



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

SYLLABUS

For

DIPLOMA in AUTOMOBILE ENGINEERING

(PART TIME)

(THIRD YEAR, 5TH SEM)

College of Polytechnic Engineering

Dr. A P J Abdul Kalam University, Indore

DR. A P J ABDUL KALAM UNIVERSITY, INDORE

Syllabus for Diploma in Automobile Engineering (Part Time)

List of Subject (Third Year 5th Sem)

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Unit 1: CYCLES FOR DIESEL ENGINE

Diesel & Dual Combustion Cycles, their air standard efficiency & mean effective pressure, Effect of cut-off ratio & compression ratio on cycle efficiency, actual cycle for diesel engines, Calculation of Heat, work, efficiency & mep. Diesel engine construction and operation of two stroke and four stroke diesel engines, their port & valve timing arrangement, Comparison of two & four stroke diesel engines, Comparison of petrol & diesel Engines.

Unit 2: COMBUSTION AND COMBUSTION CHAMBERS

Combustion in CI engine; stages of combustion, flame propagation, rate of pressure rise, delay period, abnormal combustion, Diesel knock, Cetane number, effect of engine variables on knocking, Fuel additives. Combustion chambers for diesel engines & its different types.

Unit 3: FUEL INJECTION SYSTEM

Requirements, air blast and mechanical injection, functions of various components, study of jerk pump its construction & working, fuel quantity variation by pump plunger, rotary fuel injection pump its construction and working, common rail system, fuel Injector, its function. Construction & working of injector assembly. Types of injection nozzles. Need of Governor, Construction & working of Mechanical and pneumatic governors. Electronic control module and sensors for engine control.

Unit 4: SUPERCHARGING AND TURBOCHARGING

Necessity, principle, construction & working of centrifugal, turbo & blower type supercharger. Concept of turbo charging Merits of Supercharged & Turbocharged Engines.

Unit 5: ENGINE PERFORMANCE

I.H.P, B.H.P, F.H.P, Mechanical Efficiency, indicated & Brake thermal efficiency, Specific fuel consumption, Volumetric efficiency, Relative Efficiency, Heat Balance, Morse Test, Simple numerical problems based on use of these formulae, Engine performance Curves, variables affecting engine performance.

LIST OF EXPERIMENTS

1. Study of two stroke diesel engines.
2. Study of four stroke diesel engines.
3. Study of fuel injection pump assembly regarding construction, operation and various components.
4. Study of injector assembly.
5. Study of different types of nozzles.
6. Study of any type of super charger used in diesel engine.
7. Collection of engine construction and performance data.
8. Study of various sensors used with electronic control module.

REFERENCES

1. Dr.K.K.Ramalingam “Internal Combustion Engines Theory and Practice”, Scitech Publications (India) Pvt. Ltd., Chennai 600 017,
2. Heywood.J.B “Internal Combustion Engine Fundamentals”, McGraw-Hill Book Co., Heinz
3. Heister “Advanced Engine Technology”, SAE, .
4. Pulkrabek “Engineering Fundamentals of the Internal Combustion Engines”, Practice Hall of India.
5. Ganesan.V “Internal Combustion Engines”, Tata McGraw-Hill Publishing Co., New Delhi,
6. M.L.Mathur and R. P.Sharma “A course in Internal Combustion Engines”, Dhanpat Rai and Sons,

Unit 1: FRONT AXLE AND STEERING SYSTEM

Types of front axles, construction details, materials, front wheel geometry: castor, camber, king pin inclination, toe-in. conditions for true rolling motion of wheels during steering, steering geometry, Ackermann and Davis steering system, constructional details of steering linkages, different types of steering gear boxes, steering linkages and layouts, turning radius, wheel wobble, collapsible steering, power assisted steering. centre point steering.

Unit 2: SUSPENSION SYSTEM

Purpose, various elements of suspension system, sprung and unsprung masses and their effect on human comfort, principle and construction of helical, coil, leaf and volute springs, spring deflection, spring stiffness, energy stored, shackles, principle and construction of torsion bar spring, stabilizers. Principle of shock absorbers, construction and working of telescopic shock absorber. Study and comparison of different types of front axle suspension system. Effect of driving, braking, side thrust & torque reaction. Hotchkiss drive & Torque tube drive. Anti squat and antidive system, roll centre, coupling of suspension, passive and active suspension, and suspension geometry. Concept of air suspension.

