



# Management Institute of Technology (MIT) Hyderabad

## Affiliated with University of Sindh Jamshoro

<b>Course Title:</b>	<b>English Communication Skills</b>
<b>Course Code:</b>	<b>ENG-301</b>
<b>Degree Program:</b>	<b>BS(Information Technology) P-I (2nd semester)</b>
<b>Course rating:</b>	<b>3 credit hours (Theory)</b>
<b>Pre-requisites:</b>	<b>English Composition and Comprehension</b>

### Course Objectives:

The English Communication Skills course aims to enhance the skills involved in communicating to inform and/or to persuade.

### Syllabus Outline:

Communication principles: the communication model, the elements of good written communication, including spelling and grammar, purpose, audience, organization, tone and their roles in communication

Format and appearance of business correspondence: letters (all types), memoranda, formal and informal reports

Order of content: pyramid" organization of material, clarity and conciseness, action statements

Business reports: collection and documentation of data, recommendations based on data

Job applications: cover letters, resumes, interviews Oral communication: day-to-day participation, attendance

### Learning Material/References:

- \* **Effective Business Communication, 7th Ed, by Murphy, H.A & Hildebrandt H.W.<**
- \* **Basic Business Communication, 9th Ed, by B. Lesikar, Raymond V. & Flatly, Marie**
- \* **Business Communication Today, 6th Ed. By E. C. Bovee, L. Courtland & Till, J.V.**



# Management Institute of Technology (MIT) Hyderabad

Affiliated with University of Sindh Jamshoro

<b>Course Title:</b>	<b>Electronic Circuit Design</b>
<b>Course Code:</b>	<b>ITEC-318</b>
<b>Degree Program:</b>	<b>BS(Information Technology) P-I (2nd semester)</b>
<b>Course rating:</b>	<b>3 credit hours (Theory)</b>
<b>Pre-requisites:</b>	<b>Basic Electronics</b>

## Course Objectives:

In this course the analysis of different types of BJT and FET based amplifier are studied in detail. Topics include multistage amplifier, frequency response of small signal amplifiers, power amplifier, and theory of operational amplifiers, feedback amplifiers and oscillators.

## Syllabus Outline:

**Multi-Stage Amplifiers:** General cascade systems, RC-coupled amplifiers, transformer coupled amplifiers, direct coupled amplifiers, cascade amplifier, Darlington compound configuration.

**Frequency response of Amplifiers:** Decibels, bode plots, frequency response of an amplifier, coupling and by pass capacitors, step response of an amplifier, single stage transistor amplifier-low frequency and high frequency considerations, frequency response of FET amplifiers, frequency response of cascaded stages, gain-bandwidth product, frequency response of cascaded FET amplifiers.

**Power Amplifiers:** Class A common emitter amplifier, transformer coupled amplifiers, Class B push pull amplifiers, complementary symmetry amplifiers, Class C and D amplifiers, distortion, power transistor heat sink calculation.

**Feedback Amplifiers:** Feedback concept, ideal feedback amplifier, properties of negative feedback amplifier, impedance of feedback amplifiers, analysis of feedback amplifiers, voltage series feedback amplifier, current-series feedback, voltage-shunt feedback, current shunt feedback, phase and frequency considerations.

**Operational Amplifier Theory:** The basic operational amplifier, differential amplifier stage, (constant current sources and current mirror, output voltage offset due to input voltage/current offset, AC analysis of differential amplifier, common mode rejection), level shifting and output stages of op-amp, linear op-amp circuits (inverting, non inverting, summing amplifiers), op-amp frequency response, op-amp characteristics and datasheets.

**Oscillator Circuits:** Oscillator principles and operation, WIEN bridge oscillator, phase shift oscillator, Colpitts and Hartley oscillators.

## Learning Material/References:

- \* **Electronic Devices By Thomas L Floyd**
- \* **Introduction to Electronic Circuit Design by Richard Spencer**
- \* **Fundamentals of electronic circuit design by COMER David J., COMER Donald T.**



# Management Institute of Technology (MIT) Hyderabad

Affiliated with University of Sindh Jamshoro

<b>Course Title:</b>	<b>Object Oriented Programming Paradigm</b>
<b>Course Code:</b>	<b>ITEC-320</b>
<b>Degree Program:</b>	<b>BS(Information Technology) P-I (2nd semester)</b>
<b>Course rating:</b>	<b>3 credit hours (Theory)</b>
<b>Pre-requisites:</b>	<b>Programming Fundamental</b>

## Course Objectives:

The objective of this course is to learn how to use Object-Oriented techniques to analyze real-world requirements and to design solutions that are ready to code. Students learn how to identify and design objects, classes, and their relationships to each other which include links, associations, and inheritance. A strong emphasis is placed on diagram notation for use cases, class and object representation, links and associations, and object messages.

## Syllabus Outline:

Objects and Classes: A Simple Class, C++ Objects As Physical Objects, C++ Objects As Data Types, Constructors, Objects as Function Arguments, The Default Copy Constructor, Returning Objects from Functions, Structures and Classes, Objects, Memory, Static Class Data, const and Classes.

Operator Overloading: Overloading Unary Operators, Overloading Binary Operators, Data Conversion, Pitfalls of Operator Overloading and Conversion, Keywords explicit and mutable.

Inheritance: Derived Class and Base Class, Derived Class Constructors, Overriding Member Functions, Class Hierarchies, Public and Private Inheritance, Levels of Inheritance, Multiple Inheritance, private Derivation in empmult, Ambiguity in Multiple Inheritance, Containership, Classes Within Classes, Inheritance and Program Development.

Virtual Functions: Finding An object's class with TYPE ID()11, Virtual Functions, Friend Functions, Static Functions, Assignment and Copy Initialization, The this Pointer, Dynamic Type Information.

