

Bachelor of Science –Information Technology

Programme Code: B.Sc.IT

Duration – 3 Years Full Time

**Programme Structure
and
Curriculum & Scheme of Examination**

2017

**AMITY UNIVERSITY
RAJASTHAN**

Programme Structure

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

FIRST SEMESTER

Code	Course	Category	L	T	P/FW	Credits
BSI101	Fundamentals of Computer Science	CC	2	1	-	3
BSI102	Programming & Problem Solving through „C“ Language	CC	2	1	-	3
BSI103	Basic Mathematics	CC	2	1	-	3
BSI104	Data Communication & Computer Networks	CC	2	1	-	3
BSI120	Fundamentals of Computer Science LAB	CC	-	-	2	1
BSI121	Programming & Problem Solving through „C“ Language LAB	CC	-	-	2	1
DE Elective-I: Choose any one course from the following courses						
BSI130	Cyber Security	DE	2	1	-	3
BSI131	Introduction to Financial Accounting	DE				
BSI132	Principles of Management	DE				
	OPEN ELECTIVE-I	OE	2	1	-	3
BCS 101	English	VA	1	-	-	1
BSS 101	Behavioural Science - I	VA	1	-	-	1
FLF 101	Foreign Language - I	VA	2	-	-	2
FLG 101	French					
FLS 101	German					
FLC 101	Spanish Chinese					
	TOTAL					24

SECOND SEMESTER

Code	Course	Category	L	T	P/FW	CREDIT UNITS
BSI201	Introduction to Object Oriented Programming & C++	CC	2	1	-	3
BSI202	Introduction to Database Management Systems	CC	2	1	-	3
BSI203	Computer Oriented Numerical Analysis	CC	2	1	-	3
BSI204	Fundamentals of E-Commerce	CC	2	1	-	3
BSI220	Introduction to Object Oriented Programming & C++ LAB	CC	-	-	2	1
BSI221	Introduction to Database Management Systems LAB	CC	-	-	2	1
DE Elective-II: Choose any one course from the following courses						
BSI230	Networking for Home & Small Business	DE	2	1	-	3
BSI231	Internet Fundamentals	DE				
BSI232	Production & Operations Management	DE				
	OPEN ELECTIVE-II	OE	2	1	-	3
BCS 201	English	VA	1	-	-	1
BSS 201	Behavioural Science - II	VA	1	-	-	1
FLF 201	Foreign Language - II	VA	2	-	-	2
FLG 201	French					
FLS 201	German					
FLC 201	Spanish Chinese					
	TOTAL					24

SUMMER PROJECT – I

THIRD SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI301	Data Structure through „C“ Language	CC	2	1	-	3
BSI302	Digital & Computer Organization	CC	2	1	-	3
BSI303	Structured System Analysis & Design	CC	2	1	-	3
BSI361	Summer Project – I (Evaluation)	CC	-	-	-	6
BSI320	Data Structure through „C“ Language LAB	CC	-	-	2	1
DE Elective-III: Choose any one course from the following courses						
BSI 330	Working at a Small-to-Medium Business or ISPs	DE	2	1	-	3
BSI 331	Web Designing	DE				
BSI 332	Accounting & Financial Management	DE				
BSI 333	Advance Technologies in Computer Science	DE				
BSI 334	Marketing Management	DE				
	OPEN ELECTIVE-III	OE	2	1	-	3
EVS001	Environmental Studies	VA	4	-	-	4
BCS 301	Communication Skills - I	VA	1	-	-	1
BSS 301	Behavioural Science - III	VA	1	-	-	1
FLF 301 FLG 301 FLS 301 FLC 301	Foreign Language - III French German Spanish Chinese	VA	2	-	-	2
	TOTAL					30

FOURTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI401	Operating Systems	CC	2	1	-	3
BSI402	Computer Graphics	CC	2	1	-	3
BSI403	Design & Analysis of Algorithm	CC	2	1	-	3
BSI460	Minor Project	CC	-	-	-	3
BSI420	Computer Graphics LAB	CC	-	-	2	1
DE Elective-IV: Choose any one course from the following courses						
BSI430	Introducing Routing & Switching in the Enterprise	DE	2	1	-	3
BSI431	Introduction to Open Source Technologies (PHP, MySql)	DE				
BSI432	Programming in Visual Basic	DE				
BSI421	Introducing Routing & Switching in the Enterprise LAB	DE	-	-	2	1
BSI422	Introduction to Open Source Technologies (PHP, MySql) LAB	DE				
BSI423	Programming in Visual Basic LAB	DE				
	OPEN ELECTIVE-IV	OE	2	1	-	3
BCS 401	Communication Skills - II	VA	1	-	-	1
BSS 401	Behavioural Science - IV	VA	1	-	-	1
FLF 401 FLG 401 FLS 401 FLC 401	Foreign Language - IV French German Spanish Chinese	VA	2	-	-	2
	TOTAL					24

SUMMER PROJECT – II

FIFTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI501	Basics of OS (UNIX, LINUX & Shell Programming)	CC	2	1	-	3
BSI502	Java Programming	CC	2	1	-	3
BSI503	Software Engineering	CC	2	1	-	3
BSI560	Summer Project – II (Evaluation)	CC	-	-	-	6
BSI520	Basics of OS (UNIX, LINUX & Shell Programming) LAB	CC	-	-	2	1
BSI521	Java Programming LAB	CC	-	-	2	1
DE Elective-V: Choose any one course from the following courses						
BSI530	Designing & Supporting Computer Network	DE	2	1	-	3
BSI531	Web Programming	DE				
BSI532	Data warehousing & Data Mining	DE				
BSI522	Designing & Supporting Computer Network LAB	DE	-	-	2	1
BSI523	Web Programming LAB	DE				
BSI524	Data warehousing & Data Mining LAB	DE				
	OPEN ELECTIVE-V	OE	2	1	-	3
BCS 501	Communication Skills - III	VA	1	-	-	1
BSS 501	Behavioural Science - V	VA	1	-	-	1
FLF 501 FLG 501 FLS 501 FLC 501	Foreign Language - V French German Spanish Chinese	VA	2	-	-	2
	TOTAL					28

SIXTH SEMESTER

CODE	COURSE	CATEGORY	L	T	P/FW	CREDIT UNITS
BSI601	Introduction to Enterprise Resource Planning	CC	2	1	-	3
BSI602	Multimedia Technologies	CC	2	1	-	3
BSI660	Project Work/Dissertation	CC	-	-	-	12
BSI620	Multimedia Technologies LAB	CC	-	-	2	1
DE Elective-VI: Choose any one course from the following courses						
BSI630	Network Security	DE	2	1	-	3
BSI 631	Web Technologies	DE				
BSI 632	Cloud Computing	DE				
BSI 633	Mobile Computing	DE				
BSI 634	Artificial Intelligence	DE				
	OPEN ELECTIVE-VI	OE	2	1	-	3
	TOTAL					25

FUNDAMENTALS OF COMPUTER SCIENCE

Course Code	L	T	P	Credit
BSI101	2	1	0	3

Course Objective:

This course is aimed to provide a fundamental understanding of computer science for the students in their early stages of academic career. Various computer nomenclatures regarding to hardware and software will be introduced for students to develop an in-depth realization of several subjects and their significant roles in the field. After this course, you will be able to understand fundamental concepts of computing; use computing environments and tools needed for software development

Course Contents:

Module I: Computer Appreciation

Characteristics of computers, Input, Output, Storage units, CPU, Computer System, Binary number system, Binary to decimal conversion, decimal to binary conversion, BCD codes, ASCII codes

Module II: Central Processing Unit

Control Unit, Arithmetic Unit, Instruction set, register, processor speed

Module III: Memory

Main memory, Storage evaluation, criteria, memory organization, capacity, RAM, Read only memories, Secondary Storage Devices, Magnetic disks, Floppy and Hard Disks, Optical Disks CD-ROM, Mass Storage Devices

Module IV: Input & Output Devices

Keyboard, Mouse, trackball, joystick, scanner, OMR, Bar code reader, MICR, Digitizer, Card Reader, Voice Recognition, Web cam, Video games, Monitors, Printers – Dot Matrix, Inkjet, laser, plotters, computer output micro film (COM), multimedia projector, speech synthesizer, dumb, smart and intelligent terminal

Module V: Multimedia & Computer Software

What is multimedia, text, graphics, audio, images, video, and multimedia application in education, entertainment and marketing, Relationship between hardware and software, system software, application software, compiler, names of some high level languages, free domain software

Module VI: Operating Systems

Disk Operating System: Simple DOS Commands, Simple File Operations, Directory Related Commands
Microsoft Windows: An overview of different versions of windows, Basic windows elements, File management through windows.

Module VII: Word Processing

Word processing concepts: saving, closing opening an existing document, creating and printing merged documents, character and paragraph formatting, page design and layout. Editing and proofing tools: Checking and correcting spellings, handling graphics, Creating tables and charts, Document templates and wizards.

Module VIII: Spreadsheet Package

Spreadsheet concepts, Creating, saving and editing a workbook, inserting, deleting worksheets, entering data in a cell/formula copying and moving data from selected cells, handling operators in formula, functions, mathematical, logical, statistical, text, financial, date and time functions, using function wizard. Formatting a worksheet, integrating work processor, spread sheets, web pages.

Module IX: Presentation Package

Creating presentations, working with slides, adding and formatting text, making notes, pages and handouts, drawing and working with objects, adding clip arts and picture, designing slide shows, printing presentation.

