



Dr. Ambedkar Institute of Technology, Bangalore – 56

Department of Electronics & Instrumentation Engineering

The attached documents are valid and approved.

[Handwritten Signature]

Prof. & Head

5/11/22

Professor & Head

Department of Electronics

Instrumentation Engineering

Dr. Ambedkar Institute of Technology

Bangalore - 560 056

Dr. Ambedkar Institute of Technology, Bangalore, 560056

(An Autonomous Institute Affiliated to VTU Belgaum)

Department of Electronics and Instrumentation Engineering

Fourth Semester

LESSON PLAN

(Even Sem. 2021-22)

Faculty Name: Soumya B.S

Subject: **Signals and Systems**

Designation: Assistant Professor

Subject Code: **18EI44**

No. of hrs: 5 Hrs/Week

No. of Credits: 3:2:0 =04

SI No.	Class No.	Unit No.	Topics to be Covered
		Unit 1	Introduction:
1.	Class 1		Definitions of a signal and a system
2.	Class 2		classification of signals
3.	Class 3		classification of signals – contd..
4.	Class 4		Tutorial Class1
5.	Class 5		Tutorial Class2
6.	Class 6		Basic Operations on signals
7.	Class 7		Basic Operations on signals – contd..
8.	Class 8		Elementary signals
9.	Class 9		Tutorial Class3
10.	Class 10		Tutorial Class4
11.	Class 11		Systems viewed as Interconnections of operations
12.	Class 12		Properties of systems
13.	Class 13		Tutorial Class5
		Unit 2	Time-domain representations for LTI systems 1
14.	Class 14		Introduction to Convolution
15.	Class 15		Impulse response representation
16.	Class 16		Convolution Sum
17.	Class 17		Tutorial Class6
18.	Class 18		Tutorial Class7
19.	Class 19		Convolution Sum contd..
20.	Class 20		Tutorial Class8
21.	Class 21		Convolution Sum contd..
22.	Class 22		Tutorial Class9
23.	Class 23		Convolution Integral
24.	Class 24		Convolution Integral – contd..
25.	Class 25		Tutorial Class10

26.	Class 26		Convolution Integral – contd..
27.	Class 27		Tutorial Class 11
		Unit 3	Time-domain representations for LTI systems 2:
28.	Class 28		Properties of impulse response representation,
29.	Class 29		Properties of impulse response representation-contd..
30.	Class 30		Tutorial class 12
31.	Class 31		Differential and difference equation Representations
32.	Class 32		Tutorial class 13
33.	Class 33		Differential and difference equation Representations contd..
34.	Class 34		Tutorial class 14
35.	Class 35		Differential and difference equation Representations contd..
36.	Class 36		Differential and difference equation Representations contd..
37.	Class 37		Tutorial class 15
38.	Class 38		Block diagram representations Direct form I, Direct form II
39.	Class 39		Cascade (Series), Parallel representations.
40.	Class 40		Tutorial Class 16
		Unit 4	Fourier representation for signals
41.	Class 41		Introduction, Discrete time and continuous time Fourier series
42.	Class 42		Discrete time Fourier series contd..
43.	Class 43		Continuous Time Fourier series
44.	Class 44		Tutorial class 17
45.	Class 45		Tutorial class 18
46.	Class 46		Properties of Discrete time and continuous time Fourier series
47.	Class 47		Discrete and continuous Fourier transforms
48.	Class 48		Discrete and continuous Fourier transforms contd..
49.	Class 49		Tutorial class 19
50.	Class 50		Tutorial class 20
51.	Class 51		Properties of Discrete and continuous Fourier transforms
52.	Class 52		Tutorial Class 21
		Unit 5	Z-Transforms:
53.	Class 53		Introduction Z-Transform
54.	Class 54		Properties of ROC
55.	Class 55		Tutorial Class 22
56.	Class 56		Properties of Z-Transform
57.	Class 57		Tutorial Class 23

58.	Class 58		Properties of Z-Transform contd..
59.	Class 59		Inversion of Z-Transform
60.	Class 60		Tutorial Class 24
61.	Class 61		Inversion of Z-Transform
62.	Class 62		Tutorial Class 25
63.	Class 63		unilateral Z- Transform and its application to solve difference equations
64.	Class 64		unilateral Z- Transform and its application to solve difference equations contd..
65.	Class 65		Tutorial class 26

Faculty Signature

Professor and Head

Date:

<https://www.youtube.com/watch?v=H4hk6N5vC1Q&list=PLBlnK6fEyqRhG6s3jYIU48CqsT5cyiDTO&index=2>

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Department of Electronics and Instrumentation Engineering

Seventh Semester

LESSON PLAN

(Even Sem. 2021-22)

Faculty Name: Soumya B.S

Subject: IoT and Wireless Sensor Networks

Designation: Assistant Professor

Subject Code: 18EI71

No. of hrs: 4Hrs/Week

No. of Credits: 4:0:0 =4

Sl No.	Class No.	Unit No.	Topics to be Covered
		Unit 1	Overview of Internet of Things:
1.	Class 1		Introduction to Internet of Things Introduction-Definition &
2.	Class 2		Characteristics of IoT
3.	Class 3		IoT Conceptual Framework- Oracle, IBM framework
4.	Class 4		IoT Architectural View, Technology Behind IoT
5.	Class 5		Sources of IoT
6.	Class 6		M2M communication, Difference between IoT and M2M,
7.	Class 7		Examples of IoT
8.	Class 8		Modified OSI Model for the IoT/M2M Systems,
9.	Class 9		data enrichment
10.	Class 10		data consolidation and device management at IoT/M2M Gateway
		Unit 2	Architecture and Design Principles for IoT:
11.	Class 11		Internet connectivity, Internet-based communication,
12.	Class 12		IP Addressing in the IoT,
13.	Class 13		Application layer protocols: HTTP, HTTPS, FTP, TELNET & ports.
14.	Class 14		Application layer protocols: FTP, TELNET and ports.
15.	Class 15		Data Collection, Storage and Computing using a Cloud Platform: Introduction,
16.	Class 16		Cloud computing paradigm for data collection,
17.	Class 17		storage and computing,
18.	Class 18		Cloud service models,
19.	Class 19		IoT Cloud- based data collection,
20.	Class 20		storage and computing
		Unit 3	Prototyping and Designing Software for IoT Applications: prototyping embedded devices
21.	Class 21		Designing Software for IoT Applications
22.	Class 22		Embedded platforms for prototyping,

23.	Class 23		Embedded platforms for prototyping,
24.	Class 24		things always connected to internet /cloud
25.	Class 25		Prototyping Embedded device software,
26.	Class 26		Prototyping Embedded device software,
27.	Class 27		Programming Embedded Device Arduino Platform using IDE
28.	Class 28		Programming Embedded Device Arduino Platform using IDE
29.	Class 29		Programming Embedded Device Arduino Platform using IDE
30.	Class 30		Programming Embedded Device Arduino Platform using IDE
31.	Class 31		Programming Embedded Device Arduino Platform using IDE
32.	Class 32		Programming Embedded Device Arduino Platform using IDE
		Unit 4	Overview and Architectures of Wireless Sensor Networks:
33.	Class 33		Introduction to Sensor Networks,
34.	Class 34		unique constraints and challenges,
35.	Class 35		Advantage of Sensor Networks
36.	Class 36		Applications of Sensor Networks, Mobile Adhoc networks (MANETs) and Wireless Sensor Networks,
37.	Class 37		Enabling technologies for Wireless Sensor Networks Sensor Node Hardware and Network Architecture:
38.	Class 38		Single-node architecture, Hardware components & design constraints,
39.	Class 39		Operating systems and execution environments,
40.	Class 40		Network architecture, Optimization goals and figures of merit,
41.	Class 41		Design principles for WSNs,
42.	Class 42		Service interfaces of WSNs, Gateway concepts
		Unit 5	Communication Protocols:
43.	Class 43		MAC Protocols for Wireless Sensor Networks,
44.	Class 44		Low Duty Cycle Protocols And Wakeup Concepts - S-MAC ,
45.	Class 45		The Mediation Device Protocol, Wakeup Radio Concepts,
46.	Class 46		Contention based protocols (CSMA,PAMAS),
47.	Class 47		Schedule based protocols (LEACH, SMACS, TRAMA).
48.	Class 48		Applications of WSN: WSN Applications
49.	Class 49		- Home Control -Building Automation
50.	Class 50		- Industrial Automation
51.	Class 51		- Medical Applications
52.	Class 52		IoT Case study: smart homes, smart city streetlights control & monitoring

NOTE: Each unit will have internal choice

Faculty Signature

Professor and Head

Date: