LESSON PLAN

Name: Ms Harmanpreet Kaur (Theory)

Discipline: Electronics and Communication Department

Semester: 8th

Subject: Transducers & Their Applications (ECE-430E)

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load: Lectures-03

Week	Theory	
	Lecture Day	Topic
1st	1st	**UNIT 1:**Definition of transducer
	2nd	Advantages of an electrical signal as out-put
	3rd	Basic requirements of transducers
2nd	4th	• Primary Transducer • Secondary Transducer
	5th	• Analog Transducer • Digital types of transducers
	6th	• Resistive Transducer • Inductive Transducer
3rd	7th	Revision Test
	8th	Capacitive Transducer
	9th	**ASSIGNMENT ON "Piezoelectric Transducer"**
4th	10th	Photoelectric Transducer
	11th	Photoelectric Transducer
	12th	Hall effect Transducer
5th	13th	**UNIT 2:**Measurement of pressure – Manometers
	14th	Measurement of pressure – Manometers
	15th	Force summing devices
6th	16th	Electrical transducers
	17th	Measurement of temperature – Metallic resistance thermometers
	18th	Measurement of temperature – Metallic resistance thermometers
7th	19th	Revision Test
	20th	Semi conductor resistance sensors (Thermistors)
	21st	Thermo-electric sensors
8th	22nd	Pyrometers
	23rd	**UNIT 3:**Measurement of displacement – Potentiometric resistance type transducers
	24th	• Inductive type transducers

		• Differential transformer (L.V.D.T)
9th	25th	• Capacitive transducers • Hall effect devices
	26th	**ASSIGNMENT ON "Strain gage transducers"**
	27th	Measurement of velocity – variable reluctance pick up
10th	28th	Electromagnetic tachometers
	29th	Photoelectric tachometer
	30th	Toothed rotor tachometer generator
11th	31st	Toothed rotor tachometer generator
	32nd	Revision Test
	33rd	**Unit 4:** Measurement of Force – Strain-gauge
12th	34th	Measurement of Force – Strain-gauge
	35th	Load cells
	36th	Load cells
13th	37th	**ASSIGNMENT ON "Pneumatic load cell"**
	38th	LVDT type force transducer
	39th	LVDT type force transducer
14th	40th	Measurement of Torque
	41st	Revision Test
	42nd	Torque meter
15th	43rd	Torsion meter
	44th	Inductive torque transducer
	45th	Digital methods

Suggested Books:

1. B.C. Nakra, K.K. Chaudhry, "Instrumentation Measurement and Analysis," Tata McGraw- Hill Publishing Company Limited, New Delhi.
2. Thomas G. Beckwith etc. all, "Mechanical Measurements (International Student Edition), Addison-Wesley Longman, Inc. England.
3. A.K. Sawhney, " A Course in Electrical and Electronic Measurements and Instrumentation," Dhanpat Rai & Sons, Delhi-6.

Lesson Plan

Name of the faculty: Mr. Pardeep Sandhu

Discipline: Electronics & Communication Engineering

Semester: 8th

Subject: Embedded Systems Design (ECE-424E)

Lesson Plan Duration: 15 Weeks (from January, 2018 to April, 2018)

Week	Theory	
	Lecture Day	Lecture Day
1st	1st	Different Types of Microcontrollers
	2nd	Processor Architectures
	3rd	Microcontroller's Memory Types
2nd	4th	Microcontrollers Features
	5th	Introduction to PIC Microcontroller
	6th	Architecture and Pipelining
3rd	7th	-Continued to next Lecture-
	8th	Program Memory Considerations
	9th	Addressing Modes
4th	10th	CPU Registers
	11th	Instruction Set
	12th	Simple Operations
5th	13th	-Continued to next Lecture-
	14th	Interrupt Logic
	15th	Timer2 Scalar Initialization
6th	16th	-Continued to next Lecture-

