



SCHEME FOR SIXTH SEMESTER (AUTOMOBILE ENGINEERING)

Sr. No.	Subject	Study Scheme			EVALUATION SCHEME						Total Marks
					INTERNAL ASSESSMENT		EXTERNAL ASSESSMENT (EXAMINATION)				
		Theory	Practical	Written Paper		Practical					
		Max. Marks	Max. Marks	Max. Marks	Hrs.	Max. Marks	Hrs.				
6.1**	Entrepreneurship Development And Management	3	-	-	25	-	100	3	-	-	125
6.2**	Motor vehicle Act and Transport Management	3	-	-	25	-	100	3	-	-	125
6.3**	Tractor and Special Purpose Vehicles	3	-	-	25	-	100	3	-	-	125
6.4**	Industrial Engineering	4	-	-	25	-	100	3	-	-	125
6.5**	Employability Skills- II	-	-	2	-	25	-	-	50	3	75
6.6**	Fault Diagnosis and Testing Lab	-	-	5	-	50	-	-	100	3	150
6.7**	Driving Practice - II	-	-	5	-	50	-	-	100	3	150
6.8**	Overhauling Lab	-	-	5	-	50	-	-	100	3	150
6.9**	Project Work	-	-	5	-	100	-	-	100	3	200
# Student Centered Activities		-	-	5	-	25	-	-	-	-	25
Total		13	-	27	100	300	400	-	450	-	1250

* Common with other diploma programmes

** Common with diploma programme in production Engineering

Student centered activities will comprise of co-curricular activities like extension lectures , library studies, games, hobby clubs e.g. Photography, painting, singing, seminars , declamation contests, educational field visits , N.C.C. , NSS, Cultural activities , civil defence/ disaster management activities etc.



SYLLABUS: Polytechnic (AE)

Department: Automobile Engineering –6th Semester

Subject: Enterpenureship Development and Management (Theory)

Subject Code: 121065

Detailed Contents

Unit No. 1 Introduction

- Topic No.1: Concept /Meaning and Its Need, Qualities And Functions Of Entrepreneur And Barriers In Entrepreneurship
- Topic No.2: Sole Proprietorship And Partnership Forms Of Business Organization Schemes Of Assistance By Entrepreneurial Support
- Topic No.3: Agencies At National, State, and District Level: Nsic, Nrdc, Sidbi, Nabard, Commercial Banks, Sfc's

Unit No. 2

- Topic No.4: Scanning Of Business Environment
- Topic No.5: Salient Features Of National And State Industrial Policies and Resultant Business Opportunities
- Topic No.6: Types And Conduct Of Market Survey, Assessment Of Demand And Supply In Potential Areas Of Growth
- Topic No.7: Identifying Business Opportunity Considerations In Product Selection

Unit No. 3

- Topic No.8: Meaning Of Project Report, Significance Of Project Report
- Topic No.9: Preliminary Project Report, Detailed Project Report
- Topic No.10: Feasibility Study, Common Errors In Project Formulation

Unit No. 4

- Topic No.11 Definitions And Importance Of Management, Functions Of Management
- Topic No.12: Principles Of Management (Henri Fayol, F.W, Concept And Structure Of An Organization Or Levels Of Management
- Topic No.13: Types Of Industrial Organizations

Unit No. 5

- Topic No.14: Leadership, Importance Of Leadership, Characteristics Of Leaders And Types Of Leadership
- Topic No.15: Difference Between Manager And Leader, Definitions Of Motivation, Characteristics Of Motivation
- Topic No.16: Factors Affecting Motivation Theories Of Motivation (Maslow, Herzberg)

Unit No. 6

- Topic No.17: Human Resource Management Manpower Planning Recruitment
- Topic No.18: Performance Appraisal Materials Management Inventory Management Marketing Management
- Topic No. 19 Sales Promotion Financial Management Taxation

Unit No. 7

- Topic No.20: Customer Relation Management (Crm) & Total Quality Management (Tqm)
- Topic No.21: Intellectual Property Right (Ipr)
- Topic No.22: Construction, Working And Operation Of Centrigual Pump. Performance

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week	Theory	Practical	Written Paper		Practical				
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
4	-	-	25	-	100	3	-	-	125

