



**DR. A P J ABDUL KALAM UNIVERSITY,
INDORE**

SYLLABUS

For

DIPLOMA CIVIL ENGINEERING

(SECOND YEAR, 4TH SEM)

Dr. A P J Abdul Kalam University, Indore

DR. A P J ABDUL KALAM UNIVERSITY, INDORE

Syllabus for Diploma CIVIL Engineering

List of Subject (Second Year, IV Sem)

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Unit 1: PLANE TABLE SURVEY : Principles of plane table survey. Accessories required. Setting out of plane table , Leveling ,Centering and orientation. Methods of plane table surveying – Radiation, Intersection, and Traversing. Merits and Demerits of plane table Surveying. situations where plane table survey is used. Use of Telescopic Alidade.

Unit 2: THEODOLITE SURVEY: Components of Transit Theodolite and Their functions. Technical terms used. Temporary adjustments of Transit Theodolite. Swinging the telescope, Transiting, Changing the face. Measurement of Horizontal angle, method of Repetition, errors eliminated by method of repetition. Measurement of Deflection angle. Measurement of Vertical angle. Measurement of magnetic bearing of a line by Theodolite. Prolonging a Straight line. Sources of errors in Theodolite Surveying. Permanent adjustment of transit Theodolite (only relationship of different axes of Theodolite.) Traversing with Theodolite – Method of included angles, locating details, checks in closed traverse,Calculation of bearings from angles. Traverse Computation - Latitude, Departure Consecutive Co-ordinates error of Closure, Distribution of a angular error, balancing the traverse by Bowditch rule and Transit Rule, Gale's traverse table. simple problems on above topic.

Unit 3: TACHEOMETRIC SURVEY: Principle of Tacheometry. Essential requirements of Tacheometer. Use of Theodolite as a Tacheometer with staff held in vertical and fixed hair method (No derivation). Determination of tacheometric constants, simple numerical problems on above topics

Unit 4 CURVES: Types of curves used in road and railway alignments. Notations of simple circular curve. Designation of curve by radius and degree of curves. Method of Setting out curve by offset from Long chord method and Rankine's method of deflection. angles. Simple Numerical problems on above topics.

Unit 5: ADVANCED SURVEY EQUIPMENTS: Construction and use of one second Micro Optic Theodolite, Electronic Digital Theodolite. Features of Electronic Theodolite Principle of E.D.M, Components of E.D.M and their functions, use of E.D.M. Total station

Unit 6: AERIAL SURVEY AND REMOTE SENSING: Aerial Survey Introductions, definition, Aerial photograph. Remote Sensing – Introduction, Electro-Magnetic Energy , Remote sensing system- Passive system , Active system. Applications – mineral, land use / Land cover, Natural Hazards and Environmental engineering system

REFERENCES

- 1 Surveying And Levelling N.N.Basak Tata Mc Graw-Hill
2. Surveying And Levelling,Part I And IIT .P. Kanetkar & S. V.Kulkarni, Pune Vidhyarthi Griha Prakashan.
- 3 Surveying and Levelling, Vol. I And II, Dr. B. C. Punmiya Laxmi Publication.
- 4 Text Book of Surveying, S.K.Husain & M.S. Nagaraj, S. Chand And Company.
- 5 Surveying and Levelling, Vol. I And II S. K. Duggal, Tata Mc Graw-Hill.

LIST OF EXPERIMENTS

- 1 Using accessories carry out temporary adjustments of plane table. Locating details by method of Radiation.
- 2 Locating details with plane table by method of intersection.
- 3 Understanding the components of Theodolite and their functions, reading the vernier and temporary adjustments of theodolite.
- 4 Measurement of Horizontal angle by transit theodolite.
- 5 Measurement of Horizontal angle by method of Repetition.
- 6 Measurement of vertical angles by theodolite.
- 7 Measurement of Magnetic bearing of a line using theodolite.
- 8 Measurement of deflection angle by taking open traverse of 4 –5 sides.
- 9 To find reduced levels and horizontal distances using theodolite as a Tacheometer.
- 10 To find constants of a given Tacheometer.
- 11 Study and use of 1 second Micro Optic Theodolite for measurement of Horizontal and Vertical angles.
- 12 Study of E.D.M. for knowing its components.
- 13 Use of EDM for finding horizontal and vertical distances and educed levels.
- 14 Determine the geographical parameters by total station.
- 15 Use of Arial survey (GPS, google earth, ISRO satellite etc.).

Unit 1. PHYSICAL PROPERTIES OF SOIL: Soil as a three phase system. Water content, Determination of water content by oven drying method as per IS code. Void ratio, porosity and degree of saturation, density index. Unit weight of soil mass – bulk unit weight, dry unit weight, unit weight of solids, saturated unit weight, submerged unit weight. Determination of bulk unit weight and dry unit weight by core cutter method and sand replacement method as per IS code. Specific gravity, determination of specific gravity by pycnometer

Unit 2. CLASSIFICATION OF SOIL : Field identification tests of fine grained soil, IS. classification chart. Consistency of soil, stages of consistency, Atterberg's. limits of consistency viz. Liquid limit, plastic limit and shrinkage limit, plasticity index. Determination of liquid limit, plastic limit and shrinkage limit as per IS code. Classification of fine grained soil by using plasticity chart. Sieve analysis of soil and sedimentation of soil, log, scale of particle size. Stokes law, Consistency limit diagram. Particle size distribution, mechanical sieve analysis as per. IS code particle size distribution curve, effective diameter of soil, Uniformity coefficient and coefficient of curvature, well graded and uniformly graded soils. Particle size classification of soils & IS classification of soil

Unit 3. PERMEABILITY OF SOIL & SEEPAGE ANALYSIS : Definition of permeability. Laminar and turbulent flow. Importance of permeability. Darcy's law of permeability, coefficient of permeability, typical values of coefficient of permeability for different soil. Factors affecting permeability. Determination of coefficient of permeability by constant head and falling head permeability tests, simple problems to determine coefficient of permeability. Seepage through earthen structures, seepage velocity, seepage pressure, phreatic line, flow lines and equipotential lines. Flow net, characteristics of flow net, application of flow net (no numerical problems)

Unit 4. SHEAR STRENGTH OF SOIL : Shear failure of soil, field situation of shear failure. Concept of shear strength of soil. Components of shearing resistance of soil – cohesion, internal friction. Mohr-coulomb failure theory (Coulomb's Law), Strength envelope, strength Equation. Purely cohesive and cohesion less soils. Laboratory determination of shear strength of soil – Direct shear test, Box shear test and tri-axial test Unconfined compression test & vane shear test, plotting strength envelope.

Unit 5. BEARING CAPACITY OF SOILS AND EARTH PRESSURE : Concept of bearing capacity, ultimate bearing capacity, safe bearing capacity and allowable bearing pressure. Terzaghi's analysis and assumptions made. Effect of water table on bearing capacity. Field methods for determination of bearing capacity – Plate load test and standard penetration test. Test procedures as Per IS:1888 & IS:2131. Typical values of bearing capacity from building code IS:1904. Definition of active earth pressure and passive earth pressure, structures subjected to earth pressure in the field. Earth pressure, effective pressure. Neutral pressure, and total pressure Magnitude of earth pressure. Rankine's theory, Assumptions made in the Rankine's theory. Earth

retaining structures. Earth pressure on earth retaining structures. Bearing capacity of soil during earthquake.

Unit 6. COMPACTION OF SOIL & STABILIZATION: Concept of compaction, purpose of compaction field situations where compaction is required. Standard proctor test – test procedure as per IS code, Compaction curve, optimum moisture content, maximum dry density, Zero air voids line. Modified proctor test. Factors affecting compaction. Field methods of compaction – rolling, ramming & vibration and Suitability of various compaction equipments. California bearing ratio, CBR test, significance of CBR value. Difference between compaction and consolidation. Concept of soil stabilization, necessity of soil stabilization. Different methods of soil stabilization – Mechanical soil stabilization, lime stabilization, cement stabilization, bitumen stabilization, fly-ash stabilization

Unit 7. SITE INVESTIGATION AND SUB SOIL EXPLORATION : Necessity of site investigation & sub-soil exploration. Types of exploration – general , detailed. Method of site exploration open excavation & boring. Criteria for deciding the location and number of test pits and bores. Trial pits types of Augers. Auger boring, wash boring and percussion drilling. Disturbed & undisturbed soil samples for lab testing. Field identification of soil – dry strength test, dilitancy test & toughness test. Empirical correlation between soil properties and SPT values. Record of boring Bore hole log.

