AMITY INSTITUTE OF INFORMATION TECHNOLOGY (AIIT)

Bachelor of Science - Information Technology (B.Sc.IT)

Programme Code: 12049

Duration – 3 Years Full Time

Programme Structure
and
Curriculum & Scheme of Examination
2020-23

AMITY UNIVERSITY

R A J A S T H A N

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:

Components	Codes	Weightage (%)
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	50

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, 2020

PROGRAMME LEARNING OUTCOME (PLO)

BACHELOR OF SCIENCE (Information Technology) (B.Sc.(IT)

PLO- 1 Identify the core concepts of Information Technology, both theoretical and applied;

PLO- 2 Investigate new technologies, tools, practices and standards, and relate to their knowledge domain.

PLO- 3 Acquaint with design and development tools, and engage in systematic evaluation using current methodologies;

PLO- 4 Demonstrate the ability to integrate IT knowledge and develop industry oriented projects.

SKILL DEVELOPMENT DETAILS WITH CREDITS OF B.Sc(IT) PROGRAMME

Sr. No.	Sem	Skill Development	Credit	Employability	Credit	Entrepreneurship	Credit	Total Nos.	Total Credit
1	I	4	8	0	0	0	0	4	8
2	II	5	11	2	6	0	0	7	17
3	III	2	4	1	3	0	0	3	7
4	IV	4	8	0	0	0	0	4	8
5	V	7	15	0	0	0	0	7	15
6	VI	0	0	1	15	3	9	4	24
	Total	22	46	4	24	3	9	29	79

SKILL DEVELOPMENT SUBJECTS IN B.Sc(IT) PROGRAMME

Sem	Course Code	Course Name
I	BCI104	Programming and Problem solving through 'C' Language
I	BCI105	Computer Concepts and Problem Solving
I	BCI124	Programming and Problem solving through 'C' Language Lab
I	BCI125	Computer Concepts and Problem Solving Lab
II	BCI202	Introduction to Systems Analysis & Design
II	BCI203	Data Structures using C
II	BCI204	Introduction to Database Management Systems
II	BCI223	Data Structures using C LAB
II	BCI224	Introduction to Database Management Systems LAB
III	BCI303	Object Oriented Programming Concepts Using C++
III	BCI323	Object Oriented Programming Concepts Using C++ Lab
IV	BCI431	Introduction to .NET Technologies
IV	BCI432	Introduction to Open Source Technologies (PHP, MySql)
IV	BCI441	Introduction to .NET Technologies Lab
IV	BCI442	Introduction to Open Source Technologies (PHP, MySql) Lab
V	BSI501	Software Engineering
V	BCI502	Java Programming
V	BCI503	UNIX Operating System & Shell Programming
V	BCI522	Java Programming Lab
V	BCI523	UNIX Operating System & Shell Programming Lab
V	BCI533	Android Programming
V	BCI543	Android Programming Lab

Employability

Sem	Course Code	Course Name
II	BCI232	Internet Fundamental
II	BCI233	Cyber Security
III	BCI332	Web Designing
VI	BSI660	Major Project

Entrepreneurship

Sem	Course Code	Course Name
III	BSI 334	E- Governance
VI	BSI602	E-Waste Management
VI	BSI603	Green Computing

PROGRAMME STRUCTURE CREDITS SUMMARY
Bachelor of Science - Information Technology (B.Sc.(IT)-2021

Semester	Credits UG (3 years/ 6 Semesters)							
	CC	DE	VA	OE	EVS	NTCC	ANDP	Total
I	17	0	04	0	0	0	02	23
II	14	03	04	03	0	0	02	26
III	10	03	04	03	04	03	02	29
IV	13	04	04	03	0	06	02	32
V	11	04	04	03	0	03	02	27
VI	09	0	0	0	0	15	0	24
Total	0	0	0	0	0	0	0	0

Core Courses	CC
Domain Electives	DE
Value Added Course	VA
Open Electives	OE
Environmental Science	EVS
Project Work (Non Teaching Credit Course)	NTCC
Anandam Project	ANDP

PROGRAMME STRUCTURE SUBJECTWISE CATEGORY SUMMARY

Bachelor of Science - Information Technology (B.Sc.(IT)-2021

Semester	Courses/Subjects for UG (3 years/ 6 Semesters) Programme							
	CC	DE	VA	OE	EVS	NTCC	ANDP	Total
I	07	0	06	0	0	0	01	14
II	06	03	06	01	0	0	01	17
III	04	04	06	01	01	01	01	18
IV	05	06	06	01	0	01	01	20
V	05	06	06	01	0	01	01	20
VI	03	0	0	0	0	01	0	04
Total	0	0	0	00	00	00	00	0

Core Courses	CC
Domain Electives	DE
Value Added Course	VA
Open Electives	OE
Environmental Science	EVS
Project Work (Non Teaching Credit Course)	NTCC
Anandam Project	ANDP

PROGRAM STRUCTURE

Bachelor of Science - Information Technology (B.Sc. IT)
2021-24

FIRST SEMESTER

Code	Course	Category	L	T	P/FW	Credit Units
BSI101	Human Computer Interaction	CC	2	1	-	3
BCI102	Basic Mathematics	CC	2	1	-	3
BCI103	Introduction to Computer Networking	CC	2	1	-	3
BCI104	Programming & Problem Solving through 'C' Language	CC	2	1	-	3
BCI105	Computer Concepts & Problem Solving	CC	2	1	-	3
BCI124	Programming & Problem Solving through 'C' Language LAB	CC	-	-	2	1
BCI125	Computer Concepts & Problem Solving Lab	CC	-	-	2	1
Non Teaching Credit Course (NTCC)						
AND001	Anandam-I	ANDP	-	-	-	2
VALUE ADDED COURSES						
BCS 101	English	VA	1	-	-	1
BSS 103	Behavioural Science-I (Understanding Self for Effectiveness)	VA	1	-	-	1
FLT 101 FLG 101 FLS 101 FLC 101	Foreign Language - I French German Spanish Chinese	VA	2	-	-	2
	TOTAL					**23**

SECOND SEMESTER

Code	Course	Category	L	T	P/FW	Credit Units
BSI201	Fundamentals of E-Commerce	CC	2	1	-	3
BCI202	Introduction to Systems Analysis & Design	CC	2	1	-	3
BCI203	Data Structure using C	CC	2	1	-	3
BCI204	Introduction to Database Management Systems	CC	2	1	-	3
BCI223	Data Structure 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 Fundamentals	DE				
BCI233	Cyber Security	DE				
OPEN ELECTIVE						
	OPEN ELECTIVE	OE	2	1	-	**3**
Non Teaching Credit Course (NTCC)						
AND002	Anandam-II	ANDP	-	-	-	2
VALUE ADDED COURSES						
BCS 201	English	VA	1	-	-	1
BSS 203	Behavioural Science – II (Problem Solving and Creative Thinking)	VA	1			1
FLT 201 FLG 201 FLS 201 FLC 201	Foreign Language - II French German Spanish Chinese	VA	2	-	-	2
		TOTAL				**26**

SUMMER PROJECT – I

THIRD SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI301	Digital & Computer Organization	CC	2	1	-	3
BSI 302	Introduction to Information systems	CC	2	1	-	3
BCI 303	Object Oriented Programming Concepts Using C++	CC	2	1	-	3
BCI 323	Object Oriented Programming Concepts using C ++ Lab	CC	-	-	2	1
EVS001	Environmental Studies	EVS	4	-	-	4
DE Elective: Choose any one course from the following courses						
BCI 331	Working at a small to medium business or ISPs	DE	2	1	-	3
BCI 332	Web Designing	DE				
BCI 333	Advance Technologies in Computer Science	DE				
BSI 334	E- Governance	DE				
OPEN ELECTIVE						
	Open Elective	OE	2	1	-	3
Non Teaching Credit Course (NTCC)						
BSI 351	Summer Project –I	NTCC	-	-	-	3
AND003	Anandam-III	ANDP	-	-	-	2
VALUE ADDED COURSES						
BCS 301	Communication Skills – I	VA	1	-	-	1
BSS 303	Behavioural Science - III (Interpersonal Communication and relationship Management)	VA	1	-	-	1
FLT 301 FLG 301 FLS 301 FLC 301	Foreign Language - III French German Spanish Chinese	VA	2	-	-	2
	TOTAL					**29**

FOURTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BCI401	Computer Graphics	CC	2	1	-	3
BCI402	Design & Analysis of Algorithm	CC	2	1	-	3
BCI403	Operating Systems	CC	2	1	-	3
BSI 404	Multimedia Technologies	CC	2	1	-	3
BCI421	Computer Graphics LAB	CC	-	-	2	1
DE Elective: Choose any one course from the following courses						
BCI431	Introduction to .NET Technologies	DE				
BCI432	Introduction to Open Source Technologies (PHP, MySql)	DE	2	1	-	3
BCI433	Introduction Routing & Switching in the Enterprise	DE				
BCI441	Introduction to .NET Technologies Lab	DE				
BCI442	Introduction to Open Source Technologies (PHP, MySql) LAB	DE	-	-	2	1
BCI443	Introduction Routing & Switching in the Enterprise Lab	DE				
OPEN ELECTIVE						
	Open Elective	OE	2	1	-	3
Non Teaching Credit Course (NTCC)						
BSI450	Minor Project	NTCC	-	-	-	6
AND004	Anandam-IV	ANDP	-	-	-	2
VALUE ADDED COURSES						
BCS 401	Communication Skills – II	VA	1	-	-	1
BSS 403	Behavioural Science - IV (Group Dynamics & Team Building)	VA	1	-	-	1
FLT 401 FLG 401 FLS 401 FLC 401	Foreign Language - IV French German Spanish Chinese	VA	2	-	-	2
	TOTAL					**32**

SUMMER PROJECT – II

FIFTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI501	Software Engineering	CC	2	1	-	3
BCI502	Java Programming	CC	2	1	-	3
BCI503	UNIX Operating System & shell Programming	CC	2	1	-	3
BCI522	Java Programming LAB	CC	-	-	2	1
BCI523	UNIX Operating System & shell Programming Lab	CC	-	-	2	1
DE Elective: Choose any one course from the following courses						
BCI531	Designing & Supporting Computer Network	DE	2	1	-	3
BCI532	Data warehousing & Data Mining	DE				
BCI533	Android Programming	DE				
BCI541	Designing & Supporting Computer Network LAB	DE	-	-	2	1
BCI542	Data warehousing & Data Mining Lab	DE				
BCI543	Android Programming Lab	DE				
OPEN ELECTIVE						
	Open Elective	OE	2	1	-	3
Non Teaching Credit Course (NTCC)						
BSI551	Summer Project – II	NTCC	-	-	-	3
AND005	Anandam-V	ANDP	-	-	-	2
VALUE ADDED COURSES						
BCS 501	Communication Skills – III	VA	1	-	-	1
BSS 503	Behavioural Science - V (Individual Society and Nation)	VA	1	-	-	1
FLT 501 FLG 501 FLS 501 FLC 501	Foreign Language - V French German Spanish Chinese	VA	2	-	-	2
	TOTAL					**27**

SIXTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI601	Introduction to Enterprise Resource Planning	CC	2	1	-	3
BSI602	E-Waste Management	CC	2	1	-	3
BSI603	Green Computing	CC	2	1	-	3
Non Teaching Credit Course (NTCC)						
BSI660	Major Project	NTCC	-	-	-	15
	TOTAL					**24**

HUMAN COMPUTER INTERACTION

Course Code	L	T	P	Credit
BSI101	2	1	0	3

Course Objective:

Human-computer interaction is the study of how people interact with computers and to what extent computers are or are not developed for successful interaction with human beings. The goals of HCI are to produce usable and safe systems, as well as functional systems. This course provides the concepts of HCI and user interfaces, focusing on user interface design, evaluation, and technologies.

Course Contents:

Unit: I: Introduction

Importance of user Interface-definition, importance of good design, benefits of good design, brief history of screen design, the graphical user interface - popularity of graphics, the concept of direct manipulation, graphical system, characteristics, web user - Interface popularity, characteristics - Principles of user interface.

Unit II: Design process

Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions

Unit III: Screen Designing

Design goals-Screen planning and purpose, 8 organizing screen elements, ordering of screen data and content-screen navigation and flow - visually pleasing composition - amount of information - focus & emphasis-presentation information simply & meaningfully-information retrieval on web-statistical graphics - Technological consideration in interface design

Unit IV: Windows

New and Navigation schemes selection of window, 8 selection of devices based and screen based controls. Components-text and messages, Icons and increases-Multimedia, colors, uses problems, choosing colors.

Unit V: Software tools

Specification methods, interface-Building Tools, Interaction Devices - Keyboard and function keys, pointing devices - speech recognition digitization and generation-image and video displays-drivers.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale Human Computer Interaction, 3rd Edition Prentice Hall, 2004.
- Jonathan Lazar Jinjuan Heidi Feng, Harry Hochheiser, Research Methods inHumanComputer Interaction, Wiley, 2010.
- Ben Shneiderman and Catherine Plaisant Designing the User Interface.
- Strategies for Effective Human-Computer Interaction (5th Edition, pp. 672, ISBN 0-321-53735-1, March 2009), Reading, MA: Addison-Wesley Publishing Co.

BASIC MATHEMATICS

Course Code	L	T	P	Credit
BCI102	2	1	0	3

Course Objective:

The Objective of this course is to provide the fundamentals and the concepts of Discrete Mathematical Structures with Applications to Computer Sciences including Mathematical Logic, Boolean Algebra and its Applications, Switching circuit & Logic Gates, Graphs and Trees. Important theorems with constructive proofs, real life problems & graph theoretic algorithms to be covered with an aim of helping the students to understand the computational and algorithmic aspects of Mathematical Logic, Boolean Algebra, Graphs and Trees in the field of Computer sciences and its applications.

Course Contents:

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

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:

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

INTRODUCTION TO COMPUTER NETWORKING

Course Code	L	T	P	Credit
BCI103	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Behrouz ., Forouzan., "Data Communication and Networking", TMH
- W. Stallings, "Data and Computer Communication" PHI
- A.S. Tanenbaum, "Computer Networks" , PHI

PROGRAMMING & PROBLEM SOLVING THROUGH 'C' LANGUAGE

Course Code	L	T	P	Credit
BCI104	2	1	0	3

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 and EBCDIC. Representation of Integers, Fixed and Floating-Point.

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, 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Problem Solving through C language, E. Balagurusamy, TMH publication.
- Peter Nortons, "Introduction to Computers", TMH
- Let us C, Yashwant Kanetkar, BPB Publication.
- P.K.Sinha, "Computer Fundamentals", BPB Publications
- V. Rajaraman, "Computer Fundamentals", Prentice Hall

COMPUTER CONCEPTS & PROBLEM SOLVING

Course Code	L	T	P	Credit
BCI105	2	1	0	3

Course Objective:

This course will provide an introduction to fundamental of computers, tools for official noting and drafting, programming solving techniques. The course also provides an understanding for utilizing key applications, such as word processing, spread sheet, database, and presentation software, to solve realistic problems. The course also provides understanding of factoring and array techniques.

Course Contents:

MODULE 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.

MODULE 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.

MODULE III: SPREADSHEET SOFTWARE

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

MODULE 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.