	17th	IntService Interrupt Service Routine
	18th	Loop Time Subroutine
7th	19th	External Interrupts and Timers
	20th	-Continued to next Lecture-
	21st	Synchronous Serial Port Module
8th	22nd	Serial Peripheral Device
	23rd	O/P Port Expansion
	24th	I/P Port Expansion
9th	25th	-Continued to next Lecture-
	26th	UART
	27th	-Continued to next Lecture-
10th	28th	Arithmetic Operations
	29th	Bit Addressing
	30th	Loop Control, Stack Operation
11th	31st	Subroutines
	32nd	RAM Direct Addressing
	33rd	State Machines
12th	34th	-Continued to next Lecture-
	35th	Oscillators
	36th	Timer Interrupts
13th	37th	Memory mapped I/O
	38th	Music Box
	39th	Mouse Wheel Turning
14th	40th	PWM Motor Control

	41st	Aircraft Demonstration
	42nd	Ultra sonic Distance Measuring
15th	43rd	Temperature Sensor
	44th	Pressure Sensor
	45th	REVISION OF UNIT-4

TEXT BOOK:

1. Design with PIC Microcontrollers by John B. Peatman , Pearson.

REFERENCE BOOKS:

1. Programming and Customizing the 8051 Microcontroller : Predko ; TMH.
2. Designing Embedded Hardware : John Catsoulis ;SHROFF PUB. & DISTR. ND.
3. Programming Embedded Systems in C and C++ : Michael Barr; SHROFF PUB. & DISTR. ND.

Lesson Plan

Name of the Faculty : **Ms. Jagdeep Kaur**

Discipline : **Electronics and Communication Engineering**

Semester : **8th**

Subject : **Wireless and Mobile Communication (ECE-402E)**

Lesson plan :**15 Weeks (From January, 2018 to April, 2018)**

Lecture per Week (in Hours):**Lectures-03**

Week	Theory	
	Lecture Day	Topic
1st	1.	**UNIT-1** Radio Propagation Characteristics,
	2.	Models for Path loss
	3.	Shadowing
2nd	4.	Multipath fading
	5.	delay spread,
	6.	ASSIGNMENT NO-1 "OKUMARA MODEL"
3rd	7.	Coherence bandwidth, Coherence Time
	8.	Doppler Spread, Jake's Channel model.
	9.	**REVISION OF UNIT-1**
4th	10.	**TEST OF UNIT-1**
	11.	**UNIT-2** Digital Modulation for Mobile radio
	12.	Analysis under fading channel
5th	13.	diversity techniques
	14.	Rake demodulator
	15.	ASSIGNMENT NO-2 "DIVERSITY TECHNIQUES"
6th	16.	Introduction to Spread Spectrum Communication
	17.	Multiple Access Techniques used in Mobile Wireless Communications
	18.	FDMA
7th	19.	TDMA
	20.	CDMA
	21.	**REVISION OF UNIT-2**
8th	22.	**TEST OF UNIT-2**
	23.	**UNIT-3** The Cellular concept
	24.	Frequency Reuse
9th	25.	basic theory of hexagonal cell layout

	26.	spectrum efficiency
	27.	FDM/TDM, Cellular System
10th	28.	channel allocation schemes
	29.	Handover Analysis
	30.	cellular CDMA
11th	31.	Soft capacity
	32.	Erlang capacity comparison
	33.	**REVISION OF UNIT-3**
12th	34.	**TEST OF UNIT-3**
	35.	**UNIT-4** Wireless standards ,
	36.	GSM
13th	37.	IS-95
	38.	ASSIGNMENT NO 3"ERLANGS CAPACITY NUMERICALS "
	39.	UMTS-IMT-2000
14th	40.	Signaling,
	41.	Call Control
	42.	Mobility Management
15th	43.	Location Tracking.
	44.	**REVISION OF UNIT-4**
	45.	**TEST OF UNIT-4**

Text Books:

1. Theodore S. Reppeport, Wireless Communications Principles and Practice, IEEE Press,Prentice Hall.
2. William C.Y.Lec, Mobile Cellular Telecommunications, Analog and Digital Systems, Mc-Graw Hill Inc

