Computing for Business & Society

All UG Programs

Course Category: Proficiency   **Schedule of Offering: Semester ....**

Course Credit Structure: [2]   **Course Code: CK101**

- **Lecture**   : 2 Hours per week
- **Tutorial**   : 0 Hour per week
- **Practical**   : 0 Hours per week

Contact Hours per week: 2 Hours per week

Introduction:

This course is designed to introduce the students about the basic computer concepts in hardware and software, networking, computer security, programming, database, e-commerce and governance and other emerging technologies such as cloud computing, crowd sourcing, blogs, wiki, multimedia, podcasting and Google applications like surveys and drive utilization. The students will also learn techniques to search, evaluate, validate and cite information found online. Furthermore, they will be introduced to word processing, spreadsheets and databases for data manipulation for business in order to solve the real world problems.

Course Objectives:

After successful completion of this course, the students will be able to -

- Understand the basic concepts of computer hardware and software and operating systems

- Identify different types of networks

- Create blogs

- Use word processor, spreadsheet, DBMS, e-commerce and e-governance

- Learn search techniques and understand the ethical issues.

Pre-requisites: There are no formal pre-requisites. Programming experience or knowledge is not required.

Module-wise Topics

Module 1: Computing & IT: Introduction (5 Sessions)

This module provides basic understanding of various operating systems and introduces the concepts of hardware and networking, IT & multimedia in detail.

- Introduction to Computing, ALU and CPU control Memory, Cache and main memory, Secondary storage.
- Basic Concepts of Hardware and Software, Introduction to the physical components of computer: monitor, keyboard, HDD, graphic card, memory card, mother board, I/O devices, removable media etc. Introduction to Software Engineering, Software Components, Software Characteristics, Software Crisis, Software Engineering Processes.
- Networking: LAN technologies (Ethernet, Token ring), WAN, CAN, WLAN, TCP/UDP and sockets, IP(v4), Application layer protocols (icmp, dns, smtp, pop, ftp, http); File Transfer, Access and Management, Electronic mail, Virtual Terminals, Other application, Example Networks, Internet and Public Networks. Basic concepts of hubs, switches, gateways, and routers.
- Information Technology - Introduction to IT and its applications. E-data Processing: Data storage, Databases, Data Retrieval, Data transmission and manipulation.
- Multimedia, Introduction to the various components of Multimedia: Text, Audio, Images, Animation etc
- S.M.A.C: A framework of emerging trends

Books and References

1. Patterson, Computer Organisation and Design, Elsevier Pub. 2009
2. John P Hays, " Computer Organization", McGraw Hill
3. R. S. Pressman, Software Engineering: A Practitioners Approach, McGraw Hill.
4. Pfleeger, Software Engineering, Macmillan Publication.

Module 2: Spreadsheet Modelling & Word processing (6 sessions)

This module helps students to understand what an Excel spreadsheet and word processing are and how these will help in the business management.

- Microsoft Excel / Libre Spreadsheet : Basic concepts of a spreadsheet, general idea about templates, cells, rows and columns, cell coordinates, inserting data into a spreadsheet cell, making changes in a spreadsheet, inserting, deleting and freezing rows and columns, Cell Formatting options including conditional formatting
- Basic Navigation and functions, Vocabulary of Excel, Basic understanding of functions like Count and sum, usage of logical functions, understand the difference between relative and absolute cell references, financial and statistical functions.
- Formulas: Data precedence, operators and operands, arithmetic and relational operators, precedence of operators.
- Sorting & filtering, Spreadsheet charts & Pivot table, preparing worksheet for printer
- Word Processing: Basic functions, formatting, mail merge, macros, tables.

Books and References

1. Microsoft Excel Fundamentals: A Practical Workbook for Small Businesses, Rudy LeCorps, RGL Publishing, 2006
2. Microsoft Excel 2010 Step by Step, Curtis D. Frye, Microsoft Press, 2010
3. Essentials of modern business statistics with Microsoft Excel - Anderson, David R., Dennis J. Sweeney, and Thomas A. Williams. Cengage Learning, 2011
4. Gini, Courter & Annette Marquis, Ms-Office 2013, BPB Publications

Module 3: Database Management Systems & Relational Database Management Systems (9 sessions)

This module enables one to learn the basic concepts of DBMS and its purpose, how to create the databases using tables and schemas and to store and manipulate the data by using some statements and queries.