MODULE 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.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:

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

PROGRAMMING & PROBLEM SOLVING THROUGH 'C' LANGUAGE LAB

Course Code	L	T	P	Credit
BCI124	0	0	2	1

LIST OF PRACTICALS

1. Enter the two numbers and perform the following operations:-
   Addition, Subtraction, Multiplications, Division, Exponent, Mod

2. WAP to swap two numbers:
   a) By using third variable.   b) Without using third variable.

3. WAP to print the result the of quadratic equation
   a) Without using if statement.
   b) By using if statement.

4. WAP to print a) Fibonacci series 1 1 2 3 5.....   b) Series 1 1 1 3 5 9......

5. Write a menu driven program
   a) To evaluate the equation $y=x^n$ where n is the non-negative integer
   b) The total number of even integers in the set.
   c) The total number of odd integers in the set.
   d) The sum of all even integers.
   e) The sum of all odd integers

6. Check whether a string is palindrome or not.

7. WAP to calculate the following expression.
   $x=1+x+ (x^2) /2! + (x^3)/ 3! +........n$ for this expression calculate the factorial.
   a) Without Recursive Function.
   b) With Recursive Function.
   c) 30. Write a program to generate the following figures: Any two

```
a.      *        b.       *        c.  1         d.      1         e.  1
      *   *             *    *          12              121             12
    *  *   *          *   *   *         123            12321           123
      *   *           *   *   *   *     1234          1234321          1234
        *                                12345        123454321        12345
                                                                       1234
                                                                       123
                                                                       12
                                                                       1

f.  654321      g.  543212345     h.    z
    54321           5432 2345          yzy
    4321            543   345          xyzyx
    321             54    45           yzy
    21              5     5             z
    1
```

8. Write a program to find the larger of the two numbers using macro with arg.

9. WAP to calculate an electric power distribution company who charges its customer as follows.

Consumption units	Rate of charges
0 - 200	Rs 0.50 per unit
201 - 400	Rs 100 plus Rs 0.65 per unit excess of 200 units
401 - 600	Rs 230 plus Rs 0.80 per unit excess of 400 units
601 and Above	Rs 390 plus Rs 1.00 per unit.

Calculate and print the result.

10. Write a program to find a number of and sum of all the integers greater than 100 and less than 200 that are divisible by 7.

11. Write a program to enter a character (alphabetical) and display its position and its corresponding ASCII value.

12.

Purchase	Discount	Hand loom items
0 - 100	-	-
101 - 200	5.0 %	7.5 %
201 - 300	7.5 %	10.0 %
Above 300	10.0 %	15.0 %

A cloth show room has announced the following discount on purchase of items. Write a program using switch and if statement to compute the net amount to be paid.

13. WAP to print the multiplication table from 1 to 12.
1...........................10,   12...........................120.
Do the above question in the tabular form.

14. WAP to evaluate power of 2 upto 20 by using loop.   2^0=1.............................2^20=

15. WAP to reverse the number given by the user and perform the addition.

16. Take two variables a and b and store the result of operation in the third variable c by using following data types:-
    a) int a, b, and float c.   c) float a, c, and int b.
    b) float a, b, and int c.   d) float a and int b, c.

17. WAP to maintain the employee record.
    i) emp. no.   ii) emp name.
    iii) emp salary (emp basic, HRA, DA, CCA). HRA 15% and DA 30% of basic.

18. WAP to calculate the depreciation value of any product after three years.

19. Write the C statements to evaluate the following equations.
    a) Area = pi*(r^2)+2(pi)rh.   c) Side= sqrt(a^2+ b^2-2ab*cos(x))
    b) Torque = (2 m1 m2)/(m1 + m2)*g
    d) Energy = mass[acceleration * height + (velocity^2)/2]

20. Determine the value of each of the following logical expressions of a=5, b=10, c=6
    a) a>b && a<c.   d) b>15 && c<0 || a>0.
    b) a<b && a>c.   e) (a\2.0==0.0 && b\2.0 !==0.0) || c<0.0.
    c) a==c || b>a.

21. WAP to calculate the following expressions if x-y=0 then it should give an error.
    a) (x+y)/(x-y)
    b) (x-y)/2.
    c) (x+y)(x-y)

22. Write a program to count the number of character, word and lines in a text file whose name is supplied in the command line.

23. Write a program to arrange a list by using any sorting method.

24. Write a program to create, display, modify and append a file (sequential file).

25. Write a program to perform arithmetic operations on an array.

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	15	15	15	25	25

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

COMPUTER CONCEPTS & PROBLEM SOLVING LAB

Course Code	L	T	P	Credit
BCI125	0	0	2	1

LIST OF PRACTICALS

1   Program to find sum of two numbers

2   Program to find area and circumference of circle. [A=3.14*R*R & C=2*3.14*R]

3   Program to find the simple interest. [SI=(P*R*T)/100]

4   Program to convert temperature from degree centigrade to Fahrenheit. [F=(1.8*C) +32]

5   Program to calculate sum of 5 subjects & find percentage

6   Program to use bitwise AND & OR operator between the two integers

7   Program to shift inputted data by two bits to the left

8   Program to show swap of two no's without using third variable

9   Program to find gross salary.

        [Gross Salary= Basic salary + T.A. (12% of Basic) + D.A. (10% of basic)]

10   Program to find greatest in 3 numbers

11   Program to show the use of conditional operator

12   Program to find that entered year is leap year or not

13   Program to find whether given no is even or odd

14   Program to use switch statement. Display Monday to Sunday.

15   Program to display arithmetic operation using switch case.

16   Program to print a table of any number.

17   Program to display first 10 natural no & their sum.

18   Program to reverse a given number.

19   Program to print stars Sequence1

        *
        * *
        * * *
        * * * *
        * * * * *

20   Program to print stars Sequence2
        *
        * *
        * * *
        * * * * *
        * * * *
        * * *
        * *
        *

21   Program to print star Sequences3
              *
           *   *

```
    *   *   *
  *   *   *   *
```

22   Program to print Fibonacci series up to 100

23   Program to find factorial of a number. [Ex: 5! = 5*4*3*2*1]

24   Program to find whether given no is a prime number or not

25   Program to show sum of 10 elements of array & show the average

26   Program to find the maximum no in an array

27   Program to display matrix

28   Program to find sum of two matrices

29   Program to find subtraction of two matrices

30   Program to find multiplication of two matrices

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	15	15	15	25	25

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

ENGLISH

Course Code	L	T	P	Credit
BCS101	1	0	0	1

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   Shakespeare
To Autumn   Keats
O! Captain, My Captain   Walt Whitman
Where the Mind is Without Fear   Rabindranath Tagore
Psalm of Life   H.W. Longfellow

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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	L	T	P	Credit
BSS103	1	0	0	1

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	L	T	P	Credit
FLT101	2	0	0	2

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	L	T	P	Credit
FLG101	2	0	0	2

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 Dipthongs

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
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 – I

Course Code	L	T	P	Credit
FLS101	2	0	0	2

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	L	T	P	Credit
FLC101	2	0	0	2

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

FUNDAMENTALS OF E-COMMERCE

Course Code	L	T	P	Credit
BSI201	2	1	0	3

Course Objectives: This course introduces the concepts, vocabulary, and procedures associated with E-Commerce and the Internet. The student gains an overview of all aspects of E-Commerce. Topics include development of the Internet and E-Commerce, options available for doing business on the Internet, features of Web sites and the tools used to build an E-Commerce web site, marketing issues, payment options, security issues, and customer service.

Module 1 – Overview of E-Commerce
Traditional Commerce, Origin and Development of E-Commerce, What is E-Commerce?, Role of Internet and WWW in E-Commerce, Scope of E-Commerce, Driving Forces of E-Commerce, Perspective of E-Commerce – Merchant & User, Advantages of E-Commerce, Disadvantages of E-Commerce, E-Commerce in Service Industries, Myths about E-Commerce Development and Implementation.

Module 2 – Models and Categories of E-Commerce
Business Model of E-Commerce - Business - to - Business (B2B), Business - to - Consumer (B2C), Consumer - to - Consumer (C2C), Consumer - to - Business (C2B), Business - to - Government (B2G), Government - to - Business (G2B), Government - to - Citizen (G2C), Intra-organisational E-Commerce, Inter-organisational E-Commerce.

Module 3 – Infrastructure for E-Commerce
Framework of E-Commerce, Distribution Channels of E-Commerce – Pure-Click, Brick-and-Click, and Click-to-Brick, Information Superhighway infrastructure, messaging and information distribution infrastructure, common business infrastructure.

Module 4 - Electronic Payment System
E-Commerce Payment Methods – Internet Banking, Credit Card, Debit Card, Smart Card, E-Money, Wallets, Electronic Fund Transfer (EFT), PayPal, Bitcoin, E-Commerce Payment Processing.

