

B. VOC

In

AUTOMOBILE SERVICING TECHNOLOGY
(UGC)

Program Outcomes:

- Diagnose and **repair** all major **vehicle** systems.
- Document **repairs** of **vehicles** accurately and descriptive of concern, cause, and correction.
- Effectively locate and utilize **technical** information required for **vehicle repairs**.
- Work safely and responsibly within all shop standards and environmental guidelines.

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In

AUTOMOBILE SERVICING TECHNOLOGY (UGC)

Course Relevance:

The auto servicing market, currently sticks at Rs. 20, 000 crore, is expected to be worth Rs. 33, 000 - 34, 000 crore by 2020. Indian automobile industry is the largest in the world and accounts for more than 7% of the country's GDP. The Govt. of India has taken several initiatives and the increasing presence of major automobile players in the Indian market is expected to make Indian car market a world leader by 2020. Resultantly, the car servicing business is growing faster to meet the increasing demand from this large car population in the country.

The market research data states that only one - third of the cars go back to dealer workshops post warranty and rest opt for local multi - brand garages, which can provide reliable and cost - effective service with closer home advantage. To cater to this ever increasing demand, the Multi - Brand car servicing stations, providing cost - effective yet high quality repairs, is the future of car servicing industry in India.

Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly West Bengal University of Technology)
B.Voc. in Automobile Servicing Technology (UGC)
(Effective for Academic Session 2018-2019)

Year - 1 - Diploma (SEMESTER - I)

Course	Component	Theory / Practical	Internal (Theory)	External (Theory)	Internal (Practical)	External (Practical)	Credit		
							L	T	P
UGEN - 101 ENGLISH LANGUAGE AND COMMUNICATIVE SKILLS	Generic	Theory & Practical	10	40	10	40	2	1	3
UGEN - 102 COMPUTER FUNDAMENTALS & IT	Generic	Theory & Practical	10	40	10	40	2	1	3
UAMV - 103 FUNDAMENTALS OF AUTOOBILE ENGINEERING	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 104 WORKSHOP SCIENCE & TECHNOLOGY	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 191 ENGINEERING DRAWING	Skill	Practical	-	-	20	80	-	-	6
All Generic Components common to all B. Voc. courses. Industrial Training of 5 - 6 weeks of 6 credits in each year followed by report writing and Viva Voce. These credits will be evaluated in semester 6									

Year - 1 - Diploma (SEMESTER - II)

Course	Component	Theory / Practical	Internal (Theory)	External (Theory)	Internal (Practical)	External (Practical)	Credit		
							L	T	P
UGEN - 201 SOFT SKILL & PERSONALITY DEVELOPMENT	Generic	Theory & Practical	10	40	10	40	2	1	3
UGEN - 202 BUSINESS ANALYSIS: ENVIRONMENT, SALES & MARKETING	Generic	Theory & Practical	10	40	10	40	2	1	3
UAMV - 203 URBAN TRANSPORTATION REQUIRMENT & PLANNING	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 204 BASIC ELECTRICAL & ELECTRONICS	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 205 PETROL ENGINE	Skill	Theory & Practical	10	40	10	40	2	1	3
All Generic Components common to all B. Voc. courses. Industrial Training of 5 - 6 weeks of 6 credits in each year followed by report writing and Viva Voce. These credits will be evaluated in semester 6									

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Year - 2 - Advanced Diploma (SEMESTER - III)

Course	Component	Theory / Practical	Internal (Theory)	External (Theory)	Internal (Practical)	External (Practical)	Credit		
							L	T	P
UGEN - 301 VALUE EDUCATION & HUMAN RIGHTS	Generic	Theory & Practical	10	40	10	40	2	1	3
UGEN - 302 BASIC ACCOUNTING	Generic	Theory & Practical	10	40	10	40	2	1	3
UAMV - 303 CAD	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 304 DIESEL ENGINE	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 305 AUTOMOBILE BODY & CHASSIS ENGINEERING	Skill	Theory & Practical	10	40	10	40	2	1	3
All Generic Components common to all B. Voc. courses. Industrial Training of 5 - 6 weeks of 6 credits in each year followed by report writing and Viva Voce. These credits will be evaluated in semester 6									

Year - 2 - Advanced Diploma (SEMESTER - IV)

Course	Component	Theory / Practical	Internal (Theory)	External (Theory)	Internal (Practical)	External (Practical)	Credit		
							L	T	P
UGEN - 401 ENVIRONMENTAL STUDIES	Generic	Theory & Practical	10	40	10	40	2	1	3
UGEN - 402 QUALITY MANAGEMENT	Generic	Theory & Practical	10	40	10	40	2	1	3
UAMV - 403 VEHICLE PERFORMANCE AND TESTING	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 404 AUTOMOTIVE SAFETY	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 405 AUTO ELECTRICAL SYSTEMS & TRANSMISSION	Skill	Theory & Practical	10	40	10	40	2	1	3
All Generic Components common to all B. Voc. courses. Industrial Training of 5 - 6 weeks of 6 credits in each year followed by report writing and Viva Voce. These credits will be evaluated in semester 6									

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Year - 3 - Degree (SEMESTER - V)

