FACULTY OF ENGINEERING & TECHNOLOGY

SYLLABUS

FOR

Interdisciplinary Course (UG & PG)
(Under Credit Based Continuous Evaluation Grading System)

Session: 2013-14

GURU NANAK DEV UNIVERSITY
AMRITSAR

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Interdisciplinary Courses (UG & PG)

Computer Science

CSL-001- Computer Fundamentals

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Unit I

**Introduction:** Computer System Characteristics, Hardware - CPU, Memory, Input, Output & Storage devices, Organization of Secondary Storage Media, Software - System & Application.

**Operating System Concepts:** Role of an Operating System, Types of operating systems, Booting procedure and its types, Introduction to Windows and its features.

**Development Tools:** Editors, Translators - Compilers, Interpreters, Linkers Loaders, Debuggers.

Unit II

**Programming Tools:** Problem Analysis, Program Constructs (Sequential, Decision, Loop), Algorithms, Flowcharts, Pseudocode. Decision table, Modular Programming, Top-down and Bottom-up Approaches.


Unit III

**Data Communications:** Introduction to Data Communication: Definition and advantages, Types of Networks, Network topologies, Transmission Media, Modems.

**Internet:** Internet and its applications, Working knowledge of Search engines and use of electronic mail.

**References:**

6. Martin, James: Telecommunications and the Computer, PHI
Interdisciplinary Courses (UG & PG)

Computer Science

CSL-002- Computer Programming

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Unit I

**Introduction to Program Development:** Need for program Development Life Cycle (PDLC), description of different phases of PDLC viz. defining the problem, designing the program, coding the program, testing and debugging the program, formalizing the solution, and finally implementing & maintaining the program.

**Overview of C:** Brief history of C, comparison of C with other programming languages, general structure of a C program, stages in the development of a C program, introduction to different versions of C.

Unit II

**Data Types, Operators & Expressions:** Constants and variables, data types, declaring variables, storage classes, different types of expressions and their evaluation, conditional expression, assignment statement, enumerated data type, redefining/creating data types, library functions, type casting.

**Console Input/Output:** Standard input/output devices, unformatted input/output functions (character I/O functions and string I/O functions), formatted input/output functions (scanf( ) function and printf ( ) function).

**Control Statements:** Decision making using if, if - else, elseif and switch statements, Looping using for, while and do - while statements, transferring program control using break and continue statements.

Unit III

**Functions:** Defining a function, local variables, return statement, invoking a function, specifying and passing arguments to a functions, function prototyping and use of header files, recursion

**Arrays & Strings:** Introduction to arrays, declaring arrays, initializing arrays, processing of arrays, passing arrays as arguments to a function, introduction to strings, Discussion on arrays is to be limited up to 2-D arrays only.

References:

Interdisciplinary Courses (UG & PG)

Computer Science

CSL051: Internet Applications

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UNIT-I

**Introducing the Internet**

**Overview:** Internet - working and development, Architecture, internet, intranet and extranet, design goals, issues and related aspects, Internet Domain Names and IP addresses, connecting LAN to Internet.

**Internet Connectivity:** Connection concepts, FDDI, ISDN, ADSL, PPP and ATM, web servers and browsers

UNIT-II

**Electronic Mail and Telnet**

**Overview:** Working of email, Advantages of email, Understanding of Internet email addresses using Telnet to access a remote machine.

**FTP**

Connecting to an Anonymous FTP site using FTP to retrieve a file, common FTP commands.

UNIT-III

**Search Engines**

Introduction to usenet, organization of usenet articles, reading, saving, mailing, writing and posting of an article. Basic gophar commands, accessing virtual reference desk through gophar.

**WWW-World Wide Web**

Working of WWW, Hypertext and Hypermedia, URL, Searching the WWW.

References:

Computer Science

CSL052: OPERATING SYSTEM

UNIT-I

Introduction to Operating Systems, Main Functions and characteristics of Operating Systems, Types of Operating Systems.


UNIT-II

Memory Management: External fragmentation, Internal fragmentation, Compaction, Paging, Segmentation, Virtual memory, Demand paging.

UNIT-III

Device Management: Dedicated devices, shared devices, virtual devices, channels, I/O traffic controller, I/O scheduler, I/O Device handlers.

TEXT / REFERENCES:

Interdisciplinary Courses (UG & PG)

ELECTRONICS
(ODD SEMESTER)

ECL-051 Basic Electrical & Electronics
(Inter-disciplinary Course-I)

Credit: L T P
3 0 0

Part I

ELECTRICAL
1. Electric current and ohm's: Ohm’s law, Resistances in Series, Resistance in parallel, Division of current in parallel circuits, Equivalent resistance, Voltage and current sources and their characteristics, Numericals. 4

Part II

ELECTRONICS
2. Amplifiers: Classification, Configuration, concept of feedback in Amplifiers & Oscillators. 3
3. Digital Electronics: Definition, symbol and Truth table of basic logic gates, concept of universal gate, Introduction to Flip-Flops, counters, concept of RAM, ROM, EPROM and their applications 6
4. Instrumentations: Working principle and uses of following instruments- C.R.O, Digital Multimeter, Transducers. Data Acquisition systems. 4
5. Linear Integrated Circuits: Equivalent circuit, Ideal Characteristics of op-amp. Concept of feedback, closed-loop applications, differentiator, integrator amplifier, Digital to Analog, Analog to digital convertors. 5

Books:
2. Integrated Electronics by Millman & Halkias.
3. Digital principles of Malvino leach.
4. Electrical Instrumentation by Cooper.
Interdisciplinary Courses (UG & PG)

ELECTRONICS
(EVEN SEMESTER)

ECL-052 Fundamentals of Communication Engineering
(Inter-disciplinary Course-II)

Credit: L T P
3 0 0

1. Introduction
Concept, Need of Communication, Need for Modulation, Need for Transmission and Receiving Antennas, Types of Communication, Analog & Digital Communication, AM, FM, PM 7

2. Transmission Media
Guided and Unguided Transmission Media, Comparison of Different Media-twisted pair, coaxial cable, Optical Fiber, Microwave 5

3. Fiber Optic Communication
Principle of working, Types of Fibers- Single mode, mono mode, Step-index, Graded Index, Fiber optic components, concept of Wave Division Multiplexing, Applications. 5

4. Microwave Communication
Line of sight propagation, role of curvature of earth on coverage, Concept of Terrestrial & Extra Terrestrial Communication, Satellite communication, Earth station, Transponder, VSAT, Direct Broadcasting Satellite (DBS), GEO, MEO, LEO, Multiplexing techniques, Applications. 7

5. Cellular Mobile Communication
Basic Block of Cell, Frequency reuse, Roaming, FDMA, TDMA, CDMA, Different Generations and general terminology. 5

6. Radar & Navigation
Principle, Types, Applications, Navigational Aids, Instrument landing System, Radar Beacon, Microwave Landing system, Electronic Counter Measures(ECM), LORAN. 6

Books:
1. Electronic Communication Systems by Kennedy
2. Electronic Communication Systems By Tomasi
3. Radar and Navigational Aids By Kulkarni