Unit 3: BRAKING SYSTEM

Classification of brakes, service & parking brake, study of car brake system with study of components, constructional details of disc & drum brakes, leading & trailing shoes, theory of braking, concept of dual brake system, brake lining material, construction & working of hydraulic braking system, brake fluid characteristics, master cylinder, wheel cylinder, vacuum assisted servo system, air brake system, exhaust brakes, antilock braking, purpose of retarders, Eddy current retarders, permanent magnet retarders, hydraulic retarders.

Unit 4: CHASSIS AND BODY

Various types of vehicles, Vehicle frames, various types of frames, constructional details, body materials like GRP, carbon fibre, steel sheet, timber, plastic. various types of loads acting on frames. Testing of vehicle frames, unitized frame body construction. Car body construction and functioning, body parts identification and function of body pressings, body trim, sound deadening. Corrosion in car bodies, anticorrosion methods, paint & painting process. Concept of monocoque body.

References

1. Heldt.P.M.- "Automotive Chassis"- Chilton Co., New York-
2. Kirpal singh Automobile engineering Vol 1
3. K.K.Ramalingam - "Automobile Engineering" – Scitech Publication, Chennai.
4. Steed W - "Mechanics of Road Vehicles"- Illiffe Books Ltd., London-
5. Newton Steeds and Garrot- "Motor Vehicles"- Butterworths, London-
6. Judge A.W- "Mechanism of the Car"- Chapman and Halls Ltd., London- Giles.J.G- "Steering, Suspension and tyres"- Iiiffe Book Co., London-.
7. Crouse W.H- "Automotive Chassis and Body"- McGraw-Hill, New York-.
8. R. Thamilarashan- Vehicle body engineering

List of Experiments

1. Study of steering system of vehicle regarding its components, construction and operation.
2. Study of various elements of steering geometry of a vehicle such as castor. Camber, kingpin inclination, toe in, toe out. Wheel steering lock.
3. Study of carriage spring assembly. Its location components, construction and operation.
4. Study of shock absorber regarding location, construction and operation.
5. Study of car braking system regarding its components, construction and operation.
6. Study of chassis frames of different vehicles with respect to layout, location and function of various major visible components.
7. Study of car body and its construction.

Unit 1: INTRODUCTION TO ENTERPRENEURSHIP

- 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
 - mall 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
 - Sector / Product for SSI.

Unit 3: INSTITUTIONAL ASSISTANCE

- (a) Types of Institutional assistance
 - Infra - structural assistance
 - Technical Assistance
 - Financial assistance
 - Marketing Assistance
- (b) Information / guidance & Training
 - SISI - ASK
 - MPCON - CSIR
 - CED- MA - NRDC
- (c) Infrastructure
 - D/C - AVN/AKVN

- (e) Finance
 - SIDBI - KVIB MPFC
 - NABARD - MPWDC NSIC M.P.A.V.V.N.
- (d) Marketing
 - MP- AGRO
 - NSIC
 - PM.LUN
 - EXPORT COPPORATION
 - KVIP
 - MPHSVN
 - MPLDC
- (e) Quality Control
 - BIS - FPO - MPLUN F.D.A.
 - AG. MKT. Board

Unit 4: INCENTIVES / CONCESSION / FACITLITIES AVAILABLE

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

Unit 5: PLANNING OF AN INDUSTRIAL UNIT (SSI)

- 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 departments
 - 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 6: ACHIVEMENT MOTIVATION

- Historical perspective
- Concept of achievement motivation
- Significance of achievement motivation
- Development of achievement motivation.

Unit 7: FINANCIAL MANAGEMENT OF AN INDUSTRIAL UNIT (SSI)

- Tools of financial analysis

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

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 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.

Reference book:

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

Unit1: 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 & relevant etc.

