



CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY

छत्तीसगढ़ स्वामी विवेकानंद तकनीकी विश्वविद्यालय

SCHEME OF TEACHING AND EXAMINATION

B.E. V SEMESTER- AUTOMOBILE ENGINEERING

S. No.	Board of Study	Sub. Code	SUBJECT	PERIODS PER WEEK			SCHEME OF EXAM Theory/Practical			Total Marks	Credit L+(T+P/2)
				L	T	P	ESE	CT	TA		
1.	Mech. Engg	382551(37)	Design Of Machine Elements	4	1	-	80	20	20	120	5
2.	Mech. Engg	382552(37)	Automotive Transmission	3	1	-	80	20	20	120	4
3.	Mech. Engg	337553 (37)	Dynamics of Machines	4	1	-	80	20	20	120	5
4	Mech. Engg	382554(37)	Automotive Electrical & Electronics	4	1	-	80	20	20	120	5
5	Mech. Engg	382555(37)	Automotive Fuels & Lubricants	3	1	-	80	20	20	120	4
6	Mech. Engg	337556 (37)	Operation Research	4	1	-	80	20	20	120	5
7	Mech. Engg	382561(37)	Design Of Machine Elements Lab	-	-	2	40	-	20	60	1
8	Mech. Engg	382562(37)	Automobile Electrical & Electronics Lab	-	-	2	40	-	20	60	1
9	Mech. Engg	382563 (37)	Dynamics of Machines Lab	-	-	2	40	-	20	60	1
10	Mech. Engg	382564(37)	Automotive Fuels & Lubricants Lab	-	-	2	40	-	20	60	1
11	Humanities	300565 (46)	Personality Development	-	-	2	-	-	20	20	1
12	Mech. Engg	382566 (37)	* Practical Training Evaluation/Library	-	-	2	-	-	20	20	1
Total				22	6	12	640	120	240	1000	34

L – Lecturer

P – Practical,

TA – Teacher's Assessment

T – Tutorial,

ESE – End Semester Exam,

CT – Class Test

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering

Branch: Automobile Engineering

Subject: Design of Machine Elements

Total Theory Periods: 40

Class Tests: Two (Minimum)

ESE Duration: Three Hours

Semester: V

Code: 382551(37)

Total Tutorial Periods: 10

Assignments: Two (Minimum)

Minimum Marks: 28

Maximum Marks: 80

COURSE OBJECTIVES

- To familiarise the various steps involved in the Design Process
- To understand the principles involved in evaluating the shape and dimensions of a component to satisfy functional and strength requirements.
- To learn to use standard practices and standard data
- To learn to use catalogues and standard machine components

UNIT I

STEADY STRESSES AND VARIABLE STRESSES IN MACHINE MEMBERS

Introduction to the design process - factor influencing machine design, selection of materials based on mechanical properties -- Preferred numbers, fits and tolerances – Direct, Bending and torsional stress equations – Impact and shock loading – calculation of principle stresses for various load combinations, eccentric loading – Design of curved beams – crane hook and 'C' frame - Factor of safety - theories of failure – stress concentration – design for variable loading – Soderberg, Goodman and Gerber relations

UNIT II

DESIGN OF SHAFTS AND COUPLINGS

Design of solid and hollow shafts based on strength, rigidity and critical speed – Design of keys, key ways and splines - Design of crankshafts -- Design of rigid and flexible couplings.

UNIT III

DESIGN OF TEMPORARY AND PERMANENT JOINTS

Threaded fasteners - Design of bolted joints including eccentric loading, Knuckle joints, Cotter joints – Design of welded joints, riveted joints for structures - theory of bonded joints.

UNIT IV

DESIGN OF ENERGY STORING ELEMENTS

Design of various types of springs, optimization of helical springs -- rubber springs -- Design of flywheels considering stresses in rims and arms, for engines and punching machines.

UNIT V

DESIGN OF BEARINGS AND MISCELLANEOUS ELEMENTS

Sliding contact and rolling contact bearings -- Design of hydrodynamic journal bearings, McKee's Eqn. Sommerfield Number, Raimondi & Boyd graphs, -- Selection of Rolling Contact bearings -- Design of Seals and Gaskets -- Design of Connecting Rod.

