THE SOCIETY OF BUSINESS PRACTITIONERS

Professional Diploma Programmes In Computer Studies, Information Technology & E-Commerce

SBP (COSITEC) THREE STAGE DIPLOMA AWARDS

Containing

Programme Structure
Course Objective
Syllabus Content
Recommended Study Text

Diploma in Computer Studies (DCS)

1. Networking & the Internet
2. Management Information Systems
3. Information Technology Management
4. Desktop Publishing
5. Practical Database

Advanced Diploma In Computer Studies (ADCS)

1. Strategic Business Management
2. E-Commerce Marketing & Technology
3. Computer Systems Management
4. Systems Analysis & Design
5. Software Engineering

Graduate Diploma In I.T. & E-Commerce (GDITEC)

1. E-Commerce In Management
2. E-Commerce & Technology 1
3. E-Commerce & Technology 2
4. E-Commerce & Microeconomics
5. E-Commerce, Institutions & Innovation
6. E-Commerce Markets & Finance (Case Study Analysis Paper)

Entry Requirements

Diploma In Computer Studies

Applicants must have obtained one of the following:

- SBP Certificate In Business Administration
- Two "A" Level passes plus four GCSE passes at Grade A, B or C, two of which must be English and Maths
- Overseas qualifications which may be accepted by the Registrar as being equivalent to the above
- The Society also welcomes applications from candidates without formal qualifications who have been in appropriate employment for at least two years. A reference letter from employer(s) must accompany such applications

Advanced Diploma In Computer Studies

Applicants must have obtained one of the following:

- The Society's Diploma
- Other recognised qualifications of approved Overseas Institutes of Higher Education

Graduate Diploma IT & E-Commerce

Applicants must have obtained one of the following:

- The Society's Advanced Diploma
- A Non IT Bachelors Degree or Overseas equivalent
- Other recognised qualifications of approved Overseas Institutes of Higher Education

Professional Diploma Programmes In
Computer Studies, Information Technology & E-Commerce

Introduction

The SBP information Technology Management courses (COSITEC) provide Schools, colleges and study centres with a comprehensive programme which has a flexible method of assessing candidates and others who are keen on attaining recognition for this specific field of study.

Each module provides a very clear framework but permits sufficient flexibility to enable individual schools and colleges to design varying forms of study programmes to suit their own requirements.

The society relies on each school or college to utilise appropriate hardware and software to conduct the courses within the framework of the syllabus content. As each individual school or college is required to endorse candidates' work and to confirm their skill attainment, only approved centres will be permitted to offer these courses. All schools/colleges must apply for **Approved COSITEC Centre** status prior to conducting any courses.

Method of Instruction/Courses Schedules

Due to the flexible nature of the programme, schools and colleges may at their own convenience arrange the training sessions for the course. However, the minimum level of achievement must be met for each of the modules being taught without exception for final certification to take place.

Assessment

Each module may be assessed fully by a three hour invigilated examination and/or with a combination of examination plus a written assignment not exceeding 3000 words, based on a equally weighted percentage i.e. 50/50%. It is the responsibility of each approved COSITEC Centre to ensure that all assignments are of suitable quality and of required standard. Sample copies of examination scripts and assignments will be required by the society's Examination Council for verification purposes in addition to the overall results listing provided by each COSITEC centre. Any candidate's work not deemed to be of the required level by the Chief Examiner will be rejected and a re-sit examination OR a supplementary assessment needs to be undertaken.

Recommended Study Texts

The main and secondary textbooks recommended for the course are listed at the end of the syllabus structure. All schools and colleges are encouraged to obtain at least one secondary study text in addition to the main textbook. All the recommended text books are of a suitable level for the course and cover a great deal more than what the syllabus requires.

Professional Diploma Programmes In Computer Studies, Information Technology & E-Commerce

DIPLOMA IN COMPUTER STUDIES (DCS)

1 **Networking & the Internet**
2 **Management Information Systems**
3 **Information Technology Management**
4 **Desktop Publishing**
5 **Practical Database**

(1) Networking and the Internet

Aims

- To enable the student to understand the fundamentals of data networking and communications and its application in the local area networks and the Internet.
- To relate networking principles and practice to the OSI Model.
- To understand the importance of data security for networks.

Learning Outcomes

At the end of the course the student will have the ability to:

- Fully understand the workings and the standards set for networking the OSI Model
- Design appropriate data networks for the organisation.
- Understand security issues in data networks
- Design appropriate security measures and practices to secure the network

SYLLABUS

(Uses of Computer Networks) Network Hardware ~ Network Software ~ OSI Model

(The Physical Layer) Theory of Data Communications ~ Transmission Media ~ Wireless ~ Transmission ~ Communication Satellites ~ The Public Switched Telephone Network ~ The Mobile Telephone System ~ Cable Television.

(The Data Link Layer) Data Link Layer Design Issues ~ Error Detection and Correction ~ Data Link Protocols ~ Sliding Window Protocols ~ Protocol Verification.

(The Medium Access Control Sublayer) The Channel Allocation Problem ~ Multiple Access Protocols ~ Ethernet ~ Wireless LANs ~ Broadband Wireless Bluetooth ~ Data Link Layer Switching.

(The Network Layer) Network Layer Design Issues ~ Routing Algorithms ~ Congestion Control Algorithms ~ Quality of Service ~ Internet Working ~ The Network Layer in the Internet.

(The Transport Layer) The Transport Service ~ Elements of Transport Protocols ~ The Internet Transport Protocols: UDP & TCP ~ Performance Issues.

(The Application Layer).DNS – the Domain Name System ~ Electronic Mail ~ The World Wide Web ~ Multimedia.

(Network Security).Cryptography ~ Symmetric-Key Algorithms ~ Public-Key Algorithms ~ Digital Signatures ~ Management of Public Keys ~ Communication Security ~ Authentication Protocols ~ e-mail Security ~ Web Security ~ Social Issues.

Recommended Reading List.
Andrew S. Tanenbaum, ***Computer Networks, 4/E*** *Prentice Hall ISBN: 0-13-066102-3.*

(2) Management Information Systems

Aims.

- To equip the student with the understanding of Information.
- Technology and its impact on business and strategic management.
- To provide the student with the ability to critically assess computing and information needs of the organisation.
- To enable the student to evaluate and implement Decision Support Systems.

Learning Outcomes.

At the end of the course the student will have the ability to:

- Understand the importance of computing and IT for organisations today.
- To have the requisite knowledge to evaluate computing and IT needs of the organisation.
- To understand how information systems can be applied within the strategic context of the organisation.
- To understand the key issues in the development of information systems for operational, tactical and strategic purposes.

- To design appropriate systems to support the strategic efforts of the organisation.
- To evaluate and design Enterprise Resources Systems, Data and Knowledge Management and other Decision Support Systems.

SYLLABUS

(Information Systems) Concepts of Systems and Organisations ~ Types and forms of Information Systems ~ Information Technology and its impact on Strategic Management ~ Business Process Re-engineering and Information Technology.

(Computer Systems) Understanding basic types of Computer Hardware and Software ~ Computer Files and Database Management Systems ~ Communications Systems, Networking and Client/Server systems ~ Distributed Systems, intranets, extranets and the Internet.

(Business Applications and IT) Analysis and development of Operational Information Systems ~ Analysis and development of Tactical and Strategic Information Systems ~ Development and use of Decision Support Systems and Expert Systems ~ Enterprise Resource Planning Systems.

(Planning and Development of Information Systems) Planning for Information Systems ~ Systems Analysis and Design including Structured Methods, CASE.

(Information Systems Management) Organisation of Information Systems ~ Control of IT and Computing Systems ~ Security Issues in Information Systems.

(Decision Support Systems) Data Warehousing, Access, Analysis, Mining, and Visualisation Modelling and Analysis ~ Decision Support Systems Development ~ Collaborative Computing Technologies: Group Support Systems ~ Enterprise Decision Support Systems ~ Knowledge Management ~ Knowledge-Based Decision Support: Artificial Intelligence and Expert Systems ~ Inference Techniques ~ Intelligent Systems Development ~ Implementing and Integrating Management Support Systems.

Recommended Reading List.
Robert Schultheis, Mary Sumner. ***Management Information Systems*** *4th Edition McGraw Hill.*

Laudon, Laudon. ***Management Information Systems****. Pearson Education.*

Efraim Turban Jay E. Aronson ***Decision Support Systems and Intelligent Systems, 6/E*** *Prentice Hall ISBN: 0-13-089465-6****.***

(3) Information Technology Management

Aims.

- To provide the student with the foundation Knowledge and understanding of information technology and its application in the real world.
- To provide the required understanding of hardware and software components for the development of computer systems.
- To provide the necessary skills to design and configure computer systems for office and commercial applications.
- To understand the workings of networking, intranets and the Internet and their impact on operations.

Learning Outcomes.

At the end of the course the student will have the ability to:

- Understand the basic hardware components of a computer system.
- Define the differences between micro, mini and mainframe computers.
- Understand the technical aspects of computers systems with reference to speed, capacity and functions.
- Understand the characteristics of software and the criteria for selection of software for defined purposes.
- Design systems and computer configuration and security issues.
- Apply Networking principles to computer configurations and systems.