REFERENCES

Soil Mechanics & Foundation Engineering, Dr. B. C. Punmia, Standard Book house, New Delhi.

Soil Mechanics & Foundation Engineering, V.N.S. Murthi Tata McGraw Hill , New Delhi.

Soil Mechanics, B. J. Kasmalkar Pune Vidhyarti Griha, Pune

Geo-technical Engineering, Gulhati & Dutta Tata McGraw Hill , New Delhi

LIST OF EXPERIMENTS

- 1 Determination of water content of given soil sample by oven drying method as per IS Code.
- 2 Determination of bulk unit weight dry unit weight of soil in field by core cutter method as per IS Code.
- 3 Determination of bulk unit weight dry unit weight of soil in field by sand replacement method as per IS Code.
- 4 Determination of Liquid limit & Plastic limit of given soil sample as per IS Code.
- 5 Determination of grain size distribution of given soil sample by mechanical sieve analysis as per IS Code
- 6 Determination of coefficient of permeability by constant head test.
- 7 Determination of coefficient of permeability by falling head test Practical (Live demo or Prerecorded demo)
- 8 Determination of shear strength of soil using direct shear test.
- 9 Determination of shear strength of soil using Laboratory Vane shear test.
- 10 Determination of MDD & OMC by standard proctor test on given soil sample as per IS Code.
- 11 Determination of CBR value of given soil sample.
- 12 Determination of shear strength of soil using unconfined compressive strength.
- 13 Determination of shear strength of soil using tri-axial shear test.

Unit 1 STRESS & STRAIN : Definition of rigid body, plastic body, mechanical properties of metal such as elasticity & elastic limit . Definition of stress, strain, modulus of elasticity, S.I. Unit.

Classification of stress, strain, Sign convention. Stress, strain curve for mild steel and HYSD bar , yield stress/ proof stress, Ultimate stress, breaking stress and percentage elongation. Deformation of body due to axial load. Deformation of a Body subjected to axial forces. Deformation of body of stepped c/s due to axial load, max. stress and min. stress induced. Stresses in bars of composite section & deformation. Shear stress, shear strain & modulus of rigidity, complementary shear stress, state of simple shear, punching shear

Unit 2. ELASTIC CONSTANTS & PRINCIPAL STRESSES : Definition of lateral strain, Poisson's ratio, Change in lateral dimensions. Volumetric strain due to uni-axial force and change in volume. Biaxial and tri-axial stresses and volumetric strain & change in volume. Definition of bulk modulus, volumetric strain. Relation between modulus of elasticity, modulus of rigidity and bulk modulus. Definition of principal planes & principal stresses. Principal planes & stress due to bi-axial stress system & due to state of simple shear (Analytical method only). Strain Energy : Types of loading – gradual, suddenly applied load & Impact load. Definition of strain energy, modulus of resilience and proof resilience. Comparison of stresses due to gradual load, sudden load and impact load

Unit 3. SHEAR FORCE AND BENDING MOMENT : Types of beams - cantilever, simply supported, fixed and continuous beams, types of loading- point load, uniformly distributed load, support reactions for determinate structures. Concept of shear force and bending moment, sign convention. Relation between bending moment, shear force and rate of loading. Shear force and bending moment diagrams for simply supported beams, overhanging beams and cantilever subjected to point loads, UDL and couples, point of contra flexure

Unit 4. MOMENT OF INERTIA : Concept of moment of inertia, M.I of plane areas such as rectangle, triangle, circle, semicircle and quarter circle. Parallel axis and perpendicular axis theorem, M.I of composite sections, built up sections, symmetrical and unsymmetrical sections, radius of gyration & polar moment of inertia.

