Bachelor of Science – Information Technology

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Programme Structure

Curriculum & Scheme of Examination

2015

AMITY UNIVERSITY CHATTISGARH

RAIPUR

B.Sc. – Information Technology

Programme Structure

SIXTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
IFT2601	Introduction to Computer Graphics	3	-	-	3
IFT2602	Multimedia Technologies	2	-	-	2
IFT2603	Multimedia Technologies Lab	-	-	2	1
IFT2637	Major Project / Dissertation	-	-	-	6
IFT2604	Data Warehousing & Mining	2	-	-	2
IFT2605	Computer Graphics Lab	-	-	2	1
	Concentration Electives				**4**
IFT2606	Introduction to Enterprise Resource Planning	4	-	-	4
IFT2607	Systems Software	3	1	-	4
	Open Electives				**2*+3**
CSS2651	Workplace Communication*	1	-	-	1
BEH2651	Interpersonal Communication and Relationship Management*	1	-	-	1
	TOTAL				**24**

*Compulsory

Syllabus – Sixth Semester

INTRODUCTION TO COMPUTER GRAPHICS

Course Code: IFT2601 **Credit Units: 03**

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

Course Contents:

Module I: Introduction of Graphics
Development of Computer Graphics, Basic Graphics System and Standards.
Graphics Devices
Raster and Random Scan Devices, Continual Refresh and Storage Displays, Display Processor, Color Display Techniques, Frame Buffer, Concepts in Raster Graphics.

Module II: Graphics Primitives
Points, Pixels, Scan Conversion, Line Drawing Algorithms, Circle Drawing Algorithms, Anti-aliasing Technique, Character generator
Polygon
Polygon representation, Polygon Filling, Inside/Outside Testing

Module III: Transformation
Scaling, Translation, Rotation, Coordinate Axis Rotation, Reflection, Shears, Composite Transformation, Modeling and Coordinate Transformation
Viewing
Two – Dimensional Viewing, Viewing transformation, Interactive Picture Construction Techniques, Interactive Input/Output Devices,

Module IV: Segment
Segment Table, Creating Deleting and Renaming a Segment, Visibility and Image Transformation
Windowing and Clipping
Window, View-port, Line clipping, polygon clipping, Multiple Windowing

Module V: Three Dimensional Concepts
3-D Representation and Transformation, 3-D Viewing, Algorithm for 3-D Volumes, Introduction to Spline Curves and Surfaces

Examination Scheme:

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

Text & References:
Text:
- Computer Graphics By Donald Hearn And Pauline Baker
- Harrington‟s “Computer Graphics “ A Programming Approach

References:
- Principle Of Interactive Computer Graphics by New, W. M. and Spraull
- Foley “Computer Graphics” Addission Wesley
- Rogers‟ “Procedural Elements of Computer Graphics “ Mc-Grawhilll

MULTIMEDIA TECHNOLOGIES

Course Code: IFT2602 **Credit Units: 02**

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

Text & References:

- Multimedia systems John F. Koegal Buford Addison- Wesley

DATA WAREHOUSING AND MINING

Course Code: INT2604 **Credit Units: 02**

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

Course Contents:

Module I: Data Warehousing
Introduction to Data Warehouse, its competitive advantage, Data warehouse Vs Operational Data, Things to consider while building Data Warehouse

Module II: Implementation
Building Data warehousing team, Defining data warehousing project, data warehousing project management, Project estimation for data warehousing, Data warehousing project implementation

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

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

Examination Scheme:

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

Text & References:

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

References:
- Data Mining, Pieter Adrians and Doif Zantinge

COMPUTER GRAPHICS LAB

Course Code: IFT2605 **Credit Units: 01**

Software Required: Turbo C++

Course Contents:

Assignments will be provided for the following:

- Geometrical shapes based on graphics algorithms
- 2D Geometric transformation translation, rotation, scaling, reflection.
- Clipping
- Animation

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.

MULTIMEDIA TECHNOLOGIES LAB

Course Code: IFT2603 **Credit Units: 01**

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. Show an example of Masking in flash.
4. Make an animation of bouncing ball using flash.
5. Create the animation of moving Car in flash.
6. Make the blinking colorful text in flash.
7. Make a scenery showing rising sun in it using flash.
8. Show a flower growing in a flower pot.
9. Create the animation to show a Gardner watering the flower.
10. Make an animation to show a charismas tree growing step by step.

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.

Tool Required – Macro –Media flash.

INTRODUCTION TO ENTERPRISE RESOURCE PLANNING

Course Code: IFT2606 **Credit Units: 04**

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, Selection criteria for ERP, Approach to ERP selection, Proof of concept approach, 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.

Examination Scheme:

Components	CT1	A/C/Q	Attd	EE
Weightage (%)	10	15	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.
- Enterprise Resource Planning, Alexis Leon, Tata McGraw Hill

SYSTEM SOFTWARE

Course Code: IFT2607 **Credit Units: 04**

Course Objective:
This course is an introduction to the design and implementation of various types of system software. It is intended that the student should be able to design a working assembler, loader and macro-processor on completion of this course.

Course Contents:

Module I: Introduction
Introduction, Components of system software, Evolution of system software, Language translators, batch Monitors multiprogramming operating system, time sharing operating system, Evolution of programming system. Assembler Structure of an assembler, Design of Two pass assembler (8085 as ref), Single Pass assembler - Table of incomplete instruction, backpatching Cross-assembler.

Module II: Macro Processor
Macro instructions, Features of a macro facility, Design of two pass macro processor. Implementation of nested macros (macro call inside definition, definition inside definition).

Module III: Linkers and Loaders Schemes
Compile and Go, General loader scheme, absolute loader, and subroutline linkages, Relocating loaders, Direct linking loader, and Dynamic linking loader, overlay structure. Design of Absolute loader, direct linking loader. Implementation example - MS DOS linker.

Module IV: Compiler phases
Introduction, with Input/output for each phase, Concept of cross compiler (introductory part only), Features of machine dependent and independent compilers. Types of compilers with definitions only, Interpreters.

Module V: Software Tools
Tools for program testing, Text editors - screen editor, line editor, Word processors, Debug monitors. (structure of text editor)

Module VI: Operating System Structure
Operating System components, System calls, OS services File management, memory management, Device management, Process management, System calls, Process Scheduling Long term, Short term, Middle term scheduler, Interprocess communication Direct communication, Indirect communication, buffering.

Examination Scheme:

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

Text & References:

Text:

- System Software an introduction to system programming, L. Beck, AWP-1977
- Systems programming, John Donovan, McGraw Hill

References:

- Systems programming and operating system, D. M. Dhamdere: Tata McGraw Hill. Peterson, Operating system
- Operating system concept, Silberschatz, Galving.

MAJOR PROJECT / DISSERTATION

Course Code: IFT2637 **Credit Units: 06**

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