Reference Books:

1. Data & Computer Communication: William Stallings

Lesson Plan

Name of the Faculty : **Mr. Gaurav Sharma**

Discipline : **Electronics and Communication Engineering**

Semester : **8th**

Subject : **Radar Engineering (ECE-404E)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Lecture per Week (in Hours): **Lectures-03**

Week	Theory	
	Lecture Day	Topic
1st	46.	**UNIT 1**. RADAR BASICS
	47.	Radar Block Diagram & operation
	48.	Applications of Radar
2nd	49.	RADAR EQUATION: Simple form of Radar Equation,
	50.	Minimum detectable signal, Receiver noise,
	51.	**ASSIGNMENT NO-1 "System losses"**
3rd	52.	Signal to Noise ratio, Transmitter Power
	53.	Pulse repetition frequency & range ambiguities,
	54.	Propagation effects
4th	55.	**TEST OF UNIT-1**
	56.	**UNIT-2** CW & FREQUENCY MODULATED RADAR: The Doppler effect
	57.	CW Radar,
5th	58.	FM- CW Radar
	59.	Multiple Frequency CW Radar.
	60.	**ASSIGNMENT NO-2 "Delay Line Cancellors"**
6th	61.	MTI : Introduction
	62.	PULSE DOPPLER RADAR: Introduction
	63.	Multiple or staggered frequencies
7th	64.	range-Gated Doppler Filters,
	65.	Other MTI delay line
	66.	Limitation of,MTI performance, ,
8th	67.	Noncoherent MTI Pulse Doppler Radar
	68.	MTI from a moving platform

	69.	**SUMMARY OF UNIT-2**
9th	70.	**TEST OF UNIT-2**
	71.	**UNIT-3** TRACKING RADAR
	72.	Tracking with Radar
10th	73.	Sequential Lobbing
	74.	Conical Scan
	75.	Monopulse Tracking Radar
11th	76.	Tracking in range,
	77.	Acquisition of target
	78.	**SUMMARY OF UNIT-3**
12th	79.	**TEST OF UNIT-3**
	80.	**UNIT-4** RECEIVERS, DISPLAYS & DUPLEXERS:
	81.	Radar Receivers
13th	82.	Noise Figure
	83.	**ASSIGNMENT NO 3" Noise Figure"**
	84.	Mixer
14th	85.	Low-noise Front ends
	86.	Displays
	87.	Duplexer
15th	88.	Receiver protectors.
	89.	**SUMMARY OF UNIT-4**
	90.	**TEST OF UNIT-4**

TEXT BOOK:

1. Introduction to Radar Systems: Merrill I. Skolnik, ; MGH

REFERENCE BOOK:

1. Electronic Communication Systems : Kennedy; TMH

Lesson Plan

Name of the Faculty : **Mr. Vishal Kalra**

Discipline : **Electronics & Comm Engineering**

Semester : **8th**

Subject : **MULTIMEDIA COMMUNICATION (ECE-406)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Lecture per Week (in Hours) : **Lectures-03**

Week	Theory	
	Lecture Day	Topic (including Assignment/test)
1st	1.	**Unit 1:** Multimedia communications: Introduction, multimedia networks
	2.	Multimedia Applications
	3.	Multimedia information representation
2nd	4.	Introduction, digitization principles (contd. To Next Lecture) **Assignment 1:** Representation of Text, Images
	5.	digitization principles
	6.	Representation of Audio
3rd	7.	Representation of Video
	8.	**Test 1:** Multimedia Information Representation
	9.	**Unit 2:** Text & Image compression
4th	10.	Various Compression Techniques (contd. To Next Lecture)
	11.	Various Compression Techniques (contd. To Next Lecture)
	12.	Various Compression Techniques **Assignment 2: Text Compression**
5th	13.	Static Huffmann coding, dynamic Huffman coding
	14.	arithmetic coding,
	15.	Lempel-ziv coding
6th	16.	**Test 2: Various Text Compression Techniques**
	17.	Graphics Interchange format
	18.	tagged image file format,
7th	19.	digitized document
	20.	digitized pictures
	21.	JPEG (Introduction)