Note: (Use of P S G Design Data Book is permitted in the University examination)

Text Books

1. Mechanical Engineering Design-Shigley J.E and Mischke C. R., Sixth Edition, Tata McGraw-Hill , 2003.
2. Design of Machine Elements -Bhandari V.B,Second Edition, Tata McGraw-Hill Book Co, 2007.

REFERENCES

1. Machine Design -SundrarajamoorthyT.V, Shanmugam.N,AnuradhaPublications, Chennai, 2003.
2. Machine Component Design -Orthwein W, Jaico Publishing Co, 2003.
3. Mechanical Design – An Integral Approach -Ugural A.C,McGraw-Hill Book Co,2004.
4. Design and Machine Elements -Spotts M.F., Shoup T.E, Pearson Education, 2004.

STANDARDS

1. IS 10260 : Part 1 : 1982 Terms, definitions and classification of Plain bearings Part 1: Construction.
2. IS 10260 : Part 1 : 1982 Terms, definitions and classification of Plain bearings Part 2: Friction and Wear.

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering

Branch: Automobile Engineering

Subject: Automotive Transmission

Total Theory Periods: 40

Class Tests: Two (Minimum)

ESE Duration: Three Hours

Semester: V

Code: 382552(37)

Total Tutorial Periods: 10

Assignments: Two (Minimum)

Minimum Marks: 28

Maximum Marks: 80

COURSE OBJECTIVE

- To impart basic knowledge to students with respect to transmission system of automobiles and impart knowledge that will enable the students to understand the latest developments in the field.

UNIT-I

CLUTCH

Requirement of transmission system. Types of transmission system. Types of clutches. Requirement of clutches. Principle of friction clutch. Construction and operation of single plate coil spring clutch. Single plate diaphragm spring clutch, multi plate clutch, cone clutch and electromagnetic clutch.

UNIT-II

GEAR BOX

Problems on performance of automobile such as resistance to motion, tractive effort, engine speed & power and acceleration. Determination of gear ratio for passenger car, heavy vehicle and tractors. Objectives and need of gear box in a vehicle. Construction and operation of Sliding mesh gear box, constant mesh gear box, Synchronizers –need, principle of operation and types such as Early Warner and Later Warner gear synchronizers.

UNIT- III

HYDROMATIC DRIVE

Fluid coupling: Principle of operation. Constructional details. Torque capacity. Performance characteristics. Reduction of drag torque. Hydrodynamic torque converter: Principle of operation, constructional details, performance characteristics, multistage torque converter, poly phase torque converter and converter coupling.

UNIT-IV

EPICYCLIC GEAR BOXES

Introduction to epicyclic gear train – external mesh and internal mesh planetary gear trains. Ford – T – model gear box. Wilson gear box, Cotal Electromagnetic gear box , Automatic transmission. Hydraulic control system for automatic transmission.

UNIT-V

HYDROSTATIC AND ELECTRIC DRIVE

Hydrostatic drive: Various types of hydrostatic drives, principle of hydrostatic drive system, advantages & limitations, comparison of hydrostatic drive with hydrodynamic drive, construction and working of typical Janny hydrostatic drive. Electric drives: Principle of early Ward Leonard and modified Ward Leonard control system, advantages & limitations

Text Books

1. Motor vehicles -Newton and Steeds,life Publishers, 2002.
2. Torque converters -Heldt .P.M,Chilton Book Co., 1992.

REFERENCES

1. Modern Transmission systems -Judge.A.W, Chapman and Hall Ltd, 2000.
2. Advanced Vehicle Technology -Heinz Heisler, Butterworth Heinemann, 2002.
3. Hydrostatic Transmission for vehicle applications-, I.Mech E.Conference, 1981-88

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering

Branch: Automobile Engineering

Subject: Dynamics of Machines

Total Theory Periods: 40

Class Tests: Two (Minimum)

ESE Duration: Three Hours

Semester: V

Code: 337553(37)

Total Tutorial Periods: 10

Assignments: Two (Minimum)

Minimum Marks: 28

Maximum Marks: 80

Course Objectives:

To study types of mechanical governors and to analyze its performance parameters

To Apply the theory of balancing to rotating and reciprocating masses.

