Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.)

SCHEME OF TEACHING AND EXAMINATION

B.E. V SEMESTER ELECTRICAL AND ELECTRONICS ENGINEERING

Sr. No.	Board of Study	Subject Code	Subject	Periods per week			Scheme of Exam			Total Marks	Credit L+ (T+P) / 2
				L	T	P	Theory / Practical				
							ESE	CT	TA		
1	Electrical & Electronics Engg.	**325551(25)**	Microprocessor and Peripherals	4	0	-	80	20	20	120	4
2	Electrical & Electronics Engg.	**325552(25)**	Integrated Circuits & Applications	3	1	-	80	20	20	120	4
3	Electrical & Electronics Engg.	**325553(25)**	Linear Control Systems	3	1	-	80	20	20	120	4
4	Electrical & Electronics Engg.	**325554(25)**	Signals and Systems	3	1	-	80	20	20	120	4
5	Electrical & Electronics Engg..	**325555(25)**	Electrical Machines-II	3	1	-	80	20	20	120	4
6	Electrical & Electronics Engg.	**325556(25)**	Communication Systems	4	0	-	80	20	20	120	4
7	Electrical & Electronics Engg.	**325561(25)**	Electrical Machines- II Lab			3	40	-	20	60	2
8	Electrical & Electronics Engg.	**325562(25)**	Linear Control Systems Lab			3	40	-	20	60	2
9	Electrical & Electronics Engg.	**325563(25)**	Microprocessor and Peripherals Lab			3	40	-	20	60	2
10	Electrical & Electronics Engg.	**325564(25)**	Integrated Circuits & Applications Lab			3	40	-	20	60	2
11	Humanities	**300565(46)**	Personality Development			2	-	-	20	20	1
12	Electrical & Electronics Engg.	**325566(25)**	* Practical Training Evaluation and Library			2	-	-	20	20	1
			Total	**20**	**4**	**16**	**640**	**120**	**240**	**1000**	**34**

L: Lecture **T:** Tutorial **P:** Practical
ESE: End Semester Examination **CT:** Class Test **TA:** Teacher's Assessment

**** Industrial Training of eight weeks is mandatory for B.E. student. It is to be completed in two parts. The first part will be in summer after IV sem. after which students have to submit a training report which will be evaluated by the college teachers during B.E. V sem.***

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical & Electronics Engineering**	Semester:	**V**
Subject:	**Microprocessor & Peripherals**	Code:	**325551(25)**
Total Theory Periods:	**48**	Total Tutorial Periods:	**NIL**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**2 (Minimum)**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

Course Objectives

The objective of this course is to provide knowledge about the fundamentals of Microprocessors their evolution internal architecture and construction. This course is also useful to provide the knowledge of various supporting chips provided with the Microprocessor 8085. The aim of this course is to give the knowledge of various instructions, basic programming with Microprocessors 8085, data transfer schemes, Instruction format and addressing modes.

Course Outcomes

At the end of this course the student will be able to:

- Understand the basic architecture of Microprocessor 8085.
- Understand various instructions and their application in programming.
- Understand memory organization and mapping

UNIT I **Microprocessor Architecture:** Brief Introduction to Microprocessors, Architecture of 8085, Pin Configuration and their Function; internal registers & flag register, memory-stack organization, Generation of Control Signals, de-multiplexing of address / data bus, Instruction Fetch Cycle, Execute Cycle, Instruction Cycle.

UNIT II **Instruction Set and Programming with 8085:** Instruction for Data Transfer, Arithmetic, Logical Operations and Branching Operation. Stacks, Subroutine and Related Instructions. Elementary Concept of Timing Diagram and Machine Cycle. Addressing Modes, Instructions Format. Looping and Counting, Software Counters with Time Delays. Simple Programs using Instruction Set of 8085 like Program for Addition/ Subtraction/ Multiplication and Division of Unsigned Binary Numbers. Programs for Code Conversion e.g. BCD to Binary/ Binary to BCD, Binary to Seven-Segment LED Display, Binary to ASCII/ ASCII to Binary.

UNIT III **Data Transfer and Device Selection:** Format of Data Transfer, Modes of Data Transfer, Type of I/O Addressing, Condition of Data Transfer: Microprocessor Controlled Data Transfer/ Peripheral Controlled Data Transfer, Absolute and Linear Select Decoding, Memory and I/O Interfacing, Use of Decoders Selection, Memory Mapping.

UNIT IV **Interrupts:** Restart Instruction; Hardware Implementation, Interrupt Processing; Multiple Interrupts and Priority Concepts, Interrupt Structure of 8085, Instructions related to interrupts, Pending Interrupts, Application of Interrupts and simple illustrative Programs.

UNIT V **Architecture of Peripheral Interfacing Devices :** Architecture, Pin Diagram and functioning of 8155/8156 (RAM), 8255 (PPI). Simple programs like Initialization and I/O operations of the ports using simple I/O mode, Timer operation of 8155. Architecture, Pin diagram & description of USART (8251).Programmable Interval Timer 8253/8254: Block Diagram, Pin Configuration, Modes, Initialization Instruction, Interfacing and Simple Programs to generate various types of signals.

Text Books:

1. Microprocessor Architecture, Programming and Application by R. S. Gaonkar, Wiley Eastern
2. Digital Systems – From Gates to Microprocessors by Sanjay K. Bose, New Age International Publishers.

Reference Books:

1. 8085 Microprocessor Programming & Interfacing – N.K. Srinath, PHI
2. Digital Computer Electronics – Malvino, TMH
3. Microprocessors: Theory and Applications – Intel and Motorolla, Rafiquuzzaman, PHI.
4. 0000 to 8085: Introduction to Microprocessor for Engineers and Scientists, Ghosh & Sridhar, PHI

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical & Electronics Engineering**	Semester:	**V**
Subject:	**Integrated Circuits and Applications**	Code:	**325552(25)**
Total Theory Periods:	**40**	Total Tutorial Periods:	**12**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**2 (Minimum)**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

Course Objectives:

1. To introduce the basic building blocks of linear integrated circuits.
2. To teach the linear and non-linear applications of operational amplifiers.
3. To introduce the theory and applications of analog multipliers and PLL.
4. To teach the theory of ADC and DAC.
5. To introduce special function integrated circuits.

Course Outcome:

On completion of this course, the students will have a thorough understanding of operational amplifiers with linear integrated circuits. Also students will be able to design circuits using operational amplifiers for various applications.

UNIT I **Characteristics of Op Amp:** Fundamentals of monolithic ICs technology–realization –OPAMP Symbol and terminal characteristics, Block Schematic of OPAMP, Basics of Differential Amplifier (CMRR in terms of 'r' and 'h' parameter), Ideal and Practical OPAMP Characteristics, Open Loop and Closed Loop Configuration of OPAMP, Input & Output impedance of closed loop OPAMP, Input Bias and Offset Currents, Input Offset Voltage, Input Offset-error compensation voltage series feedback and shunt feedback amplifiers, Inverting Amplifier, Non-Inverting Amplifier differential amplifier; frequency response of OP-AMP.

UNIT II **Applications of Op Amp-I:** Voltage Follower, summer, differentiator and integrator ,Voltage comparators , Zero Crossing Detector, Level Detector, Window Detector, peak detector, Precision Half Wave Rectifier, Precision Full Wave Rectifier - Instrumentation amplifier, Current to Voltage and voltage to current Converter, active clippers and clampers, Bridge Amplifier, Differentiator, Integrator, Logarithmic amplifier, Norton Amplifier.

UNIT III **Applications of Op Amp-II:** S/H circuit, D/A converter (R-2R ladder and weighted resistor types), A/D converter - Dual slope, successive approximation and flash types, First and second order active filters, Phase Shifter, Oscillators-Waveform generator (Square, Triangular, Saw-tooth) ,Schmitt trigger, multivibrator.

UNIT IV **Special ICs:** 555 Timer circuit: Functional block, characteristics & applications as Monostable and Astable multivibrator; 566-voltage controlled oscillator circuit; 565-phase lock loop circuit functioning and applications.

UNIT V **Application of ICs:** Analog multiplier ICs, Voltage regulator: characteristics, Regulator Performance parameters, Types of Voltage regulator ,Three Terminal IC Regulator (LM 317, LM 337, 78XX, 79XX), [Description, Schematic Diagram and Pin Diagram], dual power circuit design, Switched capacitor filters, General Purpose IC Regulator (723): Important features and Internal Structure.

Text Book:

1. Integrated Circuits by K. R. Botkar, Khanna Publications
2. Operational Amplifiers by R. Gayekwad, 4th Ed., Pearson Education

Reference Books:

1. Pulse, Digital and Switching Waveforms by Millman & Taub, TMH Publishing Co.
2. Integrated Electronics by Millman & Halkias, TMH Publishing Co.
3. Operational Amplifiers and Linear Integrated Circuits, Lal Kishore, PHI
4. Design and Applications of Analog Integrated Circuits, Soclof, PHI

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical & Electronics Engineering**	Semester:	**V**
Subject:	**Linear Control Systems**	Code:	**325553(25)**
Total Theory Periods:	**40**	Total Tutorial Periods:	**12**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**2 (Minimum)**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

Course Objectives

1. Identify the basic elements and structures of feedback control systems.
2. Apply final value theorem to determine the steady state response of stable control system.
3. Use root locus method for design of feedback control systems.
4. Construct Bode, Polar and Nyquist plots for rational transfer function.
5. Understand the fundamentals of modern control theory

Course Outcomes:

1. Ability to acquire and apply fundamental principles of science and technology.
2. Analyze continuous systems mathematically through the use of Laplace functions and state equations form.
3. Represent any physical system in both transfer functions and state equations form.
4. Apply classical design methods to improve the performance of continuous controlled system.

UNIT I **Mathematical Model of Physical Systems:** Concepts of Control Systems – Open Loop and closed control systems and their differences –examples of control systems – Classification of control systems Transfer function, Block Diagram Algebra, signal flow graphs. Feedback characteristics of control systems, Mathematical models – Differential equations– Translational and Rotational mechanical systems, Transfer Function of DC Servo motor.

UNIT II **Time Response Analysis:** Standard Text signals, Time response of first and second order system, steady state error and error constants, Effect of adding poles and zeroesto a system,. Design specifications of second order system, stability concept, Routh- Hurwitz stability criteriarelation stability analysis.

UNIT III **Stability Analysis Techniques:** Root loci's concepts, Construction for Root Loci, effects of adding poles and zero's, Bode Plots. All pass, minimum phase and non-minimum phase systems. Polar plots, Nyquist stability criterion, Nyquist plots.

UNIT IV **Basics on Controllers and Compensators:** Introduction, Types of basic compensators and controllers, , Basic control actions and effects of integral and derivative control actions on system performance, their effects and applications, advantages and disadvantages, Electrical network of compensators, effects of compensators, advantages and disadvantages, Compensator design (Cascade Lag, Cascade Lead,) using Bode plots.

UNIT V **Sate Variable Analysis and Design:** Concept of states, state variables and state model. State model for linear continuous time systems (electrical and mechanical), Eigen values, determination of transfer function from state matrices, solution of state equations, concept of controllability and observability.

TEXT BOOKS:

1. Control System Engineering, L. Nagrath and Gopal, New Age International Publications
2. Control System Engineering, S K Bhattacharya, Pearson

REFERENCE BOOKS:

1. Modern Control Engineering, Ogata, Pearson Education
2. Automatic Control System, B.C. Kuo, PHI
3. Modern Control Engineering, Roychoudhury, PHI
4. Introduction to Control Engineering, Ajit K. Mandal, New Age International Publications.

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical & Electronics Engineering**	Semester:	**V**
Subject:	**Signals & Systems**	Code:	**325554(25)**
Total Theory Periods:	**40**	Total Tutorial Periods:	**12**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**2 (Minimum)**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

COURSE OBJECTIVES:

- To study the properties and representation of discrete and continuous signals.
- To understand the complete of the nature of continuous and discrete signals and their applications in engineering systems.
- To study the sampling process and analysis of discrete systems using z-transforms.
- To understand the use of transforms for signal classification and analysis.
- To study the analysis and synthesis of discrete time systems.

COURSE OUTCOMES:

- Students will be able to understand the terminology of signals and basic engineering systems.
- Students will understand the role of signals and systems in engineering design.
- Students will have the understanding of the use of signals and basic system building blocks and their roles in large/complex system design.
- Students will understand signal representation techniques and signal characteristics.
- Students will understand the difference and the applications of analog versus discrete signals and the conversion between them.
- Students will understand the process of sampling and the effects of under-sampling.
- Students will understand the Fourier, Laplace and z-transforms.

UNIT I **Representation of Signals:** Continuous and discrete time signals: Classification of Signals - Periodic aperiodic even - odd - energy and power signals - Deterministic and random signals - complex exponential and sinusoidal signals - periodicity - properties of discrete time complex exponential unit impulse - unit step impulse functions - Transformation in independent variable of signals: time scaling, time shifting, Determination of Fourier series representation of continuous time and discrete time periodic signals - Explanation of properties of continuous time and discrete time Fourier series.

UNIT II **Analysis of Continuous Time Signals and Systems:** Continuous time Fourier Transform and Laplace Transform analysis with examples - properties of the Continuous time Fourier Transform and Laplace Transform basic properties, Parseval's relation, and convolution in time and frequency domains. Basic properties of continuous time systems: Linearity, Causality, time invariance, stability, magnitude and Phase representations of frequency response of LTI systems, linear and non-linear phase and group delay, Analysis and characterization of LTI systems using Laplace transform: Computation of impulse response and transfer function using Laplace transform.

UNIT III **Sampling Theorem and Z – Transforms:** Representation of continuous time signals by its sample - Sampling theorem - Reconstruction of a Signal from its samples, aliasing - discrete time processing of continuous time signals, sampling of band pass signals Basic principles of z-transform - z-transform definition - region of convergence - properties of ROC - Properties of z-transform - Poles and Zeros - inverse z-transform using Contour integration - Residue Theorem, Power Series expansion and Partial fraction expansion, Relationship between z-transform and Fourier transform.

UNIT IV **Discrete Time Systems:** Computation of Impulse response and Transfer function using Z Transform, DTFT Properties and examples - LTI-DT systems -Characterization using difference equation - Block diagram representation - Properties of convolution and the interconnection of LTI Systems - Causality and stability of LTI Systems.

UNIT V **Random Signals:** Introduction to probability, Bayes Theorem- concept of random variable- probability density and distribution functions- function of a random variable, Moments- Independence of a random variable. Introduction to random process, Auto and cross correlation. Wide-sense stationary- power spectral density White noise.

TEXT BOOKS:

1. Signals and Systems: Oppenheim Alan- V- Willsky Alan. S- Pearson Edn.
2. Linear Systems and Signals : B. P.Lathi, Oxford university Press, 2005.

REFERENCE BOOKS:

1. Signals and Systems: I J Nagrarth- Tata Mc Graw Hill,2001
2. Signals and Systems, Simon Haykin and Barry Van Veen, , John Wiley, 1999.
3. Signals and Systems, K.Lindner, McGraw Hill International, 1999.
4. Signals and Systems: Farooq Husain- Umesh pub.
5. Adaptive signal processing: W Bernad- Pearson Edn.

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical & Electronics Engineering**	Semester:	**V**
Subject:	**Electrical Machines – II**	Code:	**325555(25)**
Total Theory Periods:	**40**	Total Tutorial Periods:	**12**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**2 (Minimum)**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

Course Objective

The objective of this course is to provide knowledge about the basic principles, construction and working of synchronous, single and three-phase induction machines. The aim of this course is to give the knowledge of the equivalent circuits, parameter determination, operational constraints, starting mechanisms, conventional speed control methods, various tests and applications of synchronous and induction machines.

Course Outcomes

At the end of this course the student will be able to:

- Understand the construction, working principles of synchronous and three-phase induction machines
- draw the equivalent circuit diagrams under various load conditions
- analyze the load profile, voltage regulations and efficiency in various operating conditions
- Understand the needs and requirements of various types of machine operations like starting, speed control, tests etc.

UNIT I **Electrical Machines Principles and Synchronous Machines – I:** Mechanical speed and frequency relation, MMF of concentrated and distributed windings, rotating magnetic fields, EMF equation, pitch factor, distribution factor, winding factor, general torque equation. Theory of non-salient pole synchronous machines, basic synchronous machine models, equivalent circuit and phasor diagrams of synchronous machines, saturation effects, armature reaction, open circuit, short circuit and ZPF lag tests on synchronous machines, synchronous reactance, voltage regulation of alternators by synchronous impedance, MMF and ZPF method.

UNIT II **Synchronous Machines II:** Excitation systems of alternators, Short circuit ratio, General input and output characteristics of synchronous machines, Active and reactive power flow, Steady state power angle characteristics, Parallel operation of synchronous machines, load sharing, operation of synchronous machines with infinite bus bars, effect of excitation and prime mover input, synchronizing torque, V-curves and inverted V-curves of synchronous machines.

UNIT III **Synchronous Machines III:** Theory of salient pole synchronous machines, two-reaction theory, phasor diagram, power angle characteristics, determination of Xd and Xq by slip test and maximum lagging power factor text, stiffness of coupling, synchronous condenser, Hunting in synchronous machines, damper winding, starting of synchronous motor.

UNIT IV **Three-phase Induction Machines-I:** Introduction, construction (Cage and slip-ring induction motors), principle of operation, equivalent circuit, phasor diagram, power across air-gap, torque and power output, torque-speed (slip) relationship, loss and efficiency estimation, No-load and block rotor test, circle diagram, Methods of starting of Induction motor-reactance, autotransformer, star-delta.

UNIT V **Three-phase Induction Machines-II & Single –Phase Induction Motor:** Speed control of induction motor (stator voltage and frequency control, v/f control, rotor resistance control and EMF injection method), cogging and crawling, deep bar rotor, double cage induction motors. Different types of single phase induction motors, Double revolving field theory of single phase induction motor, starting and running performance of single phase induction motor (elementary analysis only).

Text Books:

1. Electric Machines, Nagrath& Kothari, TMH Publications,
2. Electrical machines , B. R, Gupta,, New Age International,

Reference Books:

1. Electrical Machinery, P. S. Bimbhra, Khanna Publishers,
2. Performance and design of AC machines ,M.G. Say, CBS Publication.
3. Electric Machines , P.K. Mukherjee & S. Chakravarti , DhanpatRai Publication

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical & Electronics Engineering**	Semester:	**V**
Subject:	**Communication Systems**	Code:	**325556(25)**
Total Theory Periods:	**48**	Total Tutorial Periods:	**NIL**
No. of class Tests to be conducted:	**2 (Minimum)**	No. of assignments to be submitted:	**2 (Minimum)**
ESE Duration:	**Three Hours**	Maximum Marks in ESE: **80**	Minimum Marks in ESE: **28**

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI (C.G)

Course Objectives

1. The course provides an introduction to analog and digital communication systems.
2. This course responds to the needs of the engineering and technological aspirants.

Course Outcomes

Upon successful completion of this course, the students should be able to:

1. Acquire the generalize knowledge of communication system in the present scenario.
2. Develop problem solving skills in complex communication networking.

UNIT I **Amplitude Modulation:** Need of modulation, Amplitude modulation, Amplitude Modulation Index, power relation. AM wave, generation of AM, balanced modular signal side band technique, suppression of unwanted sideband, side band transmission, demodulation, envelop detector, synchronous detector.

UNIT II **Angle Modulation:** Mathematical equation of frequency modulation (FM), frequency spectrum, phase modulation (PM), relationship between PM and FM, pre-emphasis and de-emphasis, adjacent channel interference, comparison of narrow band and wide band FM, generation of FM, reactance modulator.

UNIT III **Pulse Modulation System:** Sampling theorem, Sampling of Low Pass and band pass signals, Aliasing, Aperture effect, Basic principles of PAM, PWM and PPM, their generation and detection, FDM, TDM, Comparison of TDM and FDM

UNIT IV **Digital Modulation Techniques:** Pulse code modulation signal to quantization noise ratio, DPCM, DM and ADM, Digital transmission through Career Modulation: Fundamentals of Binary ASK, PSK and FSK; generation and detection of BASK, BPSK and BFSK, Differential phase shift keying.

UNIT V **Information Theory:** Introduction, Sources of information, Contents in DMS, Contents of a symbol, Entropy, Information rate, Discrete memory less channel, Conditional joint entropies, mutual information, Channel capacity, Source coding, Coding efficiency, Entropy coding.

Text Books:

1. Principles of Communication Systems –Taub and Shilling, Tata Mc Graw Hill.
2. A Text Book of Analog & Digital Communication –P. Chakrabarti, DhanpatRai& Co.

Reference books:

1. Electrical Communication Systems, Kennedy, TMH
2. Digital Communications, Sanjay Sharma, S.K. Kataria & Sons, New Delhi

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical& Electronics Engineering**	Semester:	**V**
Subject:	**Electrical Machine – II Laboratory**	Code:	**325561(25)**
Total Lab Periods:	**36**	Batch Size:	**30**
Maximum marks in ESE:	**40**	Minimum marks in ESE:	**20**

List of experiments: (minimum 10 experiments are to be performed)

1. To study squirrel cage & slip ring type Induction motor and Synchronous motor with the help of Cut-view model or Dismantled Motor.
2. To plot the magnetization characteristic of a three phase alternator
3. To determine the voltage regulation of 3 phase alternator by EMF method.
4. To determine the voltage regulation of 3 phase alternator by ZPF method.
5. To determine the voltage regulation of 3 phase alternator by Direct Loading.
6. To plot the V and inverted V- curve of synchronous Motor at No Load, and Full Load.
7. To perform synchronization of alternator with infinite bus by bright lamp method..
8. To determine Xd &Xq of a salient pole rotor type synchronous machine by slip test.
9. To determine the equivalent circuit parameters of 3-phase induction motor by No-Load &Block Rotor test
10. To Study DOL starter and provide connection to 3- phase Induction motor.
11. To study Contactor type starter for Forward/ Reverse operation of Induction motor
12. To study the speed control of a three phase slip ring I.M by adding external resistance to the rotor circuit.
13. To find Full load Efficiency of Induction Motor by drawing Circle Diagram.
14. Measurement of Speed of Induction Motor by Measuring Rotor Frequency.
15. To Study the starting methods of single phase Induction motor.

Note:-It is also expected to visit to the substation of Institute and observe the sequence of operation to make DG set ON and OFF.

Requirement:

- 3-phase Alternators
- Resistive Load.
- 3-phase induction motor ,Single phase I.M
- Single phase variac
- Three phase Variac
- Ammeter, Voltmeters, Watt-meters.
- Induction Motor.
- Starters

Reference Book:

Electrical machines, Nagrath and Kothari

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical& Electronics Engineering**	Semester:	**V**
Subject:	**Linear Control Systems Laboratory**	Code:	**325562(25)**
Total Lab Periods:	**36**	Batch Size:	**30**
Maximum marks in ESE:	**40**	Minimum marks in ESE:	**20**

Experiments to be performed:

1. To determine the Gain of an Open Loop and Closed Loop System.
2. To Study the Effect of Disturbance on an Open loop and Closed Loop System.
3. Simulation of Transfer Function using OP-AMP (Analog Computer Trainer)
4. To Determine the Transfer function of a DC Servomotor.
5. To determine Transfer Function of an AC Servomotor.
6. To plot characteristics of Synchro- Transmitter and Receiver Pair.
7. To Plot characteristics of a Potentiometer as an Error Detector.
8. Study of a basic electrically controlled hydraulic system.
9. Study of a basic electrically controlled pneumatic system
10. To Study the time response of a first and second order system.
11. To determine the effect of P, PI controller on second order system.
12. To determine the effect of PID controller on second order system.
13. To determine TF using bode plot (type-0, type-I).
14. To design he Lag Compensator.
15. To Design he Lead Compensator.

Apparatus Required

1. An open and closed loop system with two input signals (one acting as reference and the other as the disturbance signal).
2. A R-L or R-C Circuit, Bread board, CRO, Multi-meters, Function Generator.
3. Synchro Transmitter-receiver Pair.
4. An AC Servomotor.
5. A Potentiometer.
6. Bode Plot Analyzer.
7. Linear Variable Differential Transformer.
8. Analog Computer trainer
9. P, PI, PID Controller trainer.
10. Stepper Motor.
11. Lag Compensator, Lead Compensator.

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical& Electronics Engineering**	Semester:	**V**
Subject:	**Microprocessor & Peripherals Laboratory**	Code:	**325563(25)**
Total Lab Periods:	**36**	Batch Size:	**30**
Maximum marks in ESE:	**40**	Minimum marks in ESE:	**20**

List of Experiments to be performed:

1. To add content of two register and store result in another register.
2. To add content of two memory locations and store result in another memory locations.
3. To find 2's complement of 8 bit number.
4. To transfer block of 10 data bytes from one memory location to another.
5. To transfer block of 10 data bytes from one memory location to another in reverse order.
6. To multiply two 8 bit numbers.
7. To add contents of a block of 10 data bytes.
8. To find largest/smallest among the 10 given data bytes.
9. To find number of even and odd values from a given block of data bytes.
10. To arrange given data bytes in ascending order.
11. To count the number (BCD) of times even and odd PARITY bytes are appearing at consecutive memory locations.
12. To convert the binary number in to its equivalent BCD.
13. Simple input output programs using 8255.
14. Interfacing 7 segment LEDs to 8085.
15. To generate different waveforms using 8253/8254.

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Branch:	**Electrical& Electronics Engineering**	Semester:	**V**
Subject:	**Integrated Circuits & Applications Laboratory**	Code:	**325564(25)**
Total Lab Periods:	**36**	Batch Size:	**30**
Maximum marks in ESE:	**40**	Minimum marks in ESE:	**20**

List of Experiments to be performed:

1. To design an inverting amplifier using OP-AMP (741) and study its frequency response.
2. To design a non-inverting amplifier using OP-AMP (741) and to study its frequency response.
3. To determine Slew Rate of an OP-AMP(741)
4. To design Zero Crossing Detector Circuit Using OPAMP (741)
5. To design a differentiator Circuit using OP-AMP and draw input & output waveform.
6. Design an integrator circuit using OPAMP (741) and draw input & output waveform.
7. To design Two Level diode Clipper Circuit and draw its output waveform.
8. To design active clipper and clamper circuit using OP-AMP.
9. To design the square wave & triangular wave generator.
10. To study collector coupled mono-stable multi-vibrator using transistors.
11. To Study Fixed bias binary (Bi-stable Multi-vibrator) using transistors.
12. To study collector coupled astable multi-vibrator using transistors.
13. To design and study the mono-stable multi-vibrator using IC 555.
14. To Design and Study the Astable Multi-vibrator Using IC 555.
15. To Study the voltage regulation of 78XX & 79XX series of voltage regulators.

List of Equipments/Machine Required

- Use discrete components Only
- Power Supply
- Function Generator
- CRO.

