GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT

COURSE CURRICULUM

Course Title: Fundamental of Information Technology
(Course Code: 3321601)

Diploma Programmes in which this course is offered	Semester in which offered
Information Technology	Second Semester

1. RATIONALE

Information Technology has developed over the years into a key driver of science and economy. Almost every aspect of our personal and our professional lives is affected by information technology. IT industry became a major part of economy and it has a profound influence on almost all other industries. India is moving towards economies which are knowledge-based with Information Technology playing a crucial role.

Hence, central theme of offering this course is to educate new IT technicians to identify need of IT Infrastructure setup and use resources, structures and applications.

2. COMPETENCIES

The course content should be taught and implemented with the aim to develop different types of skills so that students are able to acquire following competencies:

i. **Configure Computing device and peripherals on network.**
ii. **Use Internet for its application**

3. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	ESE	PA	ESE	PA	50
0	2	2	4	00	00	20	30	

Legends: L-Lecture; **T** – Tutorial/Teacher Guided Student Activity; **P** - Practical; **C** – Credit;; **ESE** - End Semester Examination; **PA** - Progressive Assessment.

Note: It is the responsibility of the institute heads that marks for **PA of theory** & **ESE and PA of practical** for each student are entered online into the GTU Portal at the end of each semester within the dates specified by GTU.

4. DETAILED COURSE CONTENTS

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit – I Basics of Information Technology	1a. Differentiate Data, Information and Knowledge. 1b. Explain Ethical and social issues in IT infrastructure.	1.1 Information Technology: Understanding the need of Information, Data, Knowledge, Difference between Data, Information and Knowledge. 1.2 Benefits of IT infrastructure, Ethical issues : Plagiarism, Use of License Software, copyright infringement, Intellectual property Rights, its impact on IT. 1.3 IT Infrastructure Components: Computer Hardware, Operating System, Software, Network components.
Unit– II Anatomy of Computer System	2a. Explain functionality of computer hardware. 2b. Classify different types of components and peripherals.	2.1 Anatomy of computers: Motherboard, CPU, SMPS, Expansion slots, Drives, Storage devices 2.2 Input devices: Keyboard, Mouse, Pen, Touch Screen, Scanners. 2.3 Output devices: Monitors, LCD, LED, Printers, tablets. 2.4 Memory**:** RAM, ROM, Cache, Auxiliary Memory, HDD, CD, DVD, Blue ray and USB drives.
Unit– III Types of Software	3a. Differentiate among different types of software 3b. Use Basic setting features of windows Operating systems.	3.1 Types of software: Overview of System software and application software, Operating system, Utility software, drivers, compilers and interpreters. 3.2 Operating system: Windows :Desktop, Control Panel, Driver installation, create users, rename computer, manipulate taskbar, power management, screensaver, Install new peripheral.
Unit–IV Basics of Computer Networking	4a. Identify different types of computer networks. 4b Identify different network devices 4c Explain working of different networking devices.	4.1 Network advantages like resource sharing, file sharing, common Storage. 4.2 LAN, MAN, WAN, Internet, lay out of STAR, BUS, MESH and RING topology. 4.3 Networking infrastructure: Repeater, Bridge, Hub, Switch, Router, Firewall, Gateway, NIC, Cables, MODEM.
Unit-V Basics of Internet, Its Applications & Security	5a. Explain different types of Internet connectivity. 5b. Use Search engines. 5c. Use Internet for mail, news, chatting and social networking . 5d. Identify and avoid different threats to IT infrastructure. 5e. Identify different remedies to mitigate	5.1 Internet basics: Dial up Connection, DSL, Leased line connectivity, Wi-Fi Connection, Browsers: IE, Firefox, Chrome. 5.2 Protocols : http, https, www, IP, setting up Internet connection on DSL, setting up Internet on local network. 5.3 DNS:types with examples 5.4 Search engines : Google, yahoo, bing: search images, maps, news, search content using Different criteria. 5.5 Applications of Internet : www, mail, news, Chat, social networking. 5.6 Threats to IT infrastructure : Physical, Access level : password breaks, hacking,

Unit	Major Learning Outcomes	Topics and Sub-topics
	threats to IT infrastructure.	web based threats like weak passwords, social engineering, pirated software, unethical websites, Malicious programs, infrequent updates, protecting and mitigating threats : Use of Anti Virus software, scanning computer regularly, updating anti Virus.

5. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY)

----------Not Applicable----------

6. SUGGESTED LIST OF PRACTICAL/EXERCISES

The practical/exercises should be properly designed and implemented with an attempt to develop different types of skills leading to the achievement of the competency **.** Out of the following enough practical/Exercise should be selected from each unit to give total workload of 56 hours to students.

S. No.	Unit No.	Practical/ Exercises	Approx Hrs. Required
1	I	1.1 Search and download share ware or freeware Plagiarism detection software.	04
2	II	2.1 Dissemble and Identify Motherboard, CPU, SMPS, Expansion slots, Drives, storage devices.	10
3	III	3.1 Install new application software using control panel. 3.2 Shrink the hard disk partition for more partitions 3.3 Create users with full control, limited control. 3.4 Set screen savers and energy management in Windows. 3.5 Set window resolution 3.6 Install a peripheral/printer/scanner driver on your computer system.	10
4	IV	4.1 Draw a neat Layout of network setup of your laboratory. 4.2 Setup a computer with proper IP and subnet for a local Network. 4.3 Find an IP address, Network mask, Computer Name in local Network. Rename the computer name with your own name.	12
5	V	5.1 Setup a connection with proper IP, subnet, and gateway Address to use Internet on local network. 5.2 Search Google for Information technology basic courseware ppt's and .pdf files. Use Google translate to translate content from one Language to another. 5.3 Use Google maps and find out location of your institute. 5.4 Apply updates to anti-virus software and download new Definitions. 5.5 Create a group mail, add class mates to group mail and send them 'Welcome e-mail'. 5.6 Apply passwords of your computer system. 5.7 Install Anti-Virus software in your computer; Scan all the Drives using quick and full options. Setup the software for continuous updates.	30
		Total	**66**

7. SUGGESTED LIST OF STUDENT ACTIVITIES

7.1 Teachers guided self learning activities; Course/library/internet/lab based mini projects.

7.2 Students activities like: course/ topic based seminars; Internet based assignments, a presentation on Ethical use of IT infrastructure and social networks based on the accumulated knowledge.

8. SUGGESTED LEARNING RESOURCES

A. List of Books

Sr. No.	Author	Title of Books	Publication
1	Dennis P. Curtin, Kim Foley	Information Technology	Tata Mcgraw Hill
2	Turban, Rainer	Introduction to Information Technology.	Wiley

B. List of Major Practical/ Software

1. Computers with licensed OS/Open source system software, licensed application software, Latest Anti-Virus software.
2. Sufficient Internet Bandwidth according to number of users.
3. Simulators/Kits for Network activity demonstration.

C. List of Software/Learning Websites

1 Weleys computing Resources

2 http://bcs.wiley.com/hebcs/Books?action=index&itemId=0471347809&itemTypeId=BKS&bcsId=1918

9. COURSE CURRICULUM DEVELOPMENT COMMITTEE

Faculty Members from Polytechnic

- **Prof. P.K.FARUKI**, Lecturer, Information Technology Department, Government Polytechnic, Ahmedabad
- **Prof. Nandu Fatak**, Lecturer, Information Technology Dept. Government Polytechnic Ahmedabad

Co-ordinator and Faculty Members from NITTTR Bhopal

- **Dr. K. J. Mathai**, Associate Professor Dept. of Computer Engineering and Applications
- **Dr. M. A. Rizwi,** Associate Professor Dept. of Computer Engineering and Applications