Bachelor of Science – Information Technology

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Programme Structure

Curriculum & Scheme of Examination

2015

AMITY UNIVERSITY CHHATTISGARH

RAIPUR

B.Sc. – Information Technology

Programme Structure

FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
IFT2101	Fundamentals of Computer Science	2	-	-	2
IFT2102	PC Packages	1	-	-	1
IFT2103	Programming & Problem Solving through C Language	3	1	-	4
IFT2104	Programming Language & Techniques	2	-	-	2
IFT2105	Basic Mathematics	3	1	-	4
IFT2106	Introduction to Financial Accounting	3	-	-	3
IFT2108	PC Packages Lab	-	-	2	1
IFT2107	Programming & Problem Solving through C Language Lab	-	-	2	1
Open Electives					**9*+3**
CSS2151	Effective Listening*	1	**-**	**-**	1
ENV2152	Environmental Studies*	4	-	-	4
BEH2151	Understanding Self for Effectiveness*	1	-	-	1
LAN2151 LAN2152 LAN2153 LAN2154 LAN2155 LAN2156 LAN2157 LAN2158	Foreign Language – I* French - I German - I Spanish - I Russian - I Chinese - I Portuguese – I Korean-I Japanese-I	3	-	-	3
	TOTAL				**30**

*Compulsory

FUNDAMENTALS OF COMPUTER SCIENCE

Course Code: IFT2101   **Credit Units: 02**

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 Devices
Keyboard, Mouse, trackball, space ball, joystick, scanner, OMR, Bar code reader, MICR, Digitizer, Card Reader, Voice Recognition, Web cam, Video games

Module V: Output Devices
Monitors, Printers – Dot Matrix, Inkjet, laser, plotters, computer output micro film (COM), multimedia projector, speech synthesizer, dumb, smart and intelligent terminal

Module VI: Multimedia
What is multimedia, text, graphics, audio, images, video, and multimedia application in education, entertainment and marketing

Module VII: Computer Software
Relationship between hardware and software, system software, application software, compiler, names of some high level languages, free domain software

Examination Scheme:

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

Text & References:

Text:
- Fundamentals of Computer Science, V. Rajaraman, PHI.

References:
- Introduction to IT, Satish Jain BPB Publication.

PC PACKAGES

Course Code: IFT2102   **Credit Units: 01**

Course Objective:
The objective of the course is to study of the various applications such as Word, Excel, Access, PowerPoint, Front Page by using essential accessories and efficient use of software tools.

Course Contents:

Module I: 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.
Linux: An overview of Linux, Basic Linux elements, system features, software features. File Structure, File handling in Linux, S/W requirements, Linux commands.

Module II: 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.
Page brakes, templates.

Module III: 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 IV: 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	PR.	ATTD.	EE
Weightage (%)	10	15	5	70

Text & References:

Text:
☐ Fundamentals of Computer Science, V. Rajaraman, PHI.

References:
☐ Introduction to IT, Satish Jain BPB Publication.

PROGRAMMING AND PROBLEM SOLVING THROUGH C LANGUAGE

Course Code: IFT2103   **Credit Units: 04**

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, Foundations: definitions, deleraction, example & calling a foundation. Passing Arguments, call by value and call by references, Recursive function, .Recursion. strings, string handler fundions.

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

Module V: Structure Union & file handling
Structure definition, Declaration, structure Assignments, Arrays in structure, Structure Arrays, Pointer Structure, Nested Structure, Arrays and Arrays of Structure, Union declaration, assignments & example programs, Difference between structure & union, file handling and the related functions.

Examination Scheme:

Components	CT1	PR.	ATTD.	EE
Weightage (%)	10	15	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
- Dromey. G, "How to Solve it by Computer, Prentice Hall
- Peter Nortons, "DOS Guide", Prentice Hall
- Gottfried, "Programming in C", Schaum, Tata McGraw Hill
- Y. Kanetkar, "Let us C", BPB Publications
- Y. Kanetkar, "Understanding Pointers", BPB Publications
- Schidlt, "The Complete Reference of C", Tata McGraw Hill

PROGRAMMING LANGUAGE & TECHNIQUES

Course Code: IFT2104   **Credit Units: 02**

Course Objective:
Objective of the course is to acquaint the student with the fundamentals of logic as related to computer programming. For a comprehensive study, the student will be introduced to algorithms, flowcharts, Boolean logic, truth tables, decision tables, and arrays. Emphasis is on the logic of problems common to many computer languages.

Course Contents:

Module I: Introduction
Basics of Computer, functional parts of computer, memory block, different types of memories, machine language, Assembly language, high level languages, what is a program , good program specification, interpreter, compiler. Procedural Language, object oriented language & different

Module II: Flowcharts & Pseudo Codes
What is a flowchart, symbols used in a flowchart and its advantages, pseudo code, structured programming, structured flowcharts, system flowchart, decision table?

Module III: Control Constructs
Selection, Multiple selections, compound conditions, case conditions, iteration, nesting of iteration constructs, search techniques-linear search & binary search, sorting techniques –bubble, selection and insertion sort., quick sort, bucket sort, merge sort.