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
 - 2.1.6 Competitive environment
 - 2.1.7 Social & cultural environment
- 2.2 Micro & macro 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
- 5.4 Product management
 - 5.4.1 Components of product
 - The core or basic constituent
 - The associated features
 - The brand names, package, label
 - 5.4.2 Types of product
 - The generic product
 - The branded product
 - The differentiated product
 - The customized product
 - The augmented & potential product
 - 5.4.3 The product line & product mix
- 5.5 New product development (NPD)
 - 5.5.1 Significance & classification of new product
 - 5.5.2 Stages in NPD
 - 5.5.3 Estimating the demand for new product
 - 5.5.4 Test marketing
- 5.6 Product life cycle (PLC)
 - 5.6.1 Concepts & benefits of PLC
 - 5.6.2 Different stages in PLC
 - 5.6.3 Strategies used in different stages
- 5.7 Place management
 - 5.7.1 Physical distribution
 - Definitions & importance of physical distribution
 - Designing the physical distribution system
 - 5.7.2 The distribution channel
 - The role & importance of distribution channel
 - Planning & designing of distribution channel
 - Types of distribution intermediaries

5.8 Price management

5.8.1 The meaning & importance of pricing

5.8.2 Objectives of pricing

5.8.3 Factors affecting pricing –Internal & external

5.8.4 Pricing methods

- Cost based pricing
- Break even pricing
- Demand based pricing
- Competition based pricing
- Product line pricing
- Tender pricing
- Affordability pricing
- Differentiated pricing

5.8.5 Pricing policies & setting the price

5.9 Promotion management

5.9.1 Sales promotion

- Importance & objectives of sales promotion
- Tools & techniques of sales promotion

5.9.2 Advertising

- Role & importance of advertising
- Types of advertising
- Deciding on the advertising budget
- Evaluating advertising effectiveness

5.9.3 Difference between sales promotion & advertising

Unit 6: Understanding consumer

6.1 Factor influencing buyer behavior

- Information from variety of sources
- Socio-cultural environment of buyer
- Group influence
- Religion & language
- Concern about status

6.2 Buying motives –Product & patronage motive

6.3 Buying habits – Convenience, shopping and spatiality goods

Unit 7: Marketing research & sales forecasting

7.1 Definition & importance of marketing research

7.2 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

7.3 Method of market research

7.4 Necessity & purpose of sales forecasting

7.5 Methods of sales forecasting

Unit 8: Sales management

8.1 Designing the sales force

8.2 Managing the sales force

- Recruitment & selection
- Training, compensation, control
- Supervision & direction
- Motivation of salesman

8.3 Fixing sales quota

8.4 Duties & responsibilities of sales manager

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 & Bone & David L. Kurtz
4. Essential of Management –Koontz
5. Marketing management- S.A. Sherlekar

Unit 1: INTRODUCTION:

Introduction, various organizations directly related with Automobile business, their foundation and interrelationship.

Unit 2: MOTOR VEHICLE WORKSHOP ORGANISATION-

Service station, various services offered by service stations reelection and planning of a service station site, various workshop layouts, flow line servicing, job servicing, batch servicing, planning a flow time commercial vehicle standard service, standard service for cars and LCVs, diagnose equipments, washing and car valeting Breakdown equipments, workshop equipments, evaluation and relation of workshop equipments list of workshop equipments and jobs. With specifications, inspection and complete by equipments.

Unit 3: DEPARTMENT PROCEDURES-

Invoicing, customers invoice, job card, Accounting and costing direct and indirect costs, overheads, Mechanics pay claim slip service department balance sheet, daily labor sales records, Standard price lists for servicing repairs and replacement works repair order flow layout. Spare part section, stores layout, inventory control and various models of inventory control .

Unit 4: INDUSTRIAL ENGG. IN MOTOR VEHICLE WORKSHOP-

Method study, works study, time study, study procedures process charts and their preparation, activity symbols, work simplification activity sampling, ergonomics, cybernetics, value analysis, work scheduling and loading, rescheduling and reloading.

Unit 5: RECEPTION AND COLLISION REPAIRS-

Service advisers reception engineers, their qualification and responsibilities vehicle inspection, handling complaints, Accidental repair works, repair estimates, completion note, note of automobile assessor.