To analyze gyro-effect on moving bodies

To understand the concepts of mechanical vibration

To perform inertia force analysis of machine elements

To draw turning moment diagram of reciprocating engines

To analyze performance parameters flywheel

UNIT I

Governors: Characteristics of centrifugal governors, Gravity controlled governors, Porter and proell. Spring controlled centrifugal governor: Hartung, &Hartnell governor. Performance parameter: Sensitivity, stability, Isochronisms, Governor Effort and power.

UNIT II

Balancing: Balancing of rotating masses, Static and dynamic balancing, Determination of balancing masses in two plane balancing, Balancing of internal combustion engines, Balancing of in-line engines, Firing order, Balancing of V-twin and radial engines, Forward and reverse crank method, Balancing of rotors.

UNIT III

Gyroscope: Gyroscopic forces and couple, gyroscopic effect in Airplanes, Ship motion and Vehicles moving on curved path.

UNIT IV

Mechanical Vibrations: One-dimensional, longitudinal, Transverse, and torsional vibrations, Natural frequency, Effect of damping on vibrations, Different types of damping. Forced vibration, Forces and displacement, Transmissibility, Vibration Isolation, Vibration sensors: seismometer and Accelerometers, Whirling of shafts with single rotor.

UNIT V

(a) Inertia force analysis: Effective force and inertia force on link, Inertia force on reciprocating engine. Inertia force in four bar chain mechanism.

(b)Turning moment diagram and flywheel: Turning moment diagram for single and multi cylinder internal combustion engine, Coefficient of fluctuation of speed, Coefficient of fluctuation of energy, Flywheel.

TEXT BOOKS

1. Theory of Machine- S.S.Rattan - Tata McGraw Hill, New Delhi
2. Theory of Machines - Thomas Bevan, - CBS/ Cengage Publishers

REFERENCE BOOKS

1. Theory of Machines and Mechanism– Uicker, Pennock, &Shigley – Oxford Univ. Press
2. Theory of Mechanisms and Machines- A. Ghosh, A. K. Mallik – EWP Press.
3. Mechanism and Machine theory-Ambekar-PHI, Delhi
4. Theory of Machine – P.L. Ballaney – Khanna Publishers, New Delhi
5. Theory of Machine -JagdishLal- Metro Politan Books, New Delhi

Course Outcome

Apply knowledge of Dynamics of machine for understanding, formulating and solving engineering problems.

Acquire knowledge and hands-on competence in applying the concepts Dynamics of machine in the design and development of mechanical systems.

Demonstrate creativeness in designing new systems components and processes in the field of engineering

Identify, analyze and solve mechanical engineering problems useful to the society.

Work effectively with engineering and science teams as well as with multidisciplinary designs.

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering
Branch: Automobile Engineering
Subject: Automotive Electricals & Electronics
Total Theory Periods: 40
Class Tests: Two (Minimum)
ESE Duration: Three Hours

Semester: V
Code: 382554(37)
Total Tutorial Periods: 10
Assignments: Two (Minimum)
Minimum Marks: 28

Maximum Marks: 80

Course Objectives

To impart knowledge to the students in the principles of operation and constructional details of various Automotive Electrical and Electronic Systems like Batteries, Starting System, Charging System, Ignition System, Lighting System and Dash – Board Instruments.

UNIT -I

TYPES OF BATTERIES

Principle and construction of Lead Acid Battery, Nickel – Cadmium Battery, Nickel Metal, Hybrid Battery, Sodium Sulphur Battery and Aluminum Air Battery, Characteristics of Battery, Battery Rating, Capacity and Efficiency, Various Tests on Battery, Battery– Charging Techniques, .Maintenance of batteries

UNIT- II

ELECTRICAL COMPONENTS

Requirements of Starter Motor, Starter Motor types , construction and characteristics, Starter drive mechanisms, Starter Switches and Solenoids, Charging system components, Generators and Alternators ,types, construction and Characteristics Voltage and Current Regulation, Cut –out relays and regulators, Charging circuits for D.C. Generator, A.C. Single Phase and Three – Phase Alternators.