SYLLABUS

Introduction to Computers ~ Introduction to Information Technology ~ Information Technology and its application in a variety of real world situations ~ Comparing and contrasting Micro, Mini and Mainframe Computers ~ Data representation and transmission including number bases ~ Computer Logic ~ Hardware components ~ CPU processors and types ~ Main and Backing Storage ~ Input Devices ~ Output Devices ~ Types of Data Processing – Real Time, Batch Processing Software ~ Operating Systems ~ Application Programmes ~ Software Development, types of development packages and Languages ~ Software selection criteria ~ Basic Networking including topologies ~ The workings of the Internet ~ Data Security and control.

Recommended Reading List.

Larry Long Nancy long ***Computers, 10/E*** *Prentice Hall ISBN: 0-13-009479-X*

C.S. French ***Computer Science*** *Continuum Books.*

(4) Desktop Publishing and Presentation

Aims.

To acquire skills in using appropriate Desk Top Publishing software to produce textual and graphical publications to designed requirements and specifications.

To acquire skills in using appropriate Presentation application software to produce presentation materials to designed requirements and specifications.

Learning Outcomes.

At the end of the course the student will have the ability to:

- Produce well designed publications, brochures, folders and other publicity materials to meet the objectives of the publication.
- Produce the publication for printing with outside commercial specialist printers.
- Produce Presentation materials to meet the objectives of the presentation.

SYLLABUS

Desktop Publishing Software and its functionality. (We recommend the use of either Adobe Pagemaker or Microsoft Publisher). Understanding design principles and terms used in the printing industry ~ Defining client requirements, documentation of client requirements. Page set-up including margins, columns, setting master pages, rules and printer options, setting grids, snapping to grid and rules, odd and even pages, colour selection ~ Importing and placing text, images to client specifications including appropriate point sizes, headings, fonts and typefaces, leading, alignments, ascenders and descenders, hyphenation rules, font specifications, line spacing, alignments, base lines, image cropping to designed sizes, borders and shading, boxes, rules, page numbering ~ Setting typeface styles, creating and amending paragraph styles. Setting equal columns, widows and orphans, drop capitals, bulleting lists ~ Creating indexes, table of contents, age numbering. Printing to selected printers, setting printer marks, printing to file, preparation of file for printing by bureau.

Presentation.

Presentation software and its functionality (we recommend the use of Microsoft PowerPoint software) Understanding design principles as relevant to presentation. Understand presentation software, defining client requirements, create templates, use pre-designed templates. Select fonts and typefaces, select and apply colour scheme to requirements, bullet and numbering, page numbering, add notes to slides. Apply transition effects for on screen slide presentations, define and test time periods between slide presentation. Printing slides, notes and handouts as appropriate and to client requirements.

Recommended Reading List.
Simon Mitchell ***Mastering Desktop Publishing*** *(Macmillan Master Series)*

Carolyn M. Connally ***PageMaker 7: the Complete Reference (Complete Reference)***
Osborne McGraw-Hill.

Microsoft PowerPoint Version 2002 Step by Step *Microsoft Press International.*

(5) Practical Database.

Aims.

- To acquire skills in the use of a database application package for storing and retrieving data as part of a management information system.
- To design a database and management information system to meet the requirements and specifications of the user or the organisation.

Learning Outcomes.
At the end of the course the student will have the ability to:

- Understand and apply the concept of flat files and relational databases.
- Use a selected database package (Microsoft Access is recommended) to create a database, tables and their relationships.
- Design appropriate input forms to populate the databases.
- Use and apply the reporting functionality of the database application package.

SYLLABUS

Theoretical understanding of data, fields and attributes, data relationships, one to one, one to many, many to many, flat files, relational database, how do databases work, understanding tables, queries, forms, reports ~ Key issues in designing a database, identifying fields, key fields, relationships between tables, creating a database using appropriate database package, adding and removing fields, field attributes, identifying and setting primary keys and indexes, defining relationships and setting referential integrity ~ Working with data, adding and editing data, selecting, copying and moving data, sorting data, finding data using filters, using expressions in filters, finding and deleting duplicate records ~ Working with queries, creating and modifying simple queries, using multiple tables in queries, joining multiple tables in a query, using criteria and expressions to retrieve data ~ Using forms, designing forms, creating and modifying forms, setting form properties ~ Reporting, working with reports, designing reports, creating mailing lists and mailing labels, sorting and grouping records within a report, calculating totals and using expressions

Recommended Reading List.
John Kaufeld, Kenny Kaufeld ***Access 2002 for Windows for Dummies (For Dummies)***

Catapult ***Microsoft Access 2000 Step by Step*** *Microsoft Press.*

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ADVANCED DIPLOMA IN COMPUTER STUDIES (ADCS)

1. **Strategic Business Management**
2. **E-Commerce Marketing & Technology**
3. **Computer Systems Management**
4. **Systems Analysis & Design**
5. **Software Engineering**

(1) Strategic Business Management.