Recommended Books:

Laboratory Manual for Operational Amplifiers and Linear ICs, David Bell, PHI

Chhattisgarh Swami Vivekanand Technical University, Bhilai

Name of Program:	**Bachelor of Engineering**		
Branch:	**Common to All Branches**	Semester:	**V**
Subject:	**Personality Development**	Code:	**300565 (46)**
No. of Lectures:	**2/Week**	Tutorial Period:	**NIL**
Total Marks in ESE:	**NIL**	Marks in TA:	**20**
Minimum number of Class Tests to be conducted:	**Two**		

Objective: The course is introduced to develop one's outer and inner personality tremendously and enrich the abilities to enable one to meet the challenges associated with different job levels. Personality Development is essential for overall development of an individual apart from gaining technical knowledge in the subject.

Course Objectives

Upon completion of this course, the student shall be able

- To understand the concept of personality and image;
- To develop leadership, listening and interacting skills;
- To develop attitudinal changes;
- To develop decision-making qualities; and
- To communication skill.

UNIT I **Personality concepts:** What is Personality – its physical and psychic aspects. How to develop a positive self-image. How to aim at Excellence. How to apply the cosmic laws that govern life and personality. How to improve Memory – How to develop successful learning skills. How to develop and effectively use one's creative power. How to apply the individual MOTIVATORS that make you a self-power personality.

UNIT II **Interpersonal Skills:** Leadership: Leaders who make a difference, Leadership: your idea, What do we know about leadership? If you are serious about Excellence. Concepts of leadership, Two important keys to effective leadership, Principles of leadership, Factors of leadership, Attributes. Listening: Listening skills, How to listen, Saying a lot- just by listening, The words and the music, How to talk to a disturbed person, Listening and sometimes challenging. How to win friends and influence people, How to get along with others. How to develop art of convincing others. How can one make the difference. How to deal with others particularly elders. Conflicts and cooperation.

UNIT III **Attitudinal Changes: Meaning of attitude,** benefits of positive attitudes, How to develop the habit of positive thinking.

Negative attitude and wining: What is FEAR and how to win it. How to win loneliness. How to win over FAILURE. How to win over PAIN. How to win over one's ANGER and others anger. What is stress and how to cope up with it? The art of self-motivation. How to acquire mental well-being. How to acquire physical well-being.

UNIT IV **Decision Making:** How to make your own LUCK. How to plan goals/objectives and action plan to achieve them. How to make RIGHT DECISION and overcome problems. How to make a Decision. Decision making: A question of style. Which style, when? People decisions: The key decisions. What do we know about group decision making? General aids towards improving group decision making.

UNIT V **Communication Skills: Public Speaking:** Importance of Public speaking for professionals. The art of Speaking - Forget the fear of presentation, Symptoms of stage fear, Main reason for speech failure, Stop failures by acquiring Information; Preparation & designing of speech, Skills to impress in public speaking & Conversation, Use of presentation aids & media.

Study & Examination: How to tackle examination, How to develop successful study skills.

Group discussions: Purpose of GD, What factors contribute to group worthiness, Roles to be played in GD.

Course Outcomes:

- The students will be able to develop inner and outer personality exposure;
- The students will be able to develop effective leadership qualities and interacting skills;
- The students will be able to develop positive attitude, motivating skills and develop winning philosophies;
- The students will be able to develop decision-making tools; and
- The students will be able to develop group presentation, public speaking and impressive conversation.

Text Books:

1. Basic Managerial Skills for all by E. H. McGrawth, prentice Hall India Pvt. Ltd., 2006
2. Basic Employability Skills by P. B. Deshmukh, BSP Books Pvt. Ltd., Hyderabad, 2014

Reference Books:

1. How to Develop a Pleasing Personality by Atul John Rego, Better Yourself Books, Mumbai, 2000
2. How to Succeed by Brain Adams, Better Yourself Books, Mumbai, 1969
3. Personality: Classic Theories & Modern Research; Friedman ; Pearson Education, 2006
4. How to Win Friends and Influence People by Dale Carnigie, A. H. Wheeler 2006