III B.Tech EIE I Semester w.e.f 2016-17

Sub Code	Subject	Hrs/week		Max Marks		Total Marks	Credits
		Theory	Lab	Internal	External		
BTEIE501	Linear Digital and Integrated Circuits	4	--	25	75	100	4
BTEIE502	Microprocessor And Interfacing	4	--	25	75	100	4
BTEIE503	Industrial Instrumentation – I	4	--	25	75	100	4
BTEIE504	Management Science	4	--	25	75	100	4
BTEIE505	Electrical Technology	4	--	25	75	100	4
BTEIE506	Process Control Instrumentation	4	--	25	75	100	4
BTEIE507	Electrical Technology Lab	--	3	50	50	100	2
BTEIE508	Process Control instrumentation Lab	--	3	50	50	100	2
BTEIE509	MOOCS*	--	--	50	--	50	2
	TOTAL	**24**	**6**	**300**	**550**	**850**	**28**

* The Credits of the MOOCS Course will not be considered for SGPA/CGPA calculation

III B.Tech EIE II Semester w.e.f 2016-17

Sub Code	Subject	Hrs/week		Max. Marks		Total Marks	Credits
		Theory	Lab	Internal	External		
BTEIE601	Micro Controllers And Interfacing	4	--	25	75	100	4
BTEIE602	Industrial Instrumentation - II	4	--	25	75	100	4
BTEIE603	Biomedical Instrumentation	4	--	25	75	100	4
BTEIE604	Digital Signal Processing	4	--	25	75	100	4
BTEIE605	Object Oriented Programming Through JAVA	4	--	25	75	100	4
BTEIE606	Elective-I	4	--	25	75	100	4
BTEIE607	Microprocessors and micro controllers Lab	--	3	50	50	100	2
BTEIE608	Industrial Instrumentation LAB	--	3	50	50	100	2
BTEIE609	Soft Skills Lab*	--	3	50	--	50	2
	TOTAL	**24**	**9**	**300**	**550**	**850**	**28**

* The credits of the soft skills lab does not consider in final evaluation

ELECTIVE-I: a) VLSI Design
b) Introduction To Geo Information Systems
c) PC Based Instrumentation
d) Principles and Applications Of Nanotechnology

NOTE: After the end semester examination of III-II every student should complete 45 days Industrial Internship Or Technical Course and the report should be submitted at the End of IV year I Semester, which is for Internal evaluation of 100 marks

K. Madhavi Latha

29/6

DEAN
Academic Affairs
Vikavi Nannaya University
RAJAHMUNDRY-533 296.

BTEIE 601: MICRO CONTROLLERS AND INTERFACING

Theory: 4 Hrs/week **Credits: 4**

Int. Marks: 25 **Ext. Marks: 75**

UNIT I

Introduction to Embedded Systems: Introduction to 8051, Embedded systems, Microprocessor vs. Microcontrollers., Desirable Features of embedded systems, Overview to 8051 family, Introduction to Harvard Architecture, RISC, CISC

UNIT II

Architecture of 8051: 8051 microcontroller hardware: Oscillator and Clock, Role of PC and DPTR, Flags and PSW, CPU registers, Internal RAM and RAM organization, Internal Memory, Special Function Registers, I/O pins, ports and circuits, External memory, Counter and Timers, Serial Transmission, Interrupts

UNIT III

Assembly Language Programming of 8051: Assembly language programming, Jump Loop and Call Instructions, I/O Port Programming, Addressing Modes, Arithmetical and Logical Instructions, 8051: Programming in C Data types and time delays, I/O Programming in 8051, Logical operations in C,Data conversion programs in C

UNIT IV

Peripheral Programming and Interfacing: 8051 timer programming, serial port and its programming, interrupt programming, LCD and keyboard interfacing, ADC and DAC interfacing, interfacing to external memory

Applications: Interfacing with relays and opto isolators, Stepper Motor Interfacing, DC motor interfacing, PWM generation using 8051

TEXT BOOKS:

1. Kenneth J. Ayala, 'The 8051 microcontroller', Cengage Learning, 2004
2. Muhammad Ali Mazidi, Janice Gillispie Mazidi, Rolin D. McKinlay, 'The 8051 Microcontroller and Embedded Systems', Second Edition , Pearson Prentice Hall,

REFERENCE BOOKS:

1. 8051 Microcontrollers: MCS51 family and its variants by Satish Shah, Oxford University Press.
2. Programming and Customizing the 8051 Microcontroller by Myke Predko Tata McGraw Hill.