Aims.

- The key objective of strategic management is to enable the organisation to match its skills, attributes and capabilities to the business environment.
- This critical matching is the key to organisational objectives.
- To provide the student with the requisite skills of strategic analysis, development of strategic options and choices and the understanding of techniques for strategic decision making.

Learning Outcomes.

On completion of this subject the student will have the ability to :

- Develop awareness of the need for strategic management.
- Understand and apply the tools and techniques for effective strategic analysis.
- To develop range of strategic options to achieve competitive advantage.
- To develop and implement strategic management decisions.

SYLLABUS

The nature of corporate strategy and its roll in different contexts ~ Analysis of strategic approaches and developments as practiced by different organisations ~ Brief introduction to organisational culture and their impact on strategic issues ~ Power structures within organisations, stakeholder expectations, influences of the financial markets ~ Business ethical issues and social responsibilities and their impact on strategy.

Corporate mission statements ~ Corporate objectives and policies ~ Strategic business units and functional areas ~ Gap analysis ~ The global dimension to strategic management.

The Business environment ~ Political, economic, social and technological issues ~ Industry analysis, threat of entry, power of suppliers and buyers ~ Substitutes, extent of competitive rivalry ~ Competitive analysis.

SWOT analysis ~ Value chain analysis ~ Cost analysis ~ Portfolio analysis ~ Comparative analysis ~ Assessment of the balance of resources ~ Skills analysis and core competencies.

Generic strategies, market based strategic options, alternative strategic development, customer strategy ~ Sustainable competitive advantage, value chains, portfolio analysis ~ Experience curves, Generic strategies. PIMS data. Leaders and followers. New entrant responses. Market equilibrium. Channel strategy. Assessment of existing methods. Distributor relationships. Securing distribution.

Evaluation methods ~ Decision trees ~ Scenarios ~ Sensitivity analysis ~ Financial ratios ~ Funds flow ~ Break even ~ Comparison with objectives ~ Joint ventures ~ Acquisitions, Mergers, Alliances.

Planning and allocating resources ~ Planning and budgeting process ~ Organisational structure ~ Structural types ~ Central and decentralized control, influence of production process and technology, environmental influences, international issues ~ People and systems, rewards, training and development, organisational culture.

Recommended Reading List.
Thompson ***Strategic Management With Powerweb****. McGraw Hill ISBN: 0071121315.*

Supplementary.
Johnson, G & Scholes, K. ***Exploring Corporate Policy****, Prentice Hall.*
Thompson, J. ***Strategic Management: Awareness and Change****, Chapman and Hall.*
Mintzberg, H. Quinn, J. & Goshal, S. ***The Strategy Process****, Prentice Hall.*

(2) e-Commerce Marketing and Technology.

Aims.

- To understand and to apply the underlying technologies available for the provision and implementation e-commerce.
- To implement effective Internet marketing programs.

Learning Outcomes.

At the end of the course the student will have the ability to:

- Discuss the various models of e-commerce for the organisation.
- Design and implement an effective e-commerce delivery system.
- Design appropriate measures to deal effectively with security concerns of customers.
- Develop an effective Marketing strategy for e-commerce.

SYLLABUS

The Technology.
E-Commerce and E-Business ~ Types of E-Commerce ~ Communication Protocols for E-Business ~ Network Security and E-Commerce ~ Security Threats ~ Internet Security Requirements (Secrecy, Integrity, Availability) ~ Authentication, Encryption, Digital Payments, and Digital Money ~ Server Platforms in E-Commerce ~ Language for the Web: HTML, XML, and Beyond ~ Searching Mechanisms ~ Software Agents for E-Commerce ~ Multimedia and Web-casting on the Web ~ Packaged Solutions for E-Business ~ ERP Systems ~ Customer Relationship Management.

Marketing.
Fundamentals of Marketing ~ Developing a Marketing strategy ~ Marketing Research ~ The Role of Online Marketplaces ~ Branding ~ Interactive Direct Marketing.

