insights into New-Era Infrastructure”, Wiley India,2011.
- James E. Smith, Ravi Nair, “Virtual Machines: Versatile Platforms for Systems and Processes”, Elsevier/Morgan Kaufmann, 2005.
- Ronald L. Krutz, Russell Dean Vines, “Cloud Security – A comprehensive Guide to Secure Cloud Computing”, Wiley – India, 2010.

BIG DATA ANALYTICS

Course Code: BCA 435

Credit Units: 03

Course Objective:

This course provides an overview of approaches facilitating data analytics on huge datasets. Different strategies are presented including sampling to make classical analytics tools amenable for big datasets, analytics tools that can be applied in the batch or the speed layer of a lambda architecture, stream analytics, and commercial attempts to make big data manageable in massively distributed or in-memory databases. Learners will be able to realistically assess the application of big data analytics technologies for different usage scenarios and start with their own experiments.

Course Contents:

Module I Introduction to Big Data

Introduction – distributed file system – Big Data and its importance, Four Vs, Drivers for Big data, Big data analytics, Big data applications. Algorithms using map reduce, Matrix-Vector Multiplication by Map Reduce.

Module II Introduction Hadoop

Big Data – Apache Hadoop & Hadoop EcoSystem – Moving Data in and out of Hadoop – Understanding inputs and outputs of MapReduce - Data Serialization.

Module III Hadoop Architecture

Hadoop Architecture, Hadoop Storage: HDFS, Common Hadoop Shell commands , Anatomy of File Write and Read., NameNode, Secondary NameNode, and DataNode, Hadoop MapReduce paradigm, Map and Reduce tasks, Job, Task trackers - Cluster Setup – SSH & Hadoop Configuration – HDFS Administering –Monitoring & Maintenance.

Module IV Hadoop Ecosystem and Yarn

Hadoop ecosystem components - Schedulers - Fair and Capacity, Hadoop 2.0 New Features- NameNode High Availability, HDFS Federation, MRv2, YARN, Running MRv1 in YARN.

Module V HIVE AND HIVEQL, HBASE

Hive Architecture and Installation, Comparison with Traditional Database, HiveQL - Querying Data - Sorting And Aggregating, Map Reduce Scripts, Joins & Subqueries, HBase concepts- Advanced Usage, Schema Design, Advance Indexing - PIG, Zookeeper - how it helps in monitoring a cluster, HBase uses Zookeeper and how to Build Applications with Zookeeper.

Examination Scheme:

Components	Presentatio n	Assignment / Case Study	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & References:

- Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulos, “Understanding Big
- Data: Analytics for Enterprise Class Hadoop and Streaming Data”, McGrawHill Publishing, 2012
- Bill Franks, “Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics”, JohnWiley & sons, 2012.

INTRODUCTION TO .NET TECHNOLOGIES LAB

Course Code: BCI 441

Credit Units: 01

Course Contents:

1. Write a console application that obtains four int values from the user and displays the product.
2. If you have two integers stored in variables var1 and var2, what Boolean test can you perform to see if one or the other (but not both) is greater than 10?
3. Write an application that includes the logic from Exercise 1, obtains two numbers from the user, and displays them, but rejects any input where both numbers are greater than 10 and asks for two new numbers.
4. Write a console application that places double quotation marks around each word in a string.
5. Write an application that uses two command-line arguments to place values into a string and an integer variable, respectively. Then display these values.
6. Write an application that receives the following information from a set of students: Student Id: Student Name: Course Name: Date of Birth: The application should also display the information of all the students once the data is entered. Implement this using an Array of Structures.
7. Write programs using conditional statements and loops:
 - Generate prime numbers.
 - Generate various patterns (triangles, diamond and other patterns) with numbers.
8. Write a program to declare a class 'staff' having data members as name and post. Accept this data for 5 staffs and display names of staff who are HOD.
9. Write a program to declare class 'Distance' have data members dist1, dist2, dist3. Initialize the two data members using constructor and store their addition in third data member using function and display addition.
10. Write a program using function overloading to swap two integer numbers and swap two float numbers.
11. Write a program to implement single inheritance.
12. Define a class 'salary' which will contain member variable Basic, TA, DA, HRA. Write a program using Constructor with default values for DA and HRA and calculate the salary of employee.
13. Write a program for above class hierarchy for the Employee where the base class is Employee and derived class and Programmer and Manager. Here make display function virtual which is common for all and which will display information of Programmer and Manager interactively.
14. Write a program to accept a number from the user and throw an exception if the number is not an even number.
15. Create an application that allows the user to enter a number in the textbox named 'getnum'. Check whether the number in the textbox 'getnum' is palindrome or not. Print the message accordingly in the label control named lbldisplay when the user clicks on the button 'check'.
16. Create an application which will ask the user to input his name and a message, display the two items concatenated in a label, and change the format of the label using radio buttons and check boxes for selection, the user can make the label text bold, underlined or italic and change its color. include buttons to display the message in the label, clear the text boxes and label and exit.
17. Create a project that calculates the total of fat, carbohydrate and protein. Allow the user to enter into text boxes. The grams of fat, grams of carbohydrate and grams of protein. Each gram of fat is 9 calories and protein or carbohydrate is 4 calories. Display the total calories of the current food item in a label. Use to other labels to display and accumulated some of calories and the count of items entered. The form food have 3 text boxes for the user to enter the grams for each category include label next to each text box indicating what the user is entering.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

INTRODUCTION TO OPEN SOURCE TECHNOLOGIES (PHP, Mysql) LAB

Course Code: **BCI 442**

Credit Units: 01

Course Contents:

1. Write the process of installation of web server.
2. Write programs to print all details of your php sever. Use phpinfo().
3. Write a program to give demo of ECHO and PRINT command.
4. Write a program sort ten number by using array.
5. Create a database in Mysql and connect that database from PHP.
6. Write a program to Update, insert and delete the values of table in Question No – 9 database.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE LAB

Course Code: BCI 443

Credit Units: 01

Course Contents:

1. Application of Cisco Router and Switches in Enterprise Network with example design.
2. Enterprise level Switching techniques.
3. Creating LAN with switch and preventing loops with example.
4. Creating ,Managing and deleting different VLAN.
5. Creating Trunking and Intr-VLAN Routing.
6. Use of VLSM and CIDR for Hierarchical IP Network Address Scheme with some example scenario.
7. Configuration of NAT and PAT in router.
8. Configuring router with RIP Protocol.
9. Configuring router with EIGRP Protocol.
10. Configuration of ACL in router and use of Wildcard Mask.
11. Configuring router as gateway for traffic filtering with example scenario.
12. Troubleshooting Switching, Routing, WAN and ACL issues.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

CLOUD COMPUTING LAB

Course Code: BCA 444

Credit Units: 01

1. Installation and configuration of Oracle Virtual Box for Windows XP and Andriod.
2. Installation Configuration of Hadoop.
3. Using Hadoop for counting word frequency with map reduce.
4. Cloud Security Management.
5. Performance evaluation of services over cloud – Google App & Amazon web service.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

BIG DATA ANALYTICS LAB

Course Code: BCA 445

Credit Units: 01

1. Implement the following Data structures in Java
 - a) Linked Lists
 - b) Stacks
 - c) Queues
 - d) Set
 - e) Map
6. Perform setting up and Installing Hadoop in its three operating modes: Standalone • Pseudo distributed • fully distribute.
Use web based tools to monitor your Hadoop setup.
3. Implement the following file management tasks in Hadoop: Adding files and directories • Retrieving files • Deleting files
4. Run a basic Word Count Map Reduce program to understand Map Reduce Paradigm.
5. Write a Map Reduce program that mines weather data.
6. Implement Matrix Multiplication with Hadoop Map Reduce.
7. Install and Run Pig then write Pig Latin scripts to sort, group, join, project, and filter your data.
8. Install and Run Hive then use Hive to create, alter, and drop databases, tables, views, functions, and indexes.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

OPEN ELECTIVE

COMMUNICATION SKILLS - II

Course Code: BCS 401

Credit Units: 01

Course Objective:

To teach the participants strategies for improving academic reading and writing.
Emphasis is placed on increasing fluency, deepening vocabulary, and refining academic language proficiency.