Unit 5. Building Maintenance STRESSES IN BEAMS: Bending Stresses in Beams: Concept of pure bending, theory of simple bending, assumptions in theory of bending, neutral axis, bending stresses and their nature, bending stress distribution diagram, moment of resistance. Application of theory of bending to symmetrical and unsymmetrical sections. Shear stresses in beams, Shear stress equation, meaning of terms in equation, shear stress distribution for rectangular, hollow rectangular, circular sections and hollow circular sections, I sections and T sections. Relation between max. shear stress and average shear stress.

Unit 6. ANALYSIS OF TRUSSES: Definition frames, classification of frames, perfect, imperfect, redundant and deficient frame, relation between members and joints, assumption in analysis. Method of joint, method of section and graphical method to find nature of forces.

Unit 7. COLUMNS : End conditions, and equivalent length. Radius of gyration and slenderness ratio classification as per mode of failure. Euler's and Rankine's formulae. Use of Euler's and Rankine's formulae in solving various problems

REFERENCES

- 1 Strength of Materials F. L. Singer, Harpe Collins Publishers India , Delhi
2. Strength of Materials, R. S. Khurmi, S. Chand & Company, Delhi
- 3 Mechanics of Structures, S. B. Junnarkar volume –I & II, Charotar Publishing House, Anand.
- 4 Strength of Materials, Sadhu Singh.

Unit 1. OVERVIEW OF TRANSPORTATION ENGINEERING : Role of transportation in the development of nation. Modes of transportation system – roads, railway, airways, waterways, Importance of each mode, comparison and their relative merits and demerits. Necessity & importance of Cross drainage works for roads & railways.

Unit 2. RAILWAY ENGINEERING : Alignment and Gauges, Classification of Indian Railways, zones of Indian Railway. Alignment- Factors governing rail alignment. Rail Gauges – types, factors affecting selection of gauge. Rail track cross sections – standard cross section of BG & M.G Single & double line in cutting and embankment. Permanent ways.

Unit 3. IDEAL REQUIREMENT, COMPONENT PARTS : *Rails* – function & its types. *Rail Joints* – requirements, types, *Creep of rail* - causes & prevention of creep. *Sleepers* – functions & Requirement, types – wooden, metal, concrete sleepers & their suitability, sleeper density. *Ballast* – function & different types with their properties, relative merits & demerits. *Rail fixtures & fastenings* – fish plate, bearing plates, spikes, bolts, keys, anchors & anti creepers. Railway Track Geometrics. Coning of wheels, tilting of rails, Gradient & its types, Super elevation, limits of Super elevation on curves, Cant deficiency, negative cant, grade compensation on curves. Branching of Tracks. Definition of point & crossing, a simple split switch turnout consisting of points and crossing lines. Sketch showing different components, their functions & working. Line sketches of track junctions-crossovers, scissor cross over, diamond crossing, triangle. Inspection of points and crossings. *Station and Yards* : Site selection for railway stations, Requirements of railway station, Types of stations (way side, crossing, junction & terminal) Station yards , types of station yard, Passenger yards, Goods yard Locomotive yard, its requirements, water column , Marshalling yard, its types. *Track Maintenance* - Necessity, types, Tools required and their function, organization, duties of permanent way inspector, gang mate, key man

Unit 4. BRIDGE ENGINEERING : Site selection and investigation Factors affecting selection of site of a bridge. Bridge alignment Collection of design data Classification of bridges according to function, material, span, size, alignment, position of HFL. Component parts of bridge. Plan & sectional elevation of bridge showing component parts of substructure & super structure. Different terminology such as effective span, clear span, economical span, waterway, afflux, scour, HFL, freeboard, etc. *Foundation* – function, types Piers-function, requirements, types. *Abutment* – function, types, *Wing walls* – functions and types. *Bearing* – functions, types of bearing for RCC & steel bridges. *Approaches* – in cutting and embankment. *Bridge flooring*- open and solid floors. *Permanent and Temporary Bridges*- Permanent Bridges – Sketches & description in brief of culverts, causeways, masonry, arch, steel, movable steel bridges, RCC girder bridge, pre-stressed girder

bridge, cantilever, suspension bridge. Temporary Bridges- timber, flying, floating bridges *Inspection & Maintenance Of Bridge* - Inspection of bridges, Maintenance of bridges & types, routine & special maintenance.