Recommended Reading List.
Abhijit Chaudhury Jean-Pierre Kuilboer. ***E-Business & e-Commerce Infrastructure: Technologies Supporting the E-Business Initiative*** *McGraw Hill ISBN: 0-07-247875-6*
Rafi Mohammed, Robert J. Jaworsk, Aileen Cahill, ***MP Internet Marketing: Building Advantage in a Networked Economy*** *McGraw Hill ISBN: 0-07-251208-3*

(3) Computer Systems Management.

Aims.

- To equip the student with the managerial skills to control effectively the computer system function for the organisation.
- To understand the need for compliance with intellectual copyright.
- To undertake financial analysis for new computer systems and information technology investment.

Learning Outcomes.

At the end of the course the student will have the ability to:
- Understand the objectives and need for effective Computer Systems Management including the organisation of the computer department of the organisation.
- Develop procedures to plan and control the Computer Systems.
- Services for the organisation.

- Evaluate Hardware and Software requirements for the organisation.
- Develop procedures for the acquisition of hardware and software.
- Develop effective systems for implementing computer security.
- Develop and design effective procedures and systems for the acquisition and deployment of new computer systems.
- Apply financial analysis methods and techniques for the evaluation of new computer systems including the financing of computer systems.
- Understanding outsourcing.

SYLLABUS

Computer Management.
Role of Computer Systems Manager ~ Organisation of Computer Services for the organisation ~ Centralisation and Decentralisation of Computer Services ~ Designing Globalised Computer Services.

Organisation Structure.
Principles of Organisation ~ Function rolls of staff within a Computer Services Department ~ Responsibilities of staff within the Computer Services Department.

Hardware.
Criteria for Hardware selection ~ Financing hardware ~ Supplier Evaluation and selection ~ Hardware maintenance processes ~ Audit of hardware equipment within the organisation ~ Designing layout and installation requirements ~ Safety considerations.

Software.
Principles and the regulatory framework of intellectual copyright ~ Procedures concerning intellectual copyright and licensing ~ Financing Software acquisitions.

Computer Security.
Development of computer security procedures and policies ~ Evaluation of risks ~ Procedures for data and software security.

Facilities Management.
Outsourcing ~ Employment and deployment and terms of co-location and hosting for web services.

Recommended Reading List.
There is no set text book for this subject. Material for the course can be derived from the following:
Management: - *T. Bateman, Scott Snell.* ***Management Competing in the New Era 5/e*** *McGraw Hill Irwin. ISBN 0-07-112298-2*
Outsourcing: - *Thomas R. Mylott III* ***Computer Outsourcing: Managing the Transfer of Information Systems*** *Prentice Hall: ISBN: 013127614x*
Computer Security*: - A useful study guide from the Internet.*

Finance: - *Glen Arnold* ***Corporate Financial Management*** *Financial Times/Prentice Hall. (Chapters 2, 3, 10, 11, 12)*
General: - *Managing Local Government Computer Systems – Report number: 02-09 (April 30, 2002)*
Free publications about computers and managing computer systems.

(4) Systems Analysis and Design.

Aims.

- To provide the student with the skills to undertake new systems development successfully.
- To provide the students with the requisite knowledge of techniques and methodologies for systems analysis.

Learning Outcomes.

- At the end of the course the student will have the ability to:

- Define and isolate information and the administrative problems which require IT solutions.
- Plan and conduct systems analysis activities including data gathering and analysis.
- Understand and apply different systems analysis techniques and methods.
- Design new systems for prototyping, evaluation and implementation.
- Design all supporting and maintenance activities for the new system.

SYLLABUS

The Context of Systems Analysis and Design.
Information System Building Blocks ~ Information Systems Development ~ Project Management.

Systems Analysis Methods.
Systems Analysis ~ Requirements Discovery ~ Data Modelling and Analysis ~ Process Modelling ~ Feasibility Analysis and the System Proposal.

System Design and the Construction Methods.
System Design ~ Application Architecture and Modelling ~ Database Design ~ Output Design and Prototyping ~ Input Design and Prototyping ~ User Interface Design.

Systems Implementation
Systems Implementation ~ Systems Operations and Support.

Recommended Reading List.
J. Whitten; L. Bentley Systems Analysis And Design Methods With Projects And Cases Cd McGraw Hill. ISBN: 0071204806.

(5) Software Engineering.

Aims.

- To understand and apply the principles of Software Engineering to produce robust and error free software.
- To develop procedures and practices to control and monitor complex software development projects.

Learning Outcomes.

- At the end of the course the student will have the ability to:
- Produce software specifications and requirements to meet the needs and objectives of users.
- Define the risks inherent in software development projects.
- Design a variety of software applications taking into consideration factors including interface design principles, user interaction, information delivery.
- Develop procedures for prototyping, quality management, testing, verification and validation.

