

SEMESTER – 1st to 3rd
VALUE ADDED COURSE

DTS223V DIGITAL AND TECHNOLOGICAL SOLUTIONS

CREDITS: 02

Course Objectives:

- *To gain familiarity with digital paradigms;*
- *To sensitize about role & significance of digital technology;*
- *To provide know how of communications & networks;*
- *To bring awareness about the e-governance and Digital India initiatives;*
- *To provide a flavor of emerging technologies - Cloud, Big Data, AI, 3D printing.*

Course Outcome:

1. *Knowledge about digital paradigm;*
2. *Realization of importance of digital technology, digital financial tools, e-commerce;*
3. *Know-how of communication and networks;*
4. *Familiarity with the e-governance and Digital India initiatives;*
5. *An understanding of use & applications of digital technology;*
6. *Basic knowledge of machine learning and big data.*

COURSE CONTENTS:

UNIT I

Introduction & Evolution of Digital Systems. Role & Significance of Digital Technology. Information & Communication Technology & Tools. Computer System & its working, Software and its types. Operating Systems: Types and Functions. Problem Solving: Algorithms and Flowcharts.

Communication Systems: Principles, Model & Transmission Media. Computer Networks & Internet: Concepts & Applications, WWW, Web Browsers, Search Engines, Messaging, Email, Social Networking. Computer Based Information System: Significance & Types. E-commerce & Digital Marketing: Basic Concepts, Benefits & Challenges.

UNIT II

Digital India & e-Governance: Initiatives, Infrastructure, Services and Empowerment. Digital Financial Tools: Unified Payment Interface, Aadhar Enabled Payment System, USSD, Credit / Debit Cards, e-Wallets, Internet Banking, NEFT/RTGS and IMPS, Online Bill Payments and PoS. Cyber Security: Threats, Significance, Challenges, Precautions, Safety Measures, & Tools, legal and ethical perspectives.

Emerging Technologies & their applications: Overview of Cloud Computing, Big Data, Internet of Things, Virtual Reality, Blockchain & Cryptocurrency, Robotics, Machine Learning & Artificial Intelligence, 3-D Printing. Digital Signatures.

BOOKS

1. V. Rajaraman, Introduction to Information Technology, 3rd Edition, PHI;
2. E Balagurusamy, Fundamentals of Computers, Tata Mc GrawHill;
3. Behrouz A. Forouzan, Data Communications and Networking, McGraw Hill;
4. Pramod Kumar, Anuradha Tomar, R. Sharmila, Emerging Technologies in Computing Theory, Practice, and Advances, Edition 2021, Chapman and Hall/CRC Imprint;
5. Buva, Broberg, and Goscinski, Cloud Computing- Principals and Paradigms, Wiley
6. Russel and Norving, Artificial Intelligence- A Modern Approach, Pearson Education;
7. Samuel Greengard, Internet of Things, MIT Press;
8. C.S.V. Murthy, E-commerce Concepts, Models, Strategies;
9. Hurwith, Nugent Halper, Kaufman, Big Data for dummies, Wiley & Sons - Wiley.