Unit 6: STAFFING:

Staffing, service station staff structure, duties and responsibilities of various positions, qualification, engineers selection and training, perks and wages, for various positions, Training for house keeping and safety employees performance assessment incentives and incentive scheme for mechanics.

Unit 7: VEHICLE SALES- New and used vehicle sales, basic consideration for salesmanship, personal qualities for salesman marketing, market research, research method, competitors, customers, techniques of research sales analysis, sales forecasting, market planning and its benefits features of good market plan, customers need analysis and customer satisfaction Analysis.

Unit 8: MANAGEMENT FUNCTIONS-

Introductions concept and definition of management, functions of management viz planning, implementation and controlling, Management activities viz Planning, organizing, staffing directing, controlling, coordinating budgeting, reporting.

Unit 9: INVENTORY CONTROL-

Introduction, stock inventory, advantages of inventory, inventory control, disadvantages of excessive inventories, Buffer stock, function of safety stock determination of safety stock,

reorder point, inventory costs economic order quantity, their graphical representation, various techniques of inventory control ABC analysis, Wilson's replenishment and two bin inventory control models quantity discounts and price breaks.

Unit 10: PROJECT CONTROL BY NETWORKS-

Introduction, C.P.M, P.E.R.T., Standard network terminology time estimates, steps in network analysis. Forming of multi path network, dummy activities, Rules for forming network Fulkerson's rule, EPO, LPO, EST, LST calculations of floats, earliest finish and latest finish, Bar charts.

Unit 11: SUPERVISION AND LEADERSHIP- Introduction, role of supervisor Foreman, qualities of Foreman, methods of supervision, leadership, characteristics of leadership, functions of leadership, Theories of leadership, styles of leadership Motivational power, supervisory styles leadership skills,

REFERENCES

1. M.T.O & S.S.L by Milburn
2. Industrial Engg. & Management by O.P.Khanna
3. Industrial Organization & Engineering Economics by T.R Banga & S.C. Sharma
4. Industrial management by K.K.Ahuja
5. Principles of management by Kazmier

Unit 01: STUDY, HANDLING AND USE OF VARIOUS MEASURING/ TESTING TOOLS- Study and use of linear measurement workshop tools, electrical measuring instruments, pressure measuring instruments, Sheet gauge and wire gauge, battery tester etc. Which are used in automobile workshop.

Unit 02: CONDUCTING SIMPLE TEST AND MEASUREMENTS BY VARIOUS TOOLS AND GAUGES- Electrical measurements, clearance measurements, play measurements, pressure related measurements, bend measurements, linearity check-ups. Battery related various measurements etc.

Unit 03: STUDY OF REPAIR TOOLS AND THEIR USE- Various types of spanners, wrenches, hammers, chisels, punches, pliers, hack-saws, files etc.

Unit 04: STUDY OF SERVICE STATIONS EQUIPMENTS AND THEIR USE- Air Compressors, spark plug tester, tyre inflators, jacks, dogs, oil spray gun and grease gun, drilling machines, grinders, tyre changers, Vulkanizing machines, battery chargers, tune-up equipments, timing light, tape and die-sets, FIP testing machine, injector tester, hoists and chain pulley block etc.

SUGGESTED LIST OF PRACTICALS AND PRACTICES

- 1 Demonstrations and use of various tools, instruments and equipments used in Auto workshop.
- 2 Practice for wheel rotation and repairing of punctured tubes.
- 3 Practice for brake adjustment and air bleeding.
- 4 Practice to fill water and coolant in radiator.
- 5 Practice to wash the vehicle and its various components.
- 6 Practice to clean various components in kerosene.
- 7 Practice to jack up the vehicle.
- 8 Practice toward safety while working.
- 9 Practice for Auto workshop housekeeping.
- 10 Measurement of valve tappet clearance.
- 11 Measurement of piston liner clearance.
- 12 Measurement of piston ring clearance.
- 13 Measurement of spark plug gap.
- 14 Measurement of distributor contact point gap.
- 15 Measurement of brake liner wear and friction plate liner wear.
- 16 Driving practice on motor vehicle
- 17 Wheel type air pressure measurement.
- 18 Battery electrolyte- checks up of level and specific gravity.
- 19 Cell voltage checkup.
- 20 Oil level checkup in engine gearbox, differential etc.
- 21 Lubrication of wheel hub bearings.
- 22 Tightening of fan belt.
- 23 Practice for wire connection.
- 24 Visit to an automobile workshop to learn how the above mentioned and other similar activity is performed.

