Higher Diploma Programme in Network and Mobile Computing

Programme Contents

Course : English Language I
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. English Learning and Use of Dictionaries
2. Reading Comprehension and the Role of Co-text and Context in Comprehension
3. Listening Comprehension
4. Effective Writing Skills
5. Oral Communication Skills and Colloquialism in English Expression
6. Word Power: Common Words, Phrasal Words, Idioms, and Prepositions

Course : English Language II
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Advanced Writing Skills
2. Written and Spoken Skills for Business Purpose
3. Oral Presentation and Public Presentation
4. Academic Writing for Further Studies
5. On-line Communication in Cyber world
6. Cultural Knowledge in English Written and Spoken Communication
7. Use of Words: Register, Synonymy, and Collocation

Course : Business Writing and Communication
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. How communication works
2. Strategies for effective business communication
3. Principles of effective business communication
4. Report writing process
5. Research methodology
6. Managing data and graphics
7. Communicating for special purpose (such as job, employment, customer services related)
8. Business presentations
9. Managing meetings and interviews

Course : Chinese Communication for Business
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. Reading and summarizing
2. Understanding text through contextual clues
3. Analyzing text structure and language style of the text
4. Articulation and Pronunciation
5. Listening Comprehension
6. Public Speech
7. Skills of Oral Presentation and Recitation
8. Practical Writing for Business
9. Style and Format in writing Research Paper

Course : Putonghua
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Syllabic structure of Putonghua
2. The Pinyin system
3. Phonetic symbols
4. Tone variation
5. Commonly used technical / business terms / expressions
6. Comparison between Cantonese and Putonghua in terms of lexical and grammatical differences
7. Practical Skills

Course : Communication and Problem-solving Skills
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. Principle of effective communication
2. Psychology of persuasion
3. Negotiation tactics and skills
4. Conducting meetings
5. Telephone skills and manners
6. Dealing with customers, colleagues and supervisors
7. Job-interviewing
8. Inter-cultural communication
9. How to identify problems
10. How to look for ways to tackle problems
11. How to turn creative ideas into action

Course : Information Technology for Business Applications
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Introduction: Internet and basic computer concepts
2. Elements of Computer Hardware
3. Elements of Computer Software
4. Commercial Software Packages
5. Computer Data Processing
6. Security and the Internet

Course : Business Algebra and Calculus
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Algebra
2. Sequences and functions
3. Differentiation
4. Integration
5. Curve sketching
6. Transformations of vectors and matrices
7. Complex numbers
8. Probability and statistics
9. Business applications

Course : Discrete Mathematics and Algorithms
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Algorithms
2. Logic And Proof, Sets, And Functions
3. Relations
4. Graphs
5. Algorithms for Selection and Sorting
6. Trees

Course : Database Management
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Fundamental Database Concept
2. Entity-Relationship model
3. Further-step on ER Modeling
4. Structured Query Language - SQL
5. Concurrency Control
6. Advanced Technologies in DBMS

Course : Internet Technology and Applications
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. Web Utilities, Information and Services
2. World Wide Web Browsing
3. Website Organization and Navigation
4. Page Design
5. Style Sheets
6. JavaScript
7. CGI and Perl
8. Forms Processing
9. Java Applets Programming
10. XML, Web Searching, and Database Processing
11. Web Servers
12. Servlets, JSP, and ASP
13. JDBC

Course : E-Commerce
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Foundation Concepts of E-commerce
2. An Overview of Information Technologies
3. Basic cryptography for E-commerce Technologies
4. Business Applications
5. Development Processes

Course : Management and Business Information Systems
Credit Units : 4
Contact Hours : 60 hours

Course Syllabus:

1. "The Real World", Inter-relatedness, Data, Information and Knowledge
2. The Knowledge Based Economy, Globalisation, Rate of Change
3. Organizational Processes and Structure
4. Strategy, Risk and Benefit, Control and Collaboration
5. Strategy and Tactics, Linear Models, Integrationist Models
6. Information Management Systems: Databases, Processing Power and Storage
7. Knowledge Management Systems: Organizational Memories, Expert Systems, Communications and Mobile Computing
8. Managerial solution: Methods of Control: Operating Procedures, Policies, Working Practices and Software
   -Distributed Teamwork, Responsiveness and Flexibility
1. The Virtual organization, Teleworking
2. Distributed team working, Mobile Computing
3. Knowledge repositories, Capture, Codify, Store; Organizational Memories
4. Groupware
5. Review and Conclusions

Course : Systems Analysis and Design
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Information System Development Overview (role / impact / characteristics)
2. System Analysis
3. Needs and Requirements determination and investigation
4. System Design
5. Post-design activities
6. Project Management