Streams and Files: Stream Classes, Stream Errors, Disk File I/O with Streams, File Pointers, Error Handling in File I/O, File I/O with Member Functions, Overloading the Extraction and Insertion Operators, Memory As a Stream Object, Command-Line Arguments, Printer Output.

Multifile Programs: Reasons for Multifile Programs, Creating a Multifile Program, A Very Long Number Class, A High-Rise Elevator Simulation, Designing the System, Listings for elev, Elevator Strategy, A Water-Distribution System, Component Input and Output, Making Connections, Simplifying Assumptions.

Templates and Exceptions: Function Templates, Class Templates, Exceptions.

The Standard Template Library: Introduction to the STL, Algorithms, Sequential Containers, Iterators, Specialized Iterators, Associative Containers, Storing User-Defined Objects, Function Objects

Object-Oriented Design: Our Approach to OOD, The Programming Problem, The CRC Modeling Team, Constructing the CRC Cards, Use Cases, Class Relationships, Class Diagrams, Writing the Program, Interacting with the Program.

## Learning Material/References:

\* **Object-Oriented Programming in C++ by Robert Lafore**



# Management Institute of Technology (MIT) Hyderabad

Affiliated with University of Sindh Jamshoro

<b>Course Title:</b>	<b>Linear Algebra</b>
<b>Course Code:</b>	<b>ITEC-322</b>
<b>Degree Program:</b>	<b>BS(Information Technology) P-I (2nd semester)</b>
<b>Course rating:</b>	<b>3 credit hours (Theory)</b>
<b>Pre-requisites:</b>	<b>College Level Knowledge of Mathematics</b>

## Course Objectives:

The aim of the course is to enable the students to understand the fundamental principles of the Matrices, Vector algebra, Vector calculus and Vector space.

## Syllabus Outline:

Introduction: Linear Models in Economics and Engineering, Systems of Linear Equations, Row Reduction and Echelon Forms, Vector Equations, The Matrix Equation, Solution Sets of Linear Systems, Applications of Linear Systems, Linear Independence, Introduction to Linear Transformations, The Matrix of a Linear Transformation, Linear Models in Business, Science, and Engineering.

Matrix Algebra: Matrix Operations, The Inverse of a Matrix, Characterizations of Invertible Matrices, Partitioned Matrices, Matrix Factorizations, Applications to Computer Graphics, Dimension and Rank.

Determinants: Introduction to Determinants, Properties of Determinants, Cramer's Rule, Volume, and Linear Transformations.

Vector Spaces: Vector Spaces and Subspaces, Null Spaces, Column Spaces, and Linear Transformations, Linearly Independent Sets; Bases, Coordinate Systems, The Dimension of a Vector Space, Rank, Change of Basis.

Eigenvalues and Eigenvectors: Eigenvectors and Eigenvalues, The Characteristic Equation, Diagonalization, Eigenvectors and Linear Transformations, Complex Eigenvalues, Discrete Dynamical Systems.

## Learning Material/References:

- \* **Linear Algebra, David C Lay, Pearson Addison Wesley, 1999, ISBN: 0201660369**
- \* **Mathematical methods by Dr. S M Yusuf**
- \* **Vector Analysis by Dr. S M Yusuf**
- \* **Advance Engineering mathematics by Erwin Krysig**



# Management Institute of Technology (MIT) Hyderabad

## Affiliated with University of Sindh Jamshoro

<b>Course Title:</b>	<b>Islamic Studies</b>
<b>Course Code:</b>	<b>IS-302</b>
<b>Degree Program:</b>	<b>BS(Information Technology) P-I (2nd semester)</b>
<b>Course rating:</b>	<b>2 credit hours (Theory)</b>
<b>Pre-requisites:</b>	<b>None</b>

### **Course Objectives:**

Along with learning facts and figures, an undergraduate education in Islam should develop the ability in students to understand different points of view and come to their own decisions regarding them.

### **Syllabus Outline:**

Verses of Holy Quran with their translation and Tafseer. Introduction to Al-Quran, Monotheism, Prophethood, Prayer, Fasting, Mandatory Alms, Pilgrimage, Remembrance of Allah, Repentance, Supplication, Al-Islam, People whom Allah likes, People whom Allah dislikes, Believers, The philisophy of extremism and conceot of Jihad, Injunctions on Veiling.

Life of Holy Prophet (PBUH). World and Arabs before Islam, Birth and early life of Holy Prophet (PBUH), First revelation and secret propagation of Islam, Declared propagation of Islam at Makkah and the difficulties faced by Holy Prophet (PBUH) and the Muslims, Migration and establishment of the First Islamic State at Madina, Battles of Badr, Uhad, Ahzab, Hudabiah and Khyber, Conquest of Makkah and the battles fought afterwards, Last pilgrimage, Wisal of Holy Prophet (PBUH) and his Seerat.

Islamic Culture (Islami Tahzeeb). Islamic Social System, Islamic Political System, Islamic Economical System, Islamic Judicial System, Islamic Defence System, Rights and Responsibilities of an Islamic State, Dealing with Non-Muslims Based on Hadith & Sunnah, Virtue of quest for knowledge, enlightenment in Islam, Ethics and Morality in Islamic Society.

### **Learning Material/References:**

- \* Tafseer Ibn-Kaseer by Hafiz Imad-Ud-Din Bin Umar Bin Kaseer (RA), translated by Maulana Mohammad Junagarhi
- \* Serrat-Un-Nabi by Syed Suleman Nadvi
- \* Muaraf Al-Hadith by Maulana Mohammad Manzoor Nomani
- \* Bare-Sagheer per Islami Tehzeeb Kay Asraat (Influence of Islamic Culture over Sub-Continent) Published by Karachi University