Module 5 – Advances in E-Commerce
Structured Electronic Documents – EDI & XML, M-Commerce, Wireless and Voice Based E-Commerce, Security Issues in E-Commerce, Legal Issues related E-Commerce, E-Commerce Impact on market and retailers, supply chain management, employment, customers.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- V. RAJARAMAN. ESSENTIALS OF E-COMMERCE TECHNOLOGY. PHI, 2010.
- Kalakota, Ravi, and Andrew B. Whinston. *Electronic commerce: a manager's guide*. Addison-Wesley Professional, 1997.
- Henry Chan, Raymond Lee, and Tharam Dillon. E-Commerce, Fundamentals And Applications. Wiley India, 2001.

INTRODUCTION TO SYSTEMS ANALYSIS & DESIGN

Course Code	L	T	P	Credit
BCI202	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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	L	T	Credit
BCI203	2	1	3

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
ADT: Fundamental & 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 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, Traversal scheme: Depth first search, Breadth first search, Spanning tree: intro, minimal spanning tree algorithms.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- 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.

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

Course Code	L	T	P	Credit
BCI204	2	1	0	3

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. Boycee 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:

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

Data Structures using C LAB

Course Code	L	T	P	Credit
BCI223	0	0	2	1

LIST OF PRACTICALS

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 k^{th} 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 incrimination 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	15	15	15	25	25

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

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS LAB

Course Code	L	T	P	Credit

BCI224	0	0	2	1

LIST OF PRACTICALS

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.

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:
   a) List the names of the people who work for the company Wipro along with the cities they live in.
   b) 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.
   c) Find the names of the persons who live and work in the same city.
   d) Find the names of the persons who dod not work for "Infosys".
   e) Find the persons whose salaries are more than that of all of the "Oracle" employees.
   f) 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 'a' and 'e' as a character 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 amed 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.

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

Column name	Data type	Size
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:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	15	15	15	25	25

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

DOMAIN ELECTIVE
NETWORKING FOR HOME & SMALL BUSINESS

Course Code	L	T	P	Credit
BCI231	2	1	0	3

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 Operating Systems, Installing Operating System, Maintaining 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
C/S & their interactions, Application Protocols & Services, Layered Model & 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 & Common Issues, Troubleshooting & Helpdesk

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- CCNA-Discovery 4.0, module 1, Cisco Certified Networking Academy
- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

INTERNET FUNDAMENTALS

Course Code	L	T	P	Credit
BCI232	2	1	0	3

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 and Trojan horses, Cryptography: Encryption and Decryption techniques, Secure Web document, Digital Signatures, Firewalls and its types, IDS.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- 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
- Complete idiots guide to java script, Aron Weiss, QUE, 1997
- Atul Kahate, "Cryptography and Network Security", Tata McGraw-Hill, 2003

CYBER SECURITY

Course Code	L	T	P	Credit
BCI233	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Rick Lehtinen and G.T. Gangemi, Computer Security Basics**,** 2nd ed. (2006), O'Reilly Media Inc.
- 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	L	T	P	Credit
BCS201	1	0	0	1

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   Shakespeare
To Autumn   Keats
O! Captain, My Captain   Walt Whitman
Where the Mind is Without Fear   Rabindranath Tagore
Psalm of Life   H.W. Longfellow

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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	L	T	P	Credit
BSS203	1	0	0	1

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	L	T	P	Credit
FLT201	2	0	0	2

Course Objective:
To enable the students to overcome the fear of speaking a foreign 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**
2. donner/demander des informations sur un emploi du temps, un horaire SNCF – Imaginer un dialogue
3. rédiger un message/ une lettre pour …
    i) prendre un rendez-vous/ accepter et confirmer/ annuler
    ii) inviter/accepter/refuser
4. 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	L	T	P	Credit
FLG201	2	0	0	2

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 propositions 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	L	T	P	Credit
FLS201	2	0	0	2

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	L	T	P	Credit
FLC201	2	0	0	2

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

DIGITAL & COMPUTER ORGANIZATION

Course Code	L	T	P	Credit
BSI301	2	1	0	3

Course Objective:
The student will develop an understanding of the underlying operation of a modern digital computer, identify and understand the various "building blocks" from which a modern computer is constructed. The student will learn to develop simple assembly language programs and understand the underlying operations of more complex programs using Intel's 8085 Microprocessor.

Course Contents:

Module I: Digital Logic Fundamentals
Boolean Algebra: Basic Functions, Manipulating Boolean functions, Basic Combinational Logic: Adder / Subtractor, Decoders, Encoders, Multiplexers, Memory, Basic Sequential Circuits: Flip-flops, Registers, Counters.

Module II: General Computer Architecture
Block Diagram of typical Computer, Memory Section, Input / Output Section, CPU, Registers, Arithmetic Unit, Instruction handling Areas, Stacks
Micro operations: Register Transfer, Bus and Memory Transfer, Arithmetic Micro operations, Logic Micro operations, Shift Micro operations, Arithmetic Logic Shit Unit

Module III: Basic Computer Organization and Design
Instruction Codes, Operation code, Timing and Control, Instruction Cycle, Memory Reference Instructions, Input Output Instructions and Interrupts
Control Memory: Control Word, Microinstruction, Microprogramming, Control Memory, Hardwired

Module IV: Central Processing Unit
General Register Organization, Stack Organization, Instruction Formats, Addressing Modes, RISC, CISC
Pipelining and Vector Processing: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, Vector Processing, Array Processors

Module V: Input Output Organization
I/O Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, DMA, IOP, Serial Communication
Memory Organization: Associative Memory, Cache Memory, Virtual Memory

Module VI: Introduction to Microprocessor
Machine Language, Assembly Language, Assembler, High Level Language, Compiler, Interpreter, Internal Architecture 8085.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Computer System Architecture, M.M. Mano, Pearson Education.
- Computer Architecture and Organization, J.P Hayes, TNH.
- Lance A Leventhal Introduction to Microprocessors: Software, Hardware, Programming
- Hwang and Briggs Computer Architecture and Parallel Processing

INTRODUCTION TO INFORMATION SYSTEMS

Course Code	L	T	P	Credit
BSI302	2	1	0	3

+

Course Objectives: The objective of this course is to introduce the students to the aspects of Information Systems and its application in organizations. The course would expose the students to the technical and managerial issues relating to information systems and help them identify and evaluate various options in Information Systems.

Course Contents:

Module 1
Core concepts: Information, data and systems, Value of Information, types of information, types of data, types of systems, Elements of system: Input, Processing, Output, & Feedback. Contemporary trends in information & communication tech., Networking Technologies
Information systems: Definition, Components of Information Systems, types of information system in organization, Computer-Based Information Systems, Business Information Systems, The People in Information Systems, ERP system

Module II
Transaction Processing Systems, Features of TPS, Management information systems (MIS), Decision Support System (DSS), Executive information systems (EIS), Office information systems (OIS), Knowledge work systems (KWS) and knowledge management systems (KMS), Computers in industrial processes, E-commerce, social and economic context of computer use, Data protection and computer crime

Module III
Development of information systems, Where to start: build, buy, rent or participate?, Approaches to the work of systems development, RAD software development, Organizational change, The information system lifecycle, Professional roles in systems development, Reviewing the lifecycle model, CASE Tools

Module IV
Tools and methods for analysis and design, object oriented modeling, Class diagrams and data models, implementation methodology, change management

Module V
Globalization, Global Firm, challenges of globalization, IT role in globalization, Network Society, Digital Divide, Nielsen's 3 stages of the digital divide, Consequences of digital technology, OLPC project-Case Study, Information Systems Security

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Fundamentals of Information Systems, Ralph Stair, George Reynolds, Course Technology; 7 edition
- Information Systems for Business and Beyond, David T. Bourgeois, the Saylor Academy, 2014
- Introduction to information systems, T. Cornford, M. Shaikh, University of London, 2013

OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

Course Code	L	T	P	Credit
BCI303	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Programming with C++, Ravi Chandran
- Mastering C++, Venugopal
- Programming in C++, SCHAUM's series
- The complete reference C++, Herbert Schildt

