

# UNIVERSITY OF CALICUT



## IT MISSION PROGRAMME

Regulations, Scheme of Evaluation Course, Structure Syllabus for  
**DIPLOMA IN INFORMATION TECHNOLOGY**  
(with effect from 2012 Admission)

### REGULATIONS

1. Duration of the course shall be 1 Year, divided into 2 semesters. Three theory papers and one practical paper , shall be the course requirements in the first semester. In the second semester also there shall be three theory papers, one practical paper and project work.
2. **Selection and Eligibility for Admission:** Candidates who have passed Higher Secondary Examination or equivalent are eligible for admission.
3. **Evaluation** of all semester theory papers and practical will be on the basis of existing University norms.
4. **Project Work & Viva:** The Project work should be carried out during the period of the course in the Institution. Every student should do the Project individually and no grouping is allowed. All the candidates are required to get the approval of their synopsis and the guide before commencement of the project from the Institution and the matter may be intimated to the University at the beginning of the second semester by the Institution. The project will be reviewed periodically every month by the Institution. At the end of the semester the candidate shall submit the Project report (one bound copy and one soft copy) duly approved by the guide. Evaluation of the project should be conducted by a board of examiners appointed by the University. (Mark Distribution: Content 30% + Methodology 30 % + Presentation 20 %, and Via- voce 20 % ). If project work and the report are found to be not up to the expected standard, the examiners can ask the candidate to modify and resubmit the project report after incorporating the suggestions of the examiners. Such reports shall be resubmitted within the stipulated period suggested by the examiner(s)

# DIPLOMA IN INFORMATION TECHNOLOGY

(with effect from 2012 Admission)

## COURSE STRUCTURE AND SCHEME OF EVALUATION

### Semester 1

Sl.No	Course Code	Course	Duration of examination (Hrs)		Marks
			Theory	Practical	External
1	DIT1C01	Information Technology Essentials	3		100
2	DIT1C02	Fundamentals of Operating System	3		100
3	DIT1C03	Programming in C	3		100
4	DIT1C04	Practical - 1	-	3	100
		Total		-	400

## Semester 2

Sl.No	Course Code	Course	Duration of examination (Hrs)		Marks
			Theory	Practical	External
1	DIT2C05	Object Oriented Programming with Java	3		100
2	DIT2C06	Principles of DBMS	3		100
3	DIT2C07	Web Programming	3		100
4	DIT2C08	Practical - 2	-	3	100
5	DIT2C09	Project Work & Viva-voce	Dissertation (150 marks)	Viva-voce (50 Marks)	200
	Total		-		600

# UNIVERSITY OF CALICUT



## IT MISSION PROGRAMME

### **DIPLOMA IN INFORMATION TECHNOLOGY** (with effect from 2012 Admission) **SYLLABUS**

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# **DIT1C01 – Information Technology Essentials**

## **Unit - 1**

History and Generation, Types of computers, Elements of computer system, computer hardware and software, Computer organization, block diagram of a computer, CPU, memory, Input devices; and output devices, Primary and Secondary storage; RAM, ROM, PROM, magnetic disks – tracks and sectors, optical disk (CD and DVD Memory), device controllers, serial port, parallel port, system bus.

## **Unit – II**

Number systems, Introduction to binary, octal, decimal and hexadecimal number systems, Bits, bytes, characters, types of file, file management, types of data – numeric data, alpha numeric data, data processing, Computers for information storage, information seeking, information processing, and information transmission.

## **Unit – III**

IT and its components, Prerequisites and needs, Data, Information and Knowledge, Knowledge Management, Internet as a knowledge repository, IT and Internet, IT Applications, E-Governance, IT for National Integration, IT Applications in Health Care, Business, Commerce and Resource Management, Instant Messaging, Forum, Blog and News groups.

## **Unit – IV**

Emerging Trends in IT: Electronic Data Inter change, Mobile Computing, SMS, MMS, Wireless Applications, Blue Tooth, Global Positional System, Infra Red Communication Smart Card, Basics of cloud computing.

## **Unit – V**

IT & Society, Issues and Concerns, Digital divide, Free software Movement, IT and Industry, New opportunities and threats, Cyber ethics, Cyber crimes, Security, Privacy Issues, Cyber Laws, e-waste and Green computing, IT and Regional Languages.

## **REFECENCES:**

1. Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd.,
2. Computer Fundamentals, PK Sinha, BPB Publications, 2004
3. Fundamentals of Information Technology, S. Jaiswal, Galgotia Publication, 1999
4. Digital fundamentals, Thomas L Floyd, Prentice Hall, 2008
5. Web Commerce Technology Hand Book, Daniel Minoli & Emma Minoli, Tata McGraw Hill, New Delhi, 2009
6. Information Technology: Principles , Practices and Opportunities, James A Senn, Prentice Hall

# DIT1C02 – Fundamentals of Operating System

## Unit - 1

Software and its need, Types of software, System software, Application software, Utility programs, Computer languages: Machine languages, Assembly languages and high level languages

## Unit – II

Overview of system software, Operating system, I/O Manager, Assembler, Compiler, Linker, Loader, fundamentals of operating system, OS services and components, Types of an Operating System, multitasking, multiprogramming, time sharing.