OBJECTIVES:

THE STUDENTS WILL BE ABLE TO:

1. Developing working in teams
2. Apply problem solving skills for a given situation
3. Use effective presentation techniques
4. Apply techniques of effective time management
5. Apply task management techniques for given projects
6. Enhance leadership traits
7. Resolve conflict by appropriate method
8. Survive self in today's competitive world
9. Face interview without fear
10. Follow moral and ethics
11. Convince people to avoid frustration

1 SOCIAL SKILLS

SOCIETY, SOCIAL STRUCTURE, DEVELOP SYMPATHY AND EMPATHY

2 Swot Analysis – Concept, How to make use of SWOT

3 Inter personal Relation- Sources of conflict, Resolution of conflict , Ways to enhance interpersonal relations.

4 Problem Solving

I) STEPS IN PROBLEM SOLVING- identify and clarify the problem, information gathering related to problem, evaluate the evidence, consider alternative solutions and their implications, choose and implement the best alternative, review

II) Problem solving technique.(any one technique may be considered)

- 1) Trial and error, 2) Brain storming, 3) Lateral thinking

5 Presentation Skills

Body language -- Dress like the audience, Posture, Gestures, Eye contact and facial expression.

Presentation Skill- Stage Fright, Voice and language – Volume, Pitch, Inflection, Speed, Pause Pronunciation, Articulation, Language, Practice of speech. Use of aids –OHP,LCD projector, white board

6 Industrial Visits Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form a part of the term work. **TWO** industrial visits may be arranged in the following areas / industries :

- i) Manufacturing organizations for observing various manufacturing processes including heat treatment ii) Material testing laboratories in industries or reputed organizations iii) Auto workshop / Garage iv) Plastic material processing unit v) ST workshop / City transport workshop
- ii)

7 Lectures by Professional / Industrial Expert be organized from Any

Three of the following areas : i) Use of a plastics in automobiles. ii) Nonferrous Metals and alloys for engineering applications iii) Surface Treatment Processes like electroplating, powder coating etc. iv) Selection of electric motors. v) Computer aided drafting. vi) Industrial hygiene. vii) Composite Materials. viii) Heat treatment processes. ix) Ceramics

8 Individual Assignments:

Any two from the list suggested

a) Process sequence of any two machine components. b) Write material specifications for any two composite jobs. c) Collection of samples of different plastic material or cutting tools with properties, specifications and applications. d) Preparing models using development of surfaces. e) Assignments on bending moment, shear forces, deflection of beams and torsion chapters of strength of material. f) Select different materials with specifications for at least 10 different machine components and list the important material properties desirable. g) Select 5 different carbon steels and alloy steels used in mechanical engineering applications and specify heat treatment processes employed for improving the properties. Also give brief description of the heat treatment processes. h) List the various properties and applications of following materials – a. Ceramics b. fiber reinforcement plastics c. thermo plastic plastics d. thermo setting plastics e. rubbers.

OR

Conduct **ANY ONE** of the following activities through active participation of students and write report

- i) Rally for energy conservation / tree plantation. ii) Survey for local social problems such as mal nutrition, unemployment, cleanliness, illiteracy etc. iii) Conduct aptitude, general knowledge test, IQ test iv) Arrange **any one** training in the following areas : a) Yoga. B) Use of fire fighting equipment and First aid Maintenance of Domestic appliances.

9 Group discussion and Interview technique – Introduction to group discussion, Ways to carry out group discussion, Parameters— Contact, body language, analytical and logical thinking, decision making The students should discuss in a group of six to eight students and write a brief report on the same as a part of term work. Two topics for group discussions may be selected by the faculty members. Some of the suggested topics are - i) Sports ii) Current news items iii) Discipline and House Keeping iv) Current topics related to Electrical engineering field.

