



**MATA TRIPURA SUNDARI  
OPEN UNIVERSITY**

Agartala, Tripura

**CSB - 6111**

# **SCHOOL OF COMPUTER AND INFORMATION TECHNOLOGY**

**DATA COMMUNICATION AND  
COMPUTER NETWORKS**

**MASTERS OF COMPUTER  
APPLICATION (MCA)**

# **MASTER OF COMPUTER APPLICATIONS (MCA)**

## **PROGRAMME DESIGN COMMITTEE**

Prof. Masood Parvez  
Vice Chancellor – Chairman  
MTSOU, Tripura

Prof. Abdul Wadood Siddiqui  
Dean Academics  
MTSOU, Tripura

Prof. C.R.K. Murty  
Professor of Distance Education  
IGNOU, New Delhi

Prof. Mohd. Nafees Ahmad Ansari  
Director of Distance Education  
Aligarh Muslim University, Aligarh

Prof. P.V. Suresh  
Professor of Computer Science  
IGNOU, New Delhi

Prof. V.V. Subrahmanyam  
Professor of Computer Science

IGNOU, New Delhi

Prof. S. Nagakishore Bhavanam  
Professor of Computer Science  
Mangalayatan University, Jabalpur

Prof. Jawed Wasim  
Professor of Computer Science  
Mangalayatan University, Aligarh

## **COURSE WRITERS**

Dr. Md. Amir Khusru Akhtar  
Associate Professor of Computer Science  
MTSOU, Tripura  
CSM-6111 Data Communication &  
Computer Networks

Dr. Ankur Kumar  
Assistant Professor  
MTSOU, Tripura  
CSM-6112 Computer Organization &  
Architecture

Dr. Manish Saxena  
Assistant Professor of Computer Science  
MTSOU, Tripura  
CSM-6113 Discrete Mathematics

Dr. Duvvuri B. K. Kamesh  
Assistant Professor of Computer Science  
MTSOU, Tripura  
CSM-6114 Accountancy and Financial  
Management

Mr. Pankaj Kumar  
Assistant Professor of Computer Science  
Mangalayatan University, Aligarh  
CSM-6151 Programming with 'C' & Lab

Ms. Vanshika Singh  
Assistant Professor of English  
MTSOU, Tripura  
ENM-6101 Professional Communication

## **COURSE EDITORS**

Prof. S. Nagakishore Bhavanam  
Professor of Computer Science  
Mangalayatan University, Jabalpur

Prof. Jawed Wasim  
Professor of Computer Science  
Mangalayatan University, Aligarh

Dr. Manoj Varshney  
Associate Professor of Computer Science  
MTSOU, Tripura

Dr. M. P. Mishra  
Associate Professor of Computer Science

IGNOU, New Delhi

Dr. Akshay Kumar  
Associate Professor of Computer Science  
IGNOU, New Delhi

## **FORMAT EDITORS**

Dr. Nitendra Singh  
Associate Professor of English  
MTSOU, Tripura

Ms. Angela Fatima Mirza  
Assistant Professor of English

MTSOU, Tripura

Dr. Faizan  
Assistant Professor of English  
MTSOU, Tripura

Ms. Vanshika Singh  
Assistant Professor of English  
MTSOU, Tripura

## **MATERIAL PRODUCTION**

1. Mr. Himanshu Saxena
2. Ms. Rainu Verma
3. Mr. Jeetendra Kumar
4. Mr. Khiresh Sharma
5. Mr. Ankur Kumar Sharma
6. Mr. Pankaj Kumar

**Block-I: Fundamental Concepts & Network Architecture**

- Unit-1: Introduction to Computer Networks – Goals, Applications, and Benefits
- Unit-2: Network Structures, Architectures, and Topologies
- Unit-3: OSI and TCP/IP Reference Models – Layers, Functions, and Protocols
- Unit-4: Physical Layer – Transmission Media, Switching Techniques, ISDN, and Terminal Handling

**Block-II: Data Link Layer & Network Layer**

- Unit-5: Channel Allocation – LAN Protocols, ALOHA Variants (Pure & Slotted ALOHA)
- Unit-6: Medium Access Control – CSMA/CD, CSMA/CA, Collision-Free Protocols, IEEE Standards (Ethernet, Wi-Fi, FDDI)
- Unit-7: Data Link Layer – Framing, Error Detection & Correction, Sliding Window Protocols, HDLC
- Unit-8: Network Layer Functions – Addressing, Routing Algorithms, Congestion Control

**Block-III: Transport Layer & Network Services**

- Unit-9: IP Addressing & Networking – IPv4, IPv6, Subnetting, CIDR, Internetworking
- Unit-10: Transport Layer – Functions, Protocols, and Design Issues
- Unit-11: Connection-Oriented & Connectionless Services, TCP Window Management
- Unit-12: User Datagram Protocol (UDP) and Transmission Control Protocol (TCP)

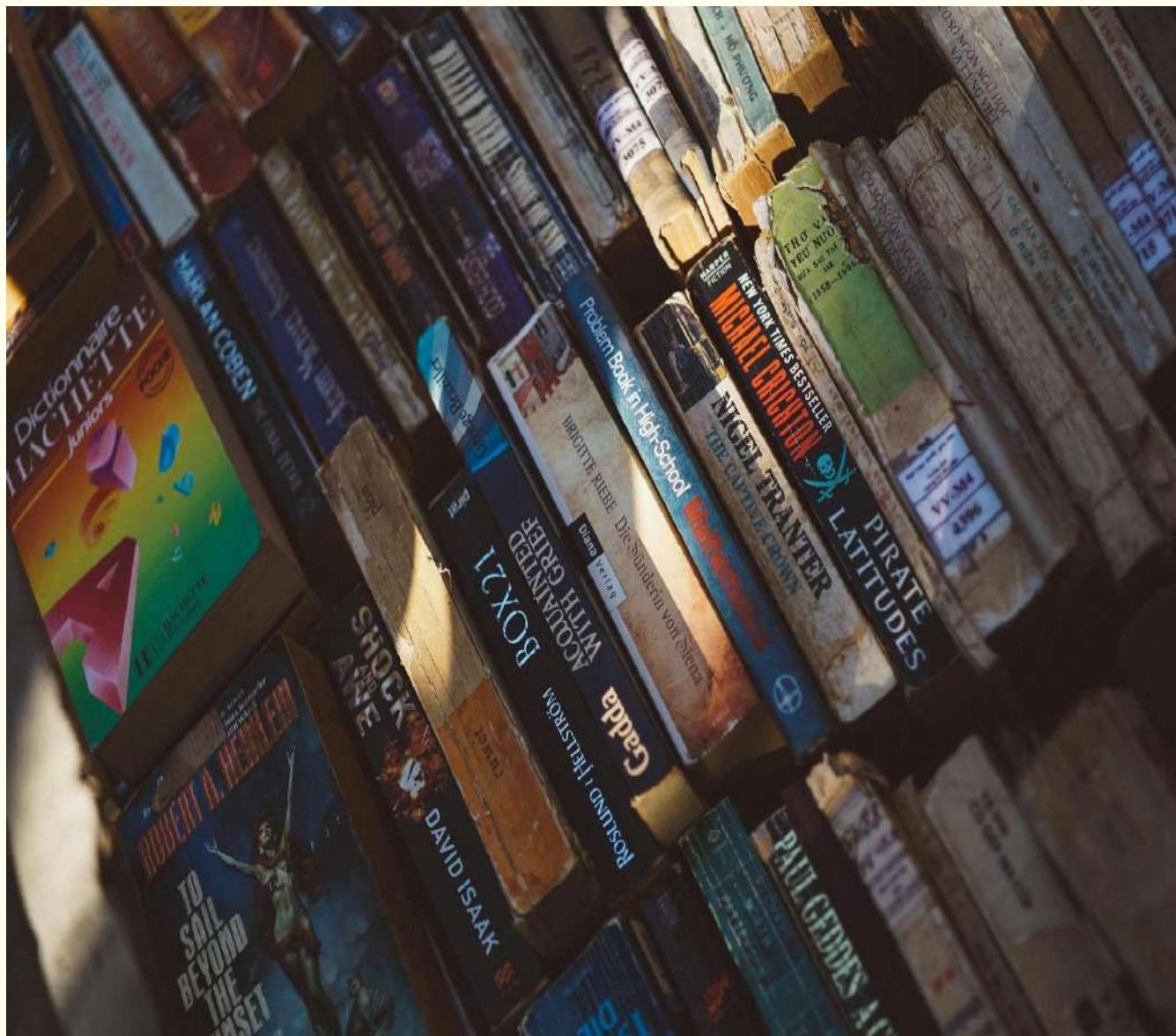
**Block-IV: Application Layer & Network Security**

- Unit-13: Flow Control, Error Control, and Quality of Service (QoS) in Transport Layer
- Unit-14: Network Security Fundamentals – Encryption, Hashing, Firewalls, Intrusion Detection
- Unit-15: Secure Communication – DES, AES, RSA, Digital Signatures, Domain Name System (DNS)
- Unit-16: Internet Protocols & Services – SMTP, FTP, HTTP, SNMP, Cryptography & Compression Techniques