Course Contents:

Module I: Social Communication Skills

Small Talk
Conversational English
Appropriateness
Building rapport

Module II: Context Based Speaking

In general situations
In specific professional situations
Discussion and associated vocabulary
Simulations/Role Play

Module III: Professional Skills

Presentations
Negotiations
Meetings
Telephony Skills

Examination Scheme:

Components	CT1	CT2	CAF	V	GD	GP	A
Weightage (%)	20	20	25	10	10	10	5

CAF – Communication Assessment File

GD – Group Discussion

GP – Group Presentation

Text & References:

- Essential Telephoning in English, Garside/Garside, Cambridge
- Working in English, Jones, Cambridge
- Business Communication, Raman –Prakash, Oxford
- Speaking Personally, Porter-Ladousse, Cambridge
- Speaking Effectively, Jermy Comfort, et.al, Cambridge
- Business Communication, Raman –Prakash, Oxford

BEHAVIOURAL SCIENCE - IV (GROUP DYNAMICS AND TEAM BUILDING)

Course Code: BSS 403

Credit Units: 01

Course Objective:

To inculcate an elementary level of understanding of group/team functions
To develop team-spirit and to know the importance of working in teams

Course Contents:

Module I: Group formation

Definition and Characteristics
Importance of groups
Classification of groups
Stages of group formation
Benefits of group formation

Module II: Group Functions

External Conditions affecting group functioning: Authority, Structure, Org. Resources, Organizational policies etc.
Internal conditions affecting group functioning: Roles, Norms, Conformity, Status, Cohesiveness, Size, Inter group conflict.
Group Cohesiveness and Group Conflict
Adjustment in Groups

Module III: Teams

Meaning and nature of teams
External and internal factors effecting team
Building Effective Teams
Consensus Building
Collaboration

Module IV: Leadership

Meaning, Nature and Functions
Self leadership
Leadership styles in organization
Leadership in Teams

Module V: Power to empower: Individual and Teams

Meaning and Nature
Types of power
Relevance in organization and Society

Module VI: End-of-Semester Appraisal

Viva based on personal journal
Assessment of Behavioural change as a result of training
Exit Level Rating by Self and Observer

Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success (JOS)
Weightage (%)	20	05	20	30	25

Text & References:

- Organizational Behaviour, Davis, K.
- Hoover, Judhith D. Effective Small Group and Team Communication, 2002, Harcourt College Publishers
- Dick, Mc Cann & Margerison, Charles: Team Management, 1992 Edition, viva books
- LaFasto and Larson: When Teams Work Best, 2001, Response Books (Sage), New Delhi
- Smither Robert D.; The Psychology of Work and Human Performance, 1994, Harper Collins College Publishers

FRENCH - V

Course Code: FLT 401

Credit Units: 02

Course Objective:

To enable students:

- To develop strategies of comprehension of texts of different origin
- To present facts, projects, plans with precision

Course Contents:

Module C: pp. 104 – 139: Unités 8,9

Contenu lexical: Unité 8: Découvrir le passé

1. parler du passé, des habitudes et des changements.
2. parler de la famille, raconter une suite d'événements/préciser leur date et leur durée.
3. connaître quelques moments de l'histoire

Unité 9: Entreprendre

1. faire un projet de la réalisation: (exprimer un besoin, préciser les étapes d'une réalisation)
2. parler d'une entreprise
3. parler du futur

Contenu grammatical:

1. Imparfait
2. Pronom « en »
3. Futur
4. Discours rapporté au présent
5. Passé récent
6. Présent progressif

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- le livre à suivre: Campus: Tome 1

GERMAN - IV

Course Code: FLG 401

Credit Units: 02

Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany.

Introduction to Advanced Grammar Language and Professional Jargon

Course Contents:

Module I: Present perfect tense

Present perfect tense, usage and applicability

Usage of this tense to indicate near past

Universal applicability of this tense in German

Module II: Letter writing

To acquaint the students with the form of writing informal letters.

Module III: Interchanging prepositions

Usage of prepositions with both accusative and dative cases

Usage of verbs fixed with prepositions

Emphasizing on the action and position factor

Module IV: Past tense

Introduction to simple past tense

Learning the verb forms in past tense

Making a list of all verbs in the past tense and the participle forms

Module V: Reading a Fairy Tale

Comprehension and narration

- Rotkäppchen
- Froschprinzessin
- Die Fremdsprache

Module VI: Genitive case

Genitive case – Explain the concept of possession in genitive

Mentioning the structure of weak nouns

Module VII: Genitive prepositions

Discuss the genitive prepositions and their usage: (während, wegen, statt, trotz)

Module VIII: Picture Description

Firstly recognize the persons or things in the picture and identify the situation depicted in the picture;

Secondly answer questions of general meaning in context to the picture and also talk about the personal experiences which come to your mind upon seeing the picture.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Wolfgang Hieber, Lernziel Deutsch
- Hans-Heinrich Wangler, Sprachkurs Deutsch
- Schulz Griesbach, Deutsche Sprachlehre für Ausländer
- P.L Aneja, Deutsch Interessant- 1, 2 & 3
- Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2
- Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

SPANISH - IV

Course Code: FLS 401

Credit Units: 02

Course Objective:

To enable students acquire working knowledge of the language; to give them vocabulary, grammar, voice modulations/intonations to handle everyday Spanish situations with ease.

Course Contents:

Module I

Revision of earlier semester modules
Introduction to Present Continuous Tense (Gerunds)

Module II

Translation with Present Continuous Tense
Introduction to Gustar, Parecer, Apetecer, doler

Module III

Imperatives (positive and negative commands of regular verbs)

Module IV

Commercial/business vocabulary

Module V

Simple conversation with help of texts and vocabulary
En la recepcion del hotel
En el restaurante
En la agencia de viajes
En la tienda/supermercado

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Español Sin Fronteras (Nivel – Elemental)

CHINESE – IV

Course Code: FLC 401

Credit Units: 02

Course Objective:

How many characters are there? The early Qing dynasty dictionary included nearly 50,000 characters the vast majority of which were rare accumulated characters over the centuries. An educate person in China can probably recognize around 6000 characters. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

Dialogue Practice
Observe picture and answer the question
Pronunciation and intonation
Character writing and stroke order.
Electronic items

Module II

Traveling – The Scenery is very beautiful
Weather and climate
Grammar question with – “bu shi Ma?”
The construction “yao ... le” (Used to indicate that an action is going to take place)
Time words “yiqian”, “yiwai” (Before and after).
The adverb “geng”.

Module III

Going to a friend house for a visit meeting his family and talking about their customs.
Fallen sick and going to the Doctor, the doctor examines, takes temperature and writes prescription.
Aspect particle “guo” shows that an action has happened some time in the past.
Progressive aspect of an actin “zhengzai” Also the use if “zhe” with it.
To welcome someone and to see off someone I cant go the airport to see you off... etc.

Module IV

Shipment. Is this the place to checking luggage?
Basic dialogue on – Where do u work?
Basic dialogue on – This is my address
Basic dialogue on – I understand Chinese
Basic dialogue on – What job do u do?
Basic dialogue on – What time is it now?