Text BOOKS

1. Entrepreneurship Development by BSW Publication
2. Entrepreneurship Management by Eagle Publication



PM

POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

RECOMMENDED BOOKS

1. A Handbook of Entrepreneurship, Edited by BS Rathore and Dr JS Saini; Aapga Publications, Panchkula (Haryana)
2. Entrepreneurship Development published by Tata McGraw Hill Publishing Company Ltd., New Delhi
3. Entrepreneurship Development in India by CB Gupta and P Srinivasan; Sultan Chand and Sons, New Delhi
4. Entrepreneurship Development - Small Business Enterprises by Poornima M Charantimath; Pearson Education, New Delhi
5. Entrepreneurship : New Venture Creation by David H Holt; Prentice Hall of India Pvt. Ltd., New Delhi
6. Handbook of Small Scale Industry by PM Bhandari
7. Principles and Practice of Management by L M Prasad; Sultan Chand & Sons, NewDelhi.

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Time Allotted for Lectures (Periods)	Marks Allotted (%)
1	04	08
2	07	16
3	08	16
4	08	16
5	05	15
6	06	15
7	10	16
Total	48	100



Subject: Motor Vehicle Act and Transport Management (Theory)

Subject Code: 120151

Detailed Contents

Unit No. 1 Garage Location & Their Layout

- Topic No.1: Garage Specification
- Topic No.2: Estimation & Testing Of Repair
- Topic No.3: Costing And Billing

Unit No. 2 Garage Stores

- Topic No.4: Definition T& Purpose Of Garage Stores
- Topic No.5: Location & Layout Of Stores
- Topic No.6: Advantage & Prevention Of Stores

Unit No. 3 Insurance Of Vehicle

- Topic No.7: Meaning & Types Of Insurance
- Topic No.8: Duties Of Driver & Surveyor
- Topic No.9: Insurance Cooperation

Unit No. 4 Driving And Highway Code

- Topic No.10: Principle, Procedure & Precaution Of Driving
- Topic No.11: Emergency Grieving Situation
- Topic No.12: License And Their Types

Unit No. 5 Transport Management

- Topic No.13: History & Organization Of Road Transport
- Topic No.14: States Transport
- Topic No.15: Maintenance Of Logbook

Unit No. 6 Motor Vehicle Act

- Topic No.16: Features Of Vehicle Act
- Topic No.17: Registration Of Old And New Vehicle, Vehicle Permits

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
3	-	-	25	-	100	3	-	-	125

RECOMMENDED BOOKS

1. Automobile Engineering Vol.I by Dr. Kirpal Singh, Standard Publisher Distributors, Delhi.
2. Transport Management Vol. III & IV by Central Institute of Road Transport, Pune.
3. Motor Vehicle Act of India (with Latest Amendment).
4. Motor Vehicle Act with Rules by B.S. Kohli.
5. Motor Transportation: Principles and Practices by WJ Hudson and James; Ronald Press Company, New York.
6. Transport in Modern India by KP Bhatnagar, Satish Bahadur, DN Aggarwal and SC Gupta.
7. Central Motor Vehicle Rules.



PM

POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

SUGGESTED DISTRIBUTION OF MARKS

Unit No.	Time Allotted for Lectures (Periods)	Marks Allotted (%)
1	02	04
2	03	06
3	12	24
4	06	12
5	04	10
6	10	20
7	04	10
8	07	14
Total	48	100





Detailed Contents

Unit No.1: Productivity

Topic No.1: Introduction to productivity, factors affecting productivity,

Topic No.2: Measurement of productivity, causes of low productivity and methods to improve productivity

UNIT NO.2 Work Study

Topic No.3: Definition and scope of work study;

Topic No.4: Inter-relation between method study and work measurement;

Topic No.5: Human aspects of work study; Role of work study in improving productivity

UNIT NO.3 Method Study

Topic No.6: Objectives and procedure for Method analysis;

Topic No.7: Information collection and recording techniques.

UNIT NO.4 Motion Analysis:

Topic No.8: Principles of Motion analysis; Therbligs and SIMO charts;

Topic No.9: Normal work area and design of work places. Ergonomics

UNIT NO.5 Work Measurement :

Topic No.10: Objectives; work measurement techniques, stop watch time study; principle

Topic No.11: equipment used and procedure; systems of performance rating; calculation of basic times;

Topic No.12: various allowances; calculation of standard time, work sampling standard data and its usage

UNIT NO.6 Wages and Incentive Schemes

Topic No.13: Introduction to wages, Wage payment for direct and indirect labour wage payment plans

Topic No.14: and incentives, various incentive plans, incentives for indirect labour.