UNIT- III

IGNITION SYSTEMS

Battery Coil and Magneto–Ignition System, Circuit details and Components of Battery Coil and Magneto–Ignition System, Centrifugal and Vacuum Advance Mechanisms, Spark Plugs, Constructional details and Types.

UNIT- IV

ELECTRICAL AND ELECTRONIC IGNITION SYSTEMS

Electronically–Assisted and Full Electronic Ignition System, Non–Contact–type Ignition Triggering devices, Capacitive Discharge Ignition Distributor–less Ignition System, Digital Ignition System, Control Strategy of Electronic Ignition System.

UNIT -V

WIRING, LIGHTING AND OTHER INSTRUMENTS AND SENSORS

Automotive Wiring, Insulated and Earth Return System, Positive and Negative Earth Systems, Head Lamp and Indicator Lamp Details, Anti–Dazzling and Dipper Details, Electrical and Electronic Fuel Lift Pumps, Theory and Constructional Details of Dash Board Instruments and their Sensors like Speedometer, Odometer, Fuel Level Indicator Oil Pressure and Coolant Temperature Indicators, Horns and Wiper Mechanisms, Automotive Wiring Circuits

TEXT BOOKS

1. Automobile Electrical Equipments -Young, A.P. and Griffith, S.L.,ELBS and NewPress.
2. Automobile Electrical Equipment,-Kholi .P.L,Tata McGraw-Hill co ltd,New Delhi,2004

REFERENCES

1. Automobile Electrical Equipment- Crouse.W.H.,McGraw Hill Book CoInc.NewYork,2005
2. Modern Electrical Equipments of Automobiles -Judge.A.W.,Chapman & Hall, London2004
3. Automotive Handbook -Robert Bosch, Bently Publishers,2004

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering

Branch: Automobile Engineering

Subject: Automotive Fuels & Lubricants

Total Theory Periods: 40

Class Tests: Two (Minimum)

ESE Duration: Three Hours

Semester: V

Code: 382555(37)

Total Tutorial Periods: 10

Assignments: Two (Minimum)

Minimum Marks: 28

Maximum Marks: 80

COURSE OBJECTIVE

- To understand the source of automotive fuels and lubricants, their basic properties, determination of air requirement for the combustion of fuels and basic theory of lubrication

UNIT- I

MANUFACTURE OF FUELS AND LUBRICANTS

Fuels, Structure of petroleum, refining process, thermal and catalytic cracking, products of refining process, manufacture of lubricating oil base stocks and finished automotive lubricants.

UNIT- II

FUELS FOR I.C. ENGINES

Types of Fuels, Liquid and gaseous fuels, heating value of fuels, higher and lower heating values, chemical structure of hydro-carbons SI Engine fuels, Volatility characteristics, desirable characteristics of SI Engine fuels, knock rating and additives, alternate fuels for SI engines. CI engine fuels, desirable characteristics, Cetane rating, alternate fuels for CI engines, biodiesels

UNIT- III

COMBUSTION OF FUELS

Stoichiometry - calculation of theoretically correct air required for combustion of liquid and gaseous fuels, volumetric and gravimetric analysis of the dry products of combustion, mass of dry gas per kg of fuel burnt, mass of carbon in the exhaust gas, mass of carbon burnt to carbon-monoxide per kg of fuel, heat loss due to incomplete combustion, exhaust gas analysis by Orsat apparatus.

UNIT- IV

THEORY OF LUBRICATION

Engine friction: introduction, total engine friction, effect of engine variables on friction, hydro dynamic lubrication, elasto hydro dynamic lubrication, boundary lubrication, Hydrostatic lubrication bearing lubrication, functions of the lubrication system.

