DEENBANDHU CHHOTU RAM UNIVERSITY OF SCIENCE & TECHNOLOGY, MURTHAL (SONEPAT)
SCHEME OF STUDIES AND EXAMINATION
B. TECH. III YEAR (ELECTRONICS & COMMUNICATION ENGINEERING)
SEMESTER V
Credit Based Scheme w.e.f. 2014-2015

Sr. No.	Course No.	Course Title	Teaching Schedule			Marks of Class Work	Exam. Marks		Total Marks	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	ECE301B	COMMUNICATION ENGINEERING	3	1	-	25	75	-	100	4	3
2	ECE303B	ELECTRONIC MEASUREMENT AND INSTRUMENTATION (ECE,AEI & 6th Sem. IC)	3	1	-	25	75	-	100	4	3
3	ECE305B	CONSUMER ELECTRONICS	3	1	-	25	75	-	100	4	3
4	ECE307B	LINEAR INTEGRATED CIRCUIT (ECE,BME)	3	1	-	25	75	-	100	4	3
5	ECE309B	MICROPROCESSORS AND INTERFACING (BME,CSE ,ECE,AEI)	3	1	-	25	75	-	100	4	3
6	CSE204B	OBJECT ORIENTED PROGRAMMING(ECE,common with 4th Sem. CSE,AEI)	3	1	-	25	75	-	100	4	3
7	CSE224B	OBJECT ORIENTED PROGRAMMING LAB(ECE,common with 4th Sem. CSE,AEI)	-	-	2	20	-	30	50	1	3
8	ECE323B	ELECTRONIC MEASUREMENT AND INSTRUMENTATION LAB(ECE,AEI,common with 6th Sem. IC)	-	-	2	20	-	30	50	1	3
9	ECE325B	CONSUMER ELECTRONIC LAB	-	-	2	20		30	50	1	-
10	ECE327B	LINEAR INTEGRATED CIRCUIT LAB	-	-	2	20	-	30	50	1	3
11	ECE329B	MICROPROCESSORS & INTERFACING LAB (BME,CSE ,ECE,AEI)	-	-	2	20	-	30	50	1	3
12	ECE335B	PROFESSIONAL TRAINING-I	-	-	2	50	-	-	50	2	-
		Total	18	6	12	300	450	150	900	31	

Note:
1. Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weightage of Sports is given in General Proficiency Syllabus.
2. The students will be allowed to use non-Programmable Scientific Calculator. However, sharing/exchange of calculator is prohibited in the examination.
3. Electronic Gadgets including Cellular Phones are not allowed in the examination.
4. Assessment of Professional training–I (ECE335B) will be based on seminar, viva-voce, report and certificate of professional training obtained by the student from the industry / institute / research lab / training centre etc.

Subject to be taught to other departments which are not in above scheme

Sr. No.	Course No.	Course Title	Teaching Schedule			Marks of Class Work	Exam. Marks		Total Marks	Credit	Duration of Exam
			L	T	P		Theory	Practical			
1	ECE311B	INTEGRATED ELECTRONICS (EE)	3	1	-	25	75	-	100	4	3
2	ECE331B	INTEGRATED ELECTRONICS LAB (EE)	-	-	2	20	-	30	50	1	3

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COMMUNICATION ENGINEERING

B. Tech Semester –V

L	T	P	Credits		Class Work	:	25 Marks
3	1	-	4		Theory	:	75 Marks
					Total	:	100 Marks

Duration of Exam. : 3 Hrs.

UNIT I

SPECTRAL ANALYSIS:
Fourier series, Fourier Transform & its properties, Convolution & Correlation, Autocorrelation & Cross Correlation.

ELEMENTS OF DIGITAL COMMUNICATION:
Introduction, Channels for Digital Communication, Model of Digital Communication, Geometric Interpretation of Signal, Gram Schmidt Orthogonalization procedure, Matched Filters, Estimation: Concept & Criteria, Maximum Likelihood Estimation, Adaptive Filters.