K. Malavadhi

BTEIE 602: INDUSTRIAL INSTRUMENTATION – II

Theory : 4 Hrs/week **Credits: 4**
Int. Marks: 25 **Ext. Marks: 75**

UNIT - I

Metrology :Measurement of Length - Calipers, Micrometer, Diameter - Keilpart Gage, Ball on wire, Telescopic Internal Gage, Angle - Bevel Protractor, sine Bar, Area – Graphical, Numerical methods, Planimeter (Mechanical), Comparators, Fundamental requirements of a Comparators, Comparator types – Mechanical comparators, Pneumatic comparators, Electrical comparators, Optical comparators

UNIT - II

Density and Viscosity Measurement

Density: Introduction, Pressure head type, Displace type, Float type, Buoyancy effect densitometer method, Hot wire gas bridge type, Vibration type, Radioactive method.

Viscosity: Introduction, Friction tube viscometer, Saybolt's viscometer, Rotameter viscometer, Searle's rotating cylinder, Cone and Plate viscometer. Consistency meter – Rotating vane type and Oscillating type.

UNIT - III

Velocity and Acceleration Measurement:

Velocity Measurement: Electromagnetic Type, Revolution counter, Tachometers – Capacitive type, Drag cup type, Tachogenerators - AC, DC, Stroboscope.

Acceleration Measurement: Reluctance type, Potentiometric type, Photo cell type, piezoelectric type, Null Balance, Gyroscopes & its types.

UNIT – IV

Environmental Pollution Instruments &Safety:

Proximity sensors & limit switches: Proximity Sensors - Capacitive, Inductive, Magnetic, Hall-Effect, LVDT. Limit switches – Mechanical, Optical, Pneumatic, Ultrasonic, Digital outputs & Encoders.

Leak Detectors: Pressurization or Hydrostatic Tests, Bubble emissions paints & Dies, Combustible or toxic leaks, Ultrasonic Leak detectors, Thermal conductivity leak detectors, Halogen Leak detectors, Underground leakage detection.

Electrical & Intrinsic Safety: NEMA types, Fuses & Circuit breakers, Explosion hazards & intrinsic safety – Protection methods, Purging, pressurization, ventilation.

TEXT BOOKS:

1. Patranabis.D, Principles of Industrial Instrumentation, TMH, 1997.
2. Doeblin E.O., Measurement Systems – Applications & Design, McGraw – Hill International, 4th Edition, 1990

REFERENCE BOOKS:

1. Bela G Liptak, Instrument Engineers Hand Book - Process Measurement and Analysis, Butterworth Heinemann, 3rd Edition,
2. RK Jain, Mechanical & Industrial Measurements, Khanna Publishers, 1986

K. Malakondaiah

BTEIE 603: BIOMEDICAL INSTRUMENTATION

Theory : 4 Hrs/week **Credits: 4**

Int. Marks: 25 **Ext. Marks: 75**

UNIT-I

Introduction To Biomedical Instrumentation: Age of Biomedical Engineering, Development of Biomedical Instrumentation, Man Instrumentation System, Components of the Man-Instrument System, Physiological System of the Body, Problems Encountered in Measuring a Living System, Sources of Bioelectric Potentials, Muscle, Bioelectric Potentials, Sources of Bioelectric Potentials, Resting and Action Potentials, Propagation of Action Potential, Bioelectric Potentials-ECG, EEG and EMG, Evoked Responses.

UNIT-II

Electrodes And Transducers: Introduction, Electrode Theory, Biopotential Electrodes, Examples of Electrodes, Basic Transducer Principles, Biochemical Transducers, The Transducer and Transduction Principles, Active Transducers, Passive Transducers, Transducers for Biomedical Applications, Pulse Sensors, Respiration Sensor, Transducers with Digital Output.

UNIT-III

Cardiovascular System And Measurements: The Heart and Cardiovascular System, Electro Cardiography, Blood Pressure Measurement, Measurement of Blood Flow and Cardiac Output, Measurement of Heart Sound, Plethysmography.
Measurements In The Respiratory System: The Physiology of The Respiratory System, Tests and Instrumentation for The Mechanics of Breathing, Respiratory Therapy Equipment.