OBJECT ORIENTED PROGRAMMING CONCEUPTS USING C++ LAB

Course Code	L	T	P	Credit
BCI323	0	0	2	1

LIST OF PRATICALS

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 ro 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 there 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

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	15	15	15	25	25

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

ENVIRONMENTAL STUDIES

Course Code	L	T	P	Credit
EVS001	4	0	0	4

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	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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, Clanderson 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 Environnemental Management. W.B. Saunders Co. Philadelphia, USA 499p

DOMAIN ELECTIVE
WORKING AT A SMALL-TO-MEDIUM BUSINESS OR ISPs

Course Code	L	T	P	Credit
BCI331	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- CCNA-Discovery 4.0, module 2, Cisco Certified Networking Academy
- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

WEB DESIGNING

Course Code	L	T	P	Credit
BCI332	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 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

HTML Definition, Structure of HTML Document, HTML Elements, Web Browser, HTML History, HTML Editors, <!DOCTYPE> Declaration, Using Background Image, Marquee Tag, Headings, Paragraphs, Nested HTML Elements, Empty HTML Elements, HTML Attributes, HTML Styles, HTML Layout Elements and Techniques, HTML Symbol Entities Using Emojis in HTML, HTML Character Entities, HTML Text Formatting, Colors, Quotation and Citation Elements, HTML Comments Tags.

Module II: Introduction to HTML (contd…)

Hyper Links and Bookmarks, Images and Image Mapping and Its attributes, Tables and its attributes, Table Spacing and Padding, Rowspan, Colspan, Table Layout, Ordered Lists, Unordered Lists, Definition List, Nested Lists, Forms and its controls and attributes, IFrame, HTML Graphics, HTML Media.

Module III: Introduction to CSS

What is CSS, Inline CSS, Internal CSS, External CSS, CSS Color, Font, Sizes, CSS Border, CSS Padding, CSS Margins, Block Level Elements and Inline Elements, Class, ID, DIV, SPAN

Module IV: Working with Graphics and Images

Graphics, Images, Types of Images, Modifying the Brightness, Contrast, Size of Images, Changing the Image Resolution (dpi), SVG Intro, SVG in HTML, SVG Rectangle, SVG Circle, SVG Ellipse, SVG Line, SVG Polygon, SVG Polyline, SVG Path, SVG Text, SVG Stroking, SVG Filter Intro, SVG Blur Effects, SVG Drop Shadow, SVG Linear, SVG Radial.

Module V: Web Hosting

Web Hosting Basics, Types of Hosting Packages, Registering domains, Defining Name Servers, Using Control Panel, Creating Emails in Cpanel, Using FTP Client, Maintaining a Website

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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.

ADVANCE TECHNOLOGIES IN COMPUTER SCIENCE

Course Code	L	T	P	Credit
BCI333	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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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

E-GOVERNANCE

Course Code	L	T	P	Credit
BSI334	2	1	0	3

Course Objective: This course contains concepts of E-Governance policies and data warehousing / data mining. The course will enable the student to gain a critical understanding of electronic governance (e-governance) from a multidisciplinary perspective. The student will learn the historical evolution & theoretical assumptions of the concept & use of ICT in the public governance system. The student will gain understanding of the designing the evaluation frameworks and to acquire knowledge on the contemporary trends with a specific focus on India.

Module 1. Introduction
E-Governance: Needs of E-Governance, Issues in E-Governance applications and the Digital Divide; Evolution of E-Governance, Its scope and content; Present global trends of growth in E-Governance: Other issues.

Module 2. Models of E-Governance
Introduction; Model of Digital Governance: Broadcasting/ Wilder Dissemination Model, Critical Flow Model, Comparative Analysis Model, Mobilization and Lobbying Model, Interactive-service Model/Government-to-Citizen-to-Government Model (G2C2G); Evolution in E-Governance and Maturity Models: Five Maturity Levels, Characteristics of Maturity Levels, Key areas, Towards Good Governance through E-Governance Models.

Module 3. E-Governance Infrastructure and Strategies
E-readiness: Digital System Infrastructure, Legal Infrastructural Preparedness, Institutional Infrastructural Preparedness, Human Infrastructural Preparedness, Technological Infrastructural Preparedness; Evolutionary Stages in E-Governance.

Module 4. Data Warehousing and Data Mining in Government
Introduction; National Data Warehouses: Census Data, Prices of Essential Commodities; Other areas for Data Warehousing and Data Mining: Agriculture, Rural Development, Health, Planning, Education, Commerce and Trade, Other Sectors.

Module 5. Case Studies
Nepalese Context: Cyber Laws, Implementation in the Land Reform, Human Resource Management Software; India: NICNET, Collectorate, Computer-aided Administration of Registration Department (CARD), Smart Nagarpalika, National Reservoir Level and Capacity Monitoring System, Computerization in Andra Pradesh, Ekal Seva Kentra, Sachivalaya Vahini, Bhoomi, IT in Judiciary, E-Khazana, DGFT, PRAJA, E-Seva, E-Panchyat, General Information Services of National Informatics Centre; E-Governance initiative in USA; E-Governance in China; E-Governance in Brazil and Sri Lanka.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
1. E-Governance: Concepts and Case Studies, C.S.R. Prabhu, Prentice-Hall of India Private Limited, 2004.
2. Backus, Michiel, e-Governance in Developing Countries, IICD Research Brief, No. 1, March 2001.

SUMMER PROJECT – I (EVALUATION)

Course Code	L	T	P	Credit
BSI351	0	0	0	3

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

COMMUNICATION SKILLS - I

Course Code	L	T	P	Credit
BCS301	1	0	0	1

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	L	T	P	Credit
BSS303	1	0	0	1

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	L	T	P	Credit
FLT301	2	0	0	2

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**

1. acheter: exprimer ses choix, décrire un objet (forme, dimension, poids et matières) payer
2. 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)
2. 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	L	T	P	Credit
FLG301	2	0	0	2

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	L	T	P	Credit
FLS301	2	0	0	2

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	L	T	P	Credit
FLC301	2	0	0	2

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 pronciation 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 "cal" (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	L	T	P	Credit
BCI401	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Computer Graphics By Donald Hearn And Pauline Baker
- Harrington's "Computer Graphics " A Programming Approach
- Principle Of Interactive Computer Graphics by New, W. M. and Spraull
- Foley "Computer Graphics" Addisson Wesley
- Rogers' "Procedural Elements of Computer Graphics " Mc-Grawhilll

DESIGN & ANALYSIS OF ALGORITHMS

Course Code	L	T	P	Credit
BCI402	2	1	0	3

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, 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 Spamming 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Coreman, Rivest, Lisserson, "Algorithms", PHI
- Horowitz & Sahni," Fundamental of Computer Algorithm", Galgotia. Aho, Hopcropt, Ullman,
- Data Structure & Algoritlull", Addision Wesley.

OPERATING SYSTEMS

Course Code	L	T	P	Credit
BCI403	2	1	0	3

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 pertains particularly to UNIX and to other popular operating systems. This course basically revolves around process, and it tells about everything 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Peterson And Silberschatz, Operating System Concepts
- Tannenbaum A.S., Modern Operating System
- Crowly Charrles, Operating System- A design Approach
- Dietel H.M., Operating Systems

MULTIMEDIA TECHNOLOGIES

Course Code	L	T	P	Credit
BSI404	2	1	0	3

Course Objective:

Module I – Introduction to Multimedia
What is multimedia?, communication and information transfer model, human computer communication, components of multimedia, multimedia building blocks, scope of multimedia, uses of multimedia.

Module 2 – Interaction Technology and Devices
Human computer interface, input technologies, Output Technologies, combined input-out devices, storage technology, communication and networking technologies, processing technologies.

Module 3 – Compression Technologies for Multimedia
Need for data compression, compression basics, lossless compression, lossy compression techniques.

Module 4 – Multimedia Types
Digital text, font, character code, hypertext, hypermedia, uses and applications, images, graphics, digital audio, video, and animation, making the web page interactive with multimedia contents.