UNIT II

INTRODUCTION TO INFORMATION THEORY:
Measure of Information, Entropy, Rate of Information, Source Coding Theorem, Huffman Coding, Shannon Fano Coding, Discrete Memoryless Channels, Mutual Information, Channel Capacity, Channel Coding Theorem, Channel Capacity Theorem.

ERROR CONTROL CODING:
Types Of Codes, Block Code: Coding And Decoding, Hadamard Codes, Hamming Codes, Cyclic Codes, Convolution Codes: Coding And Decoding, Trellis Code.

UNIT III

DIGITAL CARRIER MODULATION AND DEMODULATION TECHNIQUES
Digital Modulation Formats, Coherent Binary Modulation & Demodulation: ASK, BPSK, BFSK, Coherent Quadrature Modulation & Demodulation Techniques: QPSK, MSK.

NON-COHERENT BINARY MODULATION TECHNIQUES:
Non Coherent BFSK, Differential PSK, M-Ary Modulation & Demodulation Techniques: M-Ary PSK, M-Ary QAM, M-Ary FSK, Synchronization: Carrier & Symbol Synchronization.

UNIT IV

BASE BAND SHAPING FOR DATA TRANSMISSION:
Discrete PAM Signal, Power Spectra for Digital PAM Signal, Inter Symbol Interference, Nyquist Criterion for Distortionless Baseband Binary Transmission, Correlation Coding, Eye Pattern, Base Band M-Ary PAM System, Adaptive Equalization for Data Transmission.

SPREAD SPECTRUM MODULATION:
PN Sequences, A Notion of Spread Spectrum, Direct Sequence Spread Spectrum, Frequency Hopping Spread Spectrum, Application.

Reference Books:

1. Digital Communication   By Simon Haykins – Wile
2. Digital Communicatin   By Sklar Ray- Pearson
3. Principle of Communication Systems   By Taub & Schilling – TMH
4. Electronics Communication Systems   By Tomasi – Pearson
5. Communication System   By Haykin & Moher- Wiley
6. Digital Communication   By J. G. Proakis
7. Digital Communication   By B. P. Lathi
8. Communication Systems   By Manoj Duhan – I. K. International

NOTE:
In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.

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ECE303B   ELECTRONICS MEASUREMENT AND INSTRUMENTATION
B. Tech Semester –V (ECE, AEI & 6th Sem. IC)

L	T	P	Credits		Class Work	:	25 Marks
3	1	-	4		Theory	:	75 Marks
					Total	:	100 Marks

Duration of Exam.   :   3 Hrs.

UNIT I

Oscilloscope:
Block diagram, study of various stages in brief, high frequency CRO considerations, Sampling and storage oscilloscope, Measurements of Phase and Frequency (Lissajous Patterns)
Electronic Instruments:
DC and AC voltage measurements, DC and AC current measurements, Multimeter, Ohmmeter, Bolometer, Calorimeter, Power meter, Introduction to digital meters

UNIT II

Generation and Analysis of waveforms:
Block Diagram of pulse generators, signal generators, function generators, wave analyzers, distortion analyzers, spectrum analyzer, Harmonic analyzer, introduction to power analyzer.
Frequency and Time Measurements:
Study of Decade Counting Assembly(DCA), frequency measurements, period measurements, universal counters, Introduction to digital meters

UNIT III

Display Devices:
Nixie Tubes, LED's, LCD's, Discharge Devices
Recorders:
Strip charts recorder, single point recorder, UV recorder,Magnetic tape recorder.

UNIT IV

Transducers:
Classification, Transducers of types: RLC Photocell, thermocouple, etc., Basic schemes of measurements of displacement, velocity,acceleration, strain, pressure, liquid level & temperature.
Introduction to signal conditioning:
DC signal conditioning systems, AC signal conditioning systems, Data acquisition and conversion system, characteristics of modern digital data acquisition system, Filter, Settling time, Amplifier Characteristics.