Module V

Basic dialogue on – What day (date) is it today?
Basic dialogue on – What is the weather like here.
Basic dialogue on – Do u like Chinese food?
Basic dialogue on – I am planning to go to China.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- “Elementary Chinese Reader, Part-2” Lesson 31-38

SYSTEM SOFTWARE

Course Code: BCA 501

Credit Units: 03

Course Objective:

The objective of this course is to expose the student to the fundamentals of System Software. The topics include design and implementation of various system software's such as assembler, compiler, macro processors, Loaders, Linkers and operating systems. Also included is brief overview of software program development tools like editors, debug monitors and database management systems.

Course Contents:

Module I

System Software and Machine Architecture, Evolution of the components of a programming System-Assemblers, Loaders, Macros, Compilers and Formal Systems.

Assemblers-basic assembler functions, Machine-Dependent Assembler Functions, Machine-Independent Assembler Functions, Design of Two Pass Assembler. Implementation Examples-SPARC.

Module II

Macros & Macro Processors-Macro Instructions, Macro calls and Expansion, Machine-Independent Macro Processor Features, Macro Processor Design Options, Implementation-A two pass algorithm, Implementation Examples-ANSI C Macro Processor

Module III

Loaders & Linkers, Basic Loader Functions, Machine-Dependent Loader Features, Machine-Independent Loader Features, Compile & Go-Loaders, General Loader Scheme, Absolute Loaders, Self- Relocating Loaders, Direct-Linking Loaders, Binders, Overlays, Dynamic Linking, Bootstrap Loaders, Design of Direct Linking Loader, Implementation Examples-MS-DOS Linker.

Module IV

Compilers, Basic Compiler Functions, Machine-Dependent Compiler Features, Machine-Independent Features, Compiler Design Options-Division into passes, Interpreters, P-code Compilers, Compilers-Compilers, Implementation Example-YACC Compiler-Compiler.

Module V

Basic Operating System Functions, Machine-Dependent Operating System Features, Machine-Independent Operating System Features, Types of Operating System, Implementation Example-Unix.

Software Tools for Program Development, Editors, Debug Monitors, User Interfaces, and Database Management Systems-basic concepts, levels of data description, use of DBMS.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Leland L. Beck, System Software-An Introduction to Systems Programming, Addison Wesley.

References:

- D.M. Dhamdhare,, Systems Programming & Operating Systems, Mc Graw Hill
- John J. Donovan, Systems Programming, Mc Graw Hill.

JAVA PROGRAMMING

Course Code: BCI 502

Credit Units: 03

Course Objective:

The objective of the course is to give proficiency in developing applications and applets in Java, in-depth knowledge of object oriented concepts, developing GUI applications in Java, creation of packages, Event Handling, Layout Manager, SWING and String handling in Java

Course Contents:

Module I: Introduction

Concepts of OOP, Features of Java, How Java is different from C++, Data types, Control Statements, identifiers, arrays, operators. Variables, Applications and Applets

Module II: Java Programming

Classes and methods, Constructor, Types of constructor, method overloading
Inheritance: Single Inheritance, Multilevel hierarchy, method overriding, Abstract classes, Interface, Final classes, Garbage Collection, String classes

Module III: AWT and Event Handling

Introduction to AWT, Layout Manager, Event handling Mechanism, Event Model, Event Classes, Sources of Events, Event Listener Interfaces

AWT: Working with Windows, AWT Controls

Html basic tags, Applet Classes, Graphics,

Module IV: Exception Handling and Multithreading

Exception handling, fundamentals exception types, uncaught exceptions, throws, throw, try and catch, final, built in exception, creating your own exception

Multithreading fundamentals, Creating, Implementing and Extending thread, thread priorities, synchronization suspending, resuming and stopping Threads

Module V: Java Packages

Package creation, Additional Packages, Input Output Exploring java.io, Swing classes and controls, Advantages of Swing over AWT.

Examination Scheme:

Components	CT1	PR.	ATTD.	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Naughton, Schidt "The Complete Reference JAVA 2 " TMH

References:

- Balaguruswamy "Programming in JAVA"
- Comer "Computer Networks & Internet"
- Deitel & Deitel "Java™ How to Program, 6/E"
- Frouzan "Data communications and Networking"
- Gary Cornell "Core Java" The Sun Micro Systems Series

UNIX OPERATING SYSTEM AND SHELL PROGRAMMING

Course Code: BCI 503

Credit Units: 03

Course Objective:

The Objective of this course is to expose the students to the fundamentals and the concepts of Unix and Shell Programming including UNIX Overview, Essential Unix Commands, Unix File System, UNIX Shell Programming and System Administration etc. This course is designed to understand the concepts of Unix System for Research and Development.

Course Contents:

Module I: Overview

UNIX Overview, UNIX System Organization, Kernel , Running a Command: the Shell, Files and Directories, Peripheral Devices and UNIX: Special Files.

Module II: UNIX Commands & UNIX Editors

Login, password, hostname; creating an account; Virtual consoles; shell and commands; logout; changing password; Files and Directories; pathname; Directory Tree; current working directory; relative pathname; referring to home directories; Commands to move around; creating new directories; copying files; moving files; Deleting files and directories; looking at files: cat, more; Getting online help; manual pages. Wildcards; hidden files; Standard input and output; redirecting input and output; filter; pipes; file permissions; user and group; Interpreting file permissions; Permission Dependencies; Changing permissions. Managing file links; hard links; symbolic links; jobs and process: process ID; Job control; foreground and background jobs; suspend and interrupt a process; Back grounding and killing jobs; stopping and restarting jobs.

Vi Editor

Command mode, insert mode and last line mode; command to delete character, insert line; deleting text, command for moving the cursor; including other files; running shell commands; getting vi help; search and replace commands; changing and deleting text, Change word, Change line, Delete current line, Delete n lines, Delete remainder of Lines; copying and moving; Saving and Exiting.

Module III: File System

UNIX File System, File Permissions, System Calls and Library Functions

Module IV: UNIX Shell Programming

Interactive Shell Scripts, Shell Variables and Keywords, Positional Parameters and Command Line Arguments, Arithmetic in Shell Scripts, Taking Decisions, Loop Control Structure, Shell Metacharacters

Module V: System Administration

Adding and Removing Users, Starting up and Shutting down the System, Disk Management, File System Mounting and Unmounting, Monitoring System Usage, Ensuring System Security

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Maurice J. Bach, "Design of the Unix operating System" PHI.
- Prata. "Advanced UNIX-A Programmers Guide" BPB
- Kanetkar. "UNIX Shell Programming" BPB

References:

- Sumitabha Das, "UNIX: Concepts and Application", TMH.
- Das. "UNIX- Concepts & Applications

SUMMER PROJECT – II

Course Code: BCA 551

Credit Units: 03

Course Objective:

The objective of project work is to provide students, exposure about the technology they have learnt in previous and current semesters and their applications in real time situations. Appropriate application software as assigned by the project guide to be developed individually or in-groups.

They are supposed to follow the following technologies:

Networking

Internet

Java Programming

Guidelines:

There are certain phases of every Intern's professional development that cannot be effectively taught in the academic environment. These facets can only be learned through direct, on-the-job experience working with successful professionals and experts in the field. The internship program can best be described as an attempt to institutionalize efforts to bridge the gap between the professional world and the academic institutions. Entire effort in internship is in terms of extending the program of education and evaluation beyond the classroom of a university or institution. The educational process in the internship course seeks out and focuses attention on many latent attributes, which do not surface in the normal classroom situations. These attributes are intellectual ability, professional judgment and decision-making ability, inter-disciplinary approach, skills for data handling, ability in written and oral presentation, sense of responsibility etc.

