

BHARATHIAR UNIVERSITY COIMBATORE - 641 046

ADVANCED DIPLOMA IN FLEET OPERATIONS

(For the CPOP students admitted during the academic year 2012-2013 & Onwards)

Scheme of Examinations – CBCS Pattern

Title of the Paper	Ins. Hrs/week	Examinations				
		Duration. Hrs	CIA	Marks	Total	Credits
Semester - I						
1. AD FO 01 Elements of Fleet Management	5	3	25	75	100	4
2. AD FO 02 Motor Vehicle Act	5	3	25	75	100	4
3. AD FO 03 Introduction to Over Dimensional Consignment	5	3	25	75	100	4
Semester - II						
4. AD FO 04 Operations Research Techniques for Fleet Management	5	3	25	75	100	4
5. AD FO 05 Route survey	5	3	25	75	100	4
6. AD FO 06 Elective paper ODC Operations	5	3	25	75	100	4
Total	-	-	-	-	600	24

AD FO 01 Elements of Fleet Management

Unit-I

Functions of fleet management -Structures of fleet management-fleet manager-vehicle maintenance managers –key decision areas- monitoring vehicle operation-trip planning and routing-vehicle specifications – developing a sound vehicle management system.

Unit-II

Garage and fleet management - relationship between motor vehicle driver and mechanics–Testing and test reports-costing and billing- tools for garages- Vehicle maintenance organization chart, foreman -garage superintendent-tactical planning-centralized or Decentralized organizations.

Unit-III

Vehicle parts and supply management- cost of inventory-inventory costs against downtime -price discounts-item cost versus inventory volume-pilferage –objective of garage store keeping-function of store keeping in garages-Layout of garage-organization of garage stores-maintenance and service schedules.

Unit-IV

Tyre selection and management-tire types –retreading –basic process - retreading -tyre maintenance-economics of vehicle replacement .

Unit-V

Energy management-fuel economy- vehicle replacement strategy-shop management – life cycle costing.

References:

1. John Dolce, Fleet Maintenance, Mcgrawhill, Newyork, 1984
2. Analytical fleet maintenance management. John E.Dolce.
3. John Doke “Fleet Management” Mcgraw Hill Co.1984.
4. Automobile Engineering , MS Narang.
5. I.C.Engines Fundamental, J.B.Heywood ,Mcgraw Hill Book

AD FO 02 Motor Vehicle Act

Unit I

Definitions – necessity for driving licence – grant of learner's licence – grant of driving licence .

Unit – II

Renewal of driving licences – revocation of driving licence – power of court to disqualify – suspension of driving licence – effect of disqualification order – endorsement – maintenance of state registers of driving licences .

Unit – III

Registration of motor vehicle – assignment of new registration mark – no objection certificate – change of residence or place of business – transfer of ownership- alteration of motor vehicle – cancellation of registration – certificate of fitness.

Unit – IV

Control of transport vehicles – permits – grant of stage carriage permits – application for contract carriage permit - application for goods carriage permit – grant of goods carriage permit – procedure in applying for and granting permits – transfer permit.

Unit – V

Replacement of vehicles – general conditions attaching to all permits – general form of permits – cancellation and suspension of permit – temporary permits – validation of permits -- avoidance of contracts restrictive of liability .

References:

1. The Motor vehicles act by S. Pattabhiraman.
2. Motor vehicle act – 1988 by P K Sarkar
3. Law relating to compensation under the motor vehicles act by M R Sreenath.

AD FO 03 INTRODUCTION TO OVER DIMENSIONAL CONSIGNMENT (ODC) CARRIERS

Unit -I

ODC – Prime mover- Trailer- Puller, Diagnosis and service Maintenance --Inspection and care procedures.

Unit -II

ODC cooling and lubrication system - Engine cooling systems of various heavy vehicles- Cooling system troubleshooting Lubricating system components- Basic principles of Diesel fuel injection.

Unit -III

Automotive mover clutches, Gears box, Drive line and suspension - Clutch components- troubleshooting – 9 speed gear box- Drive line, Propeller shaft- Final drive-Hypoid gear- Differential-Rear axle- Important rear axle drives- Suspension spring-Introduction - Types- Front wheel (dead axle) - Front axle steering-power steering.

Unit -IV

ODC Tyres and Brakes - Tyre-Introduction, types - tyre specification- Wheel and tyre trouble shooting-Automotive brakes-Air brakes- Air brake Servicing.

