**HU601: PROFESSIONAL COMMUNICATION**

**Credits: 02**

**L-T-P: 2-0-0**

**Unit I:**

*Oral Communication:*

Aims at improving the oral communication skills. Public speaking skills, features of effective speech – verbal – non-verbal, Presentation skills, Group discussion.Mock Interviews.

**Unit II:**

*Written Communication:*

Focuses on improving the writing skills. A review of grammar, transformation of sentences; reading comprehension; Precis-writing, skills to express ideas through various kinds of essays; business administrative and E-correspondence, business reports, technical documentation & project proposal writing and CVs/ resumes; Application letters, Notices, Agenda, Minutes & Memos. Case Analysis.

**Unit III:**

*Organization Communication:*

Attempts to acquaint students with the process and requirements of communication in organizations. It includes the objectives of communication, Channels of communication, Barriers in Communication, Non-verbal & Cross-cultural communication, Meetings, Conferences, Press Conference and Press release. Business Communication Technology: Audio-Visual aids, Internet, e-mail. Creative Communication: Slogan-writing, Advertisement.

**Texts / References**:

1. Wren & Martin., **English Grammar**
2. John Metchell., **How to write Reports**
3. Mark McCormack., **Communication**
4. Rajendra Pal & J.S. Korlahalli, **Essentials of Business Communication**

**IT 601: E-COMMERCE & ERP**

**Credits::3**

**L-T-P: 3-0-0**

**Unit - I**

*Electronic Commerce***:** Overview, Definitions, Advantages & Disadvantages of E-Commerce, Threats of E-Commerce, Managerial Prospective, Rules & Regulations for Controlling E-Commerce, Cyber Laws.

*Technologies***:** Relationship Between E-Commerce & Networking, Different Types of Networking for E-Commerce, internet, Intranet, EDI Systems

*Wireless Application Protocol***:** Definition, Hand Held Devices, Mobility & Commerce, Mobile Computing, Wireless Web, Web Security, Infrastructure Requirement for E-Commerce.

Business Models of E-commerce; Model Based on Transaction Type, Model Based on Transaction Party - B2B, B2C, C2B, C2C, E-Governance.

**Unit – II:**

*E-strategy*: Overview, Strategic Methods for developing E-Commerce.

*Four C’s**(Convergence, Collaborative Computing, Content Management & Call Centre).*

Convergence : Technological Advances in Convergence - Types, Convergence and its implications, Convergence & Electronic Commerce.

Collaborative Computing : Collaborative product development, contract as per CAD, Simultaneous Collaboration, Security.

Content Management : Definition of content, Authoring Tools and Content Management, Content - partnership, repositories, convergence, providers, Web Traffic & Traffic management : Content Marketing.

Call Centre : Definition, Need, Tasks Handled, Mode of Operation, Equipment, Strength & Weaknesses of Call Centre, Customer Premises Equipment (CPE). [6L]

*Supply Chain Management* : E-logistics, Supply Chain Portal, Sypply Chain planning Tools (SCP Tools), Supply Chain Execution (SCE), SCE - Framework, Internet’s effect on Supply chain power .

**Unit - III**

*E-Payment Mechanism*:Payment through card system, E-Cheque, E-Cash, E-Payment Threats & Protections.

*E-Marketing*: Home - shopping, E-Marketing, Tele-marketing

Electronic Data Interchange (EDI) : Meaning, Benefits, Concepts, Application, EDI Model, protocols (UN EDI FACT / GTDI, ANSIX - 12, Data Encryption (DES / RSA)

*Risk of E-Commerce* : Overview, Security for E-Commerce, Security Standards, Firewall, Cryptography, Key Management, Password Systems, Digital Certificates, Digital Signatures.

**Unit - IV**

*Enterprise Resource Planning (ERP)* : Features, capabilities and Overview of Commercial Software, re-engineering work processes for IT applications, Business Process Redesign, Knowledge Engineering and Data Warehouse.

*Business Modules* ; Finance, Manufacturing (Production), Human Resources, Plant maintenance, Materials, Management, Quality Management Sales & Distribution ERP Package.

*ERP Market* ; ERP Market Place, SAP AG, PeopleSoft, BAAN, JD Edwards, Oracle Corporation.

*ERP-Present and Future* : Enterprise Application Integration (EAI),

*ERP and E-Commerce*, ERP and Internet, Future Directions in ERP

**Text Books/Reference Book** :

1. **E-commerce**. MM Oka, EPH

2. Kalakotia, Whinston : **Frontiers of Electronic Commerce**, Pearson Education.

3. Bhaskar Bharat ; **Electronic Commerce - Technologies & Applications**. TMH.

4. Loshin pete, Murphy P.A. : **Electronic Commerce**, Jaico Publishing Housing

5. Murthy : **E-Commerce**, Himalaya publishing.

6. **E-commerce : Strategy Technologies & Applications**, Tata McGraw Hill.