Text Books :
1. A course in Electrical and Electronics Measurements and Instrumentation by A.K.Sawhney; Dhanpat Rai & sons

Reference Books:
1. Electronics Measurements and Instrumentation Techniques By H. Cooper; PHI
2. Electronics Instrumentation by Kalsi; TMH

NOTE:
In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.

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ECE305B   **CONSUMER ELECTRONICS**
                                                    B. Tech Semester –V

L   T   P   Credits   Class Work   :   25 Marks
3   1   -   4   Theory   :   75 Marks
                                                                 Total   :   100 Marks
Duration of Exam.   :   3 Hrs.

UNIT I

Monochrome TV (Introduction):
Elements of a TV System,Picture transmission,Sound transmission,Picture reception,Sound reception,Synchronization,Receiver control,Image continuity, Scanning Process, Aspect Ratio, Flicker, Composite Video Signal, Picture Elements,Kell factor, Vertical Resolution,Horizontal Resolution,Video bandwidth,Interlacing, 625 Line System,Bandwidths for TV Transmission,Vertical and horizontal synch detail,Vestigial Side Band transmission(Advantages and Disadvantages)
Monochrome TV (Picture and Camera Tubes):
Monochrome picture tube,beam reflection,Beam focussing,Screen Phosphor,Face plate,Picture tube characteristics,picture tube circuit controls,Monochrome Camera Tubes:Basic principle,Image Orthicon, Vidicon,Plumbicon

UNIT II

Colour TV Essentials:
Compatibility , Colour perception,Three Colour theory,Luminance,Hue and Saturation, Dispersion and Recombination of light,Primary and secondary colours,luminance signal,Chrominance Signal, Colour picture tube,colour TV Camera,Colout TV display Tubes,colour Signal Transmission,Bandwidth for colour signal transmission,Colour TV controls. Cable TV,Block Diagram and principle of working of cable TV.
Plasma and LCD:
Introduction,liquid crystals,types of LCD's,TN,STN,TFT,Power requirements,LCD working,Principle of operation of TN display,Construction of TN display,Behaviour of TN liquid crystals,Viewing angle,colour balance,   colour TN display, limitatons, advantages, disadvantages, applications.

UNIT III

LED and DMD :
Introduction to LED Television , comparison with LCD and Plasma TV's, schematic of DMD, introduction to Digital MicroMirror device, Diagram of DMD, principle of working, emerging applications of DMD.
Microwave Ovens and Air Conditioners:
Microwaves,Transit Time,Magnetron,Waveguides,Microwave Oven,Microwave Cooking. Air conditioning,Components of air conditioning systems,all water Air conditioning systems,all air air conditioning Systems,Split air conditioner.

UNIT IV

Microphones:
Introduction, characteristics of microphones,types of microphone:carbon,moving coil,wireless,crystal,introduction to tape recorder.
Loudspeaker:
Introduction to ideal and basic loudspeaker,loudspeaker construction types of loudspeaker: Dynamic and permanent magnet,woofers,tweeters,brief introduction to baffles,equalisers.

Text Books :
1.Consumer Electronics by S. P. Bali(Pearson Education)
2.Complete Satellite and Cable T.V by R.R Gulati(New Age International Publishers)

Reference Books:
1. Monochrome and Colour Television by R. R. Gulati

NOTE:
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ECE307B　　　　　　　　　**LINEAR INTEGRATED CIRCUIT**

B. Tech Semester –V (ECE, BME)

L	T	P	Credits
3	1	-	4

Duration of Exam. 　　:　　3 Hrs.

Class Work 　　:　　25 Marks
Theory 　　:　　75 Marks
Total 　　:　　100 Marks

UNIT I

DIFFERENTIAL AMPLIFIER FUNDAMENTALS:
Differential Amplifier, Differential Amplifier Circuit Configuration: DC and AC Analysis of all Four Types of Configurations, FET Differential Amplifiers, Differential Amplifier with Swamping Resistor, Constant Current Bias, Current Mirror, Cascaded Differential Amplifier, Cascode Configurations.