In order to achieve these objectives, each student will maintain a file (**Internship File**). The Internship File aims to encourage students to keep a personal record of their learning and achievement throughout the Programme. It can be used as the basis for lifelong learning and for job applications. Items can be drawn from activities completed in the course modules and from the workplace to demonstrate learning and personal development.

The File will assess the student's analytical skills and ability to present supportive evidence, whilst demonstrating understanding of their organization, its needs and their own personal contribution to the organization.

The **layout guidelines** for the Project & Seminar Report

1. File should be in the following specification

- A4 size paper
- Font: Arial (10 points) or Times New Roman (12 points)
- Line spacing: 1.5
- Top & bottom margins: 1 inch/ 2.5 cm
- Left & right margins: 1.25 inches/ 3 cm

2. Report Layout: The report should contain the following components

Front Page

Table of Content

Acknowledgement

Student Certificate

Company Profile (optional)

Introduction

Main Body

References / Bibliography

The File will include *five sections* in the order described below. The content and comprehensiveness of the main body and appendices of the report should include the following:

1. **The Title Page**--Title - An Internship Experience Report For (Your Name), name of internship organization, name of the Supervisor/Guide and his/her designation, date started and completed, and number of credits for which the report is submitted.
2. **Table of Content**--an outline of the contents by topics and subtopics with the page number and location of each section.

3. **Introduction**--short, but should include how and why you obtained the internship experience position and the relationship it has to your professional and career goals.
4. **Main Body**--should include but not be limited to daily tasks performed. Major projects contributed to, dates, hours on task, observations and feelings, meetings attended and their purposes, listing of tools and materials and their suppliers, and photographs if possible of projects, buildings and co-workers.
5. **References / Bibliography** --This should include papers and books referred to in the body of the report. These should be ordered alphabetically on the author's surname. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system

ASSESSMENT OF THE INTERNSHIP FILE

The student will be provided with the Student Assessment Record (SAR) to be placed in front of the Internship File. Each item in the SAR is ticked off when it is completed successfully. The faculty will also assess each item as it is completed. The SAR will be signed by the student and by the faculty to indicate that the File is the student's own work. It will also ensure regularity and meeting the delaines.

STUDENT ASSESSMENT RECORD (SAR)

5. **Range of Research Methods used to obtain information**
6. **Execution of Research**
7. **Data Analysis**
 - Analyse Quantitative/ Qualitative information
 - Control Quality
8. **Draw Conclusions**

Examination Scheme:

Components	V	S	R	FP
Weightage (%)	20	20	20	40

V – Viva, S – Synopsis, FP – Final Presentation, R - Report

JAVA PROGRAMMING LAB

Course Code: BCI 522

Credit Units: 01

PART-I

List of JAVA Programme

1. Create a "Hello, World" program that simply prints out that statement.
2. Write a program that prints three arguments taken from the command line.
3. Write a program that prints values from 1 to 100.
4. Create a class with a default constructor (one that takes no arguments) that prints a message. Create an object of this class.
5. Write Java assignment statements to evaluate the following equations:
 - (i) $\text{Energy} = \text{mass}(\text{acceleration} * \text{height} + (\text{velocity})^2 / 2)$
 - (ii) $\text{Torque} = 2m_1m_2 / (m_1 + m_2) * g$
6. Design and write a Java program to define a class called Rectangle that contains members for representing its length and breadth. Provide members to get and set these attributes.
7. Design a class to represent a bank account. Include the following members:

Data members:

 - Name of the depositor
 - Account number
 - Type of account
 - Balance amount in the account

Methods:

 - To assign initial values
 - To deposit an amount
 - To withdraw an amount after checking balance
 - To display the name and balance
8. Write simple program to calculate the sum of digits of any number.
9. Write a simple program to display a "*" I triangle shape.

Output will be like this

```
*
 * * *
 * * * * *
```
10. Write a simple program to call a method called simple from a main function. The method simple should accept an integer as an argument and calculate the square of the number in the method simple.
11. Write a Java program to add two integers and two float numbers. When no arguments are supplied, give a default value to calculate the sum. Use method overloading to achieve this.
12. Write a program to perform mathematical operations. Create a class called AddSub with methods to add and subtract. Create another class called MultDiv that extends from AddSub class to use the member data of the superclass. MultDiv should have methods to multiply and divide. A main method should access the method and perform the mathematical operations.
13. Write an interface with a method called display. Implement this method I a class to display two names.

14. Write an interface that has two methods called push and pop of a stack. Write a class to implement the two methods for a fixed size stack creation.
15. Write a small program to catch Negative Array Size Exception. This exception is caused when the array is initialized to negative values.
16. Write a program to handle Null Pointer Exception and use the finally clause to display a message to the user.
17. Write a Java program that takes a string and converts it into uppercase and lowercase letters.
18. Write a Java program to find the volume of a sphere and a cone.
19. Write a Java program to convert rupees to dollars.
20. Write a Java program to find x to the power y. Use overloading for different cases when x and y are combinations of integer and floating point numbers.
21. Create an abstract class called Figure that has an abstract method called draw (). Make the subclasses called Filled_Rectangle, Filled_Arc and override the draw method in which you would print the message regarding the current object.
22. Write a Java program that has integer variables a, b, c and result as float. Store some values in them and apply the formula $result = a/(b-c)$. Catch the probable exception.

23. Write a Java program that accepts two strings as command line arguments. It checks for the number of command line arguments. If they are less or more it throws an exception giving an appropriate message.
24. Write applets to draw the following shapes:
 - (i) Cone
 - (ii) Cylinder
 - (iii) Cube
 - (iv) Square inside a circle
 - (v) Circle inside a square
25. Write an applet to display the following figure:
26. Write an applet to display a face.
27. Write an applet to display five buttons.
28. Write an applet to illustrate BorderLayout.
29. Write a Java program to create 5 threads by extending Thread class.
30. Write a Java program to create 5 threads by implementing Runnable interface.

UNIX OPERATING SYSTEM AND SHELL PLROGRAMMING LAB

Course Code: BCI 523

Credit Units: 01

Unix Programmes

1. Write a Shell Script that takes a search string and filename from the terminal & displays the results.
2. Write a Shell Script that takes pattern and filename as command line arguments and displays the results appropriately i.e. pattern found/pattern not found.
3. Write a Shell Script that accepts only three arguments from the command line. The first argument is the pattern string, the second argument is the filename in which the pattern is to be searches and the third argument is the filename in which the result is to be stored.
4. Write a Shell Script that accepts a filename as a command line argument and finds out if its a regular file or a directory. If its a regular file, then performs various tests to see if it is readable, writeable, executable etc.
5. Write a Shell Script which creates the following menu and prompts for choice from user and runs the chosen command.

Today's date
Process of user
List of files
Quit to UNIX

6. Write a Shell Script that computes the factorial of a given number
7. Write a Shell Script that works like a calendar reminding the user of certain things depending on the day of the week.
8. Write a Shell Script that changes the extension of a group of files from txt to doc
9. Write a Shell Script that accepts both filename and a set of patterns as positional parameters to a script.
10. Write a Shell Script which will redirect the output of the date command without the time into a file.
11. Write a Shell Script (using while loop) to execute endlessly (until terminated by user) a loop which displays contents of current directory, disk space status, sleep for 30 seconds and display the users currently logged in on the screen.
12. Write a Shell Script that receives two filenames as arguments. It should check whether content of the two files is same or not. If they are same, second file should be deleted.
13. If a number is input through the keyboard, WASS to calculate sum of its digits.
14. Write a Shell Script that performs a count-down either from 10 (default) or from the value that is entered by the user.
15. Write a Shell Script which takes a command line argument of Kms and by default converts that number into meters. Also provide options to convert km to dm and km to cm.
16. Write a Shell Script using for loop, which displays the message "Welcome to the UNIX System"
17. Write a Shell Script to change the filename of all files in a directory from lower-case to upper-case.
18. Write a Shell Script that examines each file in the current directory. Files whose names end in **old** are moved to a directory named **old files** and files whose names end in **.c** are moved to directory named **cprograms**.
19. Write a Shell Script which searches all files in the given directory (to be taken as command line argument) for

the file having the title (to be taken as command line argument), as the first line in the file.