Examination Scheme:

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

Text & References:

Text:

■ Fundamentals of Computer Science, V. Rajaraman, PHI.

References:

■ Introduction to IT, Satish Jain BPB Publication.

PROGRAMMING & PROBLEM SOLVING THROUGH „C“ LANGUAGE

Course Code	L	T	P	Credit
BSI102	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	CT1	PR.	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

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

References:

- Let us C, Yashwant Kanetkar, BPB Publication.
- P.K.Sinha, "Computer Fundamentals", BPB Publications
- V. Rajaraman, "Computer Fundamentals", Prentice Hall
- Y. Kanetkar, "Let us C", BPB Publications
- Y. Kanetkar, "Understanding Pointers", BPB Publications
- Schidlt, "The Complete Reference of C", Tata McGraw Hill

BASIC MATHEMATICS

Course Code	L	T	P	Credit
BSI103	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	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

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

References:

- Discrete Mathematics: Harikishan & Shivraj Pundir
- Discrete Mathematics: J.K. Sharma

DATA COMMUNICATION & COMPUTER NETWORKS

Course Code	L	T	P	Credit
BSI104	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-Rject).

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

Module IV

Internal Organization of Network Layer, Routing Algorithms-Shortest Path Routing, Flooding, Distance Vector Routing, Link State Routing, General Principles of Congestion, Congestion Prevention Policies. Duties of Transport Layer, Connection Establishment & Connection Termination.

Module V

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

Examination Scheme:

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

Text & References:

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

FUNDAMENTALS OF COMPUTER SCIENCE LAB

Course Code	L	T	P	Credit
BSI120	0	0	2	1

Course Contents:

Q1 Create a simple Microsoft Word document of approximately 150-200 words introducing yourself to your professor and describing your technology background.

- Select and edit text
- Copy text
- Move text
- Find and replace text
- Format text using the Mini toolbar
- Check spelling and grammar
- Preview and print a document
- Enter first paragraph and then delete it, the "Lab 4" heading, and the dotted line separator. When you are done, the first line of your document should be "History of Programming Languages".
- Change all the text (but not the ASCII art at the end of the document) to Times New Roman 12 pt.
- Center the title and author's name. Make the title and all the headings bold.
- Insert a page break just before the ASCII diagram.
- DoubleSpace the first three paragraphs ONLY
- Add footer with page number to all the pages. Put the page number on the right corner.
- Highlight the ASCII diagram and put a text box around it. Resize the box for the ASCII diagram to display correctly.
- Insert a page break after the ASCII diagram.
- Spell checks the document.
Note: all computer and technical terms are spelled correctly. Just make sure that the "plain English" part is all spelled correctly.
- Use print preview to make sure everything looks right.

Save it as a Word Document (that means. doc, not .rtf) named lab2.

Q 2 a) Here is a "Grocery List": eggs, butter, bread and milk. Make a numbered list out of it below.

- Here is a "Chapter List": chapter 1, chapter 2, and chapter 3. Make a numbered list out of it below; only use Roman Numerals instead of numbers.

- Put a page number at the bottom right of this page.

- Insert the date and time here:

b) Below is a bulleted list.

- List item 1
- List item 2
- List item 3

Below is a numbered list.

1. list item 1
2. list item 2
3. list item 3

Below is a horizontal line:



c)

For the schedule below, DO NOT USE THE SPACE KEY! Use the tab key;

Mon	Tue	Wed	Thu	Fri
1	2	3	4	5
A	B	C	D	E

d)

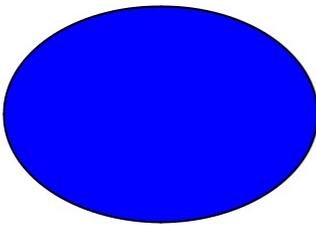
3 by 3 table:

1	2	3
4	5	6
7	8	9

4 by 4 Excel worksheet:

1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

e)



Happy Birthday!



This is a Text Box. See if you can find one and insert it into the page.

f) This is a file from Clip Art. See if you can find it on your computer:



g) Using Clip Art, insert a picture of a soccer ball.

Q 3 Using Word Art, write the word “Congratulations”. Use any style you wish, make it blue, and give it a font size of 30 points.

Make the background color of this document yellow.

Q4 Display the completed document Lastname_Firstname_3C_Recycling_Report on the screen.

- 2) Change line spacing.
- 3) Change paragraph spacing or indentation.
- 4) Insert or modify a footnote.
- 5) Create citations or a bibliography.
- 6) Insert text from another file.
- 7) Change one column of text to two columns.
- 8) Display the completed document Lastname_Firstname_3C_Recycling_Report on the screen.
- 9) Display the Print Preview and Document Properties.
- 10) Save your work to a file (using save or save-as).

Q5 Display the completed workbook Lastname_Firstname_1C_GPS_Sales on the screen in MS EXCEL

1. Enter data or change data in a given cell.
2. Create a formula and use the SUM function.
3. Format cells with Merge & Center and cell styles.
4. Insert a column chart into the worksheet.
5. Create Spark lines for a range of cells.
6. Display the Print Preview and Document Properties.
7. Save your work to a file (using Save or Save-As).

- Navigate a workbook
- Enter values and labels
- Change column width and row height
- Use formulas
- Edit a worksheet
- Change alignment and number format
- Change fonts, borders, and shading
- Add headers and footers
- Understand and plan a chart
- Create a chart
- Move and resize a chart and chart objects
- Apply chart layouts and styles
- Customize chart objects
- Enhance a chart
- Create a pie chart
- Add text and print charts
- Preview and print a worksheet

Q 6 Display the completed workbook Lastname_Firstname_2C_Sauces_Inventory on the screen.

1. Create formulas using the SUM, AVERAGE, MEDIAN, MIN, and MAX functions.
2. Apply cell styles, increase or decrease decimal places.
3. Apply conditional formatting.
4. Create formulas using the COUNTIF or IF functions.
5. Create formulas using Date and Time functions.
6. Freeze or unfreeze panes.
7. Create sort, and filter an Excel table

Q 7 Display the presentation Lastname_Firstname_1G_Volcano_Tour on the screen.

INTERNET Amazon AMZN 337,200 53.5417 78.4375
 INTERNET AOL AOL 1,107,900 77.5625 113.50
 INTERNET @Home ATHM 367,900 37.125 42.0635
 INTERNET E*Trade EGRP 234,600 11.6953 24.9375
 INTERNET Yahoo YHOO 259,000 118.469 173.3125
 TECH Sun SUNW 780,600 42.8125 97.8125
 TECH Microsoft MSFT 5,141,500 69.3438 91.8125
 TECH Oracle ORCL 1,430,500 28.75 46.25
 TECH Cisco CSCO 3,298,600 46.4062 71.625
 TECH Lucent LU 3,064,600 54.9144 64.9375

1. Open Microsoft Excel
2. Open the file lab2.xls, which is in the folder C20, which is in the folder IS on the X: drive.
3. Save it in your H: drive space immediately, using Save As from the File menu.
4. Determine the current market price of each of these stocks
5. Go to <http://quote.yahoo.com>.
6. Enter the ticker symbol for the ten stocks (separated by a single space each) in the field next to the
7. Get Quotes button, and click on this button.
8. When the prices are returned, copy them into the appropriate cells in column G in Excel.
9. Calculate the market capitalization for each stock, for 10/05/99, and 10/08/99, by entering the appropriate Formulas in the relevant cells:
- 10 Highlight cell H4. The formula in this cell is =E4*D4
- 11 Copy this formula into cells H5 through H13. The formula in cell H5 will be =E5*D5, in cell H6 will be =E6*D6, and so on.
- 12 Now change the formula in cell H4 to =E4*\$D4 -- notice that the value calculated by the formula remains the same.
- 13 Copy this formula into cells I4 and J4. After you are done copying, the formula in cell I4 should be =F4*\$D4, and the formula in cell J4 should be =G4*\$D4.
- 14 Now copy the formula in cell I4 into cells I5 through I13, and the formula in cell J4 into cells J5 through J13.

Q 12 Calculate the total market capitalization for all the ten stocks, for each of the three dates:

- a. In cell H16, enter the formula =SUM(H4:H13)
- b. Copy the formula in cell H16 to cells I16 and J16

7. Calculate the index values:

- a. IN cell I17, enter the formula =H17*I16/H16
- b. Copy the formula in cell I17 to cell J17.

Note: The index value on 12/31/98 is 100. The index value on any other date (INDEXdate) is simply the total market capitalization on that date (MKTCAPdate), divided by the total market capitalization on 12/31/98 (MKTCAP98), multiplied by 100, i.e.:

$INDEXdate = 100 * (MKTCAPdate) / (MKTCAP98)$ 7. If you have time, create a separate index for each of the categories INTERNET and TECH. To do this,

calculate the total market capitalization on 12/31/98, 10/05/99 and 10/08/99 for each of the three categories, and using 100 as the index value for each category on 12/31/98, calculate the index value on 10/05/99 and 10/08/99.

Q13 If you have more time, calculate the percentage that each stock contributed to the overall index, on each date. This is simply the market cap of that stock divided by the total market cap. You can do this for each of the three category indices as well.