SYLLABUS

Computer-based system engineering ~ Emergent system properties ~ Systems and their environment ~ Systems Modelling ~ The system engineering process ~ System procurement.

Software Processes ~ Software process models ~ Process iteration ~ Software Specification ~ Software design and implementation ~ Software validation ~ Software evolution ~ Automated process support.

Project management ~ Management activities ~ Project planning ~ Project scheduling ~ Risk management.

Software requirements ~ Functional and non-functional requirements ~ User requirements ~ Systems requirements ~ The software requirements document.

Requirements engineering processes ~ Feasibility studies ~ Requirements elicitation and analysis ~ Requirements validation ~ Requirements management.

System models ~ Context models ~ Behavioural models ~ Data models ~ Object models ~ CASE workbenches.

Software prototyping ~ Prototyping in the software process ~ Rapid prototyping techniques ~ User interface prototyping.

Formal Specification ~ Formal specification in the software process ~ Interface specification ~ Behavioural specification.

Architectural design ~ System structuring ~ Control models ~ Modular decomposition ~ Domain-specific architectures.

Distributed systems design ~ Multiprocessor architectures ~ Client-server architectures ~ Distributed object architectures ~ CORBA.

Object-oriented design ~ Object and object classes ~ An object-oriented design process ~ Design evolution.

Real-time software design ~ System design ~ Real-time executives ~ Monitoring and control systems ~ Data acquisition systems.

User interface design ~ User interface design principles ~ User interaction ~ Information presentation ~ User support ~ Interface evaluation ~ Dependability ~ Critical systems ~ Availability and reliability ~ Safety ~ Security.

Critical systems specification ~ Software reliability specification ~ Safety specification ~ Security specification.

Critical systems development ~ Fault minimisation ~ Fault tolerance ~ Fault-tolerant architectures ~ Safe system design.

Verification and validation ~ Verification and validation planning ~ Software inspections ~ Automated static analysis ~ Cleanroom software development.

Software testing ~ Defect testing ~ Integration testing ~ Object-oriented testing.

Critical systems validation ~ Formal methods and critical systems ~ Reliability validation ~ Safety assurance ~ Security assessment.

Software cost estimation ~ Productivity ~ Estimation techniques ~ Algorithmic cost modelling ~ Project duration and staffing.

Quality management ~ Quality assurance and standards ~ Quality planning ~ Quality control ~ Software measurement and metrics.

Process Improvement ~ Process and product quality ~ Process analysis and modelling ~ Process measurement ~ The SEI Process Capability Maturity Model ~ Process classification.

Software change ~ Program evolution dynamics ~ Software maintenance ~ Architectural evolution.

Software re-engineering ~ Source code translation ~ Reverse engineering ~ Program structure improvement ~ Program modularisation ~ Data re-engineering.

Configuration management ~ Configuration management planning ~ Change management ~ Version and release management ~ System building ~ CASE tools for configuration management.

Recommended Reading List.
Pressman, Roger S. ***Software Engineering*** *McGraw Hill ISBN: 0072496681.*

Supplementary:
Ian Sommerville ***Software Engineering, 6/E*** *ISBN: 0-201-39815-x Addison Westley Higher Education.*

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GRADUATE DIPLOMA IN I.T. & E-COMMERCE (GDITEC)

1 E-Commerce In Management
2 E-Commerce & Technology 1
3 E-Commerce & Technology 2
4 E-Commerce & Microeconomics
5 E-Commerce, Institutions & Innovation
6 E-Commerce Markets And Finance (Case Study Analysis Paper)

(1) E-Commerce and Management

Aim.

The purpose of this module is to provide students with a view of web-enabled transformation and the strategic issues that attend the identifying, implementing and managing of web-enabled business models in both new and existing businesses. Special attention will be placed on identifying and creating the competencies needed for a particular model, and specifying the required web-based IT infrastructures. Students will gain a perspective of the strategic issues in managing web-based ICTs as a driver and enabler of business transformation, as a substrate for new business forms and processes, and as an underlying infrastructure resource for all businesses. The module will consist of lectures, and close discussions of assigned readings and case studies. Students will form into teams, and each team will complete a case study and present this to the class.

Objectives.

By the end of the module, students will have an insight into viable e-business models; be familiar with the organisational capabilities necessary to implement e-business; have experience in analysing the potential impacts and opportunities of e-business in a firm or sector of the economy; be familiar with new organisational forms and alliances provided through e-business.

Topics.