Module 5 – Designing Multimedia
Development teams, analysis phase, design phase, development phase, implementation phase, evaluation and testing phase.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Multimedia Technologies by Ashok Banerji and Ananda Mohan Ghosh, Tata McGraw Hill, ISBN:978-0-07-066923-9, 2010.
- Multimedia Applications by Ralf Steinmetz, Klara Nahrstedt, Springer Science & Business Media, 2004.
- Multimedia: Computing, Communications and Applications by Ralf Steinmetz, Klara Nahrstedt, Pearson Education, 2009

COMPUTER GRAPHICS LAB

Course Code	L	T	P	Credit
BCI421	0	0	2	1

LIST OF PRACTICALS

(1) Create a project that allows the user to input information and then display the lines of output for a mailing label. Fields to be input by the user requires text boxes where information to be displayed belongs in label. Use text boxes for 1st name, last name, street no., city, state, zip code. Provide tool tips, use command buttons for display, clear, print and exit. Make the display button as default button and clear as cancel button.

(2) Design and code a project that has shipping information. Use text boxes with labels attached for catalog code, page no., part no.. Use two group of option button on the form enclosed each group in the frame. The 1st frame should have caption of shipping and contain button for express and ground. For 2nd frame use a caption of payment type and include buttons for check, money order or credit card. Use a check box for new customer. Add command buttons for print, clear and exit. Make the clear button the cancel button and add tool tips.

(3) Create a project for book sales. Make text boxes for quantity, title and price with labels. Calculate total price, discount (15%) and discounted price. Make command buttons for calculate, clear and exit.

(4) Create a project for the local car rental agency that calculates rental charges. The agency charge $15 per day + $0.50 per km. use text boxes for customer name, address, city, state, zip code, beginning and ending audiometer reading and no. of days the car was used. Use labels to display the miles given and the total charges. Make command buttons for clear, exit and calculate.

(5) Create a project that will input an employee salary. Calculate a gross salary, deduction and net salary. Each employee will receive a basic pay of $900 + sales commission of 6% of sales. After calculating the net paid calculate the budget amount of each category based on the % given.

Bank pays $900
Commission   6% of sales
Gross pay   Basic pay + Commission
Deduction   18% of gross pay
Net pay   Gross pay - deduction

Budeget :-
Housing   30% of net pay
Food and clothing 15% of net pay
Entertainment   50% of net pay
Miscellaneous   5% of net pay

Use text boxes to input the employee name, amount of sales. Use labels to display the result and   the calculation. Use calculates, clear and exit command buttons.

(6) Maintain a list of types of ice creams. Use a drop down combo box to hold the ice-cream type and use command button to add, remove, clear, display and exit. Don't allow a blank type to be added to the list. Display an error message if the user select remove without first selecting an ice-cream type. Before clearing the list, display a message to confirm the operation.

(7) Create a project that contains a form for entering book information from controls.
● Text boxes for author and title.
● Option button for type fiction or non-fiction.

- Dropdown list for subject that will include bestseller, fantasy, religion, romance, humor, science fiction, business, philosophy, education, self-help and mystery.
- List box for shelf no. containing RC-111, RC-112, RC-113, and RC-114.
- Use command buttons display, clear and exit.
- Use labels to display information.

(8) Create a list box, which contains names of all cinema halls of NCR. If you choose name of cinema hall, label display information regarding all movies running in the cinema halls.

(9) Create a project that contains student's information
- Text boxes to display name and courses.
- Option buttons for semester/ year.
- Use list boxes for computers, business, humanities, Commerce, medical and engineering.
- A simple combo for name of college.
- Display information on a label.
- Make command buttons for display, clear and exit.

(10) Write a program, using recursive function to calculate Factorial of any no., also display the factorial of all no. smaller than that in a list box.

(11) Write a program, using recursive function to calculate Nth Fibonacci number.

(12) Write a program, using recursive function to generate Fibonacci Series.

(13) Write a program, using recursive function to calculate Power of a number.

(14) Write a program, using recursive function to calculate GCD of a number.

(15) Write a program, using recursive function for Tower of Hanoi, showing all the steps in a list box.

(16) Write a program to division of two numbers. Also shows divide by zero error.

(17) Write a program, to check whether a given number is prime number or not.

(18) Write a program to generate first 10 prime numbers.

(19) Write a program, to check whether a given string is palindrome or not.

(20) Write a program to enter elements of an array in list box and update them by incrementing or decrementing them by 10 and store the results in other list.

(21) Write a program to search an element in an array, using Linear Search.

(22) Write a program to search an element in an array, using Binary Search.

(23) Write a program to add all the numbers entered by user using input box and the program should
terminate as soon as the user enters zero.

(24) Write a program to prepare a login form with restricted features.

(25) Write a program to increase and decrease the size of text and shape by using horizontal and vertical
bar.

(26) Write a program to design a calculator by using control array.

(27) Write a program to design a watch by using timer control.

(28) Write a program to display the selected path of particular file in Text Box using File, Directory and
Drive list box.

(29) Design a active menu Bar, standard toolbar and status Bar

(30) Write a program to find out the no. of character, words and blank spaces in the given string.

(31) Write a program to concatenate two strings.

(32) Write a program to check whether the given string is in upper case or lower case and also convert it's case.

(33) Write a program to calculate the sum of the digits of a given no. and also reverse the no.

(34) Write a program to create a Pop Up Menu.

(35) Design a project that has multiple forms, such that form1 is welcome form, form2 Contains personal   details and from3 contains professional information and form4 display both personal as well as professional information of a employee.

(36) Design a project for a MDI application, such that child1 contains no menu and child2 contains menu. With this demonstrate working of an MDI form.

(37) Create a project that maintains a Publisher table in a Library database, having fields' pub id, name, company name, address, city, telephone. Allow Adds and Deletes to the database. Include command buttons for navigation.

(38) Create a project that maintains a Publisher table in a Library database, having fields pub id, name, company name, address, city, telephone. Allow Adds and Deletes to the database. Add data control for navigation. Include Add and Delete command buttons in form for adding and deleting records.

(39) Create a project that maintains a Book table in Library database, having fields title, author, ISBN, publisher, subject and price. Use ADO Data Environment to display information on form. Use command buttons for navigation.

(40) Create a project that maintains a Subject table in Library database, having fields Subject code and subject name. Use ADODC for navigation and command buttons Add and Delete, for adding and deleting records.

(41) Create a project that maintains a Vehicle table in Auto database, having fields Inventory id, manufacturer, model name, year, vehicle id and cost. With programming form ADO connection, include command buttons for navigation. Also include Add and Delete command buttons for adding and deleting records.

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	15	15	15	25	25

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

DOMAIN ELECTIVE
INTRODUCTION TO .NET TECHNOLOGIES

Course Code	L	T	P	Credit
BCI431	2	1	0	3

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	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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	L	T	P	Credit
BCI432	2	1	0	3

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 APIBuilding Database Applications,

Module V: Working with Frameworks

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

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

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

INTRODUCTION ROUTING AND SWITCHING IN THE ENTERPRISE

Course Code	L	T	P	Credit
BCI433	2	1	0	3

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 Current Network, Supporting Enterprise Edge, Reviewing Cisco Routing & 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 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 & 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- CCNA-Discovery 4.0, module 3, Cisco Certified Networking Academy
- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

INTRODUCTION TO .NET TECHNOLOGIES LAB

Course Code	L	T	P	Credit
BCI441	0	0	2	1

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 5for 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	15	15	15	25	25

INTRODUCTION TO OPEN SOURCE TECHNOLOGIES (PHP, MySql) LAB

Course Code	L	T	P	Credit
BCI442	0	0	2	1

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	15	15	15	25	25

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

INTRODUCTION ROUTING AND SWITCHING IN THE ENTERPRISE LAB

Course Code	L	T	P	Credit
BCI443	0	0	2	1

LIST OF PRACTICALS

1. Application of Cisco Router and Switches in Enterprise Network with example design.

2. Enterprise level Switching techniques.

3. Creating LAN with swich 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	15	15	15	25	25

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

MINOR PROJECT

Course Code	L	T	P	Credit
BSI450	0	0	0	6

Course Objective:
The B.Sc. IT 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

COMMUNICATION SKILLS - II

Course Code	L	T	P	Credit
BCS401	1	0	0	1

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	L	T	P	Credit
BSS403	1	0	0	1

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 – IV

Course Code	L	T	P	Credit
FLT401	2	0	0	2

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	L	T	P	Credit
FLG401	2	0	0	2

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 propositions 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	L	T	P	Credit
FLS401	2	0	0	2

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	L	T	P	Credit
FLC401	2	0	0	2

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

SOFTWARE ENGINEERING

Course Code	L	T	P	Credit
BSI501	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Software Engineering, A Practitioner's Approach - Roger S. Pressman.
- An Integrated Approach to Software Engineering, Pankaj Jalote.
- Software Engineering Concepts, Richard Fairley.

