

# **Introduction to Embedded Systems**

## **(MCA-15-216-GE)**

### **Unit I**

Introduction to Embedded Systems (ES), their examples and applications. Concept, Definition and Classification. Basic Microprocessor architecture. Real-time concepts.

### **Unit II**

Interrupts- Basics, Shared-Data Problems & Solutions, Concept of Atomicity of critical sections, Interrupt Latency.

### **Unit III**

Tasks & Task States, Tasks & Data, Semaphores & Shared Data. Real-Time Schedulers (RR, RM, EDF).

### ***References Books:***

1. Jane Liu, "Real-time Systems" , PHI.
2. David Simon, "An Embedded Software Primer", Pearson (Asia).
3. Raj Kamal, "Embedded Systems – Architecture, Programming & Design", TMH.

# **Fundamentals of Digital Image Processing Using Matlab**

## **(MCA-15-217-GE)**

### **Unit I**

Introduction to digital image processing: digital image representation, fundamental steps in digital image processing, components of an image processing system. Applications of digital image processing.

### **Unit II**

Pixel: fundamentals of pixel, some basic relationships between pixels, operations upon pixels. The engineering of image formation: the camera, the digitization process.

### **Unit III**

Intensity transformations: some basic intensity transformations, histogram processing. Spatial filtering: fundamentals of spatial filtering, smoothing spatial filters, sharpening spatial filters.

### ***References Books:***

1. "Digital Image Processing using MATLAB, R.C. Gonzalez, R.E. Woods, and S. L. Eddins, Pearson Prentice-Hall.
2. "Digital Image Processing", R.C. Gonzalez and R.E. Woods, 3rd Edition, Prentice-Hall.
3. "Fundamentals of Digital Image Processing", A.K.Jain, Pearson.
4. "Fundamentals of Digital Image Processing", Catlemrene, Pearson.

# **Internet & its Applications**

## **(MCA-15-218-OE)**

### **Unit – I**

Internet – Definition, Predecessors, Inspirations, Evolution and merger of networks to Internet, Rise of Internet.

### **Unit - II**

Architecture of Internet – Structure, Infrastructure, Protocols, Access, Governance.

Services of Internet – World Wide Web (WWW), Communication, Data Transfer.

### **Unit - III**

Applications of Internet - Users & usage, e-Commerce, Social Networking, Entertainment, Politics & political revolutions.

Social implications of Internet – Surveillance, Privacy, Digital divide, Security, & Cyber law.

### ***References Books:***

1. Michael Robinson, "History of the Internet", Amazon Digital South Asia Services, 2013.
2. Andrew S. Tanenbaum, "Computer Networks", Pearson Education, 5<sup>th</sup> Edition, 2013.
3. P. Rizwan Ahmed, "Internet & its Applications", Margham Publications, 2013.

## **Web Designing** **(MCA-15-219-OE)**

### **Unit I**

Introduction to Internet and World Wide Web, Website and Web pages; Understanding Browsers, Client side vs Server side, Uniform resource locator (URL). HTML - Concepts of Hypertext, Versions of HTML, Elements of HTML, Head & Body Sections, Building HTML documents, Backgrounds and Colour controls, Different Formatting Tags, *Working with Text*: Organize Sections of Text Add Headings Changing Font Characteristics (Font Faces, Font Sizes, Font Color), *Creating List*: Ordered lists Unordered lists and Definition lists.

### **Unit II**

*Working with Images*: Adding Images, Adjusting the Height and Width Adding Alternate Text Style, Foreground Images. *Working with Links*: Linking to Other Web Pages Linking Within the Same Web Page Linking to E-Mail and Files. *Using Tables*: Basic Table Structure Formatting Tables (Border, Width, Height, Alignment, Color, Background Images) Formatting Content within Table Cells (Alignment, Width & Height, Colors). Use of Frames in web pages. *Building Forms*: Understand the Concept and Uses of Forms: Input controls, Text Input, Radio Buttons, Check Boxes, Submit Button, HTML Text Area.

### **Unit III**

Introduction to Adobe Dreamweaver, Dreamweaver Interface Basics, Types of Views, Defining a Dreamweaver site, Benefits of Using Site, Creating a Site, Standard Tool Bar, Common Tool Bar, Text Tags, Headings Tag, Content Tags, Formatting Tags Anchor Links / Email Links / Named Anchors, Insert Table, Inserting Images / Image Hot Spots, Inserting Flash / Video, Layout Tool Bar, Inserting Tables, Working with Frames, Forms in Dreamweaver Form Tag, Fieldset and Label Tag, Input Tags (Hidden, Text, Checkbox, Radio, Image), Select Tag / List Tag / Opt Group, Buttons (Submit and Reset).

### **References Books:**

1. Chris Coremans, "HTML: A Beginner's Tutorial", Brainy Software Inc, 2015.
2. Kogent Learning Solutions, "HTML 5 in simple steps", Dreamtech Press, 2010.
3. Niranjhan Jha, "Teach Yourself Adobe Dreamweaver CS6", Createspace Independent Pub, 2013.