Pre E-Business Forms. Information technology and business re-engineering; Process design and Organisation; ERP and online procurement; Enterprise Management; Information Management; Knowledge Management.
Case studies of Dow Corning, British Petroleum, CIGNA Property and Casualty.

Web-Enabled Business Models. Business-to-business to community-to-community models; Web technologies and the collaborative advantage; Customer-centric v. customer-driven business models.
Case studies of Ford, Napster,photo.net, ArsDigita.

Web-Business Management and Implementation Issues. Migrating to an e-business model.
Case studies of UPS, ArsDigita, Egm, EbAY, amazon.com

Representative Reading.
Andersson, E., Greenspun, P. & Grumet, A., Internet Applications Workbook.
Berman, F., Fox G. & Hey, J. (2003) Grid Computing: Making the Global Infrastructure a Reality. (Reading, MA: Wiley).
Greenspun, P. Philip and Alex's Guide to Web Publishing.
Rayport, J., & Sviokla, J., "Managing the Marketspace" Harvard Business Review, Nov-Dec 1994.
Tapscott, D., Ticoll, D. & Lowy, A. (2000) Digital Capital; Harnessing the Power of Business Webs (Cambridge, MA: Harvards Business School Press).
Timmers, P. (2000) Electronic Commerce: Strategies and Models for Business-to-Business Trading (Reading MA: Wiley).
Weill, P. & Vitale, M. (2001) Place to Space: Migrating to e-Business Models (Cambridge, MA: Harvard Business School Press).

(2) E-Commerce & Technology 1

Aims.

- To introduce students to the important underlying technologies that have a critical impact on e-commerce and e-business.

Objectives.

By the end of this course students should have a good understanding of
- the core Internet protocols;
- the web and current web protocols;
- good e-commerce site design;
- the implications of e-payment systems.

Outline.

- Overview
- Networks

- Telecommunications equipment, bandwidth and latency, error detection and correction, packet switching, network addressing.
- The Internet
- The protocol stack, data link layers (Ethernet and PPP), network layer (IP), transport layer (UDP and TCP), application layer.
- World Wide Web.
- Browsers & servers, HTTP, HTML, XML, CGI
- Dynamic Web Content
- Client-side (JavaScript), Server-side (Perl), Client/Server (Java)
- Multimedia
- Graphic formats, compression, GIF, JPEG, MPEG, PNG, etc., audio formats, streaming.
- An introduction to databases
- Relational databases, object-oriented databases, query languages, design, middleware.
- Computer security
- Security threats & intrusion methods, physical & electronic security, cryptography, digital signatures & certificates.
- Search engines
- Spiders & crawlers, query specification, filtering & extraction.

Reading.
Understanding Networked Applications: A First course on the New Computing Infrastructure by David G. Messerschmitt, Hardcover – 656 pages (22 September, 1999) Morgan Kaufmann Pub; ISBN: 1558605371
Web Commerce Technology Handbook by Daniel Minoli and Emma Minoli, Paperback – 600 pages (September 1997) McGraw-Hill Book Company; ISBN: 0070429782

(3) E-Commerce & Technology 2.

Aim.

- To study the fundamental principles of modern database systems, data warehouses, on-line analytical processing (OLAP) and data mining, and their impact on e-commerce.

Objectives

- ♦ To understand the fundamental principles of modern database management systems (DBMS): the relational data model; query processing and query optimisation; transaction management.
- ♦ To become familiar with the SQL query language and the SQL interface of the Oricle8I object/relational DBMS.

- To understand how database systems are deployed within e-commerce web sites.
- To understand the key differences between OLTP systems and Decision Support systems such as Data Warehousing, OLAP and Data Mining systems.
- To understand the key features of Data Warehouses: the multi-dimensional data model and star schemas; indexing techniques for data warehouse data; star queries and their optimisation; data marts; and security of the data warehouse.
- To become familiar with the functionality of state-of-the-art OLAP tools and in particular SQL Analysis Services.
- To introduce the basic concepts in data mining and intelligent data analysis, and to demonstrate the process of knowledge discovery using practical examples.
- To have hands-on experience with the Clementine data mining tool.

Principal Reading and On-line Resources.
http://www.tpc.org *Transaction Processing Performance Council.*
http://www.olapcouncil.org *OLAP Council*
http://www.dwinfocenter.org *LGI Data Warehousing Information Centre.*

- *L. Agosta, The Essential Guide to Data Warehousing, Prentice-Hall 2000*
- *J.D. Ullman and J. Widom, A first course in Database Systems, Prentice-Hall 1997*
- *F. D. Rolland, SQL Step-by-Step, Thomson Computer Press, 1996*
- *C. J. Date, An Introduction to Database Systems, Addison-Wesley (7th Edition) 2000*
- *R. Ramakrishnan, Database Management Systems, McGraw-Hill (2nd Edition) 2000*
- *Mena, J. (1999), "Data Mining Your Website", Digital Express.*
- *Berthold, M. and Hand, D. Intelligent Data Analysis: An Introduction, Springer-Verlag 1999.*

(4) E-Commerce & Microeconomics

Aim

- To introduce students to the microeconomics foundations of electronic commerce.