# MATA TRIPURA SUNDARI OPEN UNIVERSITY

Agartala, Tripura



1 No. Colony, Chandrapur Colony, VTC Indiranagar, Distt. Gomati- Tripura-799013  
Mobile No: - 8448789806 | [info@mtsou.com](mailto:info@mtsou.com) | [www.mtsou.com](http://www.mtsou.com)



**MATA TRIPURA SUNDARI  
OPEN UNIVERSITY**

Agartala, Tripura

**CSB - 6211**

# **SCHOOL OF COMPUTER AND INFORMATION TECHNOLOGY**

**WEB PROGRAMMING**

**MASTERS OF COMPUTER  
APPLICATION (MCA)**

# **MASTER OF COMPUTER APPLICATIONS (MCA)**

## **PROGRAMME DESIGN COMMITTEE**

Prof. Masood Parvez  
Vice Chancellor – Chairman  
MTSOU, Tripura

Prof. Abdul Wadood Siddiqui  
Dean Academics  
MTSOU, Tripura

Prof. C.R.K. Murty  
Professor of Distance Education  
IGNOU, New Delhi

Prof. Mohd. Nafees Ahmad Ansari  
Director of Distance Education  
Aligarh Muslim University, Aligarh

Prof. P.V. Suresh  
Professor of Computer Science  
IGNOU, New Delhi

Prof. V.V. Subrahmanyam  
Professor of Computer Science

IGNOU, New Delhi

Prof. S. Nagakishore Bhavanam  
Professor of Computer Science  
Mangalayatan University, Jabalpur

Prof. Manoj Varshney  
Professor of Computer Science  
MTSOU, Tripura

## **COURSE WRITERS**

Dr. Md. Amir Khusru Akhtar  
Associate Professor of Computer Science  
MTSOU, Tripura  
CSM-6211 Web Programming

Dr. Ankur Kumar  
Assistant Professor  
MTSOU, Tripura  
CSM-6212 Advance Cyber Security

Dr. Manish Saxena  
Assistant Professor of Computer Science

MTSOU, Tripura  
CSM-6213 Management Information & system

Dr. Duvvuri B. K. Kamesh  
Assistant Professor of Computer Science  
MTSOU, Tripura  
CSM-6214 Design & Analysis of Algorithm

Mr. Pankaj Kumar  
Assistant Professor of Computer Science

Mangalayatan University, Aligarh  
CSM-6251 Data Structure using C++ & Lab

Dr. Manoj Varshney  
Associate Professor of Computer Science  
MTSOU, Tripura  
ENM-6252 DAA and Web Programming Lab

## **COURSE EDITORS**

Prof. S. Nagakishore Bhavanam  
Professor of Computer Science  
Mangalayatan University, Jabalpur

Prof. Jawed Wasim  
Associate Professor of Computer Science  
Mangalayatan University, Aligarh

Dr. Manoj Varshney  
Associate Professor of Computer Science  
MTSOU, Tripura

Dr. M. P. Mishra  
Associate Professor of Computer Science

IGNOU, New Delhi

Dr. Akshay Kumar  
Associate Professor of Computer Science  
IGNOU, New Delhi

## **FORMAT EDITORS**

Dr. Nitendra Singh  
Associate Professor of English  
MTSOU, Tripura

Ms. Angela Fatima Mirza  
Assistant Professor of English

MTSOU, Tripura

Dr. Faizan  
Assistant Professor of English  
MTSOU, Tripura

Ms. Vanshika Singh  
Assistant Professor of English  
MTSOU, Tripura

## **MATERIAL PRODUCTION**

1. Mr. Himanshu Saxena
2. Ms. Rainu Verma

3. Mr. Jeetendra Kumar
4. Mr. Khiresh Sharma

5. Mr. Ankur Kumar Sharma
6. Mr. Pankaj Kumar

### **Block-I: Introduction**

Unit-1: What is Markup Language Basic Structure of HTML

Unit-2 : Difference Between HTML and XHTML

Unit-3: Head Section and Elements of Head Section Meta Tags

Unit-4: CSS Tags Script Tag Table Tag Div Tag Header Tags Paragraph, p, Pre Tags

### **Block-II: Designing Pages with HTML & CSS**

Unit-5: Anchor Links and Named Anchors Image Tag Object Tag frame Tag Forms Form Tag attributes of Form POST and GET Method

Unit-6: Field set and Legend Text input, Text area Checkbox and Radio Button Dropdown.