8th	22.	**Unit 3:** Audio compression: Differential PCM
	23.	Adaptive diffential PCM
	24.	Code excited LPC
9th	25.	MPEG Audio Coders (contd. To Next Lecture)
	26.	MPEG Audio Coders
	27.	**Test 3:** Audio Compression Methods
10th	28.	Dolby audio coders
	29.	Video Compression: Basic principles
	30.	Video compression standard H.261(contd. To Next Lecture)
11th	31.	Video compression standard H.261
	32.	Video compression standard H.263
	33.	**Unit 4:** Internet applications: Domain name system
12th	34.	name structure and administration (contd. To Next Lecture)
	35.	name structure and administration
	36.	DNS resource records
13th	37.	**Test 4:** Domain Name System
	38.	Electronic mail message structure (contd. To Next Lecture)
	39.	Electronic mail message structure
14th	40.	content transfer
	41.	Basic concept of internet telephony (contd. To Next Lecture)
	42.	Basic concept of internet telephony
15th	43.	World Wide Web.
	44.	**Test 5:** Video compression standard H.263
	45.	Revision

Text Books:

T1.William Stallings, Data and Computer Communications, PHI, Eighth Edition
T2. Forozan,"Data Communication & Networking", Tata McGraw Hill.

Reference Books:

R1.Proakin, "Digital Communications",McGraw Hill.
R2.Stallings,"Data & Computer Communications", PHI.

Lesson Plan

Name of the Faculty : **Mr. Rajan Jain**

Discipline : **Electronics & Comm Engineering**

Semester : **8th**

Subject : **AUDIO VISUAL ELECTRONICS PRACTICAL (ECE-410E)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Work Load : **03**

Week	Practical	
	Practical Day	Topic
1st	1.	Introduction to Lab
2nd	2.	To study the AV LAB components.
3rd	3.	Familiarization of PCBs and Mechanical Components of Tape recorder/ CD Player/VCD Player/Colour TV.
4th	4.	Study of tuner section of a Colour T.V.
5th	5.	Study of VIF section of a Colour T.V.
6th	6.	**VIVA-1**.
7th	7.	Study of Sound section of a Colour T.V.
8th	8.	Study of Chroma section of a Colour T.V
9th	9.	Study of Mechanical portion of VCD player.
10th	10.	**VIVA-2**
11th	11.	Study of Sound processing of VCD player.
12th	12.	Study of Camcorder's mechanical portion
13th	13.	VIVA-3
14th	14.	Study of Camcorder's Electronic portion.
15th	15.	VIVA -4

Lesson Plan

Name of the Faculty : **Mr. Vishal Kalra**

Discipline : **Electronics & Comm Engineering**

Semester : **8th**

Subject : **MICROWAVE ENGINEERING PRACTICAL (ECE-408E)**

Lesson plan : **15 Weeks (From January, 2018 to April, 2018)**

Work Load : **03**

Week	Practical	
	Practical Day	Topic
1st	1.	Introduction to Lab
2nd	2.	To study the microwave components.
3rd	3.	To study the characteristics of the reflex Klystron tube and to determine its electronic tuning range
4th	4.	To determine the frequency and wavelength in a rectangular waveguide working in TE IO mode.
5th	5.	To determine the standing wave ratio and reflection coefficient.
6th	6.	**VIVA-1**.
7th	7.	To study the I-V characteristics of Gunn diode.
8th	8.	To study the magic tee.
9th	9.	To study the isolator and attenuator.
10th	10.	**VIVA-2**
11th	11.	To measure the coupling coefficient and directivity of a wave guide directional coupler.
12th	12.	To measure the polar pattern and the gain of a waveguide horn antenna.
13th	13.	VIVA-3
14th	14.	To measure the insertion loss and attenuation.
15th	15.	Study of Camcorder's Electronic portion.