



**KALINGA
UNIVERSITY**

SCHEME OF EXAMINATION & DETAILED SYLLABUS

For
B. Voc. in
Automobile



Kalinga University, Naya Raipur, Chhattisgarh

BACHELOR OF VOCATIONAL STUDIES (B. VOC.) AUTOMOBILE

Semester I							
Code No.	Paper	L	T / P	Credits	End Semester Exam	Internal Marks	Total Marks
BVA101	Communication Skills	3	0	3	70	30	100
BVA102	Fundamentals of Information Technology	3	0	3	70	30	100
BVA103	Elements of Automobile	3	0	3	70	30	100
BVA104	Technical Drawing	3	0	3	70	30	100
BVA105P	Industrial /on Job Training (OJT)/ Workshop on any Two	0	36	18	150	50	200
	AutoCAD Designing						
	CAM						
	Catia software						
	3D Designing						
	Solid						
	Automation						
	Coding of Machine						
	CNC Operations / Operator						
	CNC Programmer / Programming						
	Fundamental of Electrical Vehicles in 2/3/4 wheeler						
	EV in Maintenance						
	EV in Charging Station						
	EV in Battery maintenance						
	Fundamental of Painting technology						
	Fundamental of Commercial Vehicle						
	Draftsman						
	Fundamental of tool Designer						
	Fundamental of vehicle in 2/3/4 commercial vehicle						
	Total	12	36	30	430	170	600

COMMUNICATION SKILLS

(BVA 101)

Course Objective

The purpose of this course is to introduce students to the theory, fundamentals and tools of communication and to develop in them vital communication skills which should be integral to personal, social and professional interactions. One of the critical links among human beings and an important thread that binds society together is the ability to share thoughts, emotions and ideas through various means of communication: both verbal and non-verbal. In the context of rapid globalization and increasing recognition of social and cultural pluralities, the significance of clear and effective communication has substantially enhanced.

Course Outcome:

1. The purpose of this course is to introduce students to the theory, fundamentals and tools of communication
2. To develop vital communication skills which should be integral to personal, social and professional interactions.
3. One of the critical links between human beings.
4. An important thread that binds society together is the ability to share thoughts, emotions and ideas through various means of communication: both verbal and non-verbal.
5. In the context of rapid globalization and increasing recognition of social and cultural pluralities, the significance of clear and effective communication has substantially enhanced.

CONTENTS

Unit I: Introduction:

Theory of Communication, Types and modes of Communication, Mediums and channels of communication, barriers to communication, English as a Global language, the Lingua Franca, Social influences on English

Unit II: Language of Communication:

Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication, Varieties of English, Language, Accent, Dialect, Colloquialism, Historical influences on English

Unit III: Speaking Skills:

Monologue Dialogue Group Discussion Effective Communication/ Mis- Communication Interview Public Speech, Regional influences on English, Convergence and divergence, Linguistic Imperialism,

Unit IV: Reading and Understanding-

Close Reading, Reading analysis of a text - Audience and purpose, Content and theme, Tone and Mood, stylistic devices, structure Comprehension- Analysis and Interpretation Translation(from Indian language to English and vice-versa) Literary/ Knowledge Texts

Unit V: Writing Skills

Documenting Report Writing Making notes Letter writing, Writing tabloids, diary entry, open letters, essays, newsletter and magazine articles, skits, short stories, impersonating characters.

It will enhance Language of communication, various speaking skills such as personal communication, social interactions and communication in professional situations such as interviews, group discussions and office environments, important reading skills as well as writing skills such as report writing, note taking etc. While, to an extent, the art of communication is natural to all living beings, in today's world of complexities, it has also acquired some elements of science. It is hoped that after studying this course, students will find a difference in their personal and professional interactions.

Recommended Readings:

1. Fluency in English - Part II, Oxford University Press, 2006.
2. Business English, Pearson, 2008.
3. Language, Literature and Creativity, Orient Blackswan, 2013.
4. Language through Literature (forthcoming) ed. Dr. Gauri Mishra, DrRanjanaKaul, DrBrati Biswas

FUNDAMENTALS OF INFORMATION TECHNOLOGY (BVA 102)

Unit-I

Computer characteristics: Speed, storage, accuracy, diligence; Digital signals, Binary System, ASCII; Historic Evolution of Computers; Classification of computers: Microcomputer, Minicomputer, mainframes, Supercomputers; Personal computers: Desktop, Laptops, Palmtop, Tablet; Hardware & Software; Von Neumann model.

Unit-II

Hardware: CPU, Memory, Input devices, output devices. Memory units: RAM (SDRAM, DDR RAM, RDRAM etc. feature wise comparison only); ROM-different types: Flash memory; Auxiliary storage: Magnetic devices, Optical Devices; Floppy, Hard disk, Memory stick, CD, DVD, CD/DVD-Writer; Input devices - keyboard, mouse, scanner, speech input devices, digital camera, Touch screen Voice Input, Joystick, Optical readers, bar code reader; Output devices: Display device, size and resolution; CRT, LCD, LED; Printers: Dot-matrix, Inkjet, Laser; Plotters, Sound cards & speaker.

Unit-III

Software: System software, Application software; concepts of files and folders, Introduction to Operating systems, Different types of operating systems: single user, multitasking, time-sharing multi-user; Booting, POST; Basic features of two GUI operating systems: Windows & Linux (Basic desk top management); Programming Languages, Compiler, Interpreter, Databases; Application software: Generic Features of Word processors, Spread sheets and Presentation software; Generic Introduction to Latex for scientific typesetting; Utilities and their use; Computer Viruses & Protection, Free software, open source.

Unit-IV

Computer Networks and Internet: Connecting computers, Requirements for a network: Server, Workstation, switch, router, network operating systems; Internet: brief history, World Wide Web, Websites, URL, browsers, search engines, search tips; Internet connections: ISP, Dial-up, cable modem, WLL, DSL, leased line Wireless and Wi-Fi connectivity ; email, email software features (send receive, filter, attach, forward, copy, blind copy); characteristics of web-based systems, Web pages, Web Programming Languages.

Unit-V

Information Technology And Society: Indian IT Act, Intellectual Property Rights, issues. Application of information Technology in Railways, Airlines, Banking, Insurance, Inventory Control, Financial systems, Hotel management, Education, Video games, Telephone exchanges, Mobile phones, Information kiosks, special effects in Movies.

Programming Concepts & Techniques: Program Concept, Characteristics of Programme, Stages in Program Development, Tips for Program Designing, Programming Aids, Algorithms, Pseudo code, Notations, Design, Flowcharts, Symbols, Rules, compiler & Interpreter. Introduction to programming techniques, Top-down & Bottom-up approach, Unstructured, & Modular programming, Cohesion, Coupling, Debugging, Syntax & Logical Errors, Linking and Loading, Testing and Debugging, Documentation.

Reference Books:

1. Programming in C, R.S. Salaria, Khanna Publishing House
2. Computer Concepts and Programming in C, R.S. Salaria, Khanna Publishing House
3. Handbook of Computer Fundamentals, N.S. Gill, Khanna Publishing House

ELEMENTS OF AUTOMOBILE

(BVA 103)

UNIT-I:

Introduction: Classification of automobiles- according to number of wheels, propulsion systems, transmission drives, type of fuels, application & capacity, study of main specifications. Components of automobile- functions & layout of frame, frameless construction, axles, steering system, suspension system, braking system, power train & drives, clutch, gear box, final drive, propeller shaft, u-joints, vehicle body, wheels, tyres & tubes.

UNIT-II:

Power Unit: Selection of engine for two wheelers, three wheeler & four wheeler vehicles; constructional & working details of two strokes & four stroke petrol & diesel engines, fuel system, ignition system, starting system, charging system, lighting system, cooling system, lubrication system, combustion & combustion chambers.