OPERATIONAL AMPLIFIER FUNDAMENTALS:
Amplifier Fundamentals, the Operational Amplifier, Block Diagram Representation, Ideal OP-AMP, OP-AMP Equivalent Circuit, Ideal Voltage Transfer Curve, Open Loop OP-AMP Configurations, OP-AMP with Negative Feedback: voltage series & voltage shunt feedback amplifiers, Current feedback Amplifiers.

UNIT II

CHARACTERISTICS OF OP-AMP:
Input Offset Voltage, Input Bias Current, Input Offset Current, Output Offset Voltage, Thermal Drift, Effect of Variation in Power Supply Voltages on Offset Voltage, Common Mode Configuration and CMRR, Frequency Response of OP-AMP: Open Loop Response, Close Loop Response, Input and Output Impedances, Effect of Finite Gain Bandwidth Product, Slow Rate.

LINEAR APPLICATIONS:
DC and AC Amplifier, Peaking Amplifier, Summing, Scaling And Averaging Amplifiers, Instrumentation Amplifier, Voltage to Current Converter, Current to Voltage Converter, Difference Amplifier, Integrator, Differentiator, very high input impedance circuit.

UNIT III

NOISE AND STABILITY:
Noise Properties, Sources of Noise, OP-AMP Noise, Stability Problems, Stability in Constant GBP OP-AMP Circuits, Internal Frequency Compensation, External Frequency Compensation, Stability In CFA Circuits.

ACTIVE FILTERS AND OSCILLATORS:
Transfer Function, Active Filters, First Order LP & HP Butterworth Filters, Second Order LP & HP Butterworth Filters, Higher Order Filters, Band Pass Filters, Band Rejection Filters, Oscillators: Phase Shift , Wein Bridge Oscillator, quadrature oscillator, Square Wave Generator, Triangular Wave Generator, saw tooth wave generator, Voltage Controlled Oscillator.

UNIT IV

NON LINEAR CIRCUITS:
Voltage Comparator, Zero Crossing Defector, Schmitt Trigger, Peak Detector, Sample and Hold Circuit, Voltage To Frequency and Frequency To Voltage Converter, ADC and DAC, clippers and clampers, absolute value output circuit.

SPECIALIZED IC APPLICATION:
Switched Capacitor Filter, 555 Timer: As Monostable Multivibrator, Astable Multivibrator. Phase-Locked Loops, Voltage Regulators: Fixed and Adjustable Voltage Regulator, power amplifiers, Switching Regulators.

Reference Books:
1. OPAMPS and Linear Integrated Circuit 　　　　　　　　　By Ramakant A Gayakwad -- PHI
2. Design with Operational Amplifiers and Analog Integrated Circuits 　　By Sergio Franco -- MGH
3. Integrated Circuits 　　　　　　　　　　　　　　　　By K .R. Botker –Khanna pub.
4. Linear Integrated Circuits 　　　　　　　　　　　　By D.Roy Choudhary & S.Jain—New Age

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ECE309B   **MICROPROCESSOR AND INTERFACING**

B. Tech Semester –V (BME, CSE, ECE, AEI)

L	T	P	Credits			Class Work	:	25 Marks
3	1	-	4			Theory	:	75 Marks
						Total	:	100 Marks

Duration of Exam.   :   3 Hrs.

UNIT I

THE 8086 MICROPROCESSOR ARCHITECTURE:
Architecture, block diagram of 8086, details of sub-blocks such as EU, BIU; memory segmentation and physical address computations, program relocation, addressing modes, instruction formats, pin diagram and description of various signals.
INSTRUCTION SET OF 8086 & PROGRAMING:
Instruction execution timing, assembler instruction format, data transfer instructions, arithmetic instructions, branch instructions, looping instructions, NOP and HLT instructions, flag manipulation instructions, logical instructions, shift and rotate instructions, directives and operators, programming examples.