UNIT NO.7 Production Planning and Control :

Topic No.13: Introduction, objectives and components (functions) of P.P.C, Advantages of production planning and Production Control, stages of P.P.C, process planning,

Topic No.14: routing, scheduling, dispatching and follow up, routing purpose, route sheets, scheduling – purpose, machine loading chart, Gantt chart, dispatching

Topic No.15: purpose, and procedure, follow up – purpose and procedure. CPM/PERT technique,

Topic No.16: drawing of simple networks and critical time calculation. Production

Topic No.17: Control in job order, batch type and continuous type of productions.

Topic No.18: Difference between these controls

UNIT NO Estimating and Costing :

Topic No.19: Introduction, purpose/functions of estimating, costing concept, ladder and elements of cost

Topic No.20: difference between estimation and costing. Overheads and their types,

Topic No.21: estimation of material cost, estimation of cost for machining processes, numerical problems

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
3	-	-		25	100	3	-	-	125

Text BOOKS

1. Industrial Engineering by Eagle Publication
2. Industrial Engineering by North Publication

RECOMMENDED BOOKS

1. Work Study and Ergonomics by S Dalela and Sourabh
2. Industrial Engineering and Management by O.P. Khanna Dhanpat Rai and Sons, Delhi.123
3. Industrial Engineering and Management by M. Mahajan; Dhanpat Rai and Sons, New Delhi.



PM POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Alloted (Hrs.)	Marks Allotted(%)
1	06	10
2	14	20
3	08	12
4	06	10
5	10	16
6	04	06
7	10	16
8	06	10
Total	64	100





PM POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

Subject: Employability Skills – II (Practical)

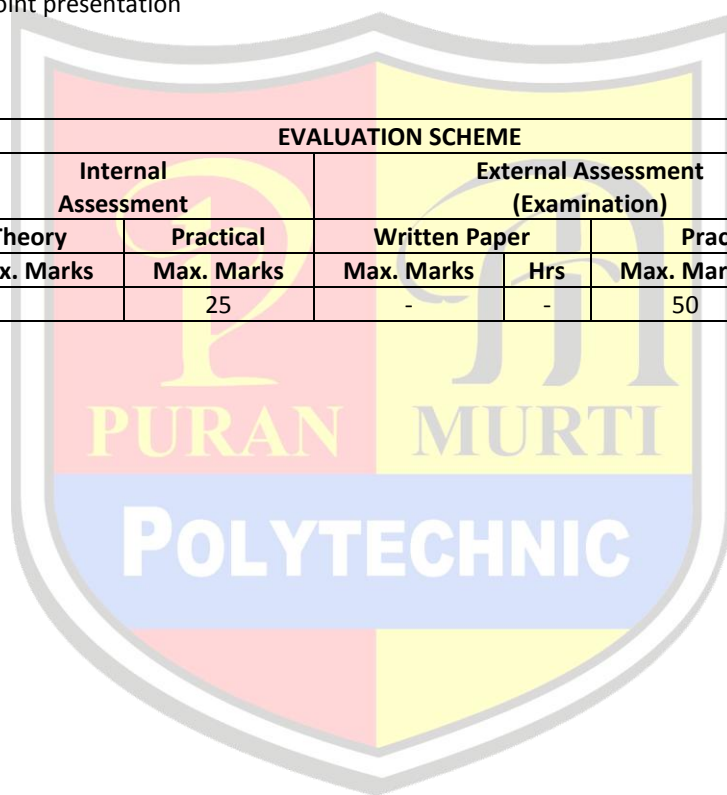
Subject Code: Emp. Skill-II (P)

List of Practical

Oral Practice

- 1: Mock interview
- 2: Preparing for meeting
- 3: Group discussion
- 4: Seminar presentation
- 5: Making a presentation
 - a) Elements of good presentation
 - b) Structure and tools of presentation
 - c) Paper reading
 - d) Power point presentation