## Unit – III

Processes and process management, CPU scheduling, Memory management, Input/output and device management, Operating system security.

## Unit – IV

Basics of Windows operating system, Booting sequence, User interfaces, using desktop icons, Running an Application, File and Directory Management, Using elementary job commands : creating, saving, modifying, renaming, finding and deleting a file, Run and Manage multiple applications.

## Unit – V

Introduction of free and open source software, Linux and basics, Linux distribution, File System Introduction, File System Hierarchies, User interfaces, Setting the Desktop, Running an Application, File and Directory Management in Linux, Commands for files & directories: cd, ls, cp, md, rm, mkdir, rmdir, more, less, Creating and viewing files using cat, File comparisons, Disk related commands: checking disk free spaces.

## REFECENCES:

1. Operating System Concepts, Sixth edition, Abraham Silberschatz, Peter B. Galvin, Greg Gagne. Addison-Wesley (2003).
2. Modern Operating Systems, Andrew Tanenbaum, Prentice Hall
3. Microsoft Windows 2000, Diana Rain, Karl Schwartz, DDC Publications, 2000
4. The Complete Reference Linux, Richard Peterson, Tata McGraw Hill Private Limited, New Delhi, 2009.
5. Introduction to Linux Installation and Programming, N. B. Venkateshwarlu (Ed); B S Publis hers Hyderabad, 2005

## **DIT1C03 – Programming in C**

### **Unit - 1**

Problem analysis and logic development, Concept of Algorithm & Flow chart development, Symbol used to draw flow chart, Typical examples of flow chart and algorithms.

### **Unit – II**

Overview of C, Constants, Variables, and Data type, Operators and Expression, Managing Formatted / Unformatted Input and Output, Library functions, Statements, Symbolic Constants.

### **Unit – III**

Arrays, processing array, passing arrays to functions, Introduction to multidimensional arrays, arrays and strings. Handling of Character Strings.

### **Unit – IV**

Decision making and Branching, if-else, switch, goto, Decision Making looping for statements, while, do-while, nested control structures, break and continue statements, comma operator

### **Unit – V**

User defined Functions, Function prototypes, passing arguments to a function, definition of Structures and Unions, introduction to pointers, Concepts of file management.

### **REFECENCES:**

1. How to solve it by Computer, Dromey, PHI Publications.
2. Mastering C by Venugopal, Prasad – TMH Publications
3. C: The Complete Reference, Herbert Schildt, Tata McGraw Hill
4. C Programming, E.Balagurusamy Tata McGray Hill

## DIT1C04 – PRACTICAL -1

### List of experiments

Experiments should include but not limited to:

#### 1. Operating systems

(Windows)

- a. Exploring different controls on Desktop
- b. Explore different menus / submenus on Start Button
- c. Changing the size of various windows
- d. Installing various software (Understand the procedure for any software)
- e. Removing Software
- f. Creating Shortcuts
- g. Adding Printers
- h. Managing Files and Folders
- i. Using various programs such as Word pad, Note pad, Calendar etc.

(Familiarization of Linux)

- a. Use of Vi editor
- b. Use of file and directory commands like
- c. pwd, mkdir, ls, chmod, mv, cp, rm, ln, nd, cat, pr, sort, cmp, cut & paste etc.
- d. Use of Commands: uname, logname, id, pid, who, echo, ps, date, passwd, clear, cal, banner, man etc.

#### 2. Write algorithm and Draw flow chart to solve basic problems like

- a. Find the sum of first N natural numbers
- b. Find the mean and median of a set of given numbers
- c. Find the solution for a quadratic equation

#### 3. Write C program and implement to solve the following problems

- a. Check whether a given number is prime or not.
- b. Reverse a string.
- c. Write a program to sort the list of N numbers in ascending /descending order.
- d. Matrix addition and multiplication
- e. Compute GRADE of N students in a class based on their %Marks obtained.
- f. Compute Factorial of a given number using C function.
- g. Create and display students details in a class using structure
- h. Create file for storing students records and generate the rank list based on the total marks obtained.



# DIT2C05 –Object Oriented Programming with JAVA

## Unit I:

Principles & Concepts of Object Orientation programming, Abstraction, Encapsulation, Modularity, Hierarchy, Basic Concepts of Object, Class, Attribute, Operation, State, Behaviour, Identity, Relationships/Association, Polymorphism, Message Passing, Evolution, Features, Environment, JFC.

## Unit II:

Introduction to Java : History, Versioning, Java Virtual Machine, Packages, Primitive Data Types, Comments, Operators and Expressions, Decision making, Branching and Looping, for Statement, if Statement, while and do while Statements, switch Statement, break, continue Statement, Operators - Casts and Conversions, Keywords, Simple Java Programs.

## Unit III:

Classes, Objects and Methods, Arrays, Strings and Vectors, Interfaces, Packages, Multi threaded programming, Exceptions.

