



Kot Bhalwal, Jammu



Model Institute of Engineering
& Technology (Autonomous)
Course Handout

COURSE HANDOUT

Foundations of IT (BCA (Hons.)UGSEC-104 (A))

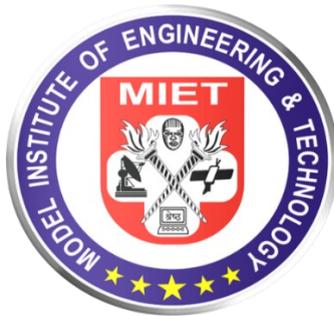
BCA-1ST SEMESTER

ACADEMIC YEAR (2024-25)

Dr Archana Sharma

Assistant Professor

PG Department of Computer Applications



PG Department of Computer Applications

Model Institute of Engineering & Technology (Autonomous)

Kot Bhalwal, Jammu -

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Dr. Arun K. Gupta Teaching-Learning Centre

Version 1.1



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Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
UGSEC-1 04 (A)	Foundations of IT	SEC	2	4	0	0	50	-	50

COURSE OUTCOMES

At the end of the course the student will be able to:	
CO1	Describe the organization of computers & fundamentals of Operating Systems
CO2	Explain importance of software in computing & concepts of objects, classes, and their relationships.
CO3	Identify the basic concepts, architecture and various data models used in Database Management Systems
CO4	Explore basic taxonomy and terminology of the computer networking model and architecture.
CO5	Articulate the emerging trends and applications of IT.

Section A

Unit I:

Introduction to Computers: Basic computer architecture and components, Central Processing Unit (CPU) and its functions, Understanding the significance of number system in computing, non-positional and positional number systems, Overview of the functions and roles of operating systems, classification of operating systems, Overview of the Linux operating system and its history, Linux file system hierarchy and directory structure ,Basic Linux commands: navigation, file operations, and text manipulation.

(10 Hrs.)

Unit II:

Computer Software & languages: Understanding software and its importance in computing, Types of software, Introduction to algorithms and flowcharts for problem-solving, Exploring the characteristics of a good programming language, Overview of programming languages and their classification, Basic concepts of object-oriented programming class, object, inheritance, constructors, polymorphism, data encapsulation, exception handling.

(10 Hrs.)

Unit III:

Database Management System: characteristics, history and applications, Components of DBMS, Advantages and Disadvantages of DBMS. Language and Architecture: Data Modeling, Records and Files, Abstraction and data Integration, Views, Data Models Classification. Introduction to SQL.

(10 Hrs.)

Section B

Unit-IV:

Networks: Characteristics, scope, and typical uses of each network type, Introduction to network topologies, Advantages and disadvantages of different topologies, explanation of the TCP/IP protocol suite and its layers, Overview of the OSI model and its seven layers.

(10 Hrs.)

Unit-

V: Emerging trends and Applications in IT: Internet of Things (IOT); Big Data Analytics; Cloud Computing; Artificial Intelligence; Virtual and Augmented Reality; IT Governance, Operational risk and governance, Governance of internal IT processes, E governance framework, E Commerce, Digital markets, electronic data security.

(10Hrs)

Textbooks



S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Computer Science: An Overview	J. Glenn Brookshear and Dennis Brylow	Pearson	12th(2021)
2.	Introduction to Information Technology	Turban, Rainer& Potter	Wiley Student Edition	2nd(2008)

Reference Books

S.No	Name of the Books	Name of the Author	Publisher Name	Edition (Pub.Yr.)
1	Computer Fundamentals	B. Ram	New age International	6 th (2020)

COURSE PLAN

Unit-I Introduction to Computers

S.No	Topics	Recommended Books
1	Basic Computer architecture and components	Book 1, Ch.1
2	Central Processing Unit (CPU) and its functions	Book 1, Ch.5
3	Understanding the significance of number system in computing	Book 1, Ch.2
4	Non positional and positional number systems	Book 1, Ch.2
5	Overview of the functions and roles of operating systems	Book 1, Ch8
6	Classification of operating systems	Book 1, Ch.8
7	Overview of the Linux operating system and its history	Book 1, Ch.1
8	Linux file system hierarchy and directory structure	Book 1, Ch.1
9	Basic Linux commands: navigation, file operations, and text manipulation.	Book 1, Ch.1

Unit-II Computer Software & languages

10	Understanding software and its importance in computing	Book 2, Ch.2
11	Types of software	Book 2, Ch.2
12	Introduction to algorithms and flowcharts for problem-solving	Book 1, Ch.8
13	Exploring the characteristics of a good programming language	Book 1, Ch.8
14	Overview of programming languages and their classification	Book 1, Ch.8
15	Basic concepts of object-oriented programming class, object, inheritance	Object Oriented Programming With C++, Balagurusamy Ch.1
16	Constructors, polymorphism, data encapsulation	Object Oriented Programming With C++, Balagurusamy Ch.1
17	Exception handling	Object Oriented Programming With C++, Balagurusamy Ch.1

Unit-III Database Management System



18	characteristics, history, and applications	Book 2, Ch.2
19	Components of DBMS, Advantages and Disadvantages of DBMS	Book 2, Ch.2
20	Language and Architecture: Data Modeling	Book 2, Ch.2
21	Records and Files, Abstraction and data Integration, Views	Book 2, Ch.2
22	Data Models Classification	Book 2, Ch.2
23	Introduction to SQL	Book 2, Ch.2
Unit-IV Networks		
24	Characteristics, scope, and typical uses of each network type	Data-Communications-and-Network, Forouzan, Ch.1
25	Introduction to network topologies	Data-Communications-and-Network, Forouzan, Ch.1
26	Advantages and disadvantages of different topologies	Data-Communications-and-Network, Forouzan, Ch.1
27	Explanation of the TCP/IP protocol suite and its layers	Data-Communications-and-Network, Forouzan Ch.2
286	Overview of the OSI model and its seven layers.	Data-Communications-and-Network, Forouzan, Ch.2
Unit-V Emerging trends and Applications in IT		
29	Internet of Things (IOT)	Book 2, Ch.3
30	Big Data Analytics	Book 2, Ch.3
31	Cloud Computing	Book 2, Ch.3
32	Artificial Intelligence	Book 2, Ch.3
33	Virtual and Augmented Reality	Book 2, Ch.3
34	IT Governance	Book2, Ch. 3
35	Operational risk and governance,	Book2, Ch.3
36	Governance of internal IT processes	Book2, Ch. 3
37	E governance framework,	Book2, Ch. 3
38	E Commerce, Digital markets, electronic data security.	Book2, Ch.3

ADDITIONAL WEB RESOURCES

1.	Database Management System https://www.tutorialspoint.com/dbms/index.htm
2.	Data Communication and Networks https://www.tutorialspoint.com/data_communication_computer_network/index.htm

GRADING AND ASSESSMENT

- **Sessional Test:** 20marks
- **Assignment:** 20 marks
- **Attendance:** 10 marks
- **Final Examination:** Nil

COURSE POLICIES





Kot Bhalwal, Jammu

- **Attendance:** Minimum 75% attendance is mandatory to appear in the final examination of the course.
- **Academic Integrity:** MIET's academic integrity policies apply. Plagiarism will not be tolerated.
- **Late Submissions:** Assignments and projects must be submitted by the specified timelines.

FACULTY INFORMATION

- **Office Hours**
Monday (12:05 PM - 12:55 PM)
Friday (12:05 PM - 12:55 PM)
- **Contact Information**
archana.bca@mietjammu.in