Dr. B.R.Ambedkar Institute of Technology, Pahargaon

DEMO TOPICS FOR APPOINTMENT OF GUEST LECTURER-EVEN TERM 2017-18

(For Demo class to be conducted …….

SNO	DEPTT	DEGREE	DIPLOMA	PTI
1	ECE	**THEORY** 1. OSI/ISO reference model 2. Second Generation(GSM,IS-95) 3. Classification of tasks-Task Periodicity-Periodic Tasks-Sporadic tasks-Aperiodic tasks-Tasks Scheduling. 4. Yagi-Uda antenna, Log-periodic antenna 5. Spread Spectrum Technologies. 6. Explain JFET-construction – operation –drain and transfer characteristic. **PRACTICAL**: 1. Design and implementation of the following code convertor a) Binary to gray code and vice-versa. b) BCD to excess 3 code and vice versa. 2. Design and plot frequesncy response of an emitter follower. 3. Write a programe for LCD interface to display “DBRAIT” using hardware. 4. Convert hexadecimal number to decimal number using 8085 microprocessor.	**THEORY**: 1. Explain the construction, operating Principal, V-I Characteristics, Latching Current(IL) and Holding Current(IH) of SCR. 2. Basic block diagram of generalized instrumentation system and need of each block. 3. Explain the Architecture of 8085. 4. Explain the Architecture of 8051. 5. Explain the basic block diagram of regulated power supply. **PRACTICAL** 1. Observe the effect of variation of R on firing angle in synchronized UJT triggering circuit. 2. Measure output voltage and Displacement in LVDT and draw a graph to verify the output voltage vs displacement. 3. Write an assembly language programme to add/subtract two 16 bit number. 4. Rig up a circuit for bridge rectifier with filter and without filter and obtain the waveform.	1. Design and implementation of the following code convertor. c) Binary to gray code and vice-versa. d) BCD to excess 3 code and vice versa. 2. Write a programme to perform 8 bit Arithmetic Operations. 3. Write an assembly language programme to add/subtract two 16 bit number. 4. Rig up a circuit for bridge rectifier with filter and without filter and obtain the waveform.

		5. Write a programme to perform 8 bit Arithmetic Operations. 6. To construct AM modulator and Demodulator circuit and to trace message, carrier, modulated and demodulated signal.	5. Design a circuit for half and full subtracter and verify the truth table.	
2	CIVIL	**THEORY** 1. Determination of Index properties of soil. 2. Moment of Inertia(M.I). 3. Limit state design. 4. Geometric design of intersection. 5. Analysis of continues beams. 6. Building materials and properties(concrete) **PRACTICAL** 1. Compare strength of cement. 2. Leveling 3. Liquid limit. 4. Chloride.	**THEORY** 1. Pressure measurement devices 2. Most economical section 3. Lum-sum contracts. 4. Damp proofing. 5. Physical/chemical properties of water. **PRACTICAL** 1. Normal consistency of cement 2. Compass surveying. 3. Plastic limit. 4. Hardness of water.	
3	COMPUTER	**THEORY** 1. Enterprise Solutions: ERP system Architecture, Architecture of SAP R/3, SQL/PLSQL fundamentals, Peoplesoft HRMS database Siebel Enterprose Application. 2. E-Business: electronic marketplace technologies, secure electronics payment protocol(SEPP), security strategies-security tools, Mastercard/Visa secure electronic transaction, secure e-mail technologies for electronics	**THEORY** 1. Programming in C: Function-function call, call by value, call by reference, recursion command line Arguments. 2. Computer Graphics: basic concepts in line drawing, line grawing algorithm: DDA Algorithms, Bresenham's algorithm. 3. Mobile Computing: GSM architecture, GPRS Architecture, introduction to mobile operating	**PRACTICAL'S TOPICS** 1. OS Installation 2. Hardware Trouble Shooting 3. Networking Cabling and Troubleshooting. 4. C programming • Array • Structure • Pointer

		commerce. 3. Graphics and image processing: 2D transformations and viewing, image processing operations, fourier transforms and its properties, image enhancement and restoration, image compression: Models and measures. 4. Automata and Formal Language Computations: formal languages and Regular expressions, Minimization of finite automata, Chomsky Normal forms and Greibach Normal Forms, Pusdown Automata and context free languages, NP-Hardness and NP-Completeness. **PRACTICAL**: 1. Enterprise Solutions: i. Write and execute Exception Handling. ii. Design and develop any two of the following: online coting system, railway ticket reservation system, RTO office-driving License issuing system, national Identity card (AADHAR card() preparation. 2. Computer Programming: i. C program to perform matrix multiplication ii. C program to perform	system(only features). 4. Computer Hardware and Maintenance: Motherboard and its components, LCD Monitor: - Functional Block Diagam of LCD monitor, Plasma Display Technology:- Construction & working principle. **PRACTICAL** 1. Programming in C: Programme using structure and pointer. 2. Mobile computing: Develop a small application to design a user interface, e.g two text boxes and two buttons. 3. Computer Hardware & Maintenance: Assemble PC and install Windows 7 operating system. 4. Scripting Technology: Develop a application form with validation. 5. Visual Basic: Develop a program to design a calculator.	