If you have even more time, add the following two companies to the index. Use <http://quote.yahoo.com> to find the relevant prices: a. eBay (EBAY, which was priced at \$80.4167 on 12/31/99, \$141.1875 on 10/05/99, has 128,600,000 shares outstanding, and will go into the INTERNET category.) Intel (INTC, which was priced at \$59.2017 on 12/31/99, \$76.1875 on 10/05/99, has 3,307,800,000 shares outstanding, and will go into TECH category.)

Examination Scheme:

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

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

PROGRAMMING & PROBLEM SOLVING THROUGH „C“ LANGUAGE LAB

Course Code	L	T	P	Credit
BSI121	0	0	2	1

Course Contents:

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
12
123
1234
12345
```

d.

```

      1
     121
    12321
   1234321
  123454321
```

e.

```

1
12
123
1234
12345
1234
123
12
1

```

f.

```

654321
54321
4321
321
21
1
```

g.

```

543212345
5432 2345
543   345
54    45
5     5
```

h.

```

z
zyz
xyzyx
zyz
z
```

i.

```

Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll.....
```

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.

Purchase	Discount	Hand loom items
0 -100	-	-
101 - 200	5.0 %	7.5 %
201 - 300	7.5 %	10.0 %
above300	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:-

- int a,b and float c.
- float a,b and int c.
- float a,c and int b.
- float a and int b,c.

17. WAP to maintain the employee record.

- emp. no.
- emp name.
- 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.

- Area = $\pi \cdot (r^2) + 2(\pi)rh$.
- Torque = $(2 m_1 m_2) / (m_1 + m_2) \cdot g$
- Side = $\sqrt{a^2 + b^2 - 2ab \cdot \cos(x)}$
- Energy = $\text{mass}[\text{acceleration} \cdot \text{height} + (\text{velocity}^2)/2]$

20. Determine the value of each of the following logical expressions of a=5, b=10, c=6

- $a > b \ \&\& \ a < c$.
- $a < b \ \&\& \ a > c$.
- $a == c \ || \ b > a$.
- $b > 15 \ \&\& \ c < 0 \ || \ a > 0$.
- $(a \cdot 2.0 == 0.0 \ \&\& \ b \cdot 2.0 != 0.0) \ || \ c < 0.0$.

21. WAP to calculate the following expressions if x-y=0 then it should give an error.

- $(x+y)/(x-y)$
- $(x-y)/2$.
- $(x+y)(x-y)$

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	10	10	5	35	35

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

CYBER SECURITY

Course Code	L	T	P	Credit
BSI130	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	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	5	70

Text & References:

Text Book:

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

Reference Book:

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

INTRODUCTION TO FINANCIAL ACCOUNTING

Course Code	L	T	P	Credit
BSI131	2	1	0	3

Course Objective:

The overall objective of this course is to train students in accounting terminology and methods so that they can interpret, analyze, and evaluate financial statements currently published in corporate annual reports. This course will also discuss the recent developments (and controversies) in accounting valuation and reporting practices. The latest accounting pronouncements, current topics, trends and techniques will be discussed in class.

Course Contents:

Module I: Introduction to Financial Accounting

Basic Accounting principles

Module II

Rules of Accounting, Ledgers, Vouchers, Trial Balance, Balance Sheet, profit and Loss A/c

Module III: Starting with Tally

Company Creation, Features, Configuration, Accounts Master, Accounts Vouchers, accounts reports, Inventory Master (Stock Category, Stock Group, Location, Units of Measurement, Stock Item)

Module IV

Inventory Vouchers, Inventory Reports, Printing Various Reports, Security Control, Backup and restoring Company

Examination Scheme:

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

Text & References:

Text:

■ Fundamentals of Management Accounting, P.K. Ghosh and G.S. Gupta

References:

■ Tally Tutorial 6.3, K.K. Nadhani, BPB Publications

PRINCIPLES OF MANAGEMENT

Course Code	L	T	P	Credit
BSI132	2	1	0	3

Course Objective:

The objective of this course is to expose to the theories of management, organizational theory, and the practice of management in contemporary organizations from a conceptual, analytical, and pragmatic perspective. It covers the basic functions of management: planning, organizing, leading, and controlling. Relevance of Computer Applications in Different Functional areas of Management, Decisions Making Process in the principles and role of leadership, communication, and motivation in the management teams.

Course Contents:

Module I: Conceptual Framework of Management

History and Foundations of Management, Components of Management, Distinguish between components like Features of Management, Functions of Management, Nature of Management, Levels of Management, Understand the interplay between management and administration, Appreciate the concept of management as a profession.

Module II: Evolution and Foundation of Management Theories

Introduction to various theories of management, The Classical Organization theory, Neoclassical Approach of theory, Implications of Hawthorne experiments, Systems Approach of Organization, Systems and Modern Organisational theories.

Module III: Study of Management Processes

Basically Planning, Organizing, Directing, Staffing, Communicating, Controlling, Coordinating, To understand the planning process, Its Objectives and Characteristics, Policy and its meaning, Procedure Defined.

Module IV: Types of Organisational Structures and Designs

Meaning and Definition of Organisation, Basic Elements / Steps/Features of an Organization, Characteristics of an Organisation, Formal and Informal Organisation, Functions and Design of an Organisation, Types of Organisations

Module V: Relevance of Computer Applications in Different Functional Areas of Management Viz

Financial Management, Materials Management, Production Management, Human Resources Management and Marketing Management.

Study of different Managements Structures, their Characteristics, Decision Making Techniques, Goals and Motivation and overview of behaviour study

Examination Scheme:

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

Text & References:

Text:

■ Management and Principles, Parag Diwan & L.N Agrawal.

References:

- Organisational Behaviour, Fred Luthans
- Principles and Practices of Management, L.M Prasad

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 from different perspectives.

Course Contents:

Module I: Vocabulary

Use of Dictionary
Use of Words: Diminutives, Homonyms & Homophones

Module II: Essentials of Grammar - I

Articles
Parts of Speech
Tenses

Module III: Essentials of Grammar - II

Sentence Structure
Subject -Verb agreement
Punctuation

Module IV: Communication

The process and importance
Principles & benefits of Effective Communication

Module V: Spoken English Communication

Speech Drills
Pronunciation and accent
Stress and Intonation

Module VI: Communication Skills-I

Developing listening skills
Developing speaking skills

Module VII: Communication Skills-II

Developing Reading Skills
Developing writing Skills

Module VIII: Written English communication

Progression of Thought/ideas
Structure of Paragraph
Structure of Essays

Module IX: Short Stories

Of Studies, by Francis Bacon
Dream Children, by Charles Lamb
The Necklace, by Guy de Maupassant
A Shadow, by R.K.Narayan
Glory at Twilight, Bhabani Bhattacharya

Module X: Poems

All the Worlds a Stage	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	A	CT	HA	EE
Weightage (%)	05	15	10	70

Text & References:

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

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

**BEHAVIOURAL SCIENCE - I
(UNDERSTANDING SELF FOR EFFECTIVENESS)**

Course Code	L	T	P	Credit
BSS101	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
FLF101	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, wohnen, lernen, arbeiten, trinken, etc.

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

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

Hallo, wie geht's?: Danke gut!, sehr gut!, prima!, ausgezeichnet!,

Es geht!, nicht so gut!, so la la!, miserabel!

Module II: Interviewspiel

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

Module III: Phonetics

Sound system of the language with special stress on Diphthongs

Module IV: Countries, nationalities and their languages

To make the students acquainted with the most widely used country names, their nationalities 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