Unit -V

Automotive Electrical system –Electric circuit components-Starting system -Starting motor construction and operation- Charging system –operation and service-Electronic ignition systems-Sensor-Automotive application.

References

1. Automobile engineering, Dr.Kirpal singh;
2. Diesel Engineering, Sean Bennett;
3. Automobile Engineering, G.B.S NARANG
4. Owner's manual of MAN Force Trucks Pvt .Ltd.
5. WWW.NTC.ODC.VEHICLES.COM

AD FO 04 OPERATIONS RESEARCH TECHNIQUES FOR FLEET MANAGEMENT**Unit – I**

Operations research, linear programming – necessity of operations research in industry – scope – limitations – linear programming problems – graphical method – introduction – optimal solution – problems and solutions

Unit – II

Transportation model and assignment model – introduction – definition – methods – Uses of Transportation problem – Assignment problem – introduction – algorithm – Difference between Transportation Model and Assignment Problem .

Unit – III

Sequencing models – introduction – definition – processing n jobs through 2 machines – processing n jobs through 3 machines – processing 2 jobs through m machines – processing n jobs through m machines – travelling salesman problem – problems and solutions

Unit – IV

Inventory models – introduction – deterministic inventory models – buffer stock – demand forecasting methods – inventory models with probabilistic demand – problems and solutions

Unit – V

PERT and CPM - Introduction – Planning – Scheduling – Control – Rules for Constructing a Project Network – Ford and Fulkerson's Rule – Critical Path – PERT Procedure– Rules of Network Construction – Project – Network – Activity – Time cost Optimization Procedure – problems and solutions.

References:

1. R. Panneerselvam, "Operations Research", Prentice Hall of India Private Limited, New Delhi 1 – 2005
2. P.K. Gupta and Man-Mohan, Problems in Operations Research – Sultan chand & Sons, 1994
3. Ravindran, Philips and Solberg, Operations Research Principles and Practice, John Wiley & Sons, Singapore, 1992
4. J.K.Sharma, Operations Research – Theory and Applications – Macmillan India Ltd., 1997

AD FO 05 ROUTE SURVEY

Unit- I

Introduction-Classification of Roads, factors affecting efficient road transport- road construction- Bridges-Classification and capacity details.

Unit-II

Route survey and geographical conditions - Route survey -Objectives-Types -factors Responsible for efficient route survey-advantages -requirements - geographical - climatically -soil and road transport-

Unit III

Applications of engineering factors in Route survey-Mechanical properties of materials- -Poisson's ratio-Factor of safety -simple problems-Geometric properties of sections- Thin cylinders-thick cylinders-simple problems.

Unit -IV

Route survey , vehicle and goods knowledge; vehicle knowledge-goods knowledge- Introduction, need – various types of heavy vehicles - Specification-.

Unit -V

Role of route survey in Safety , Fleet safety- public safety-vehicle safety-goods safety-.

References:

1. Harry Rubey, "Route Surveys and constructions"
2. Russell R. Skelton, "Route Surveys" - McGraw-Hill Book Co., 1949 - Technology & Engineering.
3. Carl F. Meyer, "Route Surveying and Design" - International Textbook Co., 1969 - Technology & Engineering.

AD FO 06 EP ODC OPERATIONS

Unit - I

ODC –functions of ODC- activities involved in ODC operations –structures of ODC management - forecasting in ODC operations - authority , delegation and decentralization –Training and development in ODC operation, performance appraisal - leadership styles in ODC operations.

Unit - II

Precaution during ODC operations - equipment purchasing – material handling equipments utilization – methods of loading and unloading of goods in trailers –type of trailer – type of roads-vehicle documents –selection of numbers of axles based on the weight of goods.

Unit- III

Forecasting – classification of forecasting based on types of roads – travelling time to zero point – fuel requirements – traffic conditions – tractor and trailers requirements – enroute problems.

Unit - IV

Delegation of Authority –Sources of formal authority - barriers to effective delegation – Guidelines for effective delegation– responsibilities of material handling equipment operators, site in charge and flying squad - importance of proper staffing.

Unit - V

Vehicle placement –assignment of drivers duty –Characteristics of Communication – Communication and ODC operation – Obstacle in communication –Training and development – advantages of training –induction Training – on the job training- refresher training.

References:

1. Dr.L.M.Prasad “Principles & Practice of Management” ,Sultan Chand & Sons
2. Hampton “Management” ,Tata McGraw Hill
3. J.S.Chandra “Management : Theory & Practice” ,Vikas Publications
4. John Cotton, “Employee Involvement”.