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	5		25	-	-	50	3	75





PM POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

Subject: Fault Diagnosis and Testing Lab (Practical)

Subject Code: 120363

List of Practical

- 1: Basic electrical checks:- Battery connections, electrical bulbs and units, circuit protection devices and wiring connections.
- 2: Testing of battery:- Specific gravity test, high rate discharge test, open circuit voltage test; charging of battery.
- 3: Testing and setting of ignition timing, cam angle.
- 4: Testing of field winding of alternator and armature of starter motor for open circuit, short circuit and earthing.
- 5: Engine testing and finding out fuel consumption.
- 6: Diagnosing battery ignition system.
- 7: Diagnosing and rectifying high oil consumption.
- 8: Diagnosing and rectifying high fuel consumption.
- 9: Diagnosing and rectifying engine noises and knocks.
- 12: Diagnosing and rectifying engine overheating.
- 13: Measuring of bore for wear, ovality and taperness.
- 14: Inspection of crankshaft - bearing replacement and setting of journal bearings, crank pin bearings and crank shaft bearings, measuring bearing clearances by gauges
- 15: Demonstration of body repair techniques.

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	5		25	-	-	50	3	75



PM POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

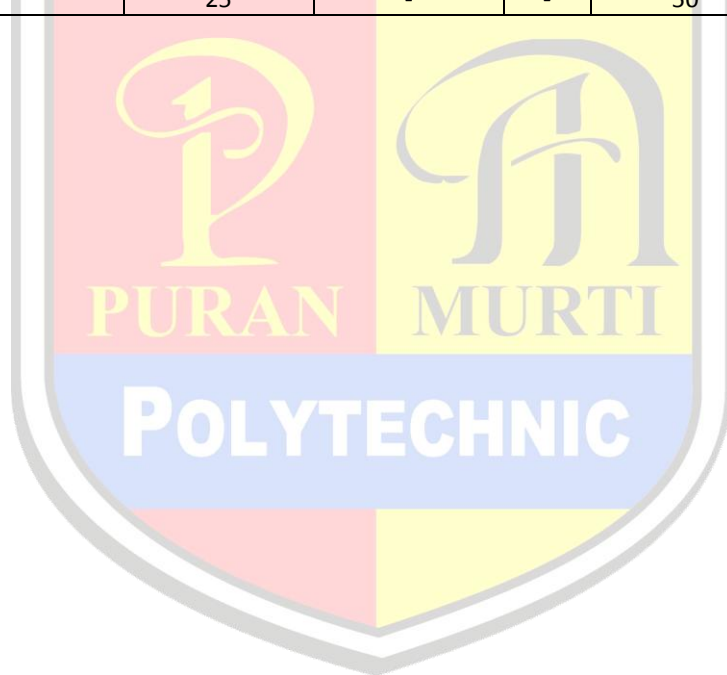
Subject: Driving Practice – II (Practical)

Subject Code: Driving Practice – II(P)

List of Practicals

- 1: Driving practice on road to gain proficiency.
- 2: Maneuver in: Passing, Merging, Diverging, Overtaking, Crossing, Turning, Cornering, Reversing and Emergency stopping.
- 3: Driving on gradient.
- 4: Driving during abnormal conditions like rain and fog.

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	5		25	-	-	50	3	75





PM POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

Subject: Overhauling Lab (Practical)

Subject Code: 120361

List of Practical

- 1 Diagnosing the engine for overhauling.
2. Removal of engine from vehicle.
3. Dismantling of engine.
4. Overhauling of petrol engine.
5. Overhauling of diesel engine.
6. Decarbonising of engine blocks, combustion chamber, piston crown and valve parts.
7. Surfacing of cylinder heads, cylinder blocks and manifolds on cylinder head refacing machine.
8. Replacing of piston and piston rings – removal and refitting.
9. Practice on cylinder boring machine.
10. Practice in fitting cylinder liners- sleeving and desleeving.
11. Testing and aligning of connecting rod.
12. Overhauling of valves and valve mechanism.
13. Overhauling of gear box.
14. Overhauling of differential and propeller shaft.
15. Overhauling of wheels and axles.
16. Overhauling of brakes.
17. Overhauling of clutch.

STUDY SCHEME		EVALUATION SCHEME							Total Marks
		Internal Assessment			External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	5		25	-	-	50	3	75