UNIT II

THE X86 FAMILY (80186, 80286, 80386, 80486) MICROPROCESSOR ARCHITECTURE AND PRGRAMMING:
Architecture, block diagram, details of sub-blocks, hardware features and description of various signals, interrupts, multitasking, addressing modes, instruction set and programming example.
THE PENTIUM PROCESSOR AND OTHER ADVANCED PROCESSORS:
Enhanced features of Pentium, Pentium Pro, Pentium-II, Pentium-III, Pentium-IV, Multi-core Technology, Mobile Processor.

UNIT III

INTERFACING DEVICE:
The 8255 PPI chip: Architecture, control words, modes and examples..
PERIHHERAL DEVICES:
Introduction to DMA process, 8237 DMA controller, 8259 Programmable interrupt controller, Programmable interval timer chips.

UNIT IV

COMMUNICATION INTERFACE:
Parallel interface, serial interface, PCI interface, PCMCIA, USB interface.
PERSONNAL COMPUTER:
Modern PC, motherboard, chipset, expansion buses, memory-SIMM and DIMM.

Reference Books:
1. "The Intel Microprocessors 8086- Pentium Processor", Brey, 4th Edition, 2005.
2. "Microprocessors and interfacing", D. V. Hall, Tata McGraw-Hill, 2nd Edition, 2006.
3. "Microcomputer Systems: The 8086/8088 Family: Architecture, Programming and Design", Liu Yu-Chang and Gibson Glenn A., Prentice Hall of India, 2003.
4. "Advanced Microprocessors and Peripherals Architectures, Programming and Interfacing", Ray A. K. and Burchandi, Tata McGraw Hill, 2002.
5. "Microprocessor based System Design UBS", Rafiquzzman, Wiley-Interscience, 5th Edition, 2005.
6. "The X86 PC: Assembly Language, Design and interfacing", M. A. Mazidi, J. P. Maizidi and Danny Causey, Pearson, 5th Edition, 2011.
7. "The X86 Microprocessor (Architecture, Programming and Interfacing)", L. B. Das, Pearson, 2010.
8. "Advanced Microprocessor", Daniel Tabak, Tata McGraw-Hill, 2nd Edition, 2012.
9. "Fundamentals of Microprocessor and Microcomputers", B. Ram, Dhanpat Rai Publications, 5th edition, 2008.
10. "Microprocessor & Interfacing", Singh & Singh, Satya Parakashan.

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CSE204B   **OBJECT ORIENTED PROGRAMMING**

B. Tech Semester –V (ECE, common with 4th Sem. CSE, AEI)

L   T   P   Credits   Class Work   :   25 Marks
3   1   -   4   Theory   :   75 Marks
                                                            Total   :   100 Marks
Duration of Exam.   :   3 Hrs.

UNIT I

C++ Standard Library, Preprocessor Directives, illustrative Simple C++ Programs.Header Files and Namespaces, library files.Concept of objects, Object Oriented Analysis & Object Modeling techniques.
Object Oriented Concepts: Introduction to Objects and Object Oriented Programming, Encapsulation (Information Hiding), Access Modifiers: Controlling access to a class, method, or variable (public, protected, private, package), Other Modifiers, Polymorphism: Overloading, Inheritance, Overriding, Abstract Classes, Reusability
Classes and Data Abstraction: Introduction, Structure Definitions, Accessing Members of Structures, Class Scope and Accessing Class Members, Controlling Access Function And Utility Functions, Initializing Class Objects: Constructors.