- Introduction: Database applications, accessing and modifying databases, need for transactions, architecture - users and administrators, data mining, information retrieval.
- Database Design: E-R model, E-R diagram, reduction to relational schema, E-R design issues, database integrity, specifying integrity constraints in SQL: unique columns, foreign key, triggers.
- Storage and File structure: Overview of secondary storage, RAID and flash storage. Storing tables: row-wise, column database, database buffer. Indexing: concepts, clustered and nonclustered indices, multiple key access, hashed files,linear hash files, bitmap indices, Index definition in SQL.
- Recovery: Failures and their classification, recovery and atomicity.
- Introduction To RDBMS and their features, Difference Between DBMS and RDBMS
- Relationship among application programs(MySQL) and RDBMS
- MySQL, Retrieving data using the SQL select statement. Restricting and sorting data. Using single row function to customize output. Reporting aggregated data using the grout function. Displaying data from multiple tables. Using subqueries to solve problems. Using set operators. DML statements for data manipulation. Using DDL statements to create and manage tables. Creating other schema objects. Managing objects with data dictionary. Controlling User access. Managing schema objects. Manipulating large data sets. Generating report by grouping related data. Managing data in different time zones. Retrieving data using subqueries. Hierarchical retrieval. Regular expression support.

Books and References:

1. A Silberschatz, H Korth and S Sudarshan, Database System Concepts, 6th Ed., McGraw-Hill, 2010.
2. R Elmasri, S Navathe, Fundamentals of Database Systems, 6th edition, Addison-Wesley, 2010.
3. Alan Beaulieu, Learning SQL,O'Reilly Media,2005.

Module 4: Computing – Business Applications (6 Sessions)

This module provides the basic understanding of business related applications and how to adapt the emerging trends into day to day life.

- E-commerce, Types of business transactions, E-Commerce Applications: Online Banking, Internet marketing, Mobile commerce, Retail and customer services. Basic knowledge of famous E-commerce websites.
- E-governance: Introduction to the concepts of E-governance and its applications. Basic models of E-governance, emerging trends in E-governance. Knowledge of various E-governance websites.
- Mobile Applications related to Business, Financial Accounting applications, Travel applications, communication applications, business and mobile payment applications.
- Introduction to Data Analytics and Data Mining, Data requirements, data acquisition, data collection, data processing, data cleanup and transformation. Exploratory data analysis and data visualization. Data Mining: Anomaly detection, predective model, clustering, Techniques of Data Mining.
- Cloud Computing: Concept, Issues & Applications, Architecture and characteristics of cloud computing. Cloud Fundamentals: Building blocks of cloud, Basic understanding of public, private and hybrid cloud environments.
- Online Collaboration: Tools & Applications

Books and References

1. Distributed and Cloud Computing, 1st edition, Morgan Kaufmann, 2011.
2. Managing Information in the Public Sector. White, Jay D, M.E. Sharpe.
New York, 2007
3. Citizen Centered E-Government Services: Benefits, Costs, and Research Needs. Bertot, Jaegar, and McClure, Montreal, Canada 2008.

Module 5 : Computing - Societal Applications (4 sessions)

This module discusses social and ethical issues in computing such as Piracy, Phishing, Identity theft, Hacking, intellectual property rights copyrighted electronic content, privacy concerns, by which the society can be affected.

- Social Networking and Blogs, Definition of Social Networking, usages of Social Networks in Education, various Social Networks, advantages and disadvantages of Social Networking.

- Piracy, Copyright related policies, Phishing Identity theft, Privacy, Policy, Law and Technology

- Open source and Proprietary sources, Introduction to Open Source and Proprietary Source(closed source sofrware) software. Pros and cons of Open Source and Proprietary Sources.

- Concepts of Crowdsourcing

Books and References

1. Crowdsourcing for Dummies, David Alan Grier, 2013

2. Crowdfunding: The Next Big Thing, Gary Spirer,CreateSpace Independent Publishing Platform, 2013

3. Blog Inc, Jill walker, Chronicle Books, San Francisco, 2012

4. Blogging Digital Media and Society Series, Jill Walker, Rettberg, Wiley publishers, 2013.

Pedagogy

This course will run in both lecture and practical mode. The lectures will focus on the theory and lab sessions will support the application of the theory. There will be assignments supporting the learning and a group project in order to solve some real life problems.

Evaluation

•	Assignments	15 Points
•	Group Project	25 Points
•	Mid-Semester Exam	25 Points
•	End-Semester Exam	35 Points
	Total	100 Points