UNIT- V

LUBRICANTS

Specific requirements for automotive lubricants, oxidation deterioration and degradation of lubricants, additives and additive mechanism, synthetic lubricants, classification of lubricating oils, properties of lubricating oils, tests on lubricants. Grease, classification, properties, testing of grease

TEXT BOOKS

- Internal Combustion Engines -V.Ganesan,Tata McGraw-Hill Publishing Co.Newdelhi
- A course in Internal Combustion Engines- M.L.Mathur and P.Sharma, Dhanpatrai Publications

REFERENCES

- Fuels – Solids, Liquids, Gaseous.-Brame, J.S.S. and King, J.G.
- Fuels and Fuel Technology -Vol. I & II Francis, W
- Modern Petroleum Technology-Hobson, G.D. & Pohl.W-
- Lubrication – A practical guide to lubricant selection- A.R.Lansdown, Pergamon press – 1982.
- Lubrication- Raymond.C.Gunther– Chilton Book Co., - 1971

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering

Branch: Automobile Engineering

Subject: Operation Research

Total Theory Periods: 40

Class Tests: Two (Minimum)

ESE Duration: Three Hours

NOTE:- Four Questions of 20 marks to be set, one from each unit.

Semester: V

Code: 337556(37)

Total Tutorial Periods: 10

Assignments: Two (Minimum)

Minimum Marks: 28

Maximum Marks: 80

Course Objectives:

Understand definition, scope, objectives, phases, models & limitations of operations research.

To understand different application areas of operations research like transportation problem, assignment model, sequencing models, dynamic programming, game theory, replacement models & inventory models

UNIT I

Introduction

Various stages of O.R., Fields of application, optimization and its classification.

General Linear Programming Problems- Introduction, maximization and minimization of function with or without Constraints, formulation of a linear programming problem, graphical method and simplex method, Big M method Degeneracy, application of L.P.P. in Mechanical Engineering.

UNIT – II

The Transportation Problems

Mathematical formulation computational procedures, Stepping stone method, Modified Distribution Method, Vogels Approximation Method, Solution of balanced and unbalanced transportation problems and case of Degeneracy.

The Assignment Problems

Mathematical formulation of assignment problems, solution of assignment problems, traveling salesman problems, Air crew Assignment problems.

UNIT - III

Waiting Line Theory

Basic queuing process, basic structure of queuing models, some commonly known queuing situations Kendall's service time, solution to M/M/1: ∞ /FCFS models.

Network Analysis

CPM/PERT, Network Representation, Techniques for drawing network. Resource smoothing and leveling, project cost, Optimum project duration, project crashing, updating, Time estimation in PERT.

UNIT – IV

Game Theory

Introduction, two person zero sum game, methods for solving two person zero sum game: when saddle point exists, when no saddle point exists, solution of $2 \times n$ and $m \times 2$ game.

Simulation

Basic concept of simulation, applications of simulation, merits and demerits of simulation, Monte Carlo simulation, simulation of Inventory system, simulation of Queuing system.

Note: Four questions to be set, one from each unit.

TEXT BOOKS

1. Operation Research , Sasien Yaspan
2. Operation Research – N. D. Vohra – TMH
3. Operation Research– Hira & Gupta – S. Chand & Co.

REFERENCES

1. Operation Research – H. Gillette – TMH, New Delhi
2. Operations Research – M. Taha – TMH, New Delhi
3. Fundamentals of Operation Research – Ackof Sasieni – Dhanpat Rai & Sons
4. Quantitative Approach to Management – Lovin and Krit Patrick – TMH
5. Operation Research– S.D. Sharma – S. Chand & Com. New Delhi

Course Outcomes:

Identify and develop operational research models from the verbal description of the real system.

Understand the mathematical tools that are needed to solve optimization problems.

Use mathematical software to solve the proposed models.

Develop a report that describes the model and the solving technique, analyze the results and propose

Re-recommendations in language understandable to the decision-making processes in Management Engineering.

A student will be able use knowledge of operations research to solve transportation problems, assignment

Problems, sequencing problems, dynamic programming & game theory.