Course : Software Engineering
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Overview of Modeling and Methodologies
2. Object Oriented Analysis and Design
3. Software Requirements Analysis and Specification with UML
4. Design Activities
5. Software Reliability, Quality and Testing
6. Software Project Management

Course : Introduction to Computer Programming
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Hardware and software
2. Components of a Java program
3. Primitive data types and manipulation variables
4. Logical and arithmetic expressions
5. Input and output
6. Classes and objects
7. Design of object oriented programs
8. Selection
9. Iteration
10. Methods and parameter passing
11. Graphics

Course : Advanced Computer Programming
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Some general syntax comparisons between Java and C++
2. Arrays
3. Object oriented design
4. Event driven programming
5. Inheritance and polymorphism (Java, C++)
6. Software engineering
7. Sorting techniques
8. Recursion
9. Linked list (Java, C++)

Course : Introduction to System Development and Programming
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Introduction to System Development
2. Data Types and Operations in C language
3. Expression and Statements in C language
4. Program flow and Control in C language
5. Testing and Implementation

Course : Introduction to Visual Programming
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. Introduction to Windows concepts, terminology and programming tools
2. Basic operations in Visual Basic
3. Design and build your first Visual Basic program
4. Programming techniques
5. Creating a general-purpose application
6. Creating a database application
7. Find bugs in your program
8. Using data access objects
9. Advanced database development
10. Printing and Reporting
11. Using Dynamic-Link Libraries (DLL)
12. An overview of OLE
13. Using OLE with Microsoft Office applications
14. Introduction to Add-In

Course : Computer Organisation
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Number systems
2. Data format
3. Integer data
4. Floating point representation
5. Introduction to computer system
6. Inside the CPU
7. Memory
8. Instruction set and addressing
9. Assembly language
10. Input/Output
11. Computer Peripherals
12. Modern systems

Course : Operating Systems
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. History and nature of Operating Systems
2. User view of operating systems
3. Processes
4. Inter-process communications
5. Scheduling
6. Input and Output
7. Memory management and paging
8. Deadlock
9. Programming tools
10. Three operating systems: Windows, Unix, and Mac OS

Course : Computer Networks
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Overview of Computer networks and Transmission Media
2. LAN Technologies
3. Hardware Interface and Physical Components
4. WAN Technologies
5. Network Layer Architecture
6. Routing
7. Internet Architecture and Backbone Technology
8. IP and Datagrams
9. TCP/IP
10. Network Design
11. Network Management
12. Introduction to Wireless Network
13. Network Security

Course : Introduction to Wireless and Wireless LAN Communication
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. Basic terminologies of wireless transmission technologies
2. Illustrate the basics of spread spectrum technology
3. Introduction to code acquisition and tracking techniques
4. CDMA architecture and overlays
5. Contrast the existing CDMA standards
6. Understand how CDMA offers increased capacity and improved performance
7. Introduction to protocols for 3G and 4G cellular networks
8. Frequency bands used by wireless LANs
9. Various types of spread spectrum modulation techniques
10. Wireless infrastructure devices
11. Introduction to Antenna theory
12. 802.11 network architecture
13. Wireless LAN troubleshooting

Course : Network and Server Security
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Understanding Security
2. Attacker / Cracker / Hacker
3. Treat of attacks
4. Viruses, Trojans, and Worms
5. Basic security terminologies
6. Degree of desired security
7. Security holes in network systems
8. Firewalls
9. Proxies
10. Authentication and Encryption
11. Encode and Decode
12. Private Key and Public key
13. Digital Signature
14. DES / RSA Encryption
15. Kerberos
16. Introduction to VPN

Course : Mobile Computing Technologies and Mobile Commerce
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. History of Mobile Computing
2. Mobile Operating Systems:
   Palm OS
   Pocket PC and Windows CE
   Embedded Linux and Other Mobile Operating Systems
3. Common Mobile Applications
4. Mobile Internet Access using WAP (Wireless Application Protocol)
5. WAP Application Development
6. Emerging Technology – Wearable Computing
7. Features of Mobile Commerce
8. Value-Added Applications
9. Business Implications, Market and Value Chain
10. Wireless Marketing
11. Challenges and Concerns

Course : PDA Programming
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. Overview of Palm OS platform and features
2. Palm application and user interface design
3. Development tools of Palm OS emulator and Conduit Development Kit (CDK)
4. Palm OS event architecture
5. Memory management
6. Debugging
7. Forms and Controls
8. Use of Gadgets
9. Text field usage
10. Palm OS database architecture
11. Menu user interface
12. Find : The Find user experience
13. Beaming with the Exchange Manager
14. Multimedia elements: Graphics, Color Management and Sound

Course : Mobile Device Programming
Credit Units : 2
Contact Hours : 30 hours

Course Syllabus:

1. J2ME architecture and application deployment
2. Building and executing MID Profile Applications
3. Writing a MID Profile Application
4. Creating user interfaces
5. Managing data on the device
6. Accessing network and data services

Course : Computer Project
Credit Units : 3
Contact Hours : 45 hours

The project is intended to focus the application development on the "awarded" area with an appropriate level on the organizational and management aspects of software projects. This course provides a supervised and managed context in which the student can demonstrate the ability to undertake and produce a substantial piece of work to a professional standard.