INTRODUCTION TO OBJECT ORIENTED PROGRAMMING & C++

Course Code	L	T	P	Credit
BSI201	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	CT1	A/Q/C	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

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

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

Course Code	L	T	P	Credit
BSI202	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. Boyce Codd Normal Form, Fourth Normal Form, Fifth Normal Form.

Module V: Data Recovery & Protection

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

Examination Scheme:

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

Text & References:

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

COMPUTER ORIENTED NUMERICAL ANALYSIS

Course Code	L	T	P	Credit
BSI203	2	1	0	3

Course Objective:

This course is aimed to provide a fundamental understanding of Computer Oriented Numerical Analysis for the students in their early stages of academic career. Several concepts such as Solution of Linear Algebraic Equations, Solution of Algebraic and Transcendental equations, Interpolation, Curve fitting, etc. will be introduced to students. After this course, you will be able to understand fundamental concepts of Numerical Analysis, which will prove highly beneficial to them in understanding more complicated topics of computer science.

Course Contents:

Module I: Introduction

Introduction to Numerical Analysis, Application Area of N.A., Numbers and Their Accuracy, Mathematical preliminaries, Error Analysis, Absolute, Relative, Truncation and Rounding Error, Floating point.

Module II: Solution of Linear Algebraic

Introduction to Matrices, Basic Definitions, Matrix Inversion Method, Gauss Jordan Method, Eigen Values and Eigen vectors.

Iterative methods: -Jacobi's Methods, Gauss-Seidal Method.

Module III: Solution of Algebraic and Transcendental Equations

Introduction, Iteration Method Bisection Method, regular False Method, Newton Raphson Method, Generalized Newton Raphson Method, convergence of Iterative Methods.

Module IV: Interpolation and Curve Fitting

Basic Definition, Forward Differences, backward Differences, Central Differences, Newton Forward Differences Formula, Newton's Divided Difference Formula, LaGrange's Method.

Module V: Numerical Difference & Integration

Numerical Differentiation based on Interpolation Formula, Forward and Backward Formula upto second order. Numerical Integration: Trapezoidal Rules, Simpson's 1/3 rule, Simpson's 3/8 Rule

Module VI: Numerical Solution to ODE

Basic Definition, Taylor Series Method, Euler's Method, Runge Kutta Method.

Examination Scheme:

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

Text & References:

Text:

■ Numerical Analysis V. Raja Raman

References:

■ Numerical Solutions M.K. Jain & R.K. Jain

FUNDAMENTALS OF E-COMMERCE

Course Code	L	T	P	Credit
BSI204	2	1	0	3

Course Objective:

This course is aimed at incorporating the fundamentals of E-Commerce which involves study of Network Infrastructure, Mobile Commerce, Web Security, encryption, etc. which are essential components of Managing e-transactions making life even simpler and getting rid of various time consuming and tedious activities.

Course Contents:

Module I: Introduction

Traditional commerce – an overview, What is E-commerce?, Comparison between Traditional and Electronic commerce, Issues associated with electronic commerce.

Inter Organisational E- commerce, Intra Organisational E-Commerce, Architectural frame work.

Module II: Network Infrastructure

Network infrastructure for E Commerce. Market forces behind I-Way. Component of I Way. Access Equipment. Global Information Distribution Network, Broad band Telecommunication.

Module III: Mobile Commerce

Introduction to Mobile Commerce. Mobile Computing Applications. Wireless Application Protocols. WAP Technology. Mobile information Devices.

Module IV: Web Security

Introduction to Web Security, Firewalls & Transaction Security, Client Server Network, Emerging Client Server Security Threats. Firewalls and Network Security.

Module V: Encryption

World wide web & security, Encryption, Transaction security, Secret Key Encryption, Public key Encryption, Virtual Private Networks, Implementation & management issues.

Module VI: Electronic Payment Scheme

Traditional Payment methods, View of internet payment process, Understanding card payment schemes on internet, Cyber Cash, Veritone and First Virtual payment schemes, SET and JEPI, Electronic cheques, Digital Cash.

Module VII: Electronic Data Interchange (EDI)

History of EDI, Implementation difficulties of EDI, EDI working concepts, Financial EDI, EDI and Internet.

Examination Scheme:

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

Text & References:

Text:

■ Ravi Kalakota. Andrew Whinston. "Frontiers of Electronic Commerce". Addison Wesley

References:

- Denial Amor "The E Business revolution", Addison Wesley
- Sokol. " From EDI to Electronic Commerce: A Business Initiative ", TMH
- Greenstein & Feinman, "Electronics Commerce", Tata McGraw Hill
- Diwan Sharma, "E Commerce", Excel
- Asset international, " Net Commerce", TMH
- Bajaj & Nag, "E Commerce: The cutting edge of Business", TMH

INTRODUCTION TO OBJECT ORIENTED PROGRAMMING & C++ LAB

Course Code	L	T	P	Credit
BSI220	0	0	2	1

Course Contents:

1. WAP to calculate factorial of a given number n.
2. WAP to check whether a number is prime or not.
3. WAP to print Fibonacci series of „n“ numbers, where n is given by the programmer.
4. WAP to do the following:
 - a. Generate the following menu:
 1. Add two numbers.
 2. Subtract two numbers.
 3. Multiply two numbers.
 4. Divide two numbers.
 5. Exit.
 - b. Ask the user to input two integers and then input a choice from the menu. Perform all the arithmetic operations which have been offered by the menu. Checks for errors caused due to inappropriate entry by user and output a statement accordingly.
5. WAP to read a set of numbers in an array & to find the largest of them.
6. WAP to implement bubble sort using arrays.
7. WAP to sort a list of names in ascending order.
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 implement bubble sort using functions.
10. WAP to exchange contents of two variables using call by value.
11. WAP to exchange contents of two variables using call by reference.
12. WAP to find the sum of three numbers using pointer to function method.
13. WAP to display content of an array using pointers.
14. Calculate area of different geometrical figures (circle, rectangle, square, triangle) using function overloading.
15. WAP to add two complex numbers using friend function.
16. WAP to maintain the student record which contains Roll number, Name, Marks1, Marks2, Marks3 as data member and getdata(), display() and setdata() as member functions.
17. 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 and salary as data member and inc_sal as member function (Use array of object).
18. 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.
19. 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.
20. WAP to generate a series of Fibonacci numbers using copy constructor, where it is defined outside the class using scope resolution operator.
21. Write a class string to compare two strings, overload (=) operator.
22. Write a class to concatenate two strings, overload (+) operator.
23. Create a class item, having two data members x & y, overload „-“,(unary operator) to change the sign of x and y.
24. Create a class Employee. Derive 3 classes from this class namely, Programmer, Analyst & Project Leader. Take attributes and operations on your own. WAP to implement this with array of pointers.
25. Create two classes namely Employee and Qualification. Using multiple inheritance derive two classes Scientist and Manager. Take suitable attributes & operations. WAP to implement this class hierarchy.
26. WAP to read data from keyboard & write it to the file. After writing is completed, the file is closed. The program again opens the same file and reads it.

Examination Scheme:

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

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

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS LAB

Course Code	L	T	P	Credit
BSI221	0	0	2	1

Course Contents:

Module I: Introduction to oracle

Tools of Oracle, Features of oracle.

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