		various string handling iii. Create a File by getting the input from the keyboard and retrieve the contents of the file using file operation commands. iv. Computer dissembling and assembling. v. Establish a network between computer systems using switch.		
4	ELECTRICAL		**THEORY** 1. Construction & working of H.T circuit breaker i.e Air Blast and SF6 circuit breaker. 2. Protective Relays: principle and working operation of: a) Definite distance relay b) Time distance impedance relay. 3. Protection of transformer : Buchhloz Relay-construction and operation. 4. Law of Electromagnetic indiction, Fleming right hand rule , Ohm's law, Kirchhoff's Law. 5. Principle of DC machine, Single phase transformer and single phase Induction Motor. 6. Necessity of star-Delta starter, Explanation of star-Delta starter by using Power and Control circuits.	1) Verification of KVL and KCL. 2) Verification of Thevenin'sTheorem. 3) Power measurement of 2-wattmeter methods. 4) Efficiency of single phase transformer. 5) Stair case wiring. Motor connection through Dol/Star-Delta Starter.

			7. Explanation of forward and reverse of 3 –phase Induction motor by using Power and conrol circuits. **PRACTICAL:** 1. Stair case/Go down wiring. 2. Open circuit & short circuit test on single phase transformer. 3. Verification of Kirchhoff's Law and Ohm's Law. 4. Verification of Thevennin's Theorem.	
5	MECHANICAL		**THEORY** 1 Bernoulli's theorem & its application A.Venturimeter.B.Orifice meter.C.Pitot tube. 2 Constrained motion & its type. 3 Kinematic links& pairs. 4 Theory of simple bending 5 Thermal stresses of composite bars. 6 Stresses in thin cylinder. 7 Automobile differential 8 Friction in pipe. 9 Second law of thermodynamics 10 Vapor compression refrigeration. **PRACTICAL** 1. Verify Lami's Theorem. 2. To determine M.A, V.R., efficiency, effort lost in friction and law of machine of single purchase crab winch.	1. Verify Lami's Theorem. 2. To determine M.A, V.R., efficiency, effort lost in friction and law of machine of single purchase crab winch. 3. To determine M.A, V.R., efficiency, effort lost in friction and law of machine of Differential axle and wheel. 4. Verify Bernoulli's Theorem. 5. To find the Coefficient of discharge of Venturimeter. 6. To find the Coefficient of discharge of Orifice meter.

			3. To determine M.A, V.R., efficiency, effort lost in friction and law of machine of Differential axle and wheel. 4. Verify Bernoulli's Theorem. 5. To find the Coefficient of discharge of Venturimeter. 6. To find the Coefficient of discharge of Orifice meter. 7. To find the angle of specimen using universal Bevel Protector. 8. To Measure the thickness of given specimen using Vernier Caliper. 9. To Measure the thickness of given specimen using Micrometer Screw Gauge.	7. To find the angle of specimen using universal Bevel Protector. 8. To Measure the thickness of given specimen using Vernier Caliper. 9. To Measure the thickness of given specimen using Micrometer Screw Gauge.
6	HM		Food & Beverage service - Types of services - Food and wine combination - Food catering & its types - Wine and its types. Food Production - Continental cusine - Cooking and methods of cooking - Cuts of muttons. - Types of Pastries. House Keeping - Types of keys and key handling - Checkout room cleaning procedure.	1) Table setup for a five course menu 2) Bed making 3) Prepare two veg and two non veg starters 4) Prepare two varieties of mock tails 5) Calculate occupancy %, ARR, Room count, single occupancy %.

			- Interior designing - Flower arrangement. Front Office - Front office procedure for receiving guest - Concierge - Left Luggage Handling - Mail Handling.	
	MATHEMATHICS	1. Differential Equation of first and second order. 2. Laplace transform and its application 3. Fourier transform anf its application 4. Fourier series representation of periodic function 5. Analytic functions and bilinear transformation. 6. Differentiation 7. Integration.		
	Physics		1. Lasers and fiber optics 2. Diffraction Grating and its application. 3. Thermal properties of matter 4. Wave motion 5. Non destructive testing of materials.	
	Chemistry	1. Polymers 2. Lubricants-characteristic, mechanism and functions. 3. Corrosion and its control. 4. Electrochemical cells. 5. Cements and lime.		
	Economics	1. Value engineering		

		2. Cash flow Diagram 3. Determination of Economics life of an asset. 4. Methods of depreciation. 5. Economics in engineering.		
	Management		1. Self Development 2. Presentation Techniques 3. Conflict Resolution 4. Team building 5. Market assessment.	
	Accounts		1. Concept and scope of Engineering economics 2. Methods of alternatives-Present worth methods, future worth method. 3. Replacement and maintenance analysis 4. Depreciation and its methods 5. Cash flow diagram.	
	Physical Instructor			1) Fitness test 2) Skill test - Indoor games - Outdoor game - Officiating games, sports and athletics