UNIT II

Using Destructors, Classes: Const(Constant) Object And Const Member Functions, Object as Member of Classes, Friend Function and Friend Classes, Using This Pointer, Dynamic Memory Allocation with New and Delete, Static Class Members, Container Classes and Iiterators, Function overloading.
Operator Overloading: Introduction, Fundamentals of Operator Overloading, Restrictions On Operators Overloading, Operator Functions as Class Members vs. as Friend Functions, Overloading

UNIT III

Inheritance: Introduction, Inheritance: Base Classes And Derived Classes, Protected Members, Casting Base Class Pointers to Derived- Class Pointers, Using Member Functions, Overriding Base -Class Members in a Derived Class, Public, Protected and Private Inheritance, Using Constructors and Destructors in derived Classes, Implicit Derived -Class Object To Base- Class Object Conversion, Composition Vs. Inheritance.
Introduction to Virtual Functions, Abstract ,Base Classes And Concrete Classes, Polymorphism, New Classes And Dynamic Binding, Virtual Destructors, Polymorphism, Dynamic Binding.

UNIT IV

Files and I/O Streams and various operation on files. Stream Input/Output Classes and Objects, Stream Output, Stream Input, Unformatted I/O (with read and write), Stream Manipulators, StreamFormatStates, StreamErrorStates.
Templates & Exception Handling: Function Templates, Overloading Template Functions, Class Template, Class Templates and Non-Type Parameters, Templates and Inheritance, Templates and Friends.
Templates and Static Members: Introduction, Basics of C++ Exception Handling: Try Throw, Catch, Throwing an Exception;- Catching an Exception, Re-throwing an Exception, Exception specifications, Processing Unexpected Exceptions, Constructors, Destructors and Exception Handling, Exceptions and Inheritance.

Reference Books:
1.   C++ How to Program by H M Deitel and P J Deitel, 1998, Prentice Hall
2.   Object Oriented Programming in Turbo C++ by Robert Lafore ,1994, The WAITE Group Press.
3.   Programming with C++ By D Ravichandran, 2003, T.M.H
4.   Object oriented Programming with C++ by E Balagurusamy, 2001, Tata McGraw-Hill
5.   Computing Concepts with C++ Essentials by Horstmann, 2003, John Wiley,
6.   The Complete Reference in C++ By Herbert Schildt, 2002, TMH.

NOTE:
In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, atleast one from each unit. All questions carry equal marks.

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CSE224B   **OBJECT ORIENTED PROGRAMMING LAB**

B. Tech Semester –V (ECE, common with 4th Sem. CSE, AEI)

L	T	P	Credits			
-	-	2	1	Class Work	:	20 Marks
				Practical	:	30 Marks
				Total	:	50 Marks

Duration of Exam.   :   3 Hrs.

LIST OF EXPERIMENTS:

1. Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called power ( ) that takes a double value for n and an int value for p, and returns the result as double value Use a default argument of 2 for p. so that if this argument is omitted, the number will be squared. Write a main ( ) function that gets values from the user to test this function.

2. A point on the two dimensional plane can be represented by two numbers: an X coordinate and a Y coordinate. For example, (4,5) represents a point 4 units to the right of the origin along the X axis and 5 units up the Y axis. The sum of two points can be defined as a new point whose X coordinate is the sum of the X coordinates of the points and whose Y coordinate is the sum of their Y coordinates   .
    Write a program that uses a structure called point to model a point Define three points, and have the user input values to two of them Then set the third point equal to the sum of the other two. and display the value of the new point Interaction with the program might look like this:
    Enter coordinates for PI :   3   4
    Enter coordinates for P2:   5   7
    Coordinates of PI + P2 are: 8   11

3. Create the equivalent of a four function calculator. The program should request the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operation: adding. subtracting, multiplying, or dividing the two numbers. (It should use a switch statement to select the operation). Finally it should display the result.
    When it finishes the calculation, the program should ask if the user wants to do another calculation. The response can be 'Y' or 'N'. Some sample interaction with the program might look like this.
    Enter first number. Operator, second number: 10/3
    Answer = 3.333333
    Do another (YI N)? Y
    Enter first number. Operator, second number 12 + 100
    Answer = 112
    Do another (Y I N)? N

4. Create two classes DM and DB which store the value of distances. DM stores distances in metres and centimeters and DB in feet and inches. Write a program that can read values for the class objects and add one object of DM with another object of DB.
    Use a friend function to carry out the addition operation. The object that stores the results maybe DM object or DB object. depending on the units in which the results are required. The display should be in the format of feet and inches or metres and centimetres depending on object on display.