UNIT-III:

Steering System and Suspension System: Steering system- requirements, front axle details & steering geometry, castor, camber, toe-in, toe-out steering axis inclination, steering linkages, and different types of steering gear boxes, their constructional & working details. Concept and working of power steering. Need, types of suspension systems, constructional details, characteristics of laminated, coil springs. Introduction to independent suspension, front & rear suspension systems of the vehicle, shock absorbers.

UNIT-IV:

Wheels, Tyres & Braking System: Wheel requirements, types of wheels, their constructional & working details, rims & tyres, types of tyres, tyre selection, ordinary, radial tyres tubeless tyres, their constructional details, comparison & application, wheel balancing. Need and classification of brakes, drum brakes and disc brakes, constructional & working details, introduction to hydraulic brake, parking brake, vacuum assisted hydraulic brakes, air assisted hydraulic brakes, air brakes, leading & trailing brake shoes, self energizing brakes & ABS, working of master cylinder, wheel cylinders, tandem master cylinder, characteristics of brakefluid.

Text Books:

1. K.K. Ramalingam, "Automobile Engineering", Scitech Publication, Chennai
2. Tom Denton, "Automobile Mechanical and Electrical Systems" Indian Ed., Routledge (T&F Group) Pub
3. P.L. Kohli, "Automotive Chassis & Body", Tata McGraw Hill, New Delhi

Reference Books:

1. Newton Steeds and Garrot "Motor Vehicles", Butterworths, London.
2. Judge A.W, "Mechanism of the Car", Chapman and Halls Ltd., London.
3. Crouse W.H, "Automotive Chassis and Body", McGraw-Hill, New York.
4. K.K. Jain, R.B. Asthana, "Automobile Engineering", Tata McGraw Hill, New Delhi
5. Dr. Kirpal Singh, "Automobile Engineering (Vol-1)", Standard Publisher Distributors.

TECHNICAL DRAWING

(BVA 104)

Objectives:

The course is aimed at developing basic graphic skills to enable them to draw basic automotive components and to learn about the intricacies of dimension and designs. The emphasis while imparting instruction should be to develop conceptual skills in the students.

Learning outcomes:

After successful completion of this course, the students should be able to:

The students should be able to read automobile engineering drawings and student should be in a position to understand the intricacies of the component design.

UNIT I

INTRODUCTION

Scales – Recommended scales, reduced & enlarged Drawing Sheet size: A0, A1, A2, A3, A4, A5, Layout of drawing Sheet, sizes of title block and its contents. Using drawing instruments to draw straight lines, rectangles, squares, circles, polygons.

UNIT II

JOINTS PULLEYS & ENGINE BEARINGS

Universal Joint, Slip Joint, Stepped or Cone Pulley, V-Belt Pulley, Bush Bearing, Split Bearing, Thrust Bearing, Ball Bearing, Roller Bearing, Straight and Needle

UNIT III

FREEHAND SKETCHING OF ENGINE COMPONENTS

Sparkplug – Cylinder block - Crankshaft – Piston – Fuel Injector - Common rail fuel injection system - Electronic fuel injection system - Connecting rod – Petrol engine – diesel engine.

UNIT IV

FREE HAND SKETCHING OF TRANSMISSION UNITS

Clutch– Single Plate Clutch – Multi plate clutch – gearbox- universal joint- propeller shaft - differential

UNIT V

FREE HAND SKETCHING OF COOLING SYSTEM AND BRAKING SYSTEM

Cooling System - Lubrication system – braking system – Hydraulic –Pneumatic – suspension unit - leaf spring.

References:

1. R B Gupta; -Automobile Engineering Drawing , Satya Prkashan, New Delhi
2. P. S. Gill; -Machine Drawing B D Kataria and Sons, Ludhiana

**INDUSTRIAL /ON JOB TRAINING (OJT)/
WORKSHOP ON ANY TWO
(BVA 105P)**



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