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering
Branch: Automobile Engineering
Subject: Design of Machine Elements Lab
Total Lab Periods: 24
Maximum Marks: 40

Semester: V
Code: 382561(37)
Batch Size: 30
Minimum Marks: 20

List of Experiments/Activities:

1. Select a daily use product and design the conceptual design by applying the design process taking the controlling parameters.
2. Make a list of mechanical components and know their materials and suggest some alternative materials for the each one of them.
3. Find a flange coupling in the college laboratory and justify its design by actual measurements
4. Design a shaft used in some practical application, by actual working and loading conditions
5. Justify the design of single plate clutch of an engine assembly

6. Design a connecting rod

a. Welded joints

b. Riveted and bolted joints

In addition, justify your findings.

7. Design of hydrodynamic journal bearings.

8. Design a software in some high level language or excel sheets for design of a component

9. **Mini Project:** Each student will be given a real life problem for the complete design of a subsystem/system using either manual calculation with the help of design handbook or through computer programme, if needed. This will be done as home assignment to be submitted at the end of the semester.

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering
Branch: Automobile Engineering
Subject: Automobile Electrical & Electronics Lab
Total Lab Periods: 24
Maximum Marks: 40

Semester: V
Code: 382562(37)
Batch Size: 30
Minimum Marks: 20

LIST OF EXPERIMENTS

a. **Electrical Laboratory (Minimum three)**

1. Testing of batteries and battery maintenance
2. Testing of starting motors and generators
3. Testing of regulators and cut – outs
4. Diagnosis of ignition system faults
5. Study of Automobile electrical wiring

b. **Electronics Laboratory (Minimum Seven)**

6. Study of rectifiers and filters
7. Study of logic gates, adder and flip-flops
8. Study of SCR and IC timer
9. Interfacing Sensors like RTD, LVDT, Load Cell etc.
10. Interfacing ADC for Data Acquisition
11. Interfacing DAC for Control Application
12. Interfacing A/D converter and simple data acquisition
13. Micro controller programming and interfacing
14. Interfacing Actuators
15. EPROM Programming
16. Fault Diagnosis of various sensors

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering
Branch: Automobile Engineering
Subject: Dynamics of Machines Laboratory
Total Lab Periods: 24
Maximum Marks: 40

Semester: V
Code: 382563(37)
Batch Size: 30
Minimum Marks: 20

List of Experiments to be Performed (Minimum ten experiments are to be performed by each student)

1. To find out the oscillations of simple pendulum with universal vibration apparatus.
2. To find out the oscillations of Compound pendulum with universal vibration apparatus.
3. To find out the radius of gyration of bi-filler suspension with universal vibration apparatus.
4. To find out undamped torsional vibrations of single rotor system with universal vibration apparatus.
5. To find out the frequency of damped torsional vibration of single rotor system with universal vibration vibration apparatus.
6. To measure the frequency of torsional vibrations of single rotor system with universal vibration apparatus.
7. To measure the frequency of torsional vibrations of double rotor system with universal vibration apparatus.
8. To find out free vibration of helical coiled spring with universal vibration apparatus.
9. To study forced damped vibration of a spring mass system and simple supported beam with universal vibration apparatus.
10. To find out the Gyroscopic couple and prove the Gyroscopic law with Gyroscope apparatus.
11. To find out the Power and effort of Proel, Porter & Hartnell Governor with Governor Apparatus.
12. To find out the critical speed for different diameters of shaft by whirling of shaft apparatus.
13. To verify the static and dynamic balancing for different planes and masses by balancing apparatus.

LIST OF EQUIPMENTS/MACHINES REQUIRED

1. Universal Vibration Apparatus
2. Whirling of Shaft Apparatus.
3. Balancing Apparatus (Both Static & Dynamic)
4. Epicyclic Gear Train and Holding Torque Apparatus
5. Gyroscope apparatus
6. Governor apparatus with differential attachments

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering
Branch: Automobile Engineering
Subject: Automotive Fuels & Lubrication Lab
Total Lab Periods: 24
Maximum Marks: 40

Semester: V
Code: 382564(37)
Batch Size: 30
Minimum Marks: 20

LIST OF EXPERIMENTS (Minimum Ten)