- a) Display the contents of the searched file.
 - b) In the end, print the file is ###, where
is small-sized if total no. of lines is <50
is medium-sized if total no. of lines between 50&100
is large-sized.
20. Write a shell script which reports names and sizes of all files in a directory (directory would be supplied as an argument to the shell script) whose size is exceeding 1000 bytes. The filenames should be printed in descending order of their sizes. The total number of such files should also be reported.
 21. WASS for renaming each file in the directory such that it will have the current shell PID as an extension. The shell script should ensure that the directories do not get renamed.
 22. WAP to calculate and print the first *m* Fibonacci numbers.
 23. WASS that will receive any number of filenames as arguments. The shell script should check whether such files already exist. If they do, then it should be reported. The files that do not exist should be created in a sub-directory called **mydir**. The shell script should first check whether the sub-directory **mydir** exists in the current directory. If it doesn't exist, then it should be created. If **mydir** already exists, then it should be reported along with the number of files that are currently present in **mydir**.
 24. A shell script receives even number of filenames. Suppose four filenames are supplied, then the first file should get copied into second file, the third file should get copied into fourth and so on. If odd number of filenames is supplied then no copying should take place and an error message should be displayed.
 25. WASS to identify all zero-byte files in the current directory and delete them. Before proceeding with deletion, the shell script should get a conformation from the user.
 26. WASS to compute the **GCD** and **LCM** of two numbers.
 27. Two numbers are entered through the keyboard. WAP to find the value of one number raised to the power of another.
 28. WASS that prompts the user for the password. The user has maximum of 3 attempts. If the user enters the correct password, the message "Correct Password" is displayed else the message "Wrong Password".
 29. WASS that repeatedly asks the user repeatedly for the "Name of the Institution" until the user gives the correct answer.
 30. WAP to generate all combinations of 1, 2 and 3 using **for loop**.

Examination Scheme:

Components	CT1	PR	Attd	EE
Weightage (%)	10	15	5	70

DOMAIN ELECTIVE

DESIGNING AND SUPPORTING COMPUTER NETWORK

Course Code: BCI 531

Credit Units: 03

Course Objective:

The objective of the course is to give an overview how to design and support computer network.

Course Contents:

Module I: Introducing Network Design Concepts

Discovering Network Design Basics, Investigating Core Layer Design Considerations
Investigating Distribution Layer Consideration, Investigating Access Layer Design Considerations, Investigating Server Farms and Security, Investigating Wireless Network Considerations, Supporting WANs and Remote Workers

Module II: Gathering Network Requirements

Introducing Cisco Lifecycle Services, Explaining the Sales Process, Preparing for the Design Process, Identifying Technical Requirements and Constraints, Identifying Manageability Design Considerations

Module III: Characterizing the Existing Network

Documenting the Existing Network, Updating the Existing Cisco IOS, Upgrading Existing Hardware, Performing a Wireless Site Survey, Documenting Network Design Requirements

Module IV: Identifying Application Impacts on Network Design

Characterizing Network Applications, Explaining Common Network Applications
Introducing Quality of Service (QoS), Examining Voice and Video Options, Documenting Applications and Traffic Flows

Module V: Creating the Network Design

Analyzing the Requirements, Selecting the Appropriate LAN Topology, Designing the WAN and Remote Worker Support, Designing Wireless Networks, Incorporating Security

Module VI: Using IP Addressing in the Network Design

Creating an Appropriate IP Addressing Design, Creating the IP Address and Naming Scheme, Describing IPv4 and IPv6

Module VII: Prototyping the Campus Network

Building a Prototype to Validate a Design, Prototyping the LAN, Prototyping the Server Farm

Module VIII: Prototyping the WAN

Prototyping Remote Connectivity, Prototyping WAN Connectivity, Prototyping Remote Worker Support

Module IX: Preparing the Proposal

Assembling the Existing Proposal Information, Developing the Implementation Plan
Planning for the Installation, Creating and Presenting the Proposal

Examination Scheme:

Components	CT1	PR.	ATTD.	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- CCNA-Discovery 4.0, module 4, Cisco Certified Networking Academy

References:

- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

DATA WAREHOUSING & DATA MINING

Course Code: BCI 532

Credit Units: 03

Course Objective:

This course unit is divided into two parts: one on Data Warehousing and one on Data Mining. Both data warehousing and data mining are advanced recent developments in database technology which aim to address the problem of extracting information from the overwhelmingly large amounts of data which modern societies are capable of amassing. Data warehousing focuses on supporting the analysis of data in a multidimensional way. Data mining focuses on inducing compressed representations of data in the form of descriptive and predictive models. Course gives an in-depth knowledge of both the concepts.

Course Contents:

Module I: Data Warehousing

Introduction to Data Warehouse, its competitive advantage, Data warehouse Vs Operational Data, Things to consider while building Data Warehouse

Module II: Implementation

Building Data warehousing team, Defining data warehousing project, data warehousing project management, Project estimation for data warehousing, Data warehousing project implementation

Module III: Techniques

Bitmapped indexes, Star queries, Read only table spaces, Parallel Processing, Partition views, Optimizing extraction process

Module IV: Data Mining

Introduction to Data Mining, benefits of Data Mining, How it helps in decision making, Data mining techniques, Introduction to Data Mart, Data Mart Tools, Data warehouse vs Data Mart, OLAP and its need, MOLAP and ROLAP

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- Data Warehousing in the real world, Sam Anchory and Dennis Murray

References:

- Data Mining, Pieter Adrians and Doif Zantinge

ANDROID PROGRAMMING

Course Code: BCI 533

Credit Units: 03

Course Objectives

This course facilitates students to develop competence and confidence in android programming and understand the entire Android Apps Development Cycle, as well as it would also enable the students to independently create new Android Applications.

Course Contents

Module –I: Introduction

Setting up development environment, Dalvik Virtual Machine & .apk file extension, Fundamentals, Basic Building blocks - Activities, Services, Broadcast Receivers & Content providers, UI Components - Views & notifications, Components for communication -Intents & Intent, Filters, Android API levels (versions & version names)

Module –II: Android Structure

AndroidManifest.xml, Uses-permission & uses-sdk, Resources & R.java, Assets, Layouts & Drawable Resources, Activities and Activity lifecycle, First sample Application.