Course	Component	Theory / Practical	Internal (Theory)	External (Theory)	Internal (Practical)	External (Practical)	Credit		
							L	T	P
UGEN - 501 INDIAN ECONOMY & SOCIAL CHANGES	Generic	Theory & Practical	10	40	10	40	2	1	3
UGEN - 502 RESEARCH METHODOLOGY	Generic	Theory & Practical	10	40	10	40	2	1	3
UAMV - 503 TWO AND THREE WHEELERS	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 504 AUTOMOTIVE AIR CONDITIONING	Skill	Theory & Practical	10	40	10	40	2	1	3
UAMV - 505 MOTOR VEHICLE ACT & POLLUTION CONTROL	Skill	Theory & Practical	10	40	10	40	2	1	3
All Generic Components common to all B. Voc. courses. Industrial Training of 5 - 6 weeks of 6 credits in each year followed by report writing and Viva Voce. These credits will be evaluated in semester 6									

Year - 3 - Degree (SEMESTER - VI)

Course	Component	Theory / Practical	Internal (Theory)	External (Theory)	Internal (Practical)	External (Practical)	Credit		
							L	T	P
UGEN - 601 GENERAL HUMAN PSYCHOLOGY & HR MANAGEMENT	Generic	Theory & Practical	10	40	10	40	2	1	3
UGEN - 602 ENTREPRENEURSHIP DEVELOPMENT PROGRAMME	Generic	Theory & Practical	10	40	10	40	2	1	3
UAMV - 681 INDUSTRIAL TRAINING	Skill	Practical	-	-	-	300	-	-	18
All Generic Components common to all B. Voc. courses. Industrial Training of 5 - 6 weeks of 6 credits in each year followed by report writing and Viva Voce. These credits will be evaluated in semester 6									

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Year - 1 Diploma (SEMESTER - I)

Paper Title: UGEN – 101: ENGLISH LANGUAGE AND COMMUNICATIVE SKILLS

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objective: The objective of this paper is to familiarize the students with the importance of Communication and its associated components in the hard core corporate sector.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

The Sentence and Its Structure - How to Write Effective Sentences - Phrases - What Are They? - The Noun Clauses - The Adverb Clause - The Relative Clause - How the Clauses Are Conjoined - Word - Classes and Related Topics - Understanding the Verb - Understanding the Auxiliary Verb - Understanding the Adverbs - Understanding the Pronoun - Prepositions.

UNIT - II

Spelling and Pronunciation - Pronunciation, The Tense and Related Topics - Presentness and Present Tenses - The Presentness of a Past Action - Interrogatives and Negatives - Negatives - How to Frame Questions - What's What? - Polite Expressions - Some Time Expressions - In Conversation – Letter Writing - Academic Assignments.

UNIT - III

Self - Assessment; Identifying Strength & Limitations; Habits, Will - Power and Drives, Developing Self - Esteem and Building Self - Confidence, Significance of Self - Discipline, Understanding Perceptions, Attitudes, and Personality Types, Mind - Set: Growth and Fixed, Values and Beliefs, Motivation and Achieving Excellence; Self - Actualization Need; Goal Setting, Life and Career Planning , Constructive Thinking, Communicating Clearly: Understanding and Overcoming barriers.

UNIT - IV

Active Listening, Persuasive Speaking and Presentation Skills, Conducting Meetings, Writing Minutes, Sending Memos and Notices; etiquette: Effective E - mail Communication; Telephone Etiquette, Body Language in Group Discussion and Interview.

Practical based on UGEN - 101

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any three question
- Each question carries 5 marks.
- Practical file carries 5 marks and 20 marks for practical work and viva - voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

Planning for Practical session:

- Conversation classes on contemporary issues
- Writing of corporate CVs
- PPT presentation on selected issues
- Group discussion
- Tips to face the interviews and mock sessions

Books Recommended:

- Dorch, Patricia. What Are Soft Skills? New York: Execu Dress Publisher, 2013.

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- Kamin, Maxine. Soft Skills Revolution: A Guide for Connecting with Compassion for Trainers, Teams, and Leaders. Washington, DC: Pfeiffer & Company, 2013.
- Klaus, Peggy, Jane Rohman & Molly Hamaker. The Hard Truth about Soft Skills. London: HarperCollins E - books, 2007.
- Petes S. J. , Francis. Soft Skills and Professional Communication. New Delhi: Tata McGraw - Hill Education, 2011.
- Stein, Steven J. & Howard E. Book. The EQ Edge: Emotional Intelligence and Your Success. Canada: Wiley & Sons, 2006.

Paper Title: UGEN – 102: COMPUTER FUNDAMENTALS & IT

Theory: 40

Internal Assessment: 10

Total Marks: 50

Time: 3 hours

Objectives: The objective of this course is to familiarize students with Fundamentals of Computer and IT applications. It enables the student to get practical exposure towards MS - Office tools.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

KNOWING COMPUTER: Introduction, Objectives, Basic Applications of Computer, Components of Computer System: Central Processing Unit, Keyboard, mouse and VDU, Other Input devices, Other Output devices, Computer Memory. Concept of Hardware and Software: Hardware, Software: Application Software, Systems software. Concept of computing, data and information. Bringing computer to life: Connecting keyboard, mouse, monitor and printer to CPU, Checking power supply.

UNIT - II

OPERATING COMPUTER USING GUI BASED OPERATING SYSTEM: Introduction, Objectives