Interview Technique Necessity, Tips for Handling Common Questions

10 Working in Teams

Understand And Work Within The Dynamics of A Groups. Tips to Work Effectively In Teams, Establish Good Rapport, Interest with others and work, Effectively with Them to Meet Common objectives, Tips to Provide and Accept Feedback in A Constructive and Considerate Way, Leadership In Teams, Handling Frustrations in Group.

11 Task Management -Introduction, Task identification, Task planning, organizing and execution, Closing the task

Assignment: (Any Eight Assignments)

1) SWOT analysis: - Analyse yourself with respect to your strength and weaknesses, opportunities and threats. Following points will be useful for doing SWOT. a) Your past experiences, b) Achievements, c) Failures, d) Feedback from others etc. 2) undergo a test on reading skill/memory skill administered by your teacher. 3) Solve the puzzles. 4) Form a group of 5-10 students and do a work for social cause e.g. tree plantation, blood donation, environment protection, camps on awareness like importance of cleanliness in slum area, social activities like giving cloths to poor etc. (One activity per group) 5) Deliver a seminar for 10-12 minutes using presentation aids on the topic given by your teacher. 6) Watch/listen an informative session on social activities. Make a report on topic of your interest using audio/visual aids. Make a report on the programme.##### 7) Conduct an

interview of a personality and write a report on it. 8) Discuss a topic in a group and prepare minutes of discussion. Write thorough description of the topic discussed 9) Arrange an exhibition, displaying flow-charts, posters, paper cutting, photographs etc on the topic given by your teacher.

Note: - Please note that these are the suggested assignments on given contents/topic. These assignments are the guide lines to the subject teachers. However the subject teachers are free to design any assignment relevant to the topic. The **term work** will consist of any eight assignments.

MINI PROJECT ON - task management. Decide any task to be complete Stipulated time with the help of teacher. Write a report considering various steps in Task management.

Reference Books

- 1 Marshall Cooks Adams Time management Viva Books
- 2 E.H. Mc Grath , S.J. Basic Managerial Skills for All Pretice Hall of India, Pvt Ltd
- 3 Allen Pease Body Language Sudha Publications Pvt. Ltd.
- 4 Lowe and Phil Creativity and problem solving Kogan Page (I) P Ltd
- 5 by Adair, J Decision making & Problem Solving Orient Longman
- 6 Bishop , Sue Develop Your Assertiveness Kogan Page India
- 7 Marion E Haynes Make Every Minute Count Kogan page India
- 8 Steven L McShane and Mary Ann Glinow Organizational Behavior Tata McGraw Hill
- 9 Stephen P. Robbins Organizational Behavior Pretice Hall of India, Pvt Ltd
- 10 Michael Hatton Presentation Skills (Canada – India Project) ISTE New Delhi
- 11 Stress Management Through Yoga and Meditation Sterling Publisher Pvt Ltd
- 12 Richard Hale ,Peter Whilom Target setting and Goal Achievement Kogan page India
- 13 Chakravarty, Ajanta Time management Rupa and Company
- 14 Harding ham Working in Teams A Orient Longman

INTERNET ASSISTANCE

1. <http://www.mindtools.com>
2. <http://www.stress.org>
3. <http://www.ethics.com>
4. <http://www.coopcomm.org/workbook.htm>
5. <http://www.mapfornonprofits.org/>
6. <http://www.learningmeditation.com> <http://bbc.co.uk/learning/courses/>
7. <http://eqi.org/>
8. <http://www.abacon.com/commstudies/interpersonal/indisclosure.html>
9. <http://www.mapnp.org/library/ethics/ethxgde.htm>
10. http://www.mapnp.org/library/grp_cnfl/grp_cnfl.htm
11. <http://members.aol.com/nonverbal2/diction1.htm>
12. http://www.thomasarmstron.com/multiple_intelligences.htm
13. <http://snow.utoronto.ca/Learn2/modules.html>
14. <http://www.quickmba.com/strategy/swot/>