Module –III: Emulator – Android Virtual Machine

Launching emulator, Editing emulator settings, Emulator shortcuts, Logcat usage, Introduction to DDMS, Hello World App, Creating your first project, The manifest file, Layout resource, Running your app on Emulator, Second App:- (switching between activities),- Develop an app for demonstrating the, communication between Intents, Explicit Intents, Implicit intents

Module –IV: UI design

Time and Date, Images and media, Composite, Alert Dialogs & Toast, Popup, Examples, Option menu, Context menu, Sub menu, menu from xml, menu via code, Examples

Module –V: Adapters and Widgtes

Adapters:-Array Adapters. Base Adapters, ListView and List Activity, Custom listview, Grid View using adapters, Gallery using adapters

Examination Scheme:

Components	Presentatio n	Assignment / Case Study	Quiz	Attd	EE
Weightage (%)	10	10	5	5	70

Text & Reference:

- Android Programming: The Big Nerd Ranch Guide (Big Nerd Ranch Guides) (By: Bill Philips & Brian Hardy)
- Android Recipes: A Problem-Solution Approach, Dave Smith & Jeff Friesen

WEB PROGRAMMING

Course Code: BCA 534

Credit Units: 03

Course Objective:

This course is aimed to provide a fundamental understanding of web site creation. HTML is the language used for designing most basic web pages. Syllabus includes basic and advanced features of HTML which includes images, links, tables, frames and forms etc. It also gives an overview of XML.

Course Contents:

Module I: Introduction to HTML programming and from designing

History of HTML, Structure of HTML, Div and Span tag, Forms and Java Script Introduction to Forms, Form Elements, Form handling, Form Validation, Form Elements, Front level validations using JavaScript.

Module II

JavaScript Introduction, JavaScript Output, JavaScript Statements, JavaScript Syntax, JavaScript Comments, JavaScript Variables, JavaScript Operators, JavaScript Arithmetic, JavaScript Assignment, JavaScript Data Types, JavaScript Functions, JavaScript Objects, JavaScript Strings, JavaScript String Methods, JavaScript Arrays, JavaScript Array Methods, JavaScript Switch, loop for, loop while, break statement.

Module III

JavaScript String, Strings Length, Split, Search, Replace, indexOf, JavaScript – Compare, Advanced JavaScript: getElementById, innerHTML.

Module IV: Intro. To DHTML

Object referencing, collections all and children, dynamic styles and positioning, frame collection, navigator object, summary of DHTML model, event onclick, onload, error handling with onerror, tracking mouse with event onmousemove, form processing with onfocus and onblur, onsubmit, onreset, event bubbling.

Module V: Intro. To Advanced CSS

CSS Rounded Corners, CSS Border Images, CSS Multiple Backgrounds, CSS colors, CSS gradients, Shadow effects, CSS Text Effects, CSS 2D Transforms, CSS 3D Transforms, CSS Transitions, CSS Animations, CSS style images, CSS buttons, CSS pagination, CSS Box sizing, CSS Flexbox, CSS Media queries.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

- Harvey & Paul Deitel & Associates, Harvey Deitel and Abbey Deitel, “Internet and World Wide Web - How To Program”, Fifth Edition, Pearson Education, 2011.
- Achyut S Godbole and Atul Kahate, “Web Technologies”, Second Edition, Tata McGraw Hill, 2012.
- Thomas A Powell, Fritz Schneider, “JavaScript: The Complete Reference”, Third Edition, Tata McGraw Hill, 2013.
- David Flanagan, “JavaScript: The Definitive Guide, Sixth Edition”, O'Reilly Media, 2011

DESIGNING AND SUPPORTING COMPUTER NETWORK LAB

Course Code: BCI 541

Credit Units: 01

Course Contents:

1. Process of Core Layer Design Consideration
2. Process of Access Layer Design Consideration
3. Preparing the Design Process, technical requirements.
4. Documentation Design of Existing Network in the Enterprise.
5. Document ation Design of Network Design Requirements.
6. Documenting application and traffic flow in Enterprise network.
7. Selection of the Appropriate LAN Topology
8. Designing WAN and Wireless Network and Incorporating Security.
9. Creating an IP addressing Design with example enterprise network.
10. Prototype Design of LAN, Server Farm and WAN Connectivity.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

DATA WAREHOUSING & DATA MINING LAB

Course Code: **BCI 542**

Credit Units: **01**

Software Required: Informatica Tool, Cognos, Todd.

List of Programmes:

1. Write a program to implement text mining.
2. Write a program to implement web mining.
3. Write a program to develop snowflake schema.
4. Write a program to develop the tree schema with the help of binary tree.
5. Write a program to implement BFS and DFS with respect to 2-D modeling.
6. Write a program to implement the basic step of informatics tool.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

ANDROID PROGRAMMING LAB

Course Code: BCI 543

Credit Units: 01

The experiments will be based on the topics covered in the corresponding theory Course.

1. Write a Program to Build a Simple Android Application
2. Java Andorid Program to Demonstrate Usage of String.xml File
3. Java Andorid Program to Demonstrate Activity Life Cycle
4. Write a Program to Change the Background of your Activity
5. Java Andorid Program to Perform all Operations using Calculators
6. Write a Program to Change the Image Displayed on the Screen
7. Write a Program to Create Multiple Activities within an Application
8. Write a Program to Demonstrate Action Button by Implementing on Click Listener
9. Write a Program to Demonstrate the Sound Button Application
10. Write a Program to Demonstrate the use of Scroll View
11. Write a Program to Demonstrate Radio Group Application
12. Write a Program to Demonstrate Alert Dialog Box
13. Write a Program to Set the Wallpaper of Your Device using Bitmap Class
14. Write a Program to Demonstrate the Menu Application
15. Write a Program to Demonstrate Toast in an Application
16. Write a Program for Dividing our Activity into Fully Encapsulated Reusable Components using Fragement
17. Write a Program to Demonstrate List View Activity
18. Write a Program to Draw on a Canvas
19. Write a Program to Demonstrate Count Down Timer Application
20. Write a Program to Demonstrate Layouts in an Activity and Nesting of Layouts
21. Write a Program to Demonstrate Grid View Layout in Android
22. Write a Program to Create Simple Menu in Android
23. Write a Program to Demonstrate Creating an Options Menu in Android
24. Write a Program to Demonstarte Menu Groups in Android
25. Write a Program to Demonstrate Checkable Menu Items in Android

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

WEB PROGRAMMING LAB

Course Code: BCA 544

Credit Units: 01

1. Develop and demonstrate a XHTML file that includes JavaScript script for the following problems:

a) Input: A number n obtained using prompt

Output: The first n Fibonacci numbers

b) Input: A number n obtained using prompt

Output: A table of numbers from 1 to n and their squares using alert

2. a) Develop and demonstrate, using JavaScript script, a XHTML document that collects the USN (the valid format is: A digit from 1 to 4 followed by two upper-case characters followed by two digits followed by two upper-case characters followed by three digits; no embedded spaces allowed) of the user. Event handler must be included for the form element that collects this information to validate the input. Messages in the alert windows must be produced when errors are detected.

b) Modify the above program to get the current semester also.

3. a) Develop and demonstrate, using JavaScript script, a XHTML document that contains three short paragraphs of text, stacked on top of each other, with only enough of each showing so that the mouse cursor can be placed over some part of them. When the cursor is placed over the exposed part of any paragraph, it should rise to the top to become completely visible.

b) Modify the above document so that when a paragraph is moved from the top stacking position, it returns to its original position rather than to the bottom.

4. a) Design an XML document to store information about a student in an engineering college affiliated to VTU. The information must include 100 USN, Name and Name of the College, Branch, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.

b) Create an XSLT style sheet for one student element of the above document and use it to create a display of that element.

5. Create a XHTML form with Name, Address Line 1, Address Line 2, and E-mail text fields. On submitting, store the values in Mysql table. Retrieve and display the data based on Name.

6. Build a Rails application to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.

Examination Scheme:

IA				EE	
A	PR	LR	V	PR	V
5	10	10	5	35	35

Note: IA –Internal Assessment, EE- External Exam, PR- Performance, LR – Lab Record, V – Viva.

OPEN ELECTIVE

COMMUNICATION SKILLS - III

Course Code: BCS 501

Credit Units: 01

Course Objective:

To equip the participant with linguistic skills required in the field of science and technology while guiding them to excel in their academic field.