```

Product ID      NUMBER(11)
Supplier ID     NUMBER(11)
Category ID     NUMBER(11)
Quantity Per Unit  VARCHAR2(20)
Unit Price      NUMBER(11)
Units In Stock  NUMBER(11)
Units On Order  NUMBER(11)
Product ID should be the Primary Key.
    
```

Module II: SQL

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

- 2) Consider the following tables:

```

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

Where Pname=Person name, Cname= Company name and Mgrname = Manager name. Write the SQL for the following:

- 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 did 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

```

EmpIDNUMBER(4)
DeptIDVARCHAR2(10)
EmpName CHAR(10)
Job CHAR(10)
HireDate DATE
Salary NUMBER(7, 2)
Commission NUMBER (7, 2)
    
```

Structure for DEPT table

```

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

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

- 4) INSERT the following values in the EMP table:
- a) 1001,SET_01,Harrey,SE,01-Jan-2009,15000,3

- b) 1002,SET_02, Ron, SSE,15-Feb-1998,20000,4
- c) 1003,SEM_05, Peter, Manager,15-April-1999,40000,5
- d) 1002,SED_07, Jolie,Assistant Manager,15-Dec-1998,50000,5
- e) 1008,SET_08, Santy, SSE,15-Feb-2000,20000,4
- f) 1008,SED_10, San, SE,10-Feb-2009,22000,5

- 5) Considering the above table i.e EMP write the queries for the following:
 - a) Find out the number of employees having “manager” as job.
 - b) Display only the jobs with maximum salary greater than or equal to 3000
 - c) Find all those employees whose job does not start with „M“.
 - d) Find the names of the employees whose name starts with „S“.
 - e) Find the names of the employees who are Managers and their date of joining is after “02-Jan-2006”.
 - f) For describing the structure of the EMP table and DEPT table.
 - g) For getting the average salary of the employees from EMP table.
 - h) For displaying the current date and give the column a name “DATE”.
 - i) For converting the name of the employee into uppercase where the employee name is “Santy”
 - j) Create a sequence with name SEQ_EMP , which will generate numbers from 1 to 99 in ascending order with an interval of 1. The sequence must start from 1 after generating the number 99.
 - k) Displaying the names of the employees who have an a and an e in their names.
- 6) Considering the table DEPT in question 3, find the total number of departments.
- 7) Alter the EMP table for the changing the width of the field EmpID from 4 to 10.
- 8) Alter the DEPT table for changing the width of the field No_of_Faculties from 2 to 4.
- 9) Delete all the records from the EMP table where the EmpName starts with “S”,
- 10) Insert some values in the PRODUCTS table created in Question 1 and then DROP the table PRODUCTS.
- 11) Update the EMP table for the following values:
 - a) Increase the salary of all the employees by 10% where the job is SE and SSE.
 - b) Change the hiredate of the employee “Harry” to 01-Feb-2009.
 - c) Update the salary of the employees to an increase of 15% where deptid is SED_07.
- 12) Alter the table EMP for the following:
 - a) Add one more field in the table i.e DOB DATE
 - b) Drop the column named Commission from the EMP table.
- 13) Write a query to select all the records from the EMP table.
- 14) Write a query to select all the records from the DEPT table.
- 15) Write a query to select the distinct deptid from EMP table.
- 16) Write a query to find the name and salary of the employee from EMP table where the salary is maximum.
- 17) Create a view named v_EMP on the table EMP,DEPT by selecting the following fields
Emp ID, Dept ID, Emp Name, Job

Where the EMP.Dept ID = DEPT. Dept Id.
- 18) Create a synonym S_EMP on the table EMP.

Module III

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

- 19) Write a PL/SQL program for:
 - a) Printing the Fibonacci series from 1 to 50.
 - b) Printing the smallest number among any three numbers.

c) Printing the table of any specific number entered.

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

Table: Client

<i>Column name</i>	<i>Data type</i>	<i>Size</i>
Client no	Varchar2	6
Name	Varchar2	20
Address	Varchar2	30
Balance Due	Number	10,2

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

Examination Scheme:

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

Text & References:

☛ SQL, PL/SQL Ivan Bayross BPB Publication

NETWORKING FOR HOME & SMALL BUSINESS

Course Code	L	T	P	Credit
BSI230	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 the Operating Systems, Installing the Operating System, Maintaining the Operating System.

Module III: **Connecting to the Networks**

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

Module IV: **Connecting to the Internet through ISP**

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

Module V: **Network Addressing**

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

Module VI: **Network Services**

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

Module VII: **Wireless Technologies**

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

Module VIII: **Basic Security**

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

Module IX: **Trouble Shooting your Network**

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

Examination Scheme:

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

Text & References:

Text:

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

References:

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

INTERNET FUNDAMENTALS

Course Code	L	T	P	Credit
BSI231	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, SecureWeb document, Digital Signatures, Firewalls and its types, IDS.

Examination Scheme:

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

Text & References:

Text:

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

Education References:

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

PRODUCTION & OPERATIONS MANAGEMENT

Course Code	L	T	P	Credit
BSI232	2	1	0	3

Course Objective:

The objective of the course is to obtain a general understanding of operations management environment, forecasting, demand and factor supply. In order to improve the competitiveness and productivity of an organization use of Linear Programming model, Implementing decisions related to product and service design, capacity planning, process selection and facility layout, location planning, MRP and Inventory. Role of Quality and its implementation in Organizations

Course Contents:

Module I: Introduction

Introduction to Operations systems, Production systems definition, Operations Management Definition, difference, Historical Evolution of operations Management

Module II: New Product Development

Stages of New Product Development, Product Design and Service Design, Capacity Planning Decisions, its need and strategies for modifying capacity, Conceptual definition of Facility Location

Module III: Layout and Aggregate Planning Concepts

Layout concepts, Developing the Process Layout: Models and Behaviour, Production Planning and Control its need, Categories, Aggregate Planning Process: its concept and goals

Module IV: Material Requirement Planning Systems

Introduction to Materials Management, Material Requirements Planning Systems. Applications of JIT.

Module V: Quality Assurance and its Control

Quality Assurance, Statistical Quality Control, Acceptance Sampling & Total Quality Management

Examination Scheme:

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

Text & References:

Text:

■ Adam & Ebert, Production & Operations Management.

References:

- Buffa & Sarin, Modern Production / operations Management.
- Chase & Aquilano, Production & Operations Management.
- Render & Heizer, Principles of Operations Management.

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 from different perspectives.

Course Contents:

Module I: Vocabulary

Use of Dictionary

Use of Words: Diminutives, Homonyms & Homophones

Module II: Essentials of Grammar - I

Articles

Parts of Speech

Tenses

Module III: Essentials of Grammar - II

Sentence Structure

Subject -Verb agreement

Punctuation

Module IV: Communication

The process and importance

Principles & benefits of Effective Communication

Module V: Spoken English Communication

Speech Drills

Pronunciation and accent

Stress and Intonation

Module VI: Communication Skills - I

Developing listening skills

Developing speaking skills

Module VII: Communication Skills - II

Developing Reading Skills

Developing writing Skills

Module VIII: Written English communication

Progression of Thought/ideas

Structure of Paragraph

Structure of Essays

Module IX: Short Stories

Of Studies, by Francis Bacon

Dream Children, by Charles Lamb

The Necklace, by Guy de Maupassant

A Shadow, by R.K.Narayan

Glory at Twilight, Bhabani Bhattacharya

Module X: Poems

All the Worlds a Stage

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

Text & References:

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

**BEHAVIOURAL SCIENCE - II
(PROBLEM SOLVING AND CREATIVE THINKING)**

Course Code	L	T	P	Credit
BSS201	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
FLF201	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

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

Unité 4: Découvrir son environnement

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

Unité 5: s'informer

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

Contenu grammatical:

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

Examination Scheme:

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

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

📖 le livre à suivre: Campus: Tome 1

GERMAN – II

Course Code	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 prepositions with their use

Both theoretical and figurative use

Module VIII: Dialogues

Dialogue reading: „In the market place“

„At the Hotel“

Examination Scheme:

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

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

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

SPANISH – II

Course Code	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

DATA STRUCTURES THROUGH „C“ LANGUAGE

Course Code	L	T	P	Credit
BSI301	2	1	0	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

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

Module II: Arrays

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

Module III: Stacks and Queues

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

Module IV: Linked List

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

Module V: Trees

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

Module VI: Searching, sorting and complexity

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

Module VII: Graphs

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

Examination Scheme:

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

Text & References:

Text:

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

References:

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

DIGITAL & COMPUTER ORGANIZATION

Course Code	L	T	P	Credit
BSI302	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 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	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

■ Computer System Architecture, M.M. Mano, Pearson Education.

References:

■ 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

STRUCTURED SYSTEM ANALYSIS & DESIGN

Course Code	L	T	P	Credit
BSI303	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. The course equips the student to carve a niche in the growing portfolio of Information systems careers or go in for higher studies e.g. MCA, MBA & other Master's level programmes.

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

Text & References:

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

SUMMER PROJECT – I (EVALUATION)

Course Code	L	T	P	Credit
BSI361	0	0	0	6

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

DATA STRUCTURES THROUGH „C“ LANGUAGE LAB

Course Code	L	T	P	Credit
BSI320	0	0	2	1

Course Contents:

1. Write a program to calculate the power of a number using recursion.
2. Write a program to search an element in a given array using linear search.
3. Write a program to search an element in a given array using binary search.
4. Write a program to sort the elements of an array using Bubble Sort.
5. Write a program to sort the elements of an array using Selection Sort.
6. Write a program to sort the elements of an array using Insertion Sort.
7. Write a program using the concept of iteration and recursion to sort the elements of an array using Quick Sort.
8. Write a program to delete an element from the kth element of an array.
9. Write a program to insert an element at the kth element in an array.
10. Write a program to remove duplicates in an array.
11. Write a program to merge two sorted arrays.
12. Write a program to add two matrices.
13. Write a program to multiply two matrices.
14. Write a program to implement the following operations on a string: reversal, concatenation, etc.
15. Write a program using array of pointers, perform Bubble sort on an array of strings.
16. Write a program to implement a Stack, show overflow and underflow while performing push and pop operations respectively.
17. Write a program to implement a queue and show the following: insertion and deletion.
18. Write a program to implement a circular queue and show the following: insertion and deletion.
19. Write a program to implement Linear Linked List and show the following operations: creation, display, insertion, deletion and searching.
20. Write a program to increment the data part of every node in a linked list by 10.
21. Write a program to implement a stack using linked list and show the following operations: Push, Pop, and Display.
22. Write a program to implement a stack using linked list and show the following operations: Insertion, Deletion, and Display.
23. Write a program to count the number of repetitions of a number in a linked list.
24. Write a program to implement Doubly Linked List and show the following operations: creation, display, insertion, deletion and searching.
25. Write a program to implement Binary tree and display the contents using non-recursive preorder, postorder and inorder traversal techniques.
26. Write a program to implement Binary tree and display the contents using recursive preorder, postorder and inorder traversal techniques.
27. Write a program to construct an AVL tree.
28. Write a program to insert and delete nodes in a graph using adjacency matrix
29. Write a program to implement Depth First Search using linked representation of graph.
30. Write a program to implement Breadth First Search using linked representation of graph.

Examination Scheme:

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

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

WORKING AT A SMALL-TO-MEDIUM BUSINESS OR ISPs

Course Code	L	T	P	Credit
BSI330	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	CT1	A/C/Q	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

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

References:

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

WEB DESIGNING

Course Code	L	T	P	Credit
BSI331	2	1	0	3

Course Objective:

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

Course Contents:

Module I: Introduction to html programming

History of HTML, Structure of HTML, Adding Comments, Formatting Text, Creating List, Creating Definition List, Creating Hyper Text Links, Creating Link Lists, Inserting Inline Images, Creating Image Links, Horizontal Rules, Address Tag, Working with Text

Changing font Sizes and Colors, Using Background Image, Marquee Tag.

Module II

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

Module III

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

Module IV

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

Module V: XML

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

Examination Scheme:

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

Text & References:

Text:

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

References:

■ HTML Complete Reference, BPB Publication.

■ Internet for everyone, Alexis Leon and Mathew Leon, Leon Tech world.

ACCOUNTING & FINANCIAL MANAGEMENT

Course Code	L	T	P	Credit
BSI332	2	1	0	3

Course Objective:

The objective of this course is to provide to students of IFT and IMCA with an introduction to fundamentals, concepts and principles / practices of Accounting and Financial Management. The topics covered including basic accounting, preparation of Trial Balance, Profit and Loss Account and Balance Sheet Account as applied to Banking including Bank Reconciliation Statement, Definition and Principles of Working Capital Management, Capital Budgeting and Analysis of Financial Statements.

Course Contents:

Module I: Accounting

Definition of Accounting, Its Objectives, Advantages and Limitation. Principles, Concepts and Conventions of Accounting, Double entry system, Recording of Transactions in subsidiary Books – Journal, Cash Book, sales Book, Purchase Book and Return Book. Posting into Ledger accounts.

Module II: Final Accounts

Preparation of Trial balance, Final Accounts including adjustments Trading account, Profit and Loss account, Balance Sheet.

Module III: Banking

Opening of different types of Banks Accounts, Cheque Book, Pass Book, Deposit slips, Bank Reconciliation Statements.

Module IV: Working Capital Management

Definition of working Capital, Types of Working Capital, Determinants of working Capital, Cash Management and Receivables Management.
Capital Budgeting: Principles and Techniques.

Module V: Analysis of Financial statements

Ratio Analysis: Meaning, Advantages, limitations, types of ratios and their usefulness Statements of charges in the Financial Position on Cash basis.

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

ADVANCE TECHNOLOGIES IN COMPUTER SCIENCE

Course Code	L	T	P	Credit
BSI333	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	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

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

MARKETING MANAGEMENT

Course Code	L	T	P	Credit
BSI334	2	1	0	3

Course Objective:

This course aims at providing the insight of the market trends and strategies in order to prepare the students for the challenges ahead.

Course Contents:

Module I: Understanding Marketing Management

Marketing Tasks, Marketing Concepts and Tools, Company Orientation towards Market Place
Building Customer Satisfaction, Value and Retention
Winning Markets: Market Oriented Strategic Planning, Corporate and Divisional Strategic Planning, Business Strategic Planning, Market Process

Module II: Analyzing Market Opportunities

Gathering Information and Measuring Market Demand: Components of Modern Marketing Information System
Scanning Marketing Environment: Demographic, Economic, Natural, Technological, Political-Legal, Social-Cultural environments.
Analyzing Consumer Markets and Buyer Behaviour: Major Factors influencing Buyer behaviour; cultural, social, personal, psychological; Buying Decision Process; Stages of Buying Decision Process
Analyzing Business Markets and Business Buying Behaviour: What is organizational buying, Participants in Business Buying Process, Purchasing-Procurement Process, Institutional and Government Markets
Dealing with Competition: Identifying Competitors, Analyzing Competitors, Designing Competitive Intelligence System, Designing Competitive Strategies

Module III: Developing Marketing Strategies

Positioning the Market Offering Through the Product Life Cycle: Differentiation Tools, Developing and Communicating Positioning Strategy, Product Life-Cycle Marketing Strategies, Market Evolution

Examination Scheme:

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

Text & References:

Marketing Management, Phillip Kotler, Prentice-Hall India

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:

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- 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:

- Air pollution

- b. Water pollution
- c. Soil pollution
- d. Marine pollution
- e. Noise pollution
- f. Thermal pollution
- g. Nuclear pollution

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

Role of an individual in prevention of pollution.

Pollution case studies.

Disaster management: floods, earthquake, cyclone and landslides.

Module VI: Social Issues and the Environment

From unsustainable to sustainable development

Urban problems and related to energy

Water conservation, rain water harvesting, watershed management

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

Environmental ethics: Issues and possible solutions

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

Wasteland reclamation

Consumerism and waste products

Environmental Protection Act

Air (Prevention and Control of Pollution) Act

Water (Prevention and control of Pollution) Act

Wildlife Protection Act

Forest Conservation Act

Issues involved in enforcement of environmental

legislation Public awareness

Module VII: Human Population and the Environment

Population growth, variation among nations

Population explosion – Family Welfare Programmes

Environment and human health

Human Rights

Value Education

HIV / AIDS

Women and Child Welfare

Role of Information Technology in Environment and Human Health

Case Studies

Module VIII: Field Work

Visit to a local area to document environmental assets-river / forest/ grassland/ hill/ mountain. Visit to a local polluted site – Urban / Rural / Industrial / Agricultural Study of common plants, insects, birds

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

Examination Scheme:

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

Text & References:

- Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
- Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad 380 013, India, Email:mapin@icenet.net (R)
- Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
- Clark R.S., Marine Pollution, Clarendon Press Oxford (TB)
- Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
- De A.K., Environmental Chemistry, Wiley Eastern Ltd.
- Down to Earth, Centre for Science and Environment (R)
- Gleick, H.P. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
- Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

- Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
- Mckinney, M.L. & School, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.
- Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
- Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
- Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
- Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
- Survey of the Environment, The Hindu (M)
- Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science
- Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)
- Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)
- Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p

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
BSS301	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
FLF301	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 pronunciation alone. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

Drills
 Dialogue practice
 Observe picture and answer the question.
 Introduction of written characters.
 Practice reading aloud
 Practice using the language both by speaking and by taking notes.
 Character writing and stroke order

Module II

Measure words
 Position words e.g. inside, outside, middle, in front, behind, top, bottom, side, left, right, straight.
 Directional words – beibian, xibian, nanbian, dongbian, zhongjian.
 Our school and its different building locations.
 What game do you like?
 Difference between “hii” and “neng”, “keyi”.

Module III

Changing affirmative sentences to negative ones and vice versa
 Human body parts.
 Not feeling well words e.g.; fever, cold, stomach ache, head ache.
 Use of the modal particle “le”
 Making a telephone call
 Use of “jiu” and “cai” (Grammar portion)
 Automobiles e.g. Bus, train, boat, car, bike etc.
 Traveling, by train, by airplane, by bus, on the bike, by boat.. etc.

Module IV

The ordinal number “di”
 “Mei” the demonstrative pronoun e.g. mei tian, mei nian etc.
 use of to enter to exit
 Structural particle “de” (Compliment of degree).
 Going to the Park.
 Description about class schedule during a week in school.
 Grammar use of “li” and “cong”.
 Comprehension reading followed by questions.

Module V

Persuasion-Please don’t smoke.
 Please speak slowly
 Praise – This pictorial is very beautiful
 Opposites e.g. Clean-Dirty, Little-More, Old-New, Young-Old, Easy-Difficult, Boy-Girl, Black-White, Big-Small, Slow-Fast ... etc.
 Talking about studies and classmates
 Use of “it doesn’t matter”
 Enquiring about a student, description about study method.
 Grammar: Negation of a sentence with a verbal predicate.

Examination Scheme:

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

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

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

OPERATING SYSTEMS

Course Code	L	T	P	Credit
BSI401	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 pertain particularly to UNIX and to other popular operating systems. This course basically revolves around process, and it tells about every thing about a process.

Course Contents:

Module I: Operating System as a Resource Manager

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

Module II: CPU Scheduling

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

Module III: Memory Management

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

Module IV: File Systems

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

Directory Systems

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

Deadlock

Deadlock Characterization, Deadlock Prevention, Deadlock Avoidance and Deadlock Recovery

Module V: Security and Protection

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

Overview of Unix Operating System

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

Examination Scheme:

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

Text & References:

Text:

■ Peterson And Silberschatz, Operating System Concepts

References:

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

COMPUTER GRAPHICS

Course Code	L	T	P	Credit
BSI402	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	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

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

References:

- Principle Of Interactive Computer Graphics by New, W. M. and Spraul
- Foley "Computer Graphics" Addison Wesley
- Rogers" "Procedural Elements of Computer Graphics " Mc-Grawhilll

DESIGN & ANALYSIS OF ALGORITHMS

Course Code	L	T	P	Credit
BSI403	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, V. stressen Matrix Multiplication, Sorting in Linear time.

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

Module III: Advanced Design and Analysis Techniques

Dynamic programming- Elements of

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

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

Module IV: Graph Algorithms

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

Selected Topics: Sorting Networks, Algorithms for Parallel Computers.

Module V

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

Examination Scheme:

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

Text & References:

Text:

■ Coreman, Rivest, Lisserson, "Algorithms", PHI

References:

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

MINOR PROJECT

Course Code	L	T	P	Credit
BSI460	0	0	0	3

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

COMPUTER GRAPHICS LAB

Course Code	L	T	P	Credit
BSI420	0	0	2	1

List of Visual Basic Programmes

- (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 an 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	10	10	5	35	35

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

INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE

Course Code	L	T	P	Credit
BSI430	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 the Current Network, Supporting the Enterprise Edge, Reviewing Cisco Routing and Switching

Module III: Switching in an Enterprise Network

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

Module IV: Addressing in an Enterprise Network

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

Module V: Routing with a Distance Vector Protocol

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

Module VI: Routing with a Link-State Protocol

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

Module VII: Implementing Enterprise WAN Links

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

Module VIII: Filtering Traffic Using Access Control Lists

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

Module IX: Troubleshooting an Enterprise Network

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

Examination Scheme:

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

Text & References:

Text:

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

References:

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

INTRODUCTION TO OPEN SOURCE TECHNOLOGIES (PHP, MySql)

Course Code	L	T	P	Credit
BSI431	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 API Building Database Applications,

Module V: Working with Frameworks

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

Examination Scheme:

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

Text & References:

Text:

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

References:

- PHP Manual.

PROGRAMMING IN VISUAL BASIC

Course Code	L	T	P	Credit
BSI432	2	1	0	3

Course Objective:

This course is aimed to provide a fundamental understanding of Visual Programming Environment for the students in their early stages of academic career. Various concepts regarding GUI such as Manipulating GUI Tools like Command Buttons, Checkboxes, Combo boxes, etc. through Programming in a Visual Environment will be introduced for students to develop a Healthy Programming attitude towards new and emerging Technologies in the field of Visual Programming. After this course, you will be able to understand fundamental concepts of Visual Programming and development of various GUI applications.

Course Contents:

Module I: Introduction to Visual Basic

Introduction, CUI, GUI, Why Visual Programming, Different Visual Programming Languages, Initial Screens, Different applications, Starting a new project, MDI and SDI, Variables and constants, Data Types, Scope of variables, Operators, Forms, Basic Controls (Text box, Labels, Command buttons, Image Control, Picture box), Properties, Methods and Events, Message Box, Input Box

Module II: Controlling Program Flow

Determinate and Indeterminate Loops, Making Decisions, Select Case, Nested If-Then, Go to.

Module III: Some More Controls

Option Button, Check Boxes, List and Combo and Boxes, Timers, Scroll bars.

Module IV: Arrays, Function and Procedure

Arrays, Control arrays, Sub procedure, Functions, Built in functions.

Module V: Menus and dialog boxes

Menus, Toolbars, Image list control, Status bar control.

Module VI: Additional Controls

File List Box, Directory List Box, Drive List Box.

Module VII: File Handling

File Commands, Sequential Files, Random Access Files, Binary Files.

Module VIII: Introduction to Database handling

Introduction, Database access methods, DAO, ADO, RDO, Database handling through ADO, SQL.

Examination Scheme:

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

Text & References:

Text:

-  Petroustos, Evangelos. *Mastering Microsoft Visual Basic 2010*. John Wiley & Sons, 2010.
-  Sheldon, B., Hollis, B., Sharkey, K., Marbutt, J., Windsor, R., & Hillar, G. C. (2010). *Professional visual basic 2010 and .net 4*. John Wiley & Sons.

Reference Books:

-  Randolph, N., Gardner, D., Anderson, C., & Minutillo, M. (2010). *Professional visual studio 2010*. John Wiley & Sons.

INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE LAB

Course Code	L	T	P	Credit
BSI421	0	0	2	1

Course Contents:

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

Examination Scheme:

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

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

INTRODUCTION TO OPEN SOURCE TECHNOLOGIES (PHP, MySql) LAB

Course Code	L	T	P	Credit
BSI422	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	10	10	5	35	35

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

PROGRAMMING IN VISUAL BASIC LAB

Course Code	L	T	P	Credit
BSI423	0	0	2	1

Course Contents:

1. Write a program to calculate simple interest.
2. Write a program to calculate factorial of a given number.
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. Write a program to create login form.
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 to check whether the number is even or odd.
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 find out the no. of character, words and blank spaces in the given string.
24. Write a program to concatenate two strings.
25. Write a program to check whether the given string is in upper case or lower case and also convert it's case.
26. Write a program to calculate the sum of the digits of a given no. and also reverse the no.
27. Write a program to create a Pop Up Menu.
28. Design a project that has multiple forms, such that form1 is welcome form, form2 Contains personal details and form3 contains professional information and form4 display both personal as well as professional information of a employee.
29. 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.
30. 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.

Examination Scheme:

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

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

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
BSS401	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
FLF401	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 prepositions and their usage: (während, wegen, statt, trotz)

Module VIII: Picture Description

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

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

Examination Scheme:

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

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

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

SPANISH - IV

Course Code	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

BASICS OF OS (UNIX, LINUX AND SHELL PROGRAMMING)

Course Code	L	T	P	Credit
BSI501	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	CT1	A/C/Q	ATTD.	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

- Kanetkar. “UNIX Shell Programming” BPB
- Sumitabha Das, “UNIX: Concepts and Application”, TMH.

References:

- Das. “UNIX- Concepts & Applications
- Maurice J. Bach, “Design of the Unix operating System” PHI.

JAVA PROGRAMMING

Course Code	L	T	P	Credit
BSI502	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 classes

Module III: AWT and Event Handling

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

AWT: Working with Windows, AWT Controls

Html basic tags, Applet Classes, Graphics,

Module IV: Exception Handling and Multithreading

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

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

Module V: Java Packages

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

Examination Scheme:

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

Text & References:

Text:

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

References:

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

SOFTWARE ENGINEERING

Course Code	L	T	P	Credit
BSI503	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	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

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

References:

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

SUMMER PROJECT – II (EVALUATION)

Course Code	L	T	P	Credit
BSI560	0	0	0	6

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

BASICS OF OS (UNIX, LINUX AND SHELL PROGRAMMING) LAB

Course Code	L	T	P	Credit
BSI520	0	0	2	1

Course Contents:

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 searched 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, print the file is ###, where
 - # is small-sized if total no. of lines is <50
 - # is medium-sized if total no. of lines between 50&100

is large-sized.

20. Write a shell script which reports names and sizes of all files in a directory (directory would be supplied as an argument to the shell script) whose size is exceeding 1000 bytes. The filenames should be printed in descending order of their sizes. The total number of such files should also be reported.
21. WASS for renaming each file in the directory such that it will have the current shell PID as an extension. The shell script should ensure that the directories do not get renamed.
22. WAP to calculate and print the first *m* Fibonacci numbers.
23. WASS that will receive any number of filenames as arguments. The shell script should check whether such files already exist. If they do, then it should be reported. The files that do not exist should be created in a sub-directory called **mydir**. The shell script should first check whether the sub-directory **mydir** exists in the current directory. If it doesn't exist, then it should be created. If **mydir** already exists, then it should be reported along with the number of files that are currently present in **mydir**.
24. A shell script receives even number of filenames. Suppose four filenames are supplied, then the first file should get copied into second file, the third file should get copied into fourth and so on. If odd number of filenames is supplied then no copying should take place and an error message should be displayed.
25. WASS to identify all zero-byte files in the current directory and delete them. Before proceeding with deletion, the shell script should get a confirmation 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	10	10	5	35	35

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

JAVA PROGRAMMING LAB

Course Code	L	T	P	Credit
BSI521	0	0	2	1

Course Contents:

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

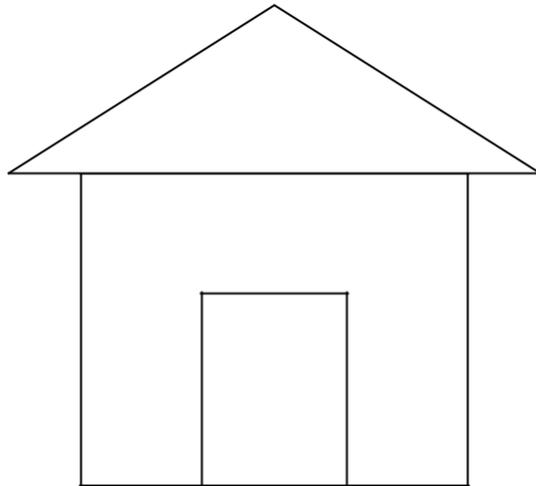
Methods:

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	10	10	5	35	35

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

DESIGNING AND SUPPORTING COMPUTER NETWORK

Course Code	L	T	P	Credit
BSI530	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 IPv6

Module VII: Prototyping the Campus Network

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

Module VIII: Prototyping the WAN

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

Module IX: Preparing the Proposal

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

Examination Scheme:

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

Text & References:

Text:

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

References:

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

WEB PROGRAMMING

Course Code	L	T	P	Credit
BSI531	2	1	0	3

Course Objective:

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

Course Contents:

Module I: Introduction to HTML programming

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

Module II

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

Module III

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

Module IV

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

Module V: XML

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

Examination Scheme:

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

Text & References:

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

DATA WAREHOUSING & DATA MINING

Course Code	L	T	P	Credit
BSI532	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	CT1	A/C/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

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

References:

■ Data Mining, Pieter Adrians and Doif Zantinge

DESIGNING AND SUPPORTING COMPUTER NETWORK LAB

Course Code	L	T	P	Credit
BSI522	0	0	2	1

Course Contents:

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

Examination Scheme:

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

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

WEB PROGRAMMING LAB

Course Code	L	T	P	Credit
BSI523	0	0	2	1

- 1) Create a web page with the following using HTML5 (i) To embed an image map in a web page (ii) To fix the hot spots (iii) Show all the related information when the hot spots are clicked.
- 2) Create a web page with all types of Cascading style sheets.
- 3) Implement Client Side Scripts for Validating Web Form Controls using JavaScript.
- 4) Designing Quiz Application Personal Information System/ Using JavaScript
- 5) Write a JavaScript for Loan Calculation.
- 6) Develop and demonstrate a HTML file that includes JavaScript that uses functions for the following problems: a) Parameter: A string Output: The position in the string of the left-most Parameter vowel b): A number Output: The number with its digits in the reverse order
- 7) Develop PHP program using Arrays, control structures, looping structures and Form Handling
- 8) Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with proper headings.
- 9) Write an AJAX program for parsing a JSON file and formatting the output.
- 10) Develop a web application for Airline Reservation System using PHP & AJAX.

DATA WAREHOUSING AND DATA MINING LAB

Course Code	L	T	P	Credit
BSI524	0	0	2	1

Software Required: Informatica Tool, Cognos, Todd.

List of Programmes:

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

Examination Scheme:

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

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

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
BSS501	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
FLF501	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 prepositions and their usage: (während, wegen, statt, trotz)

Module III: Reflexive verbs

Verbs with accusative case

Verbs with dative case

Difference in usage in the two cases

Module IV: Verbs with fixed prepositions

Verbs with accusative case

Verbs with dative case

Difference in the usage of the two cases

Module V: Texts

A poem „Maxi“

A text Rocko

Module VI: Picture Description

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

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

Examination Scheme:

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

C – Project + Presentation

I – Interaction/Conversation Practice

Text & References:

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

SPANISH - V

Course Code	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 are ginseng, silk, dim sum, fengshui, typhoon, yin and yang, Tai chi, kung-fu. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

Course Contents:

Module I

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

Module II

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

Module III

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

Module IV

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

Module V

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

Examination Scheme:

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

C – Project + Presentation
I – Interaction/Conversation Practice

Text & References:

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

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	CT1	A/C/Q	Att'd	EE
Weightage (%)	15	10	5	70

Text & References:

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

MULTIMEDIA TECHNOLOGIES

Course Code	L	T	P	Credit
BSI602	2	1	0	3

Course Objective:

The objective of the course is to give an overview of different multimedia technologies like audio and video including multimedia devices. The course also includes some practical sessions on these technologies.

Course Contents:

Module I: Introduction

Multimedia and personalized computing, a tour of emerging applications, multimedia systems, computer communication, and entertainment products, a framework of multimedia systems.

Module II: Digital Audio Representation and Processing

Uses of audio in computer applications, digital representation of sound, transmission of digital sound, digital audio signal processing, digital audio and the computer.

Module III: Video Technology

Raster scanning principles, sensors for T.V. cameras, color fundamentals, color video, video equipment, worldwide television standards.

Module IV: Digital Video and Image Compression

Evaluating a compression system, redundancy and visibility, video compression techniques, the JPEG image compression standards, the MPEG motion video compression standard, DVI technologies, Time Based Media Representation and Delivery.

Module V: Multimedia Devices, Presentation Services and the User Interface

Introduction. Multimedia services and Window systems, client control of continuous media, device control, temporal co ordination and composition, hyper application.

Module VI: Application of Multimedia

Intelligent multimedia system, desktop virtual reality, multimedia conferencing.

Examination Scheme:

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

Text & References:

■ Multimedia systems John F. Koegal Buford Addison- Wesley

PROJECT WORK/DISSERTATION

Course Code	L	T	P	Credit
BSI660	0	0	0	12

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

MULTIMEDIA TECHNOLOGIES LAB

Course Code	L	T	P	Credit
BSI620	0	0	2	1

Course Contents:

1. Create the animation of flying bird in flash.
2. Create the animation of walking man with his arms and legs moving.
3. Create the animation of Virtual typewriter.
4. Show an example of Masking in flash.
5. Make an animation of bouncing ball using flash.
6. Create the animation of moving Car in flash.
7. Make the blinking colorful text in flash.
8. Make a scenery showing rising sun in it using flash.
9. Show a flower growing in a flower pot.
10. Create the animation to show an accident of two cars coming from opposite direction using flash
11. Create the animation to show an accident of two cars going in the same direction with variation in the speed.
12. Create the animation to show the 9/11 attack in U.S.A.
13. Create the animation to show a Gardner watering the flower.
14. Make an animation to show a charismas tree growing step by step.
15. Create the animation to show the lightening of charismas tree using more than one layer.

Examination Scheme:

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

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

NETWORK SECURITY

Course Code	L	T	P	Credit
BSI630	2	1	0	3

Course Objective:

This subject is very important for students because Security of data in transit over the Internet becomes increasingly necessary because of steadily growing data volume and importance. Nowadays, every user of a public network sends various types of data, from email to credit card details daily, and he would therefore like them to be protected when in transit over a public network. To this end, a practical SSL protocol has been adopted for protection of data in transit that encompasses all network services that use TCP/IP to support typical application tasks of communication between servers and clients. In this subject student will learn all security method for securing public & private network by configuring different protocols.

Course Contents:

Module I: Threats and Cryptography

Introduction: Attacks, Services and Mechanism, Model for Internetwork Security.

Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis; Public Key Encryption, Conventional Encryption Techniques, Steganography, Modern Techniques – DES, DES chaining, Triple DES, RSA Algorithm.

Module II: Network Security

Authentication Application: Kerberos, X.509, Directory Authentication Service, Pretty Good Privacy, S/Mime, Digital Signature & Digital Signature Standard.

Module III: Network Security Applications

IP security Architecture: Overview, Authentication header, Encapsulating Security Pay Load, combining Security Associations, Key Distribution & Management.

Web Security: Requirements, Secure Socket Layer, Transport Layer Security, and Secure Electronic Transactions.

Module IV: System Security

Firewalls and protocols, Design Principles of Firewalls, Trusted systems, Virus & Intruders, IT act and cyber laws (Global Standards), Virtual Private Network – Issues relating to network security, Recent attacks on networks.

Examination Scheme:

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

Text & References:

Text:

- W. Stallings, Networks Security Essentials: Application & Standards, Pearson Education, 2000
- W. Stallings, Cryptography and Network Security, Principles and Practice, Pearson Education, 2000.

References:

- Network Security: The Complete Reference by Roberta Bragg, Mark Rhodes-Ousley, Keith Strassberg, et al - Tata McGraw-Hill presents
- Network Security: The Complete Reference by Roberta Bragg, Mark Rhodes-Ousley, Keith Strassberg, et al - Tata McGraw-Hill presents

WEB TECHNOLOGIES

Course Code	L	T	P	Credit
BSI631	2	1	0	3

Course Objective:

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

Course Contents:

Module I: Introduction to html programming

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

Module II: Tables and frames

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

Module III: Forms and JavaScript

Introduction to Forms, Form Elements, Front level validations using JavaScript

Module IV: Cascading style sheets

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

Module V: XML

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

Examination Scheme:

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

Text & References:

Text:

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

References:

■ HTML Complete Reference, BPB Publication.

■ Internet for everyone, Alexis Leon and Mathew Leon, Leon Tech world.

CLOUD COMPUTING

Course Code	L	T	P	Credit
BSI632	2	1	0	3

Course Objective

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

Course Contents

MODULE I: CLOUD ARCHITECTURE AND MODEL

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

MODULE II: VIRTUALIZATION

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

MODULE III: CLOUD INFRASTRUCTURE

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

MODULE IV: PROGRAMMING MODEL

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

MODULE V: SECURITY IN THE CLOUD

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

Examination Scheme:

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

Text & References:

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

MOBILE COMPUTING

Course Code	L	T	P	Credit
BSI633	2	1	0	3

Course Objective:

The objective of this subject is to make students familiar about the basic concepts mobile technology, computing and market

Course Contents:

Module I:

Global System for Mobile Communication (GSM) system overview: GSM Architecture, Mobility management, Network signalling. GSM Additional services: Teletext, Facsimile, Videotext services.

Module II: (Wireless) Medium Access Control

Motivation for a specialized

MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

Mobile Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

Module III: Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

Module IV: Mobile Data Communication

W LANs (Wireless LANs) IEEE 802.11 standard, Mobile IP.

Third Generation (3G) Mobile Services: Introduction to International Mobile Telecommunications 2000 (IMT 2000) vision, Wideband Code Division Multiple Access (W-CDMA), and CDMA 2000, Quality of services in 3G.

Module V: Global Mobile Satellite Systems

Mobile Satellite Systems (GEO, MEO and LEO), case studies of the IRIDIUM and GLOBALSTAR systems.

Examination Scheme:

Components	A	CT	S/V/Q	HA	EE
Weightage (%)	5	10	8	7	70

CT: Class Test, HA: Home Assignment, S/V/Q: Seminar/Viva/Quiz, EE: End Semester Examination; Att: Attendance

Text & References:

Text:

- “Mobile Communications”, 2nd Edition, [Jochen Schiller,2003](#)

References:

- “Wireless and Mobile Networks Architectures”, by Yi-Bing Lin & Imrich Chlamtac, John Wiley & Sons, 2001.
- “Mobile and Personal Communication systems and services”, by Raj Pandya, Prentice Hall of India, 2001.
- “Third Generation Mobile Telecommunication systems”, by P. Stavronlakis, Springer Publishers, 2001.

ARTIFICIAL INTELLIGENCE

Course Code	L	T	P	Credit
BSI634	2	1	0	3

Course Objective:

The primary objective of this course is to provide an introduction to the basic principles, techniques, and applications of Artificial Intelligence. The emphasis of the course is on teaching the fundamentals and not on providing a mastery of specific commercially available software tools or programming environments. Upon successful completion of the course, you will have an understanding of the basic areas of artificial intelligence search, knowledge representation, learning and their applications in design and implementation of intelligent agents for a variety of tasks in analysis, design, and problem-solving. You will also be able to design and implement key components of intelligent agents of moderate complexity in Java and/or Lisp or Prolog and evaluate their performance.

Course Contents:

Module I: Introduction

AI and its importance, AI Problem, Application area.

Module II: Problem Representations

State space representation, problem-reduction representation, production system, production system characteristics, and types of production system.

Module III: Heuristic Search Techniques

AI and search process, brute force search, depth-first search, breadth-first search, time and space complexities, heuristics search, hill climbing, best first search, A* algorithm and beam search.

Module IV: Game Playing

AI and game playing, plausible move generator, static evaluation move generator, game playing strategies, problems in game playing.

Module V: Structured Knowledge

Associative networks, frame structures, conceptual dependencies and scripts.

Module VI: Logic

Propositional logic: syntax and semantics, First Order Predicate Logic (FOPL): Syntax and semantics, conversion to clausal form, inference rules, unification, and the resolution principles.

Module VII: Knowledge Acquisitions

Type of learning, Knowledge Acquisition, Early work in machine learning, learning by induction.

Module VIII: Expert System

Introduction to expert system, Phases of expert system, characteristics of expert system and a case study.

Module IX: Introduction to Neural Network, Fuzzy Logic, Robotics, LISP and Prolog.

Examination Scheme:

Components	CT	HA/V/Q	Attd	EE
Weightage (%)	15	10	5	70

Text & References:

Text:

■ Artificial Intelligence – II Edition, Elaine Rich, Kevin Knight TMH.

References:

- Foundations of Artificial Intelligence and Expert Systems, V S Janakiraman, K Sarukesi, P Gopalakrishan, Macmillan India Ltd.
- Introduction to AI and Expert System, Dan W. Patterson, PHI.