On successful completion of the Course, a student should be able:

1. Problem solving;
2. Analytical and decision making skills;
3. Synthesizing material from other modules;
4. Work in a team;
5. Contribute to the planning and managing of a project;
6. Analyze and design an integrated part of the application;
7. Implement, test and evaluate the design; and
8. Document the overall solution according to professional guidelines.

Course : Multimedia Technologies and Applications
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Image and video file formats and compression technologies
2. 3D graphics systems
3. Multimedia communications (architecture, synchronization, etc.)
4. Multimedia Database Systems - Characteristics and architecture, Logical design, Physical design, Enabling technologies and tools
5. Multimedia Indexing and Retrieval - Computer vision and image processing techniques (specifically for indexing), Text, image and video indexing techniques, Text, image and video retrieval techniques
6. Hybrid applications
7. Multimedia application environment (Director)
8. Creating linear movies
9. Creating interactive movies and adding navigation
10. Controlling Playback
11. Shockwave animation production
12. Distribution preparation and procedures

Course : The Human-Computer Interface Design
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Introduction to HCI
2. Human Aspects
3. Technology Aspects
4. Windowing System Development Considerations
5. Interaction Design Methods and Techniques
6. Support for Designers
7. Testing and Evaluation

Course : Corporate Information Systems Audit and Control
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Importance and role of systems audit
2. Systems audit approach and process
3. Auditing information technology using computer-assisted audit tools and techniques
4. Information systems operations
5. Planning and controlling of information systems
6. Project & quality management
7. Auditing IT acquisition and implementation
8. Audit methods and techniques for operations
9. Security and privacy of information technology
10. Other contemporary information systems auditing challenges
11. Career planning and development in systems auditing

Course : Electronic Customer Relationship Management
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. E-CRM and its Importance
2. Creating an e-CRM System
3. Information storage techniques to maximize information storage capabilities
4. Recognizing customer expectations
5. Mechanisms of a successful e-CRM interface
6. Security concerns of an e-CRM system
7. Case study of successful e-CRM systems
8. Technology used in personalized customer service
9. Techniques for using e-CRM to reach customers
10. Improve the customer transaction process through e-CRM
11. The use of data mining in an e-CRM system
12. Types of data mining and other e-CRM support products

Course : Business Statistics
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Overview of Probability and Statistics
2. Descriptive Statistics
3. Probability Concepts
4. Combining Event Probabilities
5. Simulating Business Situations
6. Random Variables
7. The Binomial and Poisson Distributions
8. The Normal Distribution
9. Sampling Distributions and Estimators
10. The Central Limit Theorem
11. Confidence Intervals
12. Hypothesis Testing
13. Simple Linear Regression
14. The Validity and Usefulness of a Regression
15. Introduction to Multiple Regression

Course : Business Economics
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Preliminaries
2. Demand Analysis
3. Elasticity
4. Production and Cost Analysis
5. Profit-Maximization in Various Market Structures
6. Risk and Uncertainty

Course : Management of Organisations
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Managing Organisations in Today's Competitive Environment
2. What Managers and Organisations Do?
3. Strategic Management
4. Managing People
5. Managerial Communication and Information Technology
6. Leadership Practices
7. Controlling for Organisational Performance
8. Managing Change and Innovation
9. Self-management at Work

Course : Marketing Management
Credit Units : 3
Contact Hours : 45 hours

Course Syllabus:

1. Understanding Marketing and the Marketing Process
2. The Marketing Environment
3. Marketing research and Information Systems
4. Consumer Markets and Consumer Buyer Behaviour
5. Business Markets and Business Buyer Behaviour
6. Market Segmentation, Targeting, and Positioning for Competitive Advantage
7. Product and service strategies
8. New-product Development and Life-cycle Strategies
9. Pricing products: Pricing Considerations, Approaches and Strategies
10. Distribution Channels and Logistics Management
11. Retailing and Wholesaling
12. Integrated Marketing Communications Strategy
13. Advertising, Sales Promotion, and Public Relations
14. Personal Selling and Sales Management
15. Direct and Online Marketing
16. Competitive strategies: attracting, retaining and growing customers
17. Promotion
18. Product distribution
19. The global marketplace and international marketing
20. Marketing and society: social responsibility and marketing ethics