Course Contents:

Module I

Reading Comprehension
Summarising
Paraphrasing

Module II

Essay Writing
Dialogue Report

Module III

Writing Emails
Brochure
Leaflets

Module IV: Introduction to Phonetics

Vowels
Consonants
Accent and Rhythm
Accent Neutralization
Spoken English and Listening Practice

Examination Scheme:

Components	CT1	CT2	CAF	V	GD	GP	A
Weightage (%)	20	20	25	10	10	10	5

CAF – Communication Assessment File

GD – Group Discussion

GP – Group Presentation

Text & References:

- Effective English for Engineering Students, B Cauveri, Macmillan India
- Creative English for Communication, Krishnaswamy N, Macmillan
- A Textbook of English Phonetics, Balasubramanian T, Macmillan

BEHAVIOURAL SCIENCE - V (INDIVIDUAL, SOCIETY AND NATION)

Course Code: BSS 503

Credit Units: 01

Course Objective:

This course aims at enabling students towards:

- Understand the importance of individual differences
- Better understanding of self in relation to society and nation
- Facilitation for a meaningful existence and adjustment in society
- To inculcate patriotism and National pride.
- To enhance personal and professional excellence

Course Contents:

Module I: Individual differences & Personality

Personality: Definition & Relevance

Importance of nature & nurture in Personality Development

Importance and Recognition of Individual differences in Personality

Accepting and Managing Individual differences (Adjustment Mechanisms)

Intuition, Judgment, Perception & Sensation (MBTI)

BIG5 Factors

Module II: Socialization

Nature of Socialization

Social Interaction

Interaction of Socialization Process

Contributions to Society & Nation

Module III: Patriotism and National Pride

Sense of Pride and Patriotism

Importance of Discipline and hard work

Integrity and accountability

Module IV: Human Rights, Values and Ethics

Meaning of Human Rights

Human Rights Awareness

Importance of human rights

Values and Ethics- Learning based on project work on Scriptures like Ramayana, Mahabharata, Gita etc

Module V: Personal and Professional Excellence

Personal excellence:

Identifying Long-term choices and goals

Uncovering talent, strength and style

Alan P. Rossiter's eight aspects of Professional Excellence

Resilience during challenge and loss

Continued Reflection (Placements, Events, Seminars, Conferences, Projects, Extracurricular Activities, etc.)

Module VI: End-of-Semester Appraisal

Viva based on personal journal

Assessment of Behavioural change as a result of training

Exit Level Rating by Self and Observer

Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success (JOS)
Weightage (%)	20	05	20	30	25

Text & References:

- Bates, A. P. and Julian, J.: Sociology - Understanding Social Behaviour
- Dressler, David and Cans, Donald: The Study of Human Interaction
- Lapiere, Richard. T – Social Change
- Rose, G.: Oxford Textbook of Public Health, Vol.4, 1985.
- Robbins O.B.Stephen;. Organizational Behaviour

FRENCH - V

Course Code: FLT 501

Credit Units: 02

Course Objective:

To furnish some basic knowledge of French culture and civilization for understanding an authentic document and information relating to political and administrative life

Course Contents:

Module D: pp. 131 – 156 Unités 10,11

Contenu lexical:

Unité 10: Prendre des décisions

1. Faire des comparaisons
2. décrire un lieu, le temps, les gens, l'ambiance
3. rédiger une carte postale

Unité 11: faire face aux problèmes

1. Exposer un problème.
2. parler de la santé, de la maladie
3. interdire/demander/donner une autorisation
4. connaître la vie politique française

Contenu grammatical:

1. comparatif - comparer des qualités/ quantités/actions
2. supposition: Si + présent, futur
3. adverbe - caractériser une action
4. pronom "Y"

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- le livre à suivre: Campus: Tome 1

GERMAN - V

Course Code: FLG 501

Credit Units: 02

Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

Introduction to Advanced Grammar and Business Language and Professional Jargon

Course Contents:

Module I: Genitive case

Genitive case – Explain the concept of possession in genitive

Mentioning the structure of weak nouns

Module II: Genitive prepositions

Discuss the genitive prepositions and their usage: (während, wegen, statt, trotz)

Module III: Reflexive verbs

Verbs with accusative case

Verbs with dative case

Difference in usage in the two cases

Module IV: Verbs with fixed prepositions

Verbs with accusative case

Verbs with dative case

Difference in the usage of the two cases

Module V: Texts

A poem 'Maxi'

A text Rocko

Module VI: Picture Description

Firstly recognize the persons or things in the picture and identify the situation depicted in the picture;

Secondly answer questions of general meaning in context to the picture and also talk about the personal experiences which come to your mind upon seeing the picture.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Wolfgang Hieber, Lernziel Deutsch
- Hans-Heinrich Wangler, Sprachkurs Deutsch
- Schulz Griesbach, Deutsche Sprachlehre für Ausländer
- P.L Aneja, Deutsch Interessant- 1, 2 & 3
- Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2
- Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

SPANISH - V

Course Code: FLS 501

Credit Units: 02

Course Objective:

To enable students acquire working knowledge of the language; to give them vocabulary, grammar, voice modulations/intonations to handle everyday Spanish situations with ease.

Course Contents:

Module I

Revision of earlier semester modules

Module II

Future Tense

Module III

Presentations in English on
Spanish speaking countries'
Culture
Sports
Food
People
Politics
Society
Geography

Module IV

Situations:
En el hospital
En la comisaria
En la estacion de autobus/tren
En el banco/cambio

Module V

General revision of Spanish language learnt so far.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- Español Sin Fronteras, Greenfield

CHINESE – V

Course Code: FLC 501

Credit Units: 02

Course Objective:

What English words come from Chinese? Some of the more common English words with Chinese roots are ginseng, silk, dim sum, fengshui, typhoon, yin and yang, T'ai chi, kung-fu. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

Drills
Dialogue practice
Observe picture and answer the question.
Pronunciation and intonation.
Character writing and stroke order

Module II

Intonation
Chinese foods and tastes – tofu, chowmian, noodle, Beijing duck, rice, sweet, sour...etc. Learning to say phrases like – Chinese food, Western food, delicious, hot and spicy, sour, salty, tasteless, tender, nutritious, good for health, fish, shrimps, vegetables, cholesterol is not high, pizza, milk, vitamins, to be able to cook, to be used to, cook well, once a week, once a month, once a year, twice a week.....
Repetition of the grammar and verbs taught in the previous module and making dialogues using it.
Compliment of degree “de”.

Module III

Grammar the complex sentence “suiran ... danshi...”
Comparison – It is colder today than it was yesterday.....etc.
The Expression “chule...yiwai”. (Besides)
Names of different animals.
Talking about Great Wall of China
Short stories

Module IV

Use of “huozhe” and “haishi”
Is he/she married?
Going for a film with a friend.
Having a meal at the restaurant and ordering a meal.

Module V

Shopping – Talking about a thing you have bought, how much money you spent on it? How many kinds were there? What did you think of others?
Talking about a day in your life using compliment of degree “de”. When you get up? When do you go for class? Do you sleep early or late? How is Chinese? Do you enjoy your life in the hostel?
Making up a dialogue by asking question on the year, month, day and the days of the week and answer them.

Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

- “Elementary Chinese Reader” Part-II Lesson 39-46

WEB TECHNOLOGIES

Course Code: BCA 601

Credit Units: 03

Course Objective:

This course is aimed to provide a fundamental understanding of web site creation. HTML is the language used for designing most basic web pages. Syllabus includes basic and advanced features of HTML which includes images, links, tables, frames and forms etc. It also gives an overview of XML.