JAVA PROGRAMMING

Course Code	L	T	P	Credit
BCI502	2	1	0	3

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 classess

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 fundaments, 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Naughton, Schidt "The Complete Reference JAVA 2 " TMH
- 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	L	T	P	Credit
BCI503	2	1	0	3

Course Objective:

The Objective of this course is to expose the students to the fundamentals and the concepts of Unix Operating System. UNIX commands and Shell Programming will prepare the students to work on UNIX platform, which is the requirement of each industry. This course is designed to understand the concepts of Unix System for Research and Development.

Course Contents:

Module I: Introduction

History of Operating System, Types of Operating Systems, History of Unix, UNIX Family, Unix System Architecture, Kernel, Shell: Types of shells, Files and Directories, Absolute Path and Relative Path, root and hierarchical file structure of Unix, telnet.

Module II: UNIX Commands

Login, password, shell and commands, logout, changing password, current working directory, referring to home directories, Commands to move around by path concept, creating new directories, creating files–touch, cat; copying files; moving files, Deleting files and directories; looking at files: cat, more, pg, less, head, tail; Cal, banner, file, wc, sort, cut, grep ,cmp, comm., diff; Getting online help; manual pages; listing commands, meta characters, 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; foreground and background jobs; suspend and interrupt a process; killing jobs;

Module III: 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 IV: Shell programming:

Shell variables and Keywords, Shell scripts and execution methods, Interactive execution and command line arguments, ($1,$2 etc) meta Characters- Syntactic (&&, (), &, ||, ;;, <, > etc), pattern matching, substitute shell variables, Test Command, Control Flow, For, If, While, Case. String handling and computation using expr, Setting positional parameters (set command), Shift.

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Kanetkar. "UNIX Shell Programming" BPB
- Sumitabha Das, "UNIX: Concepts and Application", TMH.
- Das. "UNIX- Concepts & Applications
- Maurice J. Bach, "Design of the Unix operating System" PHI.

JAVA PROGRAMMING LAB

| Course Code	L	T	P	Credit
BCI522	0	0	2	1

LIST OF PRACTICALS

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)   Energy = mass(acceleration*height+(velocity)sqr(2)/2)
   (ii)   Torque = 2m1m2/m1+m2 * 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:
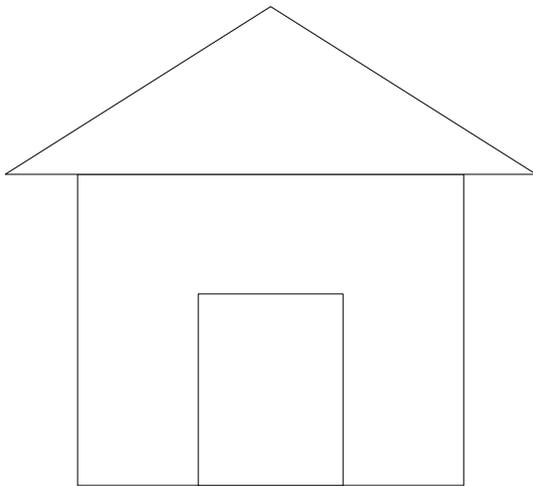
26. Write an applet to display a face.
27. Write an applet to display five buttons and five labels.
28. Write an applet to illustrate GridLayout.
29. Write a Java program to create 5 threads by extending Thread class.
30. Write a Java program to create 5 threads by implementing Runnable interface.

Examination Scheme:

IA				EE	
A	**PR**	**LR**	**V**	**PR**	**V**
5	15	15	15	25	25

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

UNIX OPERATING SYSTEM AND SHELL PROGRAMMING LAB

Course Code	L	T	P	Credit
BCI523	0	0	2	1

LIST OF PRACTICALS

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 **programs.**

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, printthe 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:

IA				EE	
A	PR	LR	V	PR	V
5	15	15	15	25	25

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

DEPARTMENTAL (DOMAIN) ELECTIVE
DESIGNING AND SUPPORTING COMPUTER NETWORK

Course Code	L	T	P	Credit
BCI531	2	1	0	3

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 and IPv6

Module VII: Prototyping the Campus Network
Building a Prototype to Validate a Design, Prototyping the LAN, Prototyping 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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- CCNA-Discovery 4.0, module 4, Cisco Certified Networking Academy
- Data Communication and Computer Network, Forozoun, TMH Publication
- Data Communication and Network, Stallings, PHI
- Computer Network, Tanenbaum, PHI

DATA WAREHOUSING & DATA MINING

Course Code	L	T	P	Credit
BCI532	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Data Warehousing in the real world, Sam Anchory and Dennis Murray
- Data Mining, Pieter Adrians and Doif Zantinge

ANDROID PROGRAMMING

Course Code	L	T	P	Credit
BCI533	2	1	0	3

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	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:

- 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

DESIGNING AND SUPPORTING COMPUTER NETWORK LAB

Course Code	L	T	P	Credit
BCI541	0	0	2	1

LIST OF PRACTICALS

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 tation Design of Network Design Requirements.

6. Documenting application and traffic flow in Enterptrise 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	15	15	15	25	25

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

DATA WAREHOUSING AND DATA MINING LAB

Course Code	L	T	P	Credit
BCI542	0	0	2	1

Software Required: Informatica Tool, Cognos, Todd.

LIST OF PRACTICALS

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	15	15	15	25	25

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

ANDROID PROGRAMMING LAB

Course Code	L	T	P	Credit
BCI543	0	0	2	1

LIST OF PRACTICALS

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 Fragment
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 Demonstrate 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	15	15	15	25	25

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

SUMMER PROJECT – II (EVALUATION)

Course Code	L	T	P	Credit
BSI551	0	0	0	3

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

COMMUNICATION SKILLS - III

Course Code	L	T	P	Credit
BCS501	1	0	0	1

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	L	T	P	Credit
BSS503	1	0	0	1

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	L	T	P	Credit
FLT501	2	0	0	2

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	L	T	P	Credit
FLG501	2	0	0	2

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 propositions 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	L	T	P	Credit
FLS501	2	0	0	2

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	L	T	P	Credit
FLC501	2	0	0	2

Course Objective:

What English words come from Chinese? Some of the more common English words with Chinese roots areginseng, silk, dim sum, fengshui, typhoon, yin and yang, T'al 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, god 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 usingit.
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 abut 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

INTRODUCTION TO ENTERPRISE RESOURCE PLANNING

Course Code	L	T	P	Credit
BSI601	2	1	0	3

Course Objective:
The objective of the course is to give an introduction to Enterprise Resource Planning, its benefits, ERP systems, Implementation Methodology, a brief on various ERP Systems available in the market & Supply Chain Management.

Course Contents:

Module I: Introduction
Definition, Evolution of ERP, Characteristics, Features, Components and needs of ERP, Key ERP Vendors, Evaluation Criteria of ERP packages, System & Business Benefits & Limitations of ERP, Implementation approach of ERP (General Implementation Methodology & Vanilla Implementation), Guidelines for ERP Implementation.

Module II: Enterprise Modeling and Integration of ERP
Why to model the enterprise? Implications of ERP for Management, Needs to focus on Enterprise Integration/ERP, Information mapping, Role of common shared Enterprise database, Linkages of Enterprise, Generic model of ERP system, Core Modules of ERP, Client Server Architecture, Web-based Architecture, Service oriented Architecture.