Unit-7: Dynamic HTML, Document Object Model, Features of DHTML,

Unit-8: CSSP (Cascading Style Sheet Positioning)

Unit-9: JSSS (Java Script assisted Style Sheet

### **Block-III: Java Script**

Unit-10: Objects,

Unit-11: Methods, Events and Functions,

Unit-12: Tags, Operators, Data Types,

Unit-13: Literals and Type Casting in JavaScript,

Unit-14: Programming Construct Array and Dialog Boxes

### **Block-IV: Front Page**

Unit-15: Front Page Basics,

Unit-16: Web Terminologies,

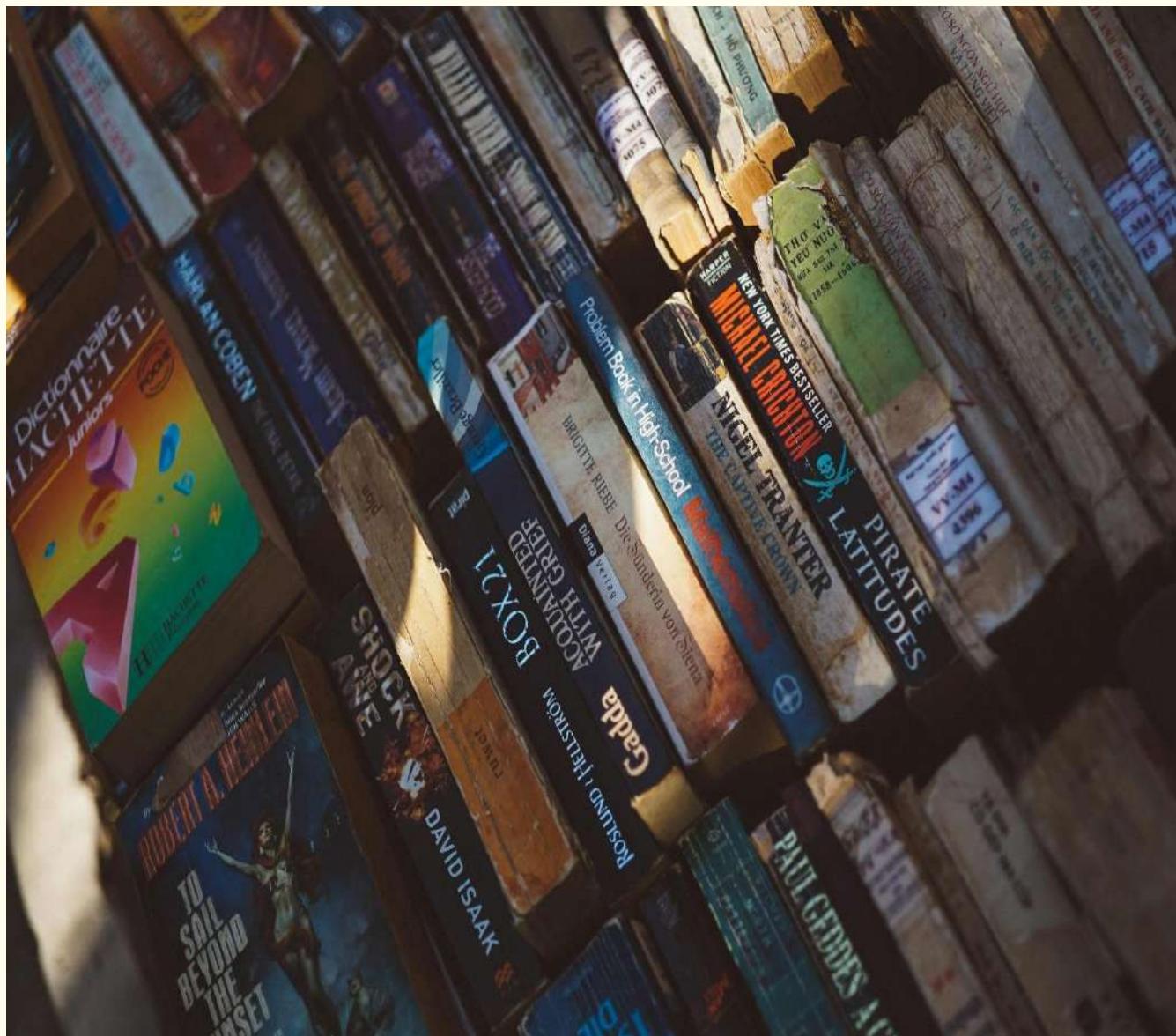
Unit-17: Phases of Planning and Building Web Sites,

Unit-18: the FTP, HTTP and WPP.



# MATA TRIPURA SUNDARI OPEN UNIVERSITY

Agartala, Tripura



1 No. Colony, Chandrapur Colony, VTC Indiranagar, Distt. Gomati- Tripura-799013  
Mobile No: - 8448789806 | [info@mtsou.com](mailto:info@mtsou.com) | [www.mtsou.com](http://www.mtsou.com)