PAPER VII: ELECTIVE I
I - COMPUTER GRAPHICS

Credits: 5 Hours: 75

Objective: To study the fundamental concepts of Computer Graphics.

UNIT – I

Introduction – Display devices – Hard copy devices – Interactive input devices – display processors -graphics software – O/P primitives – line drawing algorithm – anti aliasing of lines – line command – circle drawing algorithm.

UNIT – II

Attributes of output primitives – line style – color and intensity- Character attributes – Two dimensional transformations - basic and composite transformation – matrix representation – other transformation.

UNIT – III

Windowing and Clipping: windowing concepts – window to view port transformation – Clipping – line – polygon – text clipping - Segments – segment attributes.

UNIT – IV

Interactive Input methods - Physical input devices – Logical classification of input devices – Interactive picture construction techniques – Input functions

UNIT – V

Three dimensional concepts – Display techniques – Three dimensional transformations – Other transformations – 3D viewing – Projections – animation

TEXT BOOK

1. D. Hearn and M. Pauline Baker. *Interactive Computer Graphics*. PHI, 2002.

REFERENCE BOOK

1. W. M. New Man and R. F. Sproull. *Principles of interactive Computer* G*raphics.* McGraw Hill International Edition. 1979.

II – SOFTWARE PROJECT MANAGEMENT

Credits: 5 Hours: 75

Objective: After studying this course, the student should be able to plan and evaluate a software project identify and manage the risk during project development, learn the managerial skills, work in and organize teams.

UNIT – I

Introduction to software project management : What is project – The project as a system – what is management – problems with software projects – Management control – Stakeholders – Requirement specification – Information and control in organizations – Overview of project planning – Stepwise project planning – Project evaluation.

UNIT – II

Selection of an appropriate project approach : – Introduction – Choosing technologies – Technical plan contents list – choice of process models – structured methods – Rapid application development – waterfall model – process model- V process model – the spiral model - software effect estimation: problems with over and under estimates – The basis for software estimating – software effort estimation techniques – expert judgment – estimating by analogy – Albrecht function point analysis – function points Mark II – Object points – A procedural code oriented approach – COCOMO : a parametric model – Activity planning.

UNIT – III

Risk management – The nature of risk – Managing risk – Risk identification – Risk analysis – reducing the risks – Evaluating risks to the schedule – calculating the Z values – Resource allocation : Scheduling – Cost schedules – Scheduling sequence

UNIT – IV

Monitoring and control – Managing contracts – Introduction – Types of contracts-Stages in contract placement – Typical terms of a contract – Contract management – Acceptance – Managing people and organizing terms.

Unit – V

Software quality - Importance – ISO 9126 – External standard – Techniques to enhance s/w quality – Prince 2 – An overview.

TEXT BOOKS

1. Bob Hughes and Mike Cotterell – *Software Project Management* – Tata Mcgraw Hill

REFERENCE BOOKS

1. Walker Royee – *Software Project Management* – A unified framework – Pearson Education

III - RESOURCE MANAGEMENT TECHNIQUES

Credits: 5 Hours: 75

Objective: To impart knowledge in Resource Management Techniques.

UNIT – I

Basics of Operation Research – Characteristics – OR and decision making – Role of computers in OR. Linear Programming: Formulation and Graphical solution (2 variables) – Canonical and standard form of LPP.

UNIT – II

Algebraic solution: Simplex methods – Big M method – Two phase method – Concept of duality – Dual simplex method.

UNIT – III

Transportation problems: Definition - Formulation – North West Corner Rule - Row minima - Column minima method – Matrix minima – VAM.

UNIT – IV

Sequencing problem: Processing n jobs through 2 machines - Processing n jobs through 3 machines - Processing 2 jobs through m machines - Processing n jobs through m machines- Travelling salesman problem.

UNIT – V

Game theory: Characteristics of games – Maximin, Minimax criteria of optimality – Dominance property – Algebraic and graphical method of solving 2 x 2 games.

PERT- CPM: Networks – measure of activity – PERT computation – CPM computation – Resource scheduling.

TEXT BOOK

1. K. Swarup P.K. Gupta and Man Mohan, *Operation Research*, Sultan Chand and Sons.

REFERENCE BOOK

1. H. A. Taha. *Operation Research – An Introduction*. PHI. 5th Edition. New Delhi. 1996.