5. Create a class rational which represents a numerical value by two double values- NUMERATOR & DENOMINATOR Include the following public member Functions:
    *   constructor with no arguments (default).
    *   constructor with two arguments.
    *   void reduce( ) that reduces the rational number by eliminating the highest common factor between the numerator and denominator.
    *   Overload + operator to add two rational number
    *   Overload » operator to enable input through cin
    *   Overload « operator to enable output through cou1.
    *   Write a main ( ) to test all the functions in the class.

6. Create a program that creates a binary file by reading the data for the students from the terminal. The data of each student consist of roll no., name (a string of 30 or lesser no. of characters) and marks.

7. A hospital wants to create a database regarding its indoor patients. The information to store include
    Name of the patient
    Date of admission
    Disease
    Date of discharge
    Create a structure to store the date (year, month and date as its members). Create a base class to store the above information. The member function should include functions to enter information and display a list of all the patients in the database. Create a derived

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class to store the age or the patients List the information about all the to store the age of the patients. List the information about pediatric patients (less than twelve years in age).

8. Make a class Employee with a name and salary. Make a class Manager inherit from Employee. Add an instance variable, named department, of type string. Supply a method to String that prints the manager's name, department and salary. Make a class Executive inherit from Manager Supply a method to String that prints the string Executive followed by the information stored in the Manager superclass object. Supply a test program that tests these classes and methods.

9. Imagine a tollbooth with a class called toll Booth. The two data items of a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A constructor initializes both these to 0. A member function called payingCar ( ) increments the car total and adds 0.50 to the cash total. Another function, called nopayCar ( ). increments the car total but adds nothing to the cash total. Finally, a member function called displays the two totals.

Note:-
At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

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ECE323B   **ELECTRONICS MEASUREMENT AND INSTRUMENTATION LAB**
B. Tech Semester –V (ECE, AEI, common with 6ᵗʰ Sem. IC)

L	T	P	Credits				
-	-	2	1				

Class Work : 20 Marks
Practical : 30 Marks
Total : 50 Marks

Duration of Exam. : 3 Hrs.

LIST OF EXPERIMENTS:

1. Speed measurement of DC Motor with the help of Magnetic Pick-up.

2. To measure temperature using thermocouple.

3. To measure temperature using Thermister

4. To measure temperature using RTD

5. To measure displacement using LDR.

6. To measure displacement using L.V.D

7. To measure Pressure using Pressure Transducer.

8. To measure Frequency & Time period of given wave form using frequency Meter

9. To study the operation of Spectrum Analyzer.

10. To measure phase & frequency of a given wave-form using Lissajous patterns

11. To measure weight using Strain Gauge

12. To measure displacement using Inductive and Capacitive Pick-up.

Note:-
1   Total ten experiments are to be performed in the semester.
2   At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

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ECE325B   **CONSUMER ELECTRONICS LAB**
                                                       B. Tech Semester –V

L T P	Credits		Class Work	:	20 Marks
- - 2	1		Practical	:	30 Marks
			Total	:	50 Marks

Duration of Exam.   :   3 Hrs.

LIST OF EXPERIMENTS:

1	To plot frequency response of different type of loudspeaker.
2	To study different section Monochrome T.V
3	To study differnt section Colour T.V
4	To study working principal of digital camra.
5	To study functional block digram & front panel control of Microwave Oven.
6	To study functional block digram & front panel control of Washing Machine.
7	To study display devices like Plasma,LCD,LED,DMD.
8	To demonsetration of the working of all type of air conditioniner like water air cond, split air conditioners etc.
9	To demonsetration of the working of domastic refrigirators.
10	To plot the frequency response a microphone.
11	To study the block digram of Transmiter & Recever.