Objectives.

By the end of the course, students will learn to:

- explain how internet-based commerce differs from conventional commerce;
- understand and explain patterns of pricing and the nature of competition in online markets;
- understand the role of trust in e-commerce;
- appreciate the role and scope of electronic money, and policy implications;

- appreciate network effects and their implications for policy.

Outline.

- Introduction to the economics of e-commerce.
- Pricing in Online Markets 1.
- Pricing in Online Markets 11.
- Online Auctions.
- Trust on Online Markets.
- Network Economy and Policy Implications.

Reading.
Pindyck, Robert and Rubenfeld, Daniel, ***Microeconomics****, Prentice Hall, 2001, 5th edition.*
Shapiro, Carl and Varian, Hal, ***Information Rules****, Havard Business Studies, 1999.*

The course will also draw upon case studies and articles.

(5) E-Commerce, Institutions & Innovation

Aim.

'E-business, Institutions and Innovation' links social science with an empirical understanding of a highly relevant set of emerging phenomena in the new economy and e-business. Special emphasis is on 'e-business', 'institutions' and 'innovation'.

Learning objectives.

'E-business, Institutions and Innovation' is unique in it's scope of introducing a set of theoretical principles and essential ingredients that provide managers, business analysts, industrialists and policy makers with a variety of analytical tools to approach the new economy and e-business.

Content.

Business Cycle Behaviour, the National & Corporate Accounts, and the Rise of E-Business:

- The emergence of the new technological, economic and organizational paradigm;
- Problems and possibilities of measuring the impact of e-business and knowledge intensive business services.

E-Business, Innovation and Instituted Behaviour:

- Institutional change and innovation dynamics: The problem of 'path-dependency' and optimal solutions in the new world of e-business.
- Habits, rules, routines and norms in the information society and e-business: The problem of optimising behaviour.

E-Business, Innovation and Special Institutions:

- Setting the Rule of the Game in E-business: The Rationales for Intellectual Property Rights.
- Markets, firms and institutions facing the twenty-first century: From 'value chains' to 'virtual value networks' and 'virtual dynamic market configurations'.
- The variety of capitalism, business systems and national systems of innovation: the rise of dot.coms and the digital divide.

Overview:

- Comparing institutional frameworks for analysis.

Indicative Reading.
Check course web page: ***http://www.bbk.ac.uk/manop/postgrad/birgitte.htm***

- *Andersen, B (2004). If 'Intellectual Property Rights' is the answer, what is the question', Economics of Innovation and New Technology, forthcoming.*
- *Andersen, B and Corley, M (2003): 'The Theoretical, Conceptual and Empirical Impact Of the Service Economy: A Critical Review'. World Institute for Development Economics Research (WIDER) Discussion Paper, WDP 2003/22, March.*
- *Arthur, B. (1996). 'Increasing Returns and the New World of Business', Havard Business Review,74:4.*
- *David, P. (1990). 'The Computer and the Dynamo: An Historical Perspective on the Modeen Productivity Paradox'. The American Economic Review, 80:2, 355-361.*
- *Freeman, Chris and Perez, Carlota. (1988): 'Structural Crises of Adjustment: Business Cycles and Investment Behaviour'. Dosi, Giovanni; Freeman, Christopher; Nelson, Richard; Silverberg, Gerald and Soete, Luc (ed). Technical Change and Economic Theory. London: Pinter Publishers. Pp. 38-66.*
- *Timmer, P. (2000): Electronic Commerce. Strategies and Models for Business-to-Business Trading. Chichester: Wiley.*

(6) E-Commerce Markets and Finance (Case Study Analysis Paper)

Aims and Objectives.

By the end of this course, students

- Will understand how e-commerce affects organisations and work practice.
- Will understand basic issues of market design.
- Will understand the basics of financial valuation in the context of e-commerce.

Module Outline.

- Organisational Implications 1: Markets.
- Organisational Implications 11: Firms.
- Organisational Implications 111: Work.

- Property rights, and their relevance to e-commerce.
- Basics of financial valuation.
- Market design.

Readings.
The course will draw upon various papers and case studies.

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