UNIT-IV

Diagnostic Techniques And Bio-Telemetry: Principles of Ultrasonic Measurement, Ultrasonic Imaging, Ultrasonic Applications of Therapeutic Uses, Ultrasonic Diagnosis, X-Ray and Radio-Isotope Instrumentations, CAT Scan, Emission Computerized Tomography, MRI,
Introduction to Biotelemetry, Physiological Parameters Adaptable to Biotelemetry, The Components of Biotelemetry System, Implantable Units, Telemetry for ECG Measurements during Exercise, Telemetry for Emergency Patient Monitoring
Therapeutic And Prosthetic Devices: Pacemakers, Defibrillators ,Audiometers and Hearing Aids, Myoelectric Arm, Laparoscope, Ophthalmology Instruments, Anatomy of Vision, Electrophysiological Tests, Ophthalmoscope, Tonometer for Eye Pressure Measurement, Diathermy, Clinical Laboratory Instruments, Biomaterials, Stimulators.

TEXT BOOKS:

1. "Bio-Medical Electronics and Instrumentation", Onkar N. Pandey, Rakesh Kumar, Katson Books.
2."Bio-Medical Instrumentation", Cromewell , Wiebell, Pfeiffer

REFERENCES:

1. "Introduction to Bio-Medical Equipment Technology", 4th Edition, Joseph J. Carr, John M. Brown, Pearson Publications.
2. "Hand Book of Bio-Medical Instrumentation", Khandapur. McGrawHill

K. Madhavi

BTEIE 604: DIGITAL SIGNAL PROCESSING

Theory : 4 Hrs/week **Credits: 4**

Int. Marks: 25 **Ext. Marks: 75**

UNIT-I

Introduction : Introduction to digital signal processing, discrete time signals &sequences, classifications of discrete time systems linear shift-Invariant systems, stability and casuality ,linear constants, coefficient different equations ,frequency domain representation of discrete time signals and systems, Z-Transforms, difference equation using Z-transforms, system function .

UNIT-II

Discrete Fourier Series & Fourier Transforms: Properties of discrete fourier series ,DFS representation of periodic sequences, convolution of sequences ,discrete fourier transforms, properties of DFT, linear filtering methods on DFT, Fast Fourier Transforms,Radix-2 decimation in time and frequency , Inverse FFT,FFT Algorithms.

UNIT-III

Design Of Iir Filters & Realization: Design of IIR filter from analog filters, Analog filter approximation (Butterworth And Chebyshev),Analog and digital frequency Transformations, Basic structures of IIR systems , Transposed Form, Characteristics of FIR Digital Filters, Frequency Response, Design of FIR Digital Filters using Window Techniques and Frequency sampling Techniques comparison of IIR&FIR Filters .

UNIT-IV

Multirate Digital Signal Processing: Decimation, Interpolation sampling rate conversion , Implementation of Sampling rate Converters.

TEXTBOOKS:

1. Discrete Time Signal Processing – A.V. Openheim and R.W. Schaffer PHI
2. Digital Signal Processing – K. Raja Rajeswari, I.K. International Publishing House
3. Digital Signal Processing, Principles, Algorithms and Applications : John G . Proakis, Dimitris, G. Manolakis, Pearson Education PHI 4th ed, 2007

REFERENCE BOOKS:

1. Digital Signal Processing – Ramesh Babu, Sci Tech Publications
2. Digital Signal Processing – Andreas Antoniou , TATA McGraw Hill, 2006
3. Digital Signal Processing – MH Hayes , Schaum's Outlines TATA McGraw Hill, 2007.

K. Malakondaiah

BTEIE 605: OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Theory : 4 Hrs/week **Credits: 4**
Int. Marks: 25 **Ext. Marks: 75**

UNIT-I

Fundamentals Of Object Oriented Programming: Introduction, Object oriented paradigm, Basic concepts of OOP, Objects and Classes, Data Abstraction and Encapsulation, Inneritance, Polymorphism, Dynamic Binding, Message Communication, **Java Evolution:** Java History, Java Features, How Java Differs from C and C^{++}, Java and Internet, Java and World wide Web, Web Browsers, Hardware and Software requirements, Java Support systems, Java Environment, **Overview of Java language:** Introduction, Simple Java Program, More of Java, An Application with two classes, Java Program Structure, Java Tokens, Java Statements, Implementing a Java Program, Java Virtual Machines, Command line arguments, Programming style, **Constants Variables and Data Types:** Constants, Variables, Data types, Declaration of Variables, Giving Values to Variables, Scope of Variables, Symbolic Constants, Type Casting.