Note:-
1.   Total ten experiments are to be performed in the semester.
2.   At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus

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ECE327B   **LINEAR INTEGRATED CIRCUITS LAB**
                          B. Tech Semester –V

L   T   P   Credits   Class Work   :   20 Marks
-   -   2   1   Practical   :   30 Marks
                                                          Total   :   50 Marks
Duration of Exam.   :   3 Hrs.

LIST OF EXPERIMENTS:

1. Design & realize inverting amplifier, non-inverting and buffer amplifier using 741 Op Amp.

2. Verify the operation of a differentiator circuit using 741 op amp and show that it acts as a high pass filter.

3. Verify the operation of a integrator circuit using 741 op amp and show that it acts as a low pass filter.

4. Design and verify the operations of op amp adder and subtractor circuits.

5. Design & realize using op amp 741, Wein -bridge oscillator.

6. To design & realize using op amp 741, square wave generator.

7. To design & realize using op amp 741, logarithmic amplifier & VCCS.

8. To design & realize using op amp 741, Triangular wave generator.

9. To design & realize using op amp 741 as a Comparator.

10. To design & realize using op amp 741 as a Schmitt trigger.

11. To design & realize differential Amplifier.

12. To design & realize using op amp 741, as a Clipper.

13. To design & realize using op amp 741, as a Clamper

Note:-
1. Total ten experiments are to be performed in the semester.
2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

Approved by UG BOS & FET

ECE329B   **MICROPROCESSOR AND INTERFACING LAB**
                      B. Tech Semester –V (BME, CSE, ECE, AEI)

L	T	P	Credits			

L   T   P   Credits   Class Work   :   20 Marks
-   -   2   1   Practical   :   30 Marks
                                                            Total   :   50 Marks
Duration of Exam.   :   3 Hrs.

LIST OF EXPERIMENTS:

1. To study the architecture of 8086 microprocessor and 8086 microprocessor kit.

2. Write a program to add the contents of the memory location 3000:0400 H to the content of 4000:0700 H and store the result in 6000:0900 H

3. Write a program to add 16 bit number using 8086 instruction set.

4. Write a multiplication of two 16 bit number using 8086 instruction set.

5. Write a program for division of two 16 bit numbers using 8086 instruction set.

6. Write a program factorial of a number.

7. Write a Program to transfer a block of data without overlap.

8. Write a Program to transfer a block of data with overlap.

9. Write a program to find the average of two numbers.

10. Write a Program to check whether data byte is odd or even

11. Write a program to find maximum number in the array of 10 numbers.

12. Write a program to find the sum of the first 'n' integers.

13. Write a program to generate a square wave.

14. Write a program to generate a rectangular wave.

15. Write a program to generate a triangular wave.

Note:-
1   Total ten experiments are to be performed in the semester.
2   At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

Approved by UG BOS & FET

ECE335B   **PROFESSIONAL TRAINING-I**
                                        B. Tech Semester –V

L	T	P	Credits			Class Work	:	50Marks
-	-	2	2			Practical	:	-
						Total	:	50Marks

At the end of 4th semester each student would undergo four weeks Professional Training in an Industry/ Institute/ Professional Organization/ Research Laboratory etc. with the prior approval of the Training and Placement Officer of the University and submit in the department a typed report along with a certificate from the organization.

The typed report should be in a prescribed format.

The report will be evaluated in the V Semester by a Committee consisting of three teachers from different specialization to be constituted by the Chairperson of the department. The basis of evaluation will primarily be the knowledge and exposure of the student towards different processes and the functioning of the organization.

The student will interact with the committee through presentation to demonstrate his/her learning.

Teachers associated with evaluation work will be assigned 2 periods per week load.