Unit 5. TUNNEL ENGINEERING : Definition, necessity, advantages, disadvantages. Classification of tunnels. Shape and Size of tunnels. Tunnel Cross sections for highway and railways. *Tunnel investigations and surveying* –Tunnel surveying locating center line on ground, transferring center line inside the tunnel. *Shaft* – its purpose & construction. *Methods of tunneling in Soft rock* – needle beam method, fore-poling method. line plate method, shield method. *Methods of tunnelling in Hard rock* – Full face heading method, Heading and bench method, drift method. Precautions in construction of tunnels. *Drilling equipments*-drills and drills carrying equipments. Types of explosives used in tunnelling. Tunnel lining and ventilation.

REFERENCES

- 1 Railway Engineering, S.C. Saxena Dhanpatrai & sons
2. Railway Track K.R. Antia, The New Book Co. Pvt. Ltd Mumbai
- 3 Principles of Railway Engineering S.C. Rangwala, Charotar Publication.
- 4 Principles and Practice of Bridge Engineering, S.P. Bindra Dhanpatrai & sons.
- 5 A Text Book of Transportation Engineering N.L.Arora and S.P.Luthra, IPH New Delhi.

TOPICS FOR VISITS & REPORTS

1. Through packing
 2. Shovel packing
 3. Track maintenance
 4. Systematic overhauling
 5. Lifting of track
 6. Lowering of track
 7. Counteraction, measurement and adjustment of creep
 8. Organization, Tools and equipments for maintenance.
 9. Maintenance of points and crossings
 10. Maintenance of level crossing.
 11. Maintenance of proper Drainage
 12. Maintenance of gauge
 13. Maintenance of track components.
 14. Welding of Rails.
 15. Visit to a nearby bridge site where the construction is in Progress
 16. Visit for cross drainage works for roadways and railways
- Other items may be suggested by Teacher/guide

UNIT 1 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 2 INDUSTRIES AND BUSINESS ORGANIZATIONS

- Concept of Industry or Enterprise
- Classification of Industries
- (a) On the basis of capital investment
 - Tiny (Micro) Industry
 - Small Scale
 - Medium Scale
 - Large Scale
- (b) Others
 - Rural Industry
 - Cottage Industry
- (c) Forms of Business Organization
 - Proprietorship
 - Board & Co-operative
 - Partnership
 - Public Ltd.
 - Private Ltd.
 - IT Sector
 - Government Co-operative / Undertakings
- (d) Tiny small scale Industry
 - Definition
 - Its significance in National Development.
 - Govt. policies for SSI promotions

UNIT 3 INCENTIVES / CONCESSION / FACILITIES AVAILABLE

- Seed money
- Incentive / subsidies
- Others (Phones, Lands etc)

UNIT 4 ACHIVEMENT MOTIVATION

- Historical perspective
- Concept of achievement motivation

- Significance of achievement motivation
- Development of achievement motivation

UNIT 5 FINANCIAL MANAGEMENT OF AN INDUSTRIAL UNIT (SSI)

- Tools of financial analysis
- Ratio analysis
- Fund Flow / Cash flow analysis
- Working capital and concepts
- Financial accounting

REFERENCES

- 1 Entrepreneurial Development Vol. I,II,III By Vasant desai Himalaya Publicaton
- 2 CEDMAP (Center of Entrepreneurial development Madhya Pradesh)
3. Udyamita Vikas By Anand Prakashan

LIST OF EXPERIMENTS

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 entrepreneur.
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.

UNIT 1. MARKETING & CONCEPT

- 1.1 Evolution of marketing-a historical background
 - 1.1.1 The stage of barter
 - 1.1.2 The stage of money economy
 - 1.1.3 The stage of industrial revolution
 - 1.1.4 The stage of competition
 - 1.1.5 The emergence of marketing
- 1.2 Selected definitions of marketing
- 1.3 Different concept of marketing
 - 1.3.1 The exchange concept
 - 1.3.2 The production concept
 - 1.3.3 The product concept
 - 1.3.4 The sales concept
 - 1.3.5 The marketing concept
- 1.4 Difference between selling & marketing
- 1.5 Benefits & significance of marketing
 - 1.5.1 Helps to remove causes for under development
 - 1.5.2 Improve productivity & efficiency
 - 1.5.3 Canalize country's economic resources properly
 - 1.5.4 Insure better deal for consumer
 - 1.5.5 Make economic planning meaningful