UNIT-II

Operators And Expressions: Introduction, Architecture Operators, Relational Operators, Logical Operators, Increment and Decrement Operators, Conditional Operators, Bitwise Operators, Special type Operators, Arithmetic Operators, Evaluation of Expressions, Precidence and Associativity , mathematical Functions, Decision Making and Branching, Decision making Looping,**Classes Objects, and Methods:** Introduction, defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class Members, Constructors, Methods of Overloading, Overloading Methods, Final Variables and Methods, Final Classes, Finalizer methods, Abstract Methods and Classes, Visibility Control.

UNIT-III

Arrays, Strings, Vectors: Different types ofArrays, Strings, Vectors, Wrapper Classes, **Interfaces: Multiple Interface:** Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables, **Packages: Putting Classes Together:** Introduction, Java API packages, Using System packages, Naming Conventions, Creating Packages, Accessing a Package, Using A Package, Hiding Classes, **Multithreaded Programming:** Introduction, creating, threads, Extending the Thread Classes, Stopping and Blocking a thread, Life Cycle of Thread, Using thread Methods, Thread Exceptions, thread Priority , Synchronization, Implementing the Runnable Interface.

UNIT-IV

Managing Errors And Exceptions: Introduction, Types of Errors, Exceptions, Syntax of Exception, Handling Code, Multiple Catch Statements, Using Finally Statement, Throwing out Expectations, Using Expectations for Debugging, **Applet Programming: Introduction,** How Applets differ from Applications, Preparing to write Applets, Building Applet Code, Applet Life Cycles Creating an Executive life Cycle designing, A Web Page, Applet Tag, Adding Applet to HTML files, Running the Applet, More about the Applet Tag, Passing Parameters to Applets, Aligning the Displays, More about HTML tags, Displaying Numerical Values, Getting Input from the User **Managing input output files in Java:** Introduction, Concept of Streams, Stream Classes, Character Stream classes, using Streams other useful I\O Classes, Using the File Classes, Input output Expectations, Creation of files, Reading/ Writing Characters, Reading/ Writing Bytes, handling Primitive Data types, Concatenating and Buffering Files, random Access Files, Interactive Input/Output, Other Stream Classes.

TEXT BOOKS:

1. Programming with Java,: E. Balaguruswamy, Tata McGrawHill Publications.

REFERENCE BOOKS:

1. Java Complete reference Tata McGraw Hill Publications.

M. Malakondaiah

ELECTIVE - I
BTEIE 606(a): VLSI DESIGN

Theory : 4 Hrs/week **Credits: 4**
Int. Marks: 25 **Ext. Marks: 75**

UNIT-I

Introduction And Basic Electrical Properties of Mos Circuits: Introduction to IC technology, Fabrication process: nMOS, pMOS and CMOS. Ids – VdsRelationships, Aspects of MOS transistor Threshold Voltage, MOS transistor Trans, Output Conductance and Figure of Merit. nMOS Inverter, Pull-up to Pull-down Ratio for nMOS inverter driven by another nMOS inverter, and through one or more pass transistors. Various pull ups, The CMOS Inverter, Latch-up in CMOS circuits, Bi-CMOS Inverter, Comparison between CMOS and BiCMOS technology.

UNIT-II

VLSI Circuit Design Processes: MOS Layers, Stick Diagrams, Design Rules and Layout, 2µm Double Metal, Double Poly, CMOS, Contacts and Layout Diagrams of NAND and NOR gates and CMOS inverter, Symbolic Diagrams-Translation to Mask Form.

UNIT-III

Basic Circuit Concepts: Sheet Resistance, Sheet Resistance concept applied to MOS transistors and Inverters, Area Capacitance of Layers, Standard unit of capacitance, Some area Capacitance Calculations, The Delay Unit, Inverter Delays, Driving large capacitive loads, Propagation Delays, Wiring Capacitances, Choice of layers.

Gate level Design: Logic gates and other complex gates, Switch logic, Alternate gate circuits.Switch logic, Gate logic.