**IT602: COMPUTER GRAPHICS AND MULTIMEDIA**

**Credits: 04**

**L-T-P: 3-1-0**

**UNIT-I**

*Introduction*:

organization of an interactive graphics system, Scan conversion-DDA and Brasenham’s line drawing algorithms, Brasenham’s circle generation algorithm, Algorithm for ellipse generation, aliasing and anti-aliasing.

**UNIT-II**

*Filling*:

Polygon filling algorithms, clipping-line clipping, polygon cliping, 2D transformations: Scaling, rotation, translation, homogeneous co-ordinates, rotation about arbitrary points.

**UNIT-III**

*3D Graphics*:

3D primitives, projections (parallel and prospective), isometric viewing transmissions, hidden surface and line removal techniques: Painters algorithms, Z-buffers algorithms, Warnock’s algorithms, 3D clipping.

**UNIT-IV**

*Introduction to multimedia*:

Multimedia today, Impact of Multimedia, Multimedia Systems, Components and Its Applications. Text: Types of Text, Ways to Present Text, Aspects of Text Design, Character, Character Set, Codes, Unicode, Encryption, Audio: Basic Sound Concepts, Types of Sound, Digitizing Sound, Computer Representation of Sound (Sampling Rate, Sampling Size, Quantization), Audio Formats, Audio tools, MIDI

**UNIT-V**

*Image*:

Formats, Image Color Scheme, Image Enhancement,Video: Analogue and Digital Video, Recording Formats and Standards (JPEG, MPEG, H.261) Transmission of Video Signals, Video Capture, and Computer based Animation, Synchronization: Temporal relationships, synchronization accuracy specification factors, quality of service

 **Text Books/ Reference Books:**

1. D. Hearn and M. P. Baker, “**Computer Graphics**”, 3rd Ed, Prentice Hall, 2004.

2. Ralf Steinmetz and Klara Nahrstedt , “**Multimedia: Computing, Communications & Applications**” , Pearson Ed

3. J. D. Foley, A. van Dam, S. Feiner, and J. F. Hughes, “**Computer Graphics: Principles and Practice**”, 2nd Ed, Addison-Wesley, 1996.

4. V. Neuman and Sproul, “**Interactive Computer Graphics**”, TMH 2004

5. Prabhat K. Andleigh & Kiran Thakrar , “**Multimedia Systems Design**” , PHI

6. Fred Halsall , “**Multimedia Communications**” , Pearson Edition.

7. J. Hill: **Computer graphics using open GL**, 2nd Edition 2004.

**IT603: COMPILER DESIGN**

**Credits: 04**

**L-T-P: 3-1-0**

**UNIT-I:**

*Overview of Compilation***:**

Phases of Compilation – Lexical Analysis, Regular Grammar and regular expression for common programming language features, pass and Phases of translation, interpretation, bootstrapping, data structures in compilation – LEX lexical analyzer generator.

**UNIT-II:**

*Top down Parsing***:**

Context free grammars, Top down parsing – Backtracking, LL (1), recursive, descent parsing, Predictive parsing, and Preprocessing steps required for predictive parsing.

**UNIT-III:**

*Bottom up parsing***:**

Shift Reduce parsing, LR and LALR parsing, Error recovery in parsing, handling ambiguous grammar, YACC – automatic parser generator.

**UNIT-IV:**

*Semantic analysis***:**

Intermediate forms of source Programs – abstract syntax tree, polish notation and three address codes. Attributed grammars, Syntax directed translation, Conversion of popular Programming languages language Constructs into Intermediate code forms, Type checker.

**UNIT-V:**

*Symbol Tables***:**

Symbol table format, organization for block structures languages, hashing, tree

structures representation of scope information. Block structures and non block structure storage allocation: static, Runtime stack and heap storage allocation, storage allocation for arrays, strings and records.

**UNIT-VI:**

*Code optimization***:**

Consideration for Optimization, Scope of Optimization, local optimization, loop optimization, frequency reduction, folding, DAG representation.

**UNIT-VII:**

*Data flow analysis***:**

Flow graph, data flow equation, global optimization, redundant sub expression

elimination, Induction variable elements, Live variable analysis, Copy propagation.

**UNIT-VIII:**

*Object code generation***:**

Object code forms, machine dependent code optimization, register allocation and assignment generic code generation algorithms, DAG for register allocation.

**TEXT BOOKS / REFERENCES :**

1**.Principles of compiler design** -A.V. Aho .J.D.Ullman; Pearson Education.

2. **Modern Compiler Implementation in C**- Andrew N. Appel, Cambridge University Press.

3. **LEX & YACC** – John R. Levine, Tony Mason, Doug Brown, O’reilly

4. **Modern Compiler Design**- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.

5. **Engineering a Compiler**-Cooper & Linda, Elsevier.

6. **Compiler Construction**, Louden, Thomson.

**IT-604: Web Technology**

**Credits: 04**

**L-T-P: 3-1-0**

**UNIT I**

*Introduction and Web Development Strategies*

History of Web, Protocols governing Web, Creating Websites for individual and Corporate World, Cyber Laws, Web Applications, Writing Web Projects, Identification of Objects, Target Users, Web Team, Planning and Process Development.

**UNIT II**

HTML, XML and Scripting List, Tables, Images, Forms, Frames, CSS Document type definition, XML schemes, Object Models, Presenting XML, Using XML Processors: DOM and SAX , Introduction to Java Script, Object in Java Script, Dynamic HTML with Java Script.

**UNIT III**

Java Beans and Web Servers,Introduction to Java Beans, Advantage, Properties, BDK, Introduction to EJB, Java Beans API Introduction to Servelets, Lifecycle, JSDK, Servlet API, Servlet Packages: HTTP package, Working with Http request and response, Security Issues.

**UNIT IV**

JSP ,Introduction to JSP, JSP processing, JSP Application Design, Tomcat Server, Implicit JSP objects, Conditional Processing, Declaring variables and methods, Error Handling and Debugging, Sharing data between JSP pages- Sharing Session and Application Data.

**UNIT V**

Database Connectivity Database Programming using JDBC, Studying Javax.sql.\*package, accessing a database from a JSP page, Application-specific Database Action, Developing Java Beans in a JSP page, introduction to Struts framework.

**Text Books / Reference:**

1. Burdman, “**Collaborative Web Development**” Addison Wesley.

2. Chris Bates, “**Web Programing Building Internet Applications**”, 2nd Edition, WILEY, Dreamtech

3. Joel Sklar , “**Principal of Web Design**” Vikash and Thomas Learning

4. Horstmann, “**Core Java**”, Addison Wesley.

5. Herbert Schieldt, “**The Complete Reference: Java**”, TMH.

6. Hans Bergsten, “**Java Server Pages**”, SPD O’Reilly

**IT605: SOFTWARE ENGINEERING**

**Credits: 03**

**L-T-P: 3-0-0**

**UNIT I:**

*Introduction to Software Engineering:*

The evolving role of software, Changing Nature of Software, Software myths.

**UNIT II:**

*A Generic view of process:*

Software engineering- A layered technology, a process framework, The

Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

**UNIT III:**

*Process models:*

The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

**UNIT IV:**

*Software Requirements:*

Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

**UNIT V:**

*Requirements engineering process:*

Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

**UNIT VI:**

*System models:*

Context Models, Behavioral models, Data models, Object models, structured methods.

**UNIT VII:**

*Design Engineering:*

Design process and Design quality, Design concepts, the design model.

**UNIT VIII:**

*Creating an architectural design:*

**S**oftware architecture, Data design, Architectural styles and patterns, Architectural Design.

**UNIT IX:**

*Object-Oriented Design:*

Objects and object classes, An Object-Oriented design process, Design evolution.

**UNIT X:**

*Performing User interface design:*

Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

**UNIT XI:**

*Testing Strategies:*

A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

*Product metrics:*

Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

**UNIT XII:**

*Metrics for Process and Products:*

Software Measurement, Metrics for software quality.

*Risk management:*

Reactive vs Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

**UNIT XIII:**

*Quality Management:*Quality concepts, Software quality assurance, Software Reviews,

Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

**TEXT BOOKS / REFERENCES :**

1. **Software Engineering, A practitioner’s Approach**- Roger S. Pressman, 6th edition. McGraw-Hill International Edition.

2. **Software Engineering**- Somerville, 7th edition, Pearson education.

3. **Software Engineering**- K.K. Agarwal&YogeshSingh, New Age International Publishers

4. **Software Engineering, an Engineering Approach**- James F. Peters, WitoldPedrycz, John Wiely.

5. **Systems Analysis and Design**- Shely Cashman Rosenblatt, Thomson Publications.

6. **Software Engineering Principles and Practice**- Waman S Jawadekar, The McGraw-Hill Companies.

**IT670: Mini Project**

**Credits:02**

**L-T-P**

**0 -0 -2**

**Objective of this project is to make students familiar with the software design principles and recent tools used in software development. Mini projects are assigned to students individually or in group by the department under a designated faculty member. Students are supposed to develop a full-fledged application using any recent developing environment (C#, VB.Net, Java, Android etc) and following all the steps involved in actual software development like requirement analysis, design, coding, testing etc. At the end of the semester, students are supposed to submit a report along with the software product and also give a presentation.**