

SWAMI VIVEKANAND UNIVERSITY, SIRONJA, SAGAR (M.P.)



SYLLABUS

For

**Diploma in Electronics and Telecommunication
Engineering**

Semester -IV

**Swami Vivekanand University, Sironja Sagar
2013-2014**



Swami Vivekanand University, Sironja Sagar (M.P.)

CREDIT BASED GRADING SYSTEM

PROGRAMME NAME: Three years Diploma in **Electronics and Telecommunication Engineering**

Scheme of Studies and Examinations for: **FOURTH SEMESTER**

C O U R S E C O D E	COURSE TITLE	PAP - ER C O D E	THEORY COMPONENT							PRACTICAL COMPONENT							T O T A L	
			LECT URES	CONTINUOUS EVALUATION		END OF THE TERM/ SEMESTER EVALUATION			T O T A L M A R K S	PR AC T I C A L Hrs - Per We ek	CONTIN UOUS EVALUA TION	END OF THE TERM/ SEMESTER EVALUATION			T O T A L			
				Hrs. Per Week	TER M W O R K	PROGR- ESSIVE TESTS (TWO)		THEORY PAPER				LAB. W O R K	PRACTICAL / O R A L E X A M I N A T I O N (VIVA)					
			I			II	N O.	M A R K S	DURA TION (Hrs)	N O.	M A R K S		DURA TION (Hrs.)					
401	LINEAR INTEGRATED CIRCUITS	6205	04	15	10	10	01	100	3	135	04	15	01	50	3	65	200	
402	MICROPROCESSOR AND MICROCONTROLLER	6206	04	15	10	10	01	100	3	135	04	15	01	50	3	65	200	
403	ELECTRONIC MEASUREMENTS	6207	04	15	10	10	01	100	3	135	02	15	01	50	3	65	200	
404	COMMUNICATION ENGINEERING	6208	04	15	10	10	01	100	3	135	02	15	01	50	3	65	200	
411/ 412	Optional(any one) ENTERPRENUERSHIP /MARKETING MANAGEMENT	6046 5181	06	30	10	10	01	100	3	150	-	--	--	--	--	--	150	
406	PROFESSIONAL ACTIVITIES (PA)	-----	--	--	--	--	--	--	--	--	02	GRADE TO BE AWARDED						
TOTAL		-----	22	90	50	50	05	500		690	14	60	04	200		260	950	

- | | | |
|---|-------|--|
| 1. Number of Theory Papers | : 05 | |
| 2. Total Theory Marks | : 500 | |
| 3. Number of Practicals | : 04 | |
| 4. Total Practical Marks | : 200 | |
| 5. Total marks of Sessional + Prog. Asst. | : 250 | |
| 6. Grand Total | : 950 | |

Passing Marks for

(a) Theory	: 33%
(b) Practical	: 40%
(c) Sessional	: 60%

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE: 401

SUBJECT NAME: LINEAR INTEGRATED CIRCUITS

Unit- I

Introduction to Operational Amplifier: Differential amplifier, Principle, differential and common mode of operation, concept of inverting and non- inverting input

OpAmp: Block Diagram, IC Packages, Ideal characteristics, Electrical parameters, Input offset voltage, Input resistance, CMRR, Slew rate, Gain, Bandwidth, 741 OP- Amp characteristics, pin out and power supply requirements, Interpreting and comparison of data (as per data sheet) of 741, op07, 351, 311, TL082, LM 324.

Unit- II

Linear Application: Inverting, amplifier, non-inverting amplifier, Voltage follower, Adder and Subtractor, Differentiator, integrator, Scaling Amplifier, AC and DC Amplifier, Instrumentation amplifier. Active filters: low pass, high pass and band pass
Voltage to Current converter, Current to Voltage converter

Unit- III

Nonlinear applications: Comparators, functions of a comparator, modes of operation of comparator, Open loop- zero crossing detector, Schmitt trigger, Threshold levels Inverting and non-inverting, Hysteresis curve, Converters, Voltage to Frequency Conversion Frequency to Voltage Conversion, Sample / Hold circuit, Precision Rectifier, Oscillators, Wein Bridge Oscillator, Phase shift Oscillator, Relaxation Oscillator, Logarithmic amplifier and antilogarithmic amplifier, Basics of analog multiplier and dividers.

Unit- IV

Voltage Regulators: Need of Regulators, Series Regulator, Shunt Regulator, Pass Transistor Regulator, Switching Regulator, Basics of Regulator ICs like 723, LM317, 78XX, 79XX and SMPS TEA1507, TEA152X series.

Timers: Introduction, functional block diagram of a timer, Pin diagram of 555 timer, operation of timer in mono and astable modes

555 as wave generators: square wave, Saw tooth wave and Tri-angular Wave.

Unit- V

Phase Lock Loop (PLL): functional block diagram, Lock & Capture range, transfer characteristics, Basic Applications of PLL 567, PLL 565, Applications of PLL.

LIST OF EXPERIMENTS

- Measurement of Different characteristics of an Op-Amp in open loop configuration.
 1. Output Resistance
 2. Different Input Resistance
- Measurement of Differential characteristics of an Op-Amp in open loop configuration.
 1. Voltage Gain
 2. Unity Gain Bandwidth
- Inverting Amplifier :
 1. AC analysis
 2. DC analysis
 3. Unity Gain Buffer
- Non –Inverting Amplifier:
 1. AC analysis
 2. DC analysis
 3. Unity Gain Buffer
- Non –Inverting Amplifier:
 1. AC analysis
 2. DC analysis
 3. Unity Gain Buffer
- Op-Amp as:
 1. Adder
 2. Subtractor
 3. Multiplier
 4. divider
- Op-Amp as :
Integrator
Differentiator
Inverter
Buffer
- Op-Amp as active Filter :
Low pass filter

High pass filter
Band pass filter
- Signal Generator using Op-Amp and Timer IC
 - (a) Triangular wave generator
 - (b) Schmitt Trigger
- Signal generator using Op-Amp and Timer IC
 - (a) Saw tooth wave generator
 - (b) Ramp generation
- Oscillator using Op-Amp
 - (a) Wein Bridge Oscillator
 - (b) R.C.Phase Shift Oscillator
- Sample & hold circuit operation
- Precision Rectifier using an Op-Amp and Voltage regulations.
- Phase lock loop as frequency multiplier.
- 4 bit D/A converter addition experiments.
- A/D Converter

LIST OF EQUIPMENT

1. Linear IC Trainer
2. PLC Trainer
3. SMPS Trainer
4. Digital/Analog Multimeter
5. Function Generator/ Pulse Generator
6. Dual Power Supply
7. Cathode Ray Oscilloscope (C.R.O.)
8. Bread Board

REFERENCES

1. Operational Amplifiers and Linear Integrated Circuits by R.F. Coughlin- F.F Driscall (PHI).
2. Op-Amps and Linear Integrated Circuits by R.A. Gayakwad
3. Electronic Devices & Circuits by Robert Boylestad
4. Electronic Devices & Circuits by Allen Mottershead
5. Integrated Electronic by Millman Halkias
6. Art of Electronics by Horowitz Winfield Hill
7. Operational Amplifiers and Integrated Circuits by Denton Daily
8. WBLM on Electronics circuits and design by IIT, Delhi.

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE: 402

SUBJECT NAME: MICROPROCESSOR AND MICROCONTROLLER

Unit- I

8085 Microprocessor: 8085 Architecture, Pin assignments, Block Diagram and its detail description, Machine cycle & BUS Timing, Memory Interfacing, Address and data BUS descriptions, Interrupts and its types, 8085 Instructions Set, Addressing modes of 8085 Data Transfer operation, Arithmetic Operation, Logic operation, Branch Operation, Stack, Subroutine and related instruction.

Unit-II

Assembly Language Programming: How to write, assemble and execute a simple program, 8085 Programming Model, write an assembly language program for addition subtraction, multiplication, division and ascending & descending number series.

Unit- III

Peripherals and Other Microprocessors:

Peripherals: 8255 programmable peripheral interface, 8279 programmable key board interface, 8254/8253 programmable interval timer, 8259 programmable interrupt controllers, 8257 DMA controller
Introduction for- Z-80, MC 6800, 8088/8086 Microprocessor.

Unit- IV

Microcontroller: 8031/8051/89c51 Architecture, I/O port their structure, Addressing modes, SFRs and RAM, Use of all SFRs, Bit addressable locations, Memory organization, Internal memory, external memory, Introductions to other microcontrollers like 89c52, 89c2051 and 89c535.
Interfacing of Microcontroller with: 7-segment display, LCD display, Key pad, A/D and D/A Converters.

Unit- V

Applications of Microprocessors and Microcontrollers: Block diagram, flow diagram and their interfacing of the followings, Temperature control and monitoring system Speed control of DC motor, Traffic Signal control system, Elevator control system
Basics of Embedded system, Data Acquisition System.

LIST OF EXPERIMENTS

- Study of Assembler, Compiler, cross compiler, emulator, simulator.
- Write a program in 8085 Assembly language for addition of two 8 bit numbers.
- Write a program in 8085 Assembly language for subtraction of two 8 bit numbers.
- Write a program in 8085 Assembly language for multiplication of two 8 bit numbers.
- Write a program in 8085 Assembly language for division of two 8 bit numbers.
- Write a program to perform AND, OR, Ex-OR logic operation in 8085.
- Write a program which can move data from one memory location to another.
- Write a program to exchange two numbers.
- Write a program in 8051(microcontroller) assembly language programming for addition of two 8 bit numbers.
- Write a program in 8051 assembly language programming for subtraction of two 8 bit numbers.
- Write a program in 8051 assembly language programming for multiplication of two 8 bit numbers.
- Write a program in 8051 assembly language programming for division of two 8 bit numbers.
- Embedded system development kit for designing using keilvision software.

REFERENCES

1. Microprocessor architecture programming and application with 8085/8080A by Ramesh S. Gaonkar
2. Introduction to Microprocessor by Aditya P. Mathur
3. Microprocessor & Interfacing Dougus V. Hall
4. Microprocessors & Fundamentals by B. Ram
5. 8051 Microcontroller by Kenneth Ayala
6. 8051 Microcontroller and assembly language programming by Mazidi
7. Solid state circuit design with Microcontrollers by C.K. Dwivedi (Das Publisher)

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE: 403

SUBJECT NAME: ELECTRONIC MEASUREMENTS

Unit- I

Measuring System

Sensing Element suitability , Signal Conditioning Element, Output Element.

Accuracy, Precision, Error(Gross, Systematic & Random), Linearity, Hysteresis, Resolution, Threshold, Repeatability, Reliability or Maintainability, Span (Range), Calibration.

Primary Standard, Secondary Standard, International Standard, Voltage Standard, IEEE Standard, PMMC Instrument, Moving iron instrument, Multimeter- Analog, Digital (Block Diagram).

Unit- II

Resistance Measurement: Low Resistance Method: Potentiometer method, Kelvin's double bridge, Medium Resistance Measurement: Wheatstone Bridge, Ammeter, Voltmeter method, substitution method.

High Resistance Measurement: Loss of charge method, Meggar method.

Inductance Measurement: Approximation Method: V-I method, ammeter method, ammeter method, voltmeter method Alternating Current Bridge Method : Maxwell's Bridge, Anderson's bridge, Hay's Bridge, Mutual Inductance Measurement : Fellies Method

Capacitance Measurement: Schering Bridge

Unit- III

Range Extension Methods: Needs of range extension, Range Extension of Ammeter,

Range Extension of Voltmeter, Need of Instrument Transformer, Advantages of Instrument Transformer, Current Transformer & Potential.

Unit- IV

Cathode Ray Oscilloscope: Introduction, Construction, Block Diagram of a general Purpose C.R.O., Cathode Ray Tube (C.R.T.), Time Base Generator, Applications of C.R.O., Use of C.R.O. to Measure: Voltage, Current, Frequency, Phase Difference, Lissajou's Pattern

Special Purpose C.R.O.: Dual Beam Oscilloscope, Dual Trace Oscilloscope, Digital Storage Oscilloscope.

Unit- V

Transducers: Introduction and Classification of Transducers, Selecting a Transducer

Sensors: diaphragm bionet pattern, allic' strip, bourden tube, bellows, LVDT, variable capacitance

Level measurement: Capacitance sensors, Ultrasonic transducers

Pressure Measurement: Potentiometric pressure transducer, Strain gauge, piezoelectric load cell

Temperature Measurement: Resistance Transducers, Thermocouple, Thermistor, Photoconductive Cells, Photo Voltaic Cell, Optical Pyrometer.

LIST OF EXPERIMENTS:

- Self Inductance measurement by Ammeter and voltmeter method.
- Self Inductance measurement by 3 voltmeter method.
- Self Inductance measurement by 3 Ammeter method.
- Self Inductance measurement by general 4 arm bridge network method.
- Self Inductance measurement by
 - (a) Maxwell Bridge method
 - (b) Hays Bridge Method
 - (c) Anderson Bridge Method.
- Mutual Inductance measurement by Felicis Method.
- Capacitance measurement by Wein Bridge Method.
- Capacitance measurement by Schering Bridge Method.
- Low Resistance Measurement by –
 - (a) Ammeter Voltmeter Method
 - (b) Potentiometer method
- Medium Resistance measurement by –
 - (a) Substitution method
 - (b) Wheat Stone Bridge Method.
- High Resistance Measurement by –
 - (a) Ohm meter
 - (b) Meggar Ammeter range extension using shunts.
- Voltmeter range extension using voltage multiplier circuit.
- Study of C.R.O.
- Measurement on CRO
 1. Voltage measurement on C.R.O.
 2. Current measurement on C.R.O.
 3. Frequency measurement on C.R.O.
 4. Phase Difference measurement on C.R.O.

LIST OF EQUIPMENT

1. Discrete Component Trainer
2. Digital/ Analog Multimeter
3. Ammeter
4. Voltmeter
5. Function Generator/ Pulse Generator
6. Dual Power Supply
7. Cathode Ray Oscilloscope (C.R.O.)
8. LCR Q (Bridge Type) Meter
9. Optical Transducer Trainer
10. Temperature Transducer Trainer
11. LVDT Trainer
12. Strain Gauge Trainer
13. Relay Control Trainer
14. Ohm meter
15. Meggar
16. Decade Capacitor Box
17. Decade Inductor Box
18. Decade Resistance Box
19. Anderson Bridge
20. Schering Bridge
21. Kelvin Bridge
22. Maxwell Inductance Bridge
23. Wein's Bridge
24. Wheatstone Bridge
25. Desauty Bridge
26. Hay's Bridge

REFERENCES

1. Electronic Instrumentation and measurement techniques by Cooper
2. Instrumentation Devices & Systems by Rangan
3. Electrical Measurements & Measuring instruments by Golding & Widdis
4. A course in Electrical & electronic measurement & instrumentation by A.K. sawhney

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE: 404

SUBJECT NAME: COMMUNICATION ENGINEERING

Unit - I

Introduction to communication: Meaning of communication, Verbal & Non verbal communication, Machine communication

Concept of communication system: Information, transmission, channel, reception, basic block diagram, Allocation of frequency spectrum for communication, Attenuation (in dB), bandwidth, Noise, source and types, signal to noise ratio, noise figure, Analog signal, Digital signal, Comparison between Analog and Digital communication, Advantages of digital communication systems.

Unit – II

Modulation techniques: Need of modulation,

Analog Modulation: Amplitude Modulation, modulation index, bandwidth and signal power, DSB, SSB and VSB, AM features and Drawbacks.

Frequency Modulation, modulation index, FM spectrum and Bandwidth, FM features, comparison with AM.

Graphically explanations of pulse amplitude modulation (PAM), pulse width modulation (PWM), pulse position modulation (PPM).

Pulse Code Modulation (PCM): sampling, Quantization and encoding, data rate for digital voice channel.

Unit – III

Digital Modulation techniques: Graphically explanations of NRZ, RZ, Manchester, binary ASK, FSK, PSK, Quadrature Modulation.

Multiplexing Techniques: Need of multiplexing, frequency division multiplexing(FDM), time division multiplexing (TDM), comparison between FDM and TDM, Digital hierarchy in India.

Unit – IV

Fundamentals of wire telephone: Frequency range used for technology.

Voice/Audio signal parameters: Sound pressure level, Sound intensity, loudness, loudness level, pitch & frequency, sound distortion.

Electronic Telephone Instrument, Subscriber's loop, DTMF dialing, Signaling tones, Telephone Lines.

Telephone switching techniques: Electro-mechanical switching, analog switching, digital switching techniques, Digital Time Switch, Digital Space Switch, single stage, two stage, three stage, space switch, Telephone traffic calculation.

Unit – V

Fundamentals of electronic exchange: An overview of manual exchange, Introduction of electronic exchange, Chronological development of electronic exchanges, Basic principles of SPC exchange, Block diagram of SPC exchange, Working of SPC exchange: Terminal equipment, switching processor, switching peripheral, signaling interfaces, data processing peripheral, Telephone signaling: Telephone signals, addressing modes, call connection, subscriber's line signaling, calling subscriber's line signals, called subscriber's line signals, PBX/PABX/EPABX.

LIST OF EXPERIMENTS

Perform various experiments on Communication Trainers such as:

- Study of Amplitude Modulation.
- Study of Frequency Modulation.
- Determine the percentage of modulation.
- PAM, PWM, PPM Circuits for Modulation and Demodulation.
- Study of ASK, FSK, PSK, QAM Signals.
- Study of PCM - Pulse Code Modulation.
- Study of FDM and TDM.
- Study of operation of fax machine and its control.
- Study various components of handset telephone instrument.

Visit to a Electronic telephone exchange in reference to understand its operation, various controls, switching techniques etc.

LIST OF EQUIPMENT

1. Analog Communication Trainer
2. AM Transmitter/ Receiver Trainer
3. Frequency Modulation/ Demodulation Trainer
4. FM Communication Trainer
5. TDM Trainer
6. FDM Trainer
7. PAM/PWM/ PPM Trainer
8. QAM Trainer
9. Sampling and Reconstruction Trainer
10. PCM Transmitter/ Receiver Trainer
11. Delta Modulation Trainer
12. Digital/ Analog Multimeter
13. Function Generator/ Pulse Generator
14. Dual Power Supply
15. Cathode Ray Oscilloscope (C.R.O.)
16. Digital Oscilloscope
17. DTMF Telephone Trainer Kit
18. EPABX Trainer
19. Transmission Line Trainer
20. Data Conditioning and Carrier Modulation System
21. Fax Machine Demonstrator Board
22. Synthesized Signal Generator
23. Distortion Meter

REFERENCES:

1. Electronic Communication systems by Dennis Roddy & John coolen
2. Electronics communication systems by Kennedy
3. Telephony by Das & Biswas.
4. Introduction to Telephony & telegraphy by E.H. Jolly(wheeler)
5. Electronic Communication System by Willium Schwber
6. Electronic Communication System by Wayne Tomasi
7. Telecommunication switching systems and Networks by Vishwanathan.

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE: 411

SUBJECT NAME: ENTREPRENEURSHIP

Unit – I

Introduction to Entrepreneurship: Definition of Entrepreneur / Entrepreneur, Difference between Entrepreneurship / Entrepreneurship, Need for Entrepreneurship, Qualities of successful entrepreneur, Myths about Entrepreneurship, Classification of entrepreneurs on the basis of different criteria, Reasons for the failure of entrepreneurs.

Unit – II

Industries and Business Organization: Concept of Industry or Enterprise, Classification of Industries, Tiny Industry, Small Scale, Medium Scale, Large Scale
Rural Industry, Cottage Industry.

Forms of Business Organization: Proprietorship, Board & Co-operative, Partnership, public Ltd, Private Ltd, IT. Sector
Govt. policies for SSI promotions, Sector / Product for SSI.

Unit – III

Institutional Assistance Infra - structural assistance, Technical Assistance, Financial assistance, Marketing Assistance.

Information / guidance & Training- SISI, ASK, MPCON, CSIR, CED- MA, NRDC

Infrastructure: D/C, AVN/AKVN

Finance: SIDBI, KVIB, MPFC, NABARD, MPWDC, NSIC, M.P.A.V.V.N.

Marketing: MP- AGRO, NSIC, PM.LUN, EXPORT COPPORATION, KVIP, MPHSV, MPLDC

Quality Control: BIS, FPO, MPLUN, F.D.A., AG. MKT.

Unit – IV

Planning of Industrial Unit: Pre- Planning Stage, Scanning the environment, Market survey, Seeking information, product / project selection.

Implementation Stage:- PPR Preparation, DIC registration, Arrangement of Land, Arrangement of Power, Obtaining NOC / Licenses from various Deptt, DPR Preparation, Seeking financial assistance, Commercial Production, Post Implementation stage, Permanent registration from D.I.C., Availing Subsidies, Diversification / Modification, Setting up of marketing channel / Distribution.

Unit – V

Achievement Motivation: Historical perspective, Concept of achievement motivation, Significance of achievement motivation, Development of achievement motivation.

Financial Management of an Industrial Unit (SSI): Tools of financial analysis, Ratio analysis, Fund Flow / Cash flow analysis, Working capital and Concepts, Financial accounting.

Swami Vivekanand University, Sironja Sagar (M.P.)

PROJECT WORK/ASSIGNMENT

1. To prepare chart to showing various factors affecting entrepreneurship.
2. To collect details related to various schemes run by the Govt. for Self- Employment and Entrepreneurship.
3. To identify and select a project and conduct Market-Survey thereof.
4. To collect various formats used in industries & departments/institutions working in the field of entrepreneurship.
5. Visit few small scale industries situated in city, nearby industrial area.
6. Discuss the problems related to SSI (Small Scale Industries) with an r.
7. Collect information about market rates quality and quantity of goods for their choice.
8. Develop logical and analytical approach to purchase the raw material / finished goods
9. To prepare case study of successful entrepreneurs.
10. Preparation of Project report for the industry/ Business they are willing to start.

REFERENCES

1. Entrepreneurial Development Vol. I,II,III by Vasant Desai Himalaya Publication
2. CEDMAP (Center of Entrepreneurial development Madhya Pradesh)
3. Udyamita Vikas by Anand Prakashan.

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE:412

SUBJECT NAME: MARKETING MANAGEMENT

Unit – I

Marketing and Concept: Evolution of marketing-a historical background, The stage of barter, The stage of money economy, The stage of industrial revolution, The stage of competition, The emergence of marketing, Selected definitions of marketing, Different concept of marketing, The exchange concept, The production concept, The product concept, The sales concept, The marketing concept, Difference between selling & marketing, Benefits & significance of marketing, Helps to remove causes for under development, Improve productivity & efficiency, Canalize country's economic resources properly, Insure better deal for consume, Make economic planning meaningful & relevant etc.

Unit – II

Marketing environment: Internal & external factors, Demographic environment, Economic environment, Political environment, Physical environment, Technological environment, Competitive environment, Social & cultural environment, Micro & macro environment.

Unit – III

Marketing planning & organization: Scope & importance of planning, Steps in marketing planning process, Purpose & principle of organization, Models of marketing organization, Line & staff type, Product based organization, Territory oriented organization, Complex organization, Task of chief marketing executive, Decentralization.

Unit – IV

Market segmentation: Types of market, Definitions & benefits of segmentation, Methods of segmentation, Geographic segmentation, Demographic segmentation, Psychographic segmentation, Buyer behavior Segmentation, Volume segmentation, Steps in market segmentation, Market targeting.

Unit – V

Marketing research & sales forecasting: Definition & importance of marketing research, Steps in marketing research, Defining problem, Problem analysis, Developing research design, Developing research procedure, Data collection –Primary & secondary, Analyzing & interpretation, Summarizing & preparing the research report, Method of market research, Necessity & purpose of sales forecasting, Methods of sales forecasting.

REFERENCES

1. Marketing management - Analysis, Planning & Control - Philip Kotler
2. Principles & practice of Marketing in India - C.B.Memoria & R.L.Joshi
3. Contemporary Marketing – Louis & Boone & David L. Kurtz
4. Essential of Management –Koontz
5. Marketing management- S.A. Sherlekar

Swami Vivekanand University, Sironja Sagar (M.P.)

SUBJECT CODE: 406

SUBJECT NAME: PROFESSIONAL ACTIVITIES

RATIONALE

Professional Activities is not a descriptive course, as per conventional norms; therefore specific content for this course cannot be prescribed. It is a group of open-ended activities; where in variety of tasks are to be performed, to achieve objectives. However general guidelines for achieving the target and procedure for its assessment are given under the course content.

As the student has to practice this course in all the six semesters, the guidelines given therein are common and applicable to each semester.

OBJECTIVES:

- To allow for professional development of students as per the demand of engineering profession.
- To provide time for organization of student chapter activities of professional bodies) i.e. Institute of engineers, ISTE or Computer Society of India etc.)
- TO allow for development of abilities in students for leadership and public speaking through organization of student's seminar etc.
- To provide time for organization of guest lectures by expert engineers/ eminent professionals of industry.
- To provide time for organization of technical quiz or group discussion or any other group activity.
- To provide time for visiting library or using Internet.
- To provide time for group discussion or solving case studies.
- To provide time for personality development of students.
- To provide time for working for social cause like awareness for environmental and ecology etc.

DETAILED INSTRUCTIONS TO CONDUCT PROFESSIONAL ACTIVITIES:

- Study hours, if possible should be given greater time slot with a minimum of two hrs/week to a maximum of four hrs/week.
- This course should be evaluated on the basis of grades and mark sheet of students, should have a separate mention of the grade awarded. There will be no pass/fail in professional activities (PA).
- Following grade scale of evaluation of performance in PA has been established.

<u>Grades</u>	<u>Level of performance</u>
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

- Grades once obtained in a particular examination shall become final and no chance of improvement in grades will be given to the students.
- Assessment of performance in PA is to be done internally by the Institution, twice in a Semester/Term through a simultaneous evaluation of the candidate by a group of three teachers, of the deptt. Concerned. Group of teachers will jointly award the grade to candidate in

Swami Vivekanand University, Sironja Sagar (M.P.)

- the assessment. Best of the grades obtained by the student in these two assessments shall be finally taken on the mark sheet of the respective Semester/Term.
- Candidate abstaining from the prescribed course work and/or assessment planned at the Institute shall be marked ABSENT in the mark sheet, instead of any grade.
- While awarding the grades for performance in PA, examining teacher should reach the final consensus based on the attendance, punctuality, interest, presentation skills in seminar on the topic assigned (collection of relevant data, observations, analysis, findings/conclusion) and its written report, awareness of latest developments in the chosen programme of study.
- Institution shall maintain the record of grades awarded to all the students in PA for a period of 1 year.
- It shall be mandatory for students to submit a compendium for his
- PA in the form of a Journal.
- Compendium shall contain following:
 1. Record of written quiz.
 2. Report/write up of seminar presented
 3. Abstract of the guest lecturers arranged in the Institution.
 4. Topic and outcome of the group discussion held.
 5. Report on the problems solved through case studies.
 6. Report on social awareness camps (organized for social and environmental prevention).
 7. Report on student chapter activities of professional bodies like ISTE, IE (India), CSI etc.
- PA is not a descriptive course to be taught in the classroom by a particular teacher. Various activities involved in the achievement of objectives of this course should be distributed to a number of teachers so that the talent and creativity of group of teacher's benefit the treatment of the course content.

These activities should preferably be conducted in English language to maintain continuity and provide reinforcement to skill development.

Small groups shall be formed like in tutorials, group discussion, case studies, seminar, project methods, roll play and simulation to make the development of personality affective.

Treatment of PA demands special efforts, attention, close co-operation and creative instinct on the part of teachers of department concerned. Since this course is totally learner centered, many of the activities planned under this course shall come out from the useful interaction of student, among themselves and with the teachers. The guide teacher/s shall best act as a facilitator of these creative hunts/ exercises, which unfold many of the hidden talents of the students or bring out greater amount of confidence in them, to execute certain activity.