Physical Design: Floor-Planning, Placement, routing, Power delay estimation, Clock and Power routing

UNIT-IV

FPGA Design: FPGA design flow, Basic FPGA architecture, FPGA Technologies, FPGA families- Altera Flex 8000FPGA, Altera Flex 10FPGA, Xilinx XC4000 series FPGA, Xilinx Spartan XL FPGA, Xilinx Spartan II FPGAs, Xilinx Vertex FPGA. Case studies: FPGA Implementation of Half adder and full adder.

TEXT BOOKS:

1. Essentials of VLSI Circuits and Systems - Kamran Eshraghian, Douglas and A. Pucknell and Sholeh Eshraghian, Prentice-Hall of India Private Limited, 2005 Edition.
2. CMOS Digital Integrated Circuits Analysis and Design- Sung-Mo Kang, Yusuf Leblebici, Tata McGraw-Hill Education, 2003.

REFERENCE BOOKS:

1. Chip Design for Submicron VLSI: CMOS layout and Simulation, - John P. Uyemura, Thomson Learning.
2. Advanced Digital Design with the Verilog HDL, Michael D.Ciletti, Xilinx Design Series, Pearson Education.

IC. Malaikoundal

ELECTIVE - I

BTEIE 606(b): INTRODUCTION TO GEO INFORMATION SYSTEMS

Theory : 4 Hrs/week **Credits: 4**

Int. Marks: 25 **Ext. Marks: 75**

UNIT I

Introduction to GIS: Introduction, History of GIS, GIS Components, GIS Applications inReal life, The Nature of geographic data, Maps, Types of maps, Map scale, Types of scale,Map and Globe, Co-ordinate systems, Map projections, Map transformation, Georeferencing,

UNIT II

Spatial Database Management System: Introduction: Spatial DBMS, Data storage,Database structure models, database management system, entity-relationship model,normalization

Data models and data structures: Introduction, GIS Data model, vector data structure,raster data structure, attribute data, geo-database and metadata,

UNIT III

Spatial Data input and editing: Data input methods – keyboard entry, digitization, scanning,conversion of existing data, remotely sensed data, errors in data input, Data accuracy, Microand Macro components of accuracy, sources of error in GIS.

Spatial Analysis: Introduction, topology, spatial analysis, vector data analysis, Networkanalysis, raster data analysis, Spatial data interpolation techniques

UNIT IV

Implementing a GIS: Awareness, developing system requirements, evaluation of alternativesystems, decision making using GIS

Advanced GIS: WebGIS concept, webGISfundamentals,Potential of web GIS, Server sidestrategies, client side strategies, mixed strategies, webGIS applications

Applications of GIS: GIS based road network planning, Shortest path detection using GIS, Hazard Zonation usingremote sensing and GIS, GIS for solving multi criteria problems, GIS for businessapplications, Mineral mapping using GIS.

TEXT BOOKS:

1. Introduction to Geographic Information systems by Kang-tsung Chag McGrawHillEducation (Indian Edition), 7th Edition, 2015.
2. Fundamentals of Geographic Information systems by Michael N. Demers, 4th Edition, Wiley Publishers, 2012.
3. Geographic Information systems – An Introduction by Tor Bernhardsen, Wiley IndiaPublication, 3rd Edition, 2010.

REFERENCE TEXT BOOKS:

1. Remote Sensing and GIS by Basudeb Bhatta, Oxford University Press, 2nd RevisedEdition, 2011.
2. Textbook of Remote Sensing and Geographical Information systems by M.AnjiReddy, B.S.Publications, 4th Edition, 2012.

K. Malakondaiah

ELECTIVE - I

BTEIE 606(c): PC BASED INSTRUMENTATION

Theory : 4 Hrs/week **Credits: 4**

Int. Marks: 25 **Ext. Marks: 75**

UNIT I

Review of Computer Instrument Communication: Personal Computer, Overview of operating System, I/O Ports, Plug-in-slots, PCI bus,Operators Interface. Computer Interfacing for Data Acquisition and Control – Interfacing InputSignals, Output system with continuous actuators. Data Acquisition and Control usingStandard Cards: PC expansion systems, Plug-in Data Acquisition Boards; Transducer toControl room, Backplane bus – VXI.

Programmable logic controller (PLC) basics: Definition, Overview of PLC systems, input/output modules, Power supplies and Isolators.