UNIT 2 MARKETING ENVIRONMENT

- 2.1 Internal & external factors
 - 2.1.1 Demographic environment
 - 2.1.2 Economic environment
 - 2.1.3 Political environment
 - 2.1.4 Physical environment
 - 2.1.5 Technological environment

UNIT 3 MARKETING PLANNING & ORGANIZATION

- 3.1 Scope & importance of planning
- 3.2 Steps in marketing planning process
- 3.3 Purpose & principle of organization
- 3.4 Models of marketing organization
 - 3.4.1 Line & staff type
 - 3.4.2 Product based organization
 - 3.4.3 Territory oriented organization
 - 3.4.4 Complex organization
- 3.5 Task of chief marketing executive
- 3.6 Decentralization

UNIT 4 MARKET SEGMENTATION

- 4.1 Types of market
- 4.2 Definitions & benefits of segmentation
- 4.3 Methods of segmentation
 - 4.3.1 Geographic segmentation
 - 4.3.2 Demographic segmentation
 - 4.3.3 Psychographic segmentation
 - 4.3.4 Buyer behavior Segmentation
 - 4.3.5 Volume segmentation
- 4.4 Steps in market segmentation
- 4.5 Market targeting

UNIT 5 MARKET MIX

- 5.1 Definition of market mix
- 5.2 Elements of marketing mix (4 P'S)-Product, Place, Price, Promotion
- 5.3 Environmental variable (uncontrollable variables)
 - 5.3.1 Customer variable
 - 5.3.2 Competition variable
 - 5.3.3 Trade variable
 - 5.3.4 Environmental variable

REFERENCES

- 1 Marketing management -Analysis, Planning & Control Philip Kotler
- 2 Principles & practice of Marketing in India C.B. Memoria & R.L. Joshi

A: Building Drawing : Following exercises shall be completed with CAD software and Print of all the drawings should be prepared on A3 / A4 size paper :

- 1) Preparation of line plan of a residential building.
- 2) Preparation of line plan of a Public building.
- 3) Preparation of detailed plan of a small residential building
- 4) Preparation of submission drawing of residential building
– showing Plan, Elevation, Section, Schedule of openings,
Site Plan and Area Statement

B: Civil Engineering Drawing: Preparation of Drawings with CAD software for the following exercises (Any *Three*) and Print of all the drawings should be prepared on A3 /A4 size paper.

- 1) Plan, Cross Section and Longitudinal section of a Culvert (Pipe culvert/Box Culvert).
- 2) Section of an Earthen Dam.
- 3) Plan and Section of K. T. Weir.
- 4) Cross Section of Retaining wall.
- 5) Bonds in brickwork – Plan and Elevation for English bond and Flemish bond for one brick thick wall.
- 6) Cross Section of ESR (Over Head Tank).
- 7) Cross Section of Clarri - flocculator

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 openended 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:

A. Study hours, if possible should be given greater time slot with a minimum of two hrs/week to a maximum of four hrs/week.

B. 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).

C. Following grade scale of evaluation of performance in PA has been established.

Grades	Level of performance
A	Excellent
B	Good
C	Fair
D	Average
E	Below Expectations

D. Grades once obtained in a particular examination shall become final and no chance of improvement in grades will be given to the students.

E. 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 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.

F. 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.

G. Institution shall maintain the record of grades awarded to all the students in PA for a period of 1 year.

H. It shall be mandatory for students to submit a compendium for his PA in the form of a Journal.

I. Compendium shall contain following:

I. Record of written quiz.

II. Report/write up of seminar presented

III. Abstract of the guest lectures arranged in the Institution.

IV. Topic and outcome of the group discussion held.

V. Report on the problems solved through case studies.

VI. Report on social awareness camps (organized for social and environmental prevention).

VII. Report on student chapter activities of professional bodies like ISTE, IE (India), CSI etc.

J. 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.