Course Contents:

Unit I: Flash basics

Motion tween, Motion Guide, Masking, Shape Tween, Working With Layers, **Animation & Effects**, 3D Animation in Flash CS5, Animated Car Banner, Bouncing Effect, Blur Effect, Burning Image Effect, Checkboard Effect, Circular Ripple Effect, Fade In Effect, Lighting Effects.

Unit II: Corel draw basics

The Workspace, Configuring the Workspace, The Toolbox, Drawing Basics, Dockers, The Transformation Docker, The Shaping docker, Weld Command, Trim and Intersect command, Object manager docker, outlines and fills, about curves, Outline to object.

Unit III: Photoshop basics

Interface Introduction, Panels & Workspaces, Raster Image principles, Dimension, & Resolution, Layers, Common file types, Colour, Making selections, Copy & paste, Transform tools, using brushes Go to page, Eraser tool & Layer masking, Shape tool.

Unit IV

Type principals, Layer styles, Paths & the Pen tool, Smart objects, Colour adjustments, Adjustment layers, Filters, Blending modes.

Unit V: Dreamweaver basics

Introduction, interface basics, view types, anchor links, insert divs, images, hotspots, meta tags, script tags, inserting table, frames, heading, content and formatting tags, form tag, input and select tag, template design in Dreamweaver, importing a website design, extensions.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text:

- HTML, DHTML, JavaScript, Perl, CGI, Ivan Bayross, BPB Publication.

References:

- HTML Complete Reference, BPB Publication.

INTRODUCTION TO PYTHON TECHNOLOGIES

Course Code: BCA602

Credit Units: 03

UNIT I

ALGORITHMIC PROBLEM SOLVING

Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range, Towers of Hanoi.

UNIT II

DATA, EXPRESSIONS, STATEMENTS

Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT III

CONTROL FLOW, FUNCTIONS

Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays. Illustrative programs: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.

UNIT IV

LISTS, TUPLES, DICTIONARIES

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing – list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V

FILES, MODULES, PACKAGES

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Python Programming: An introduction to computer science.

Reference:

Learning Python: Powerful Object Oriented Programming.

WEB TECHNOLOGIES LAB

Course Code: BCA 621

Credit Units: 01

List of Programmes

1. Create the animation of flying bird in flash.
2. Create the animation of walking man with his arms and legs moving.
3. Create the animation of Virtual typewriter.
4. Show a example of Masking in flash.
5. Make an animation of bouncing ball using flash.
6. Create the animation of moving Car in flash.
7. Make the blinking colorful text in flash.
8. Make a scenery showing rising sun in it using flash.
9. Show a flower growing in a flower pot.
10. WAP to develop a student Registration Form using HTML.
11. WAP to show the scrolling text using Marquee Element using HTML.
12. WAP to draw a table with three rows and three columns.
13. WAP to show Image Mapping.
14. WAP to show the functionality of FORWARD and BACK button of History class using JavaScript.
15. WAP to show front level validation in a Registration Form.

Examination Scheme:

Components	CT1 (Lab)	A/P/C	Attd	EE(PR)
Weightage (%)	10	15	5	70

INTRODUCTION TO PYTHON TECHNOLOGIES LAB

Course Code: BCA622

Credit Units: 01

1. Programs that take command line arguments (word count)
2. Find the most frequent words in a text read from a file.
3. Compute the GCD of two numbers.
4. First n prime numbers.
5. Find the square root of a number (Newtons method).
6. Find Exponentiation (power of a number).
7. Find the maximum of a list of numbers.
8. Multiply matrices
9. Linear search
10. Binary search
11. Selection sort
12. Insertion sort
13. Merge sort
14. Simulate elliptical orbits in Pygame
15. Simulate bouncing ball using Pygame

Examination Scheme:

Components	CT1 (Lab)	A/P/C	Attd	EE(PR)
Weightage (%)	10	15	5	70

MAJOR PROJECT

Course Code: BCA 660

Credit Units: 15

GUIDELINES FOR PROJECT FILE

Project experience is as close to a professional problem-solving activity as anything in the curriculum. It provides exposure to research methodology and an opportunity to work closely with a faculty guide. It usually requires the use of advanced concepts, a variety of experimental techniques, and state-of-the-art instrumentation.

Project is genuine exploration of the unknown that leads to new knowledge, which often warrants publication. But whether or not the results of a research project are publishable, the project should be communicated in the form of a research report written by the student.

Sufficient time should be allowed for satisfactory completion of reports, taking into account that initial drafts should be critiqued by the faculty guide and corrected by the student at each stage.

The File is the principal means by which the work carried out will be assessed and therefore great care should be taken in its preparation.

In general, the File should be comprehensive and include

- A short account of the activities that were undertaken as part of the project;
- A statement about the extent to which the project has achieved its stated goals.
- A statement about the outcomes of the evaluation and dissemination processes engaged in as part of the project;
- Any activities planned but not yet completed as part of the project, or as a future initiative directly resulting from the project;
- Any problems that have arisen that may be useful to document for future reference.

Report Layout

The report should contain the following components:

1. File should be in the following specification:

- A4 size paper
- Font: Arial (10 points) or Times New Roman (12 points)
- Line spacing: 1.5
- Top & bottom margins: 1 inch/ 2.5 cm
- Left & right margins: 1.25 inches/ 3 cm

2. Report Layout: The report should contain the following components:

Front Page
Table of Contents
Acknowledgement
Student Certificate
Company Profile
Introduction
Chapters
Appendices
References / Bibliography

➤ **Title or Cover Page or Front Page**

The title page should contain the following information: Project Title; Student's Name; Course; Year; Supervisor's Name.

➤ **Table of Contents**

Titles and subtitles are to correspond exactly with those in the text.

- **Acknowledgement**
Acknowledgment to any advisory or financial assistance received in the course of work may be given.
- **Student Certificate**
Given by the Institute.
- **Company Certificate & Profile**
This is a certificate, which the company gives to the students. A Company Profile corresponds to a file with company-specific data. Company data can be stored there and included in a booking when needed.
- **Introduction**
Here a brief introduction to the problem that is central to the project and an outline of the structure of the rest of the report should be provided. The introduction should aim to catch the imagination of the reader, so excessive details should be avoided.
- **Chapters**
All chapters and sections must be appropriately numbered, titled and should neither be too long nor too short in length.
The first chapter should be introductory in nature and should outline the background of the project, the problem being solved, the importance, other related works and literature survey. The other chapters would form the body of the report. The last chapter should be concluding in nature and should also discuss the future prospect of the project.
- **Appendices**
The Appendix contains material which is of interest to the reader but not an integral part of the thesis and any problem that have arisen that may be useful to document for future reference.
- **References / Bibliography**
This should include papers and books referred to in the body of the report. These should be ordered alphabetically on the author's surname. The titles of journals preferably should not be abbreviated; if they are, abbreviations must comply with an internationally recognised system.

ASSESSMENT OF THE PROJECT FILE

Essentially, marking will be based on the following criteria: the quality of the report, the technical merit of the project and the project execution. Technical merit attempts to assess the quality and depth of the intellectual efforts put into the project. Project execution is concerned with assessing how much work has been put in.

The File should fulfill the following *assessment objectives*:

1. **Range of Research Methods used to obtain information**
2. **Execution of Research**
3. **Data Analysis**
 - Analyze Quantitative/ Qualitative information
 - Control Quality
4. **Draw Conclusions**

Examination Scheme:

Components	MRP	V	S	FP	R
Weightage (%)	20	20	20	20	20

MRP – Mid Report Presentation, V – Viva, S – Synopsis, FP – Final Presentation, R - Report