1. Study of International and National standards for fuels and lubricants.
2. Study of Octane and Cetane Number of fuels.
3. Testing of fuels - Ultimate analysis, proximate analysis
4. ASTM distillation test of liquid fuels
5. Aniline Point test of diesel
6. Calorific value of liquid fuel.
7. Calorific value of gaseous fuel.
8. Reid vapour pressure test.
9. Flash and Fire points of petrol and diesel
10. Copper strip Corrosion Test
11. Cloud & Pour point Test.
12. Temperature dependence of viscosity of lubricants & Fuels by Redwood Viscometer.
13. Viscosity Index of lubricants & Fuels by Saybolt Viscometer
14. Ash content and Carbon Residue Test
15. Drop point of grease

Chhattisgarh Swami Vivekanand Technical University, Bilai

Name of the program: Bachelor of Engineering

Branch: Automobile Engineering

Subject: Personality Development

No Periods: 2 per week

Maximum Marks: 40

Semester: V

Code: 300565(46)

Total Tutorial periods: Nil

Minimum Marks: 24

Course Objective :

- The course is introduced to develop one's outer and inner personality tremendously and enrich the abilities to enable one to meet the challenges associated with different job levels. Personality Development is essential for overall development of an individual apart from gaining technical knowledge in the subject.

Unit – I

Personality concepts :

What is Personality – its physical and psychic aspects. How to develop a positive self-image. How to aim at Excellence.

How to apply the cosmic laws that govern life and personality.

How to improve Memory. How to develop successful learning skills. How to develop and effectively

use one's creative power. - How to apply the individual MOTIVATORS that make you a self-power personality.

Unit – II

Interpersonal Skills:

- **Leadership:** Leaders who make a difference, Leadership: your idea, What do we know about leadership?

If you are serious about Excellence. Concepts of leadership, Two important keys to effective leadership,

Principles of leadership, Factors of leadership, Attributes.

- **Listening:** Listening skills, How to listen, Saying a lot- just by listening, The words and the music, How to talk to a disturbed person, Listening and sometimes challenging.

- **How to win friends** and influence people, How to get along with others. How to develop art of convincing others. How can one make the difference. How to deal with others particularly elders. Conflicts and cooperation.

Unit – III

Attitudinal Changes:

- **Meaning of attitude**, benefits of positive attitudes, how to develop the habit of positive thinking.

- **Negative attitude and winning:** What is FEAR and how to win it. How to win loneliness. How to win over FAILURE. How to win over PAIN. How to win over one's ANGER and others anger. How to overcome CRITICISM. What is stress and how to cope up with it? What is crisis and how to manage it.

- How to apply the **character MOTIVATORS** that elevate you and your personality to the top, the art of self motivation.

- How to acquire **mental well-being**.

- How to acquire **physical well-being**.

- How to formulate effective **success philosophy**.

Unit –IV

Decision Making:

How to make your own LUCK. How to plan goals/objectives and action plan to achieve them. How to make RIGHT DECISION and overcome problems. How to make a Decision. Decision making : A question of style.

Which style, when ? People decisions : The key decisions. What do we know about group decision making ?

General aids towards improving group decision making. More tips for decisions of importance.

Unit – V

Communication Skills:

Public Speaking: Importance of Public speaking for professionals. The art of Speaking - Forget the fear of presentation, Symptoms of stage fear, Main reason for speech failure, Stop failures by acquiring Information; Preparation & designing of speech, Skills to impress in public speaking & Conversation, Use of presentation aids & media.

Study & Examination: How to tackle examination, How to develop successful study skills.

Group discussions: Purpose of GD, What factors contribute to group worthiness, Roles to be played in GD.

Reference Books:

- How to develop a pleasing personality by Atul John Rego, Better yourself books, Mumbai, 2000.
- How to Succeed by Brain Adams, Better Yourself books, Mumbai, 1969.
- Basic Managerial skills for all by E. H McGrawth, Prentice Hall India Pvt Ltd, 2006.
- The powerful Personality by Dr Ujjawal Patni & Dr Pratap Deshmukh, Medident Publisher, 2006.
- Great Words win Hearts by Dr Ujjwal Patni, Fusion Books, 2006.
- Personality : Classic Theories & Modern Research; Friedman ; Pearson Education 2006.
- How to win friends and influence people by Dale Carnegie, A.H. Wheeler 2006.