Module III: Supply chain management and ERP
Definition, Stevens Model of Supply Chain Management, SCOR Model, Aims of SCM, Key Issues, Benefits of SCM, ERP Vs SCM.

Module IV: Information Technology Plan for ERP system
Enabling Best Practices, Benchmarking, System Integration (Physical & Logical) – Pros & Cons, Role of ERP in Physical Integration, BPR (Business Process Reengineering) – Process & Tools of BPR.

Module V: SAP Architecture & Other ERP Key Vendors
Introduction to SAP, SAP architecture, Scalability, SAP R/3 System and mySAP, Integrated SAP Model, Integrated processes, Introduction to Baan and Peoplesoft.

Module VI: Selection of ERP
Introduction, Difficulty in selecting ERP, Approach to ERP selection, Request for Proposal approach, Proof-of-Concept approach.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Enterprise Systems For Management, Luvai F. Motiwalla, Jeff Thompson, Pearson Education.
- Enterprise Resource Planning, Ravi Shankar, S.Jaiswal, Galgotia Publication Pvt. Ltd.

E-WASTE MANAGEMENT

Course Code	L	T	P	Credit
BSI602	2	1	0	3

Course Objectives:

This course will discuss the overall scenario of E-Waste management around the globe. At first, the present scenario of E-Waste management will be discussed along the role of various stakeholders. Then, the effects of recycling and management of Electronic Waste on human health, environment and society will also be presented. This will be followed by the risk assessment owing to pollutants released from E-Waste recycling in soil, air and water. Finally a Life-Cycle Analysis approach will be employed for a possible sustainable solution of E-Waste Management for cutting the ill-effects of informal recycling.

Course Contents:

Module 1

E-Waste Introduction, Global E-Waste Problem, Scale of the e-waste problem, flow of e-waste, Causes of E-Waste, Toxins in Ewaste, e-waste trade, illegal e-waste trade, Main issues related to E-waste, Security implications

Module II

Risks to human health and the environment, Biological Effects of E-Waste Chemicals, Organic E-Waste Chemicals, Chemicals of primary concern in e-waste, The cocktail effect and metabolites, Classification and labeling of chemicals, Labor and employment issues, Workers' exposure in developing countries, Child labor at e-waste recycling sites

Module III

Recycling of Ewaste- Wheel of Life, ewaste handling, Business Model for E-Waste, Myth of Reuse, E-Waste Recycling Plants, Recycling of Component Materials in Electronic Devices, Solutions to the E-Waste Crisis, Producer Responsibility For Recycling, Global E-Waste Dumping, Case Study on Recycling of E-Waste,

Module IV

Risk Assessment Approaches for E-Waste, Systems analysis approach to the e-waste problem, Risk Communication Approaches for E-Waste Sites, Current Gaps in the E-Waste Database, Future directions for managing E-Waste, E- Waste Legislations, Regional legislation, National legislation, Current initiatives, research centers and organizations involved with e-waste.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & Reference:
- E-waste Management: From Waste to Resource by Ramzy Kahhat, Klaus Hieronymi, Eric Williams, Routledge, Taylor & Franics Group
- Electronic Waste Management: Design, Analysis and Application by Ronald E. Hester, Roy M. Harrison, RSC Publishing
- E-waste: implications, regulations, and management in India and current global best practices by Rakesh Johri, TERI Press (The Energy and Resource Institute)
- Electronic Waste: Recycling Techniques by Hugo Marcelo Veit, Andréa Moura Bernardes, Springer Publications
- Risks of Hazardous Wastes By Paul E. Rosenfeld, Lydia Feng, Elsevier Inc.
- Waste: A Handbook for Management by Trevor M. Letcher, Daniel Vallero, Elsevier Inc.

GREEN COMPUTING

Course Code	L	T	P	Credit
BSI603	2	1	0	3

Course Objective:
The course treats the concept of green IT, environmental perspectives on IT use and standards and certifications related to sustainable IT products. The course also deals with methods and tools to measure energy consumption and efforts to improve energy efficiency in the use of IT with a focus on computer centers.

Course Contents:

Module 1
Overview and Issues: Problems: Toxins, Power Consumption, Equipment Disposal, Company's Carbon Footprint: Measuring, Details, reasons to bother, Plan for the Future, Cost Savings: Hardware, Power.
Initiatives and Standards: Global Initiatives: United Nations, Basel Action Network, Basel Convention, North America: The United States, Canada, Australia, Europe, WEEE Directive, RoHS, National Adoption, Asia: Japan, China, Korea.

Module II
Minimizing Power Usage: Power Problems, Monitoring Power Usage, Servers, Low-Cost Options, Reducing Power Use, Data De-Duplication, Virtualization, Management, Bigger Drives, Involving the Utility Company, LowPower Computers, PCs, Linux, Components, Servers, Computer Settings, Storage, Monitors, Power Supplies, Wireless Devices, Software.
Cooling: Cooling Costs, Power Cost, Causes of Cost, Calculating Cooling Needs, Reducing Cooling Costs, Economizers, On-Demand Cooling, HP's Solution, Optimizing Airflow, Hot Aisle/Cold Aisle, Raised Floors, Cable Management, Vapour Seal, Prevent Recirculation of Equipment Exhaust, Supply Air Directly to Heat Sources, Fans, Humidity, Adding Cooling, Fluid Considerations, System Design, Datacentre Design, Centralized Control, Design for Your Needs, Put Everything Together.

Module III
Changing the Way of Work: Old Behaviours, starting at the Top, Process Reengineering with Green in Mind, Analysing the Global Impact of Local Actions, Steps: Water, Recycling, Energy, Pollutants, Teleworkers and Outsourcing, Telecommuting, Outsourcing, how to Outsource.
Going Paperless: Paper Problems, The Environment, Costs: Paper and Office, Practicality, Storage, Destruction, Going Paperless, Organizational Realities, Changing Over, Paperless Billing, Handheld Computers vs. the Clipboard, Unified Communications, Intranets, What to Include, Building an Intranet, Microsoft Office SharePoint Server 2007, Electronic Data Interchange (EDI), Nuts and Bolts, Value Added Networks, Advantages, Obstacles.

Module IV
Recycling: Problems, China, Africa, Materials, Means of Disposal, Recycling, Refurbishing, Make the Decision, Life Cycle, from beginning to end, Life, Cost, Green Design, Recycling Companies, Finding the Best One, Checklist, Certifications, Hard Drive Recycling, Consequences, cleaning a Hard Drive, Pros and cons of each method, CDs and DVDs, good and bad about CD and DVDs disposal, Change the mind-set, David vs. America Online

Hardware Considerations: Certification Programs, EPEAT, RoHS, Energy Star, Computers, Monitors, Printers, Scanners, All-in-Ones, Thin Clients, Servers, Blade Servers, Consolidation, Products, Hardware Considerations, Planned Obsolescence, Packaging, Toxins, Other Factors, Remote Desktop, Using Remote Desktop, Establishing a Connection, In Practice

Module V
Greening Your Information Systems: Initial Improvement Calculations, Selecting Metrics, Tracking Progress, Change Business Processes, Customer Interaction, Paper Reduction, Green Supply Chain, Improve Technology Infrastructure, Reduce PCs and Servers, Shared Services, Hardware Costs, Cooling.
Staying Green: Organizational Check-ups, Chief Green Officer, Evolution, Sell the CEO, SMART Goals, Equipment Check-ups, Gather Data, Tracking the data, Baseline Data, Benchmarking, Analyze Data, Conduct Audits, Certifications, Benefits, Realities, and Helpful Organizations.

Examination Scheme:

Components	CT	Assignment	P/V	Quiz	Attd	EE
Weightage (%)	15	10	10	10	5	50

Text & References:
- Green IT, Toby Velte, Anthony Velte, Robert Elsenpeter, McGraw Hill, 2008
- Green Data Center: Steps for the Journey, Alvin Galea, Michael Schaefer, Mike Ebbers, Shroff Publishers and Distributers, 2011
- Green Computing Tools and Techniques for Saving Energy, Money and Resources, Bud E. Smith, CRC Press, 2014

MAJOR PROJECT

Course Code	L	T	P	Credit
BSI660	0	0	0	15

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. **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