Basic PLC programming: Programming On-Off inputs/ outputs. Creating Ladder diagrams, Basic PLC functions, PLCBasic Functions, register basics, timer functions, counter functions.

UNIT II

PLC intermediate and advanced functions

Arithmetic functions, Number comparison functions, Skip and MCR functions, data move systems. Utilizing digital bits, sequencer functions, Matrix functions. PLC Advanced functions:Analog PLC operation, Networking of PLC,

UNIT III

Application of PLC

Controlling of Robot using PLC, PID control of continuous processes, Continuous Bottle-fillingsystem, Batch mixing system, 3-stage air conditioning system, Automatic frequency control ofInduction heating

UNIT IV

SCADA BASICS

Computer Process interface for Data Acquisition and control – Computer control loops.– Supervisory Digital Control (SCADA) - introduction and brief history of SCADA – SCADAHardware and software – Landlines for SCADA – use of modems in SCADA – SCADA withLAN

TEXT BOOKS

1. Programmable Logic Controllers – Principles and Applications, John. W .WebbRonald A Reis , Fourth edition, Prentice Hall Inc., New Jersey, 1998.
2. Computer Control of Processes – M.Chidambaram. Narosa 2003

REFERENCES

1. Introduction to Programmable Logic Controllers - Gary Dunning Thomson DelmarLearning Second Edition Second reprint 2003.
2. PC Based Instrumentation and Control Third Edition by Mike Tooley ; Elsevier.
3. PC Interfacing and Data Acquisition Techniques for Measurement, Instrumentationand Control.By Kevin James; Elsevier.
4. Practical Data Acquisition for Instrumentation and Control Systems by John Parkand Steve Mackay.
5. Programmable Logic Controllers, Second edition, Frank D. Petruzella,McGraw Hill,Newyork, 1997.

K. Madhavendra

ELECTIVE - I

BTEIE 606(d): PRINCIPLES AND APPLICATIONS OF NANOTECHNOLOGY

Theory : 4 Hrs/week **Credits: 4**

Int. Marks: 25 **Ext. Marks: 75**

UNIT I

Introduction To Nanotechnology& History: Overview of atomic physics; Chemistry of atoms and molecules;Overview of quantum mechanics; Feynman's perspective of nanoscience; Social impact ofnanotechnology; Motivation, Top-down vs. Bottom-up approaches

Applications: Electronics, instrumentation, medicine, aerospace, and material science.

Considerations: Size constraints on measurements; Constraints of thin-film structures,constraints due to dimensions of nanostructures; Optical, Electronic, and Magnetic Propertiesat Nanoscale

UNIT II

Introduction to Nanomaterials: Metal Nanomaterials, Semiconductor nanomaterials,Quantum Dots, Quantum Wells, 2-terminal Quantum Wires, Buckyballs, Carbon Nanotubes,Nano Peapods, Nano Rods, Polymer-based Nanostructures, Gold Nanostructures: Nanorods,Nano-cages, Nano-shells

Fabrication Techniques: Top-down approach – Nanolithography, CVD; Bottom upapproach – sol-gel process, chemical synthesis, wet deposition techniques, Self assemblyand Layer-by-layer assembly (LbL)

UNIT III

Nanoscale MeasurementsInstrumentation: Principle of working, Operational aspects, Limitations, and Applications for:SEM, TEM, STM, SPM, AFM, Fluorescence microscopy

NanoelectronicsMaterials: Graphene, Boron Nitride Nano-mesh, III-V compounds: GaAs, GaN, AlGaN,InGaAs, High-K/Metal-Gate applications for non-Si nanoelectronics

Devices: Silicon nanowires, Carbon Nanotubes, III-V Quantum Wells, Ballistic deflectiontransistors (BDT)

Applications: Printed electronics, Molecular electronics, Spintronics, Nanoelectronicdisplays, Memory devices, Electronics modelled after living systems

UNIT IV

NanoMedicine: Nanoprinting of DNA, RNA, and proteins; Site-directed drug delivery: Discovery, delivery, andcontrolled drug release; Cytotoxicity of Nanoparticles; Nanotechnology in regenerativetherapy; Nanotechnology in cancer treatment; NEMS sensors and biosensors; Lab on a Chip(LoC)