## Unit IV:

Applet Programming, Introduction to AWT, Graphic Programming, Drawing Lines, Rectangles.

## Unit V:

Managing Input / Output files, Java Collection, JDBC, Concepts of J2EE.

## REFECENCES

1. Programming With Java - a Primer, E Balagruswami, Third Edition, Tata Mc GrawHill,2008
2. Java 2- Fast and easy Web development, Andy Harris, Prentice Hall
3. Java – Server and Servlets, Peter Rossbach & Hendrisk Schereliber, Person Education
4. Developing E Commerce Sites, Vivek Sharma & Rajiv Sharma, Person Education
5. Web Programming with ASP, Matt J Crouch, Person education.

# DIT2C06 – Principles of DBMS

## Unit - 1

Introduction, purpose of database systems, File systems versus a DBMS, Advantages, data models, database languages, administrator, users, entity relationship model, ER diagram, keys.

## Unit – II

Relational database design, Relations, Domains and Attributes records, Tuples, Keys, First, second and third normal forms. Concept of relations with more than one Candidate key.

## Unit – III

Introduction to SQL, Data Definition Language (DDL), data types, creation, insertion, viewing, updation and deletion of tables, modifying the structure of the tables, renaming, dropping of tables.

## Unit – IV

Data Manipulation Language (DML), Select commands, Logical operators, SQL Operator, BETWEEN, AND IN, LIKE, IS NULL.

## Unit – V

SQL Functions, Number, Character, Date, Conversion, Group Functions, Group by & Having Clause, Joins – joining multiple tables and joining a table to itself, SQL Queries, Reports.

## REFECENCES:

1. Database Concepts & Systems, 2/ed – Bayross, O'Reilly, Shroff Publishers & Distributors Pvt. Ltd.
2. Database Management System - Date ,C.J., Galgotia Publications
3. Fundamentals of Database System - Elmasri, R.A.,Navathe, Shyam B. Narosa Publishing House
4. Learning SQL (2nd ed.), Alan Beaulieu, Mary E. Treseler. ed., O'Reilly, 2009.

## **DIT2C07 – Web Programming**

### **Unit I:**

Introduction to Internet: What is Internet –Services provided by internet, What is WWW, Web servers and web browsers, web hosting and web pages, IP address and Domain Name System (DNS), URI and URL, Client-server model, HTTP, FTP, Email(POP,IMAP,SMTP), Search Engine, Introduction to Front Page & Dreamweaver.

### **Unit II:**

HTML: Introduction to HTML, Basic formatting tags: heading, paragraph, underline break, bold, italic, underline, superscript, subscript, font and image. Different attributes like align, color, bgcolor, font face, border, size. Navigation Links using anchor tag: internal, external ,mail and image links.Lists: ordered, unordered and definition.

### **Unit III:**

Table tag, HTML Form controls: form, text ,password, textarea, button, checkbox, radio button, select box, hidden controls, Frameset and frames.

### **Unit IV:**

Defining styles using CSS : Styles and HTML, Selectors, structure and cascade, Values and units, Text properties, Fonts, Colors and backgrounds, Visual formatting, Boxes and borders , Positioning, Table layout, User interface styles.

### **Unit V:**

Client-side programming languages, Uses of JavaScript, Incorporating JavaScript in a HTML document, Basic JavaScript syntax, Data types and variables, Expressions and operators, Control structures, Functions and procedures, Arrays and objects, Document object model (DOM), Event handling, Using JavaScript for form validation.

### **REFECENCES:**

1. HTML, CSS, JavaScript® , Perl, Python®, and PHP Web Standards Programmer's Reference, Steven M. Schafer, Wiley Publishing Inc., USA (Indian Edition), 2005
2. The Complete Reference HTML, E Stephen Mack & Janan Platt,
3. Tech yourself web publishing with HTML 4 in 14 days, Laura Lemay
4. The HTML Example book, Edward Farrar, Norman E. Smith, Wordware; Pap/Dis edition, 1997
5. JavaScript Unleashed (3rd Edition), R. Allen Wyke, Richard Wagner.

## DIT2C08 – PRACTICAL -2

### List of experiments

Experiments should include but not limited to:

Java:

- a. Freehand Drawing
- b. Illustrate Mouse Events
- c. Creating Menu Bar
- d. Package example
- e. Exception handling example

Web Programming:

- a. Create simple HTML web page having the background in a particular colour and title and content in different colours.
- b. Create a sample web page with Javascript
- c. Use of CSS in web page development.
- d. Table creation
- e. List creation
- f. Create an HTML document giving details of your name, age, address, phone number with proper alignment.

**General Pattern of Question Paper**

**Diploma in Information Technology**

(with effect from 2012 Admission)

Code:

Reg. No:

Name :

**First Semester Diploma in Information Technology Examination – 2012**

Course Code:

Course :

Time: 3 Hours

Total Marks: 100

**PART A**

(15 Questions; Answer any 10; Each Question carries 3 marks)

**PART B**

(15 Questions; Answer any 10; Each Question carries 5 marks )

**PART C**

(4 Questions; Answer any 2; Each Question carries 10 marks )