Module IV: Arrays & Files
What is an Array? Types of arrays, multidimensional array, what are files? Types of file accessing methods- sequential, indexed & random access.n module

Module V: tree and Graph

Examination Scheme:

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

Text & References:

Text:
- Principles and Techniques of Programming – T. M. Ramachandran (second edition) Golgotha‟s publication

References:
- Computer Fundamentals, P.K. Sinha.

BASIC MATHEMATICS

Course Code: IFT2105   **Credit Units: 04**

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

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
Matrices: Matrix, Submatrix, types of matrices, such as symmetric, square, diagonal matrices, singular and nonsingular matrices. Addition, Subtraction, multiplication of matrices, Rank of matrix, Matrix equation, Solution by Cramer's rule and Gauss elimination method.

Module II: Mathematical Logic
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, Group, Subgroups and other Groups

Module IV: Graph Theory
Graph, Finite graph, Infinite graph, Connected graph, Disconnected graph, Null graph. Subgraph, Incidence, Adjacency, Degree, Directed Graph, Walk, Path, Circuit, Eulerian graph, Hamiltonian graph, Planar graph.

Module V: Data Analysis
Data and Statistical Data, Frequency Distribution, Graphical Representation, Measure of the Central Tendency, Measure of Dispersion

Examination Scheme:

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

Text & References:

Text:
  Business Mathematics, Sancheti & Kapoor, S.Chand & Sons **Discrete mathematics by ci lui**
References:
  Discrete Mathematical Structure, Kolman, Busby and Ross, PHI

INTRODUCTION TO FINANCIAL ACCOUNTING

Course Code: IFT2106   **Credit Units: 03**

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 (%)	10	15	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

PC PACKAGES LAB

Course Code: IFT2108   **Credit Units: 01**

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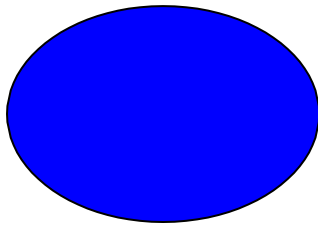
This is a Text Box. See if you can find one and insert it into the page.

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.
1. Start the Slide Show.
2. Edit or format text on a slide.
3. Add pictures to a presentation.
4. Use Slide Sorter View.
5. Apply slide transitions.
6. Check spelling in a presentation.
7. Display the Document Information Panel.
8. Save your work using Save or Save As

Q8 Display the presentation Lastname_Firstname_3G_Restaurants on the screen.
- View the Slide Show from the first slide. View the Slide Show starting with a slide other than the first.
- Move or resize placeholders on a slide.
- Change slide background or theme.
- Create or modify a table on a slide.
- Create or modify a chart on a slide.
- Insert a header or footer.
- Apply animation to slides

Q 9 Please use the following layout for all MS Word documents in this class.)

Your Name
MUS 1650-001 (or 1650-002 if applicable)
Today''s date
Technology and Me
First, tell me a little about yourself. Blah, blah.
Next, tell me about your technological background. Blah, bla blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, bla

blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, blah, bla blah.

CODENAME: _____

Choose your "Code Name" and include it at the bottom of your document. This is the name under which your grades will be posted on the "grades" page of the class web site
• Save your document as "YourInitials"-assignment1.doc

Q10 Create a spreadsheet to help in the purchase of a home. Your spreadsheet should calculate:

Monthly payments
Total interest paid of the life of the loan
Amortization table (interest and principle for each payment)
You should be able to change principle, rate, or years and see immediately the effect on the calculations above.

Q 11 Your lab assignment is to create a stock index for some high-profile Internet and technology companies. Listed below
are the share prices and shares outstanding for two categories of companies. First, you need to determine their current share prices. Then, you need to calculate, for each of the three dates, the market capitalization for each company, and the total market capitalization for the entire set of ten stocks. Then, normalizing the index value to 100 on 12/31/98, you need to calculate the index value for 10/05/99 and 10/08/99.

CATEGORY
Name of company
Ticker
Symbol
Shares
Outstanding
(in 1000"s)
Stock price
(12/31/98)
Stock price
(10/5/99)
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 AND PROBLEM SOLVING THROUGH C LANGUAGE LAB

Course Code: IFT2107   **Credit Units: 01**

Course Contents:

1. Swapping of 2 no. a) using 3rd variable. B) Without using 3rd variable.

2. Even- odd → loops. (if else)

3. leap year.

4. Largest of 3mm. (nested if)

5. QE. Using switch case. (Quadratic equation.)

6. Fibonacci series (simple).

7. Sum of digit of a number using (do while)

9. a) Find the largest of 10 no"s using array. B) Bubble sort in arrays.

10. a) Factorial - recursion. b) Fibonacci - reacuusion

11. 1) To concatenate two strings. 2) To calculate length. 3) To compare strings.

12. Calculate length of string using pointer.

13. Use of malloc (), calloc(), frce(). Realloc().

14. Student detail using structure.

15. Write program to copy the contents of one file to another. (File handling).

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.