TEXTBOOKS

1.Poole, C.; Owens, F., "Introduction to Nanotechnology", Wiley, 2007

2. Ramachandra, M.S.; Singh, S., "Nano Science and Nanotechnology: Fundamentalsto Frontiers", Wiley India Pvt. Ltd., 2013 (ISBN: 978-8126542017)

3. Pradeep, T., "Nano: The Essentials: Understanding Nanoscience andNanotechnology", McGraw Hill India, 2007 (ISBN:978-0070617889)

REFERENCE BOOKS

1.Bhushan, B. (Ed.), "Springer Handbook of Nanotechnology", Springer, 2006

2. Theodore, L., "Nanotechnology: Basic Calculations for Engineers and Scientists",Wiley India Pvt. Ltd., 2011 (ISBN: 978-8126529667)

3. Varghese, T.; Balakrishna, K.M., "Nanotechnology: An Introduction to Synthesis,Properties and Applications of Nanomaterials", Atlantic, 2012

K. Malakondaiah

BTEIE 607: MICROPROCESSORS AND MICROCONTROLLERS LAB

Lab : 3 Hrs/week **Credits: 2**
Int. Marks: 50 **Ext. Marks: 50**

List of Experiments

PART- A: 8086 Assembly Language Programming using Assembler Directives

1. Sorting.
2. Multibyte addition/subtraction
3. Sum of squares/cubes of a given n-numbers
4. Addition of n-BCD numbers
5. Factorial of given n-numbers
6. Multiplication and Division operations
7. Stack operations
8. BCD to Seven segment display codes

PART- B: 8086 interfacing

1. Hardware/Software Interrupt Application
2. A/D Interface through Intel 8255
3. D/A Interface through Intel 8255
4. Keyboard and Display Interface through Intel 8279
5. Generation of waveforms using Intel 8253/8254

PART- C: 8051 Assembly Language Programs

1. Finding number of 1's and number of 0's in a given 8-bit number
2. Addition of even numbers from a given array
3. Ascending / Descending order
4. Average of n-numbers

PART-D: 8051 Interfacing

1. Switches and LEDs
2. 7-Segment display (multiplexed)
3. Stepper Motor Interface
4. Traffic Light Controller

K. Madhavarao

BTEIE 608: INDUSTRIAL INSTRUMENTATION LAB

Lab : 3 Hrs/week **Credits: 2**
Int. Marks: 50 **Ext. Marks: 50**

List of Experiments

1. Calibration of Pneumatic pressure to Current (P to I) andCurrent to Pneumatic Pressure(Ito P) Converters
2. Measurement of RPM using opto-coupler and comparing it with stroboscope
3. Measurement of precision Angular Velocity and RPM of a rotating Disk
4. Measurement of Velocity, Acceleration and Vibration using Piezo-electric transducer
5. Measurement of Humidity
6. Measurement of intensity of Light
7. Measurement of Sound Level.
8. Measurement of Viscosity of Edible Oil using Redwood Viscometer
9. Measurement of Viscosity of Crude Oil using Saybolt Viscometer
10. Measurement of Density
11. MEMS based Accelerometer
12. Design of signal conditioner for MEMS based Accelerometer
13. MEMS based Gyroscope
14. Design of signal conditioner for MEMS based Gyroscope
15. Experiments based on Industrial Bus Protocols

BTEIE 609: SOFT SKILLS LAB

Lab : 3 Hrs/week **Credits : 2**

Int. Marks: 100

PART I

SOFT SKILLS I

1. Self Introduction
2. SWOT and SWOC Analysis
3. Presentation Skills
4. JAM Session
5. Group Discussion
6. Debate

PART II

SOFT SKILLS II

1. Motivation – self image – goal setting
2. Managing changes – time management – Stress management
3. Leadership traits – team work
4. Career and life planning.
5. Multiple intelligences – emotional intelligence – spiritual quotient (ethics)
6. Interculturalcommunication
7. Creative and critical thinking
8. Learning styles and strategies.

PART III

ACADEMIC/ SCIENTIFIC WRITING

1. ABC of Technical Communication
2. Style and Objectivity
3. Report Writing
4. Referencing

PART IV

INTERVIEW SKILLS

1. Types of Resumes
2. Writing Resume
3. Job application letter
4. Joining Report writing
5. Pre-interview preparation
6. Types of interview questions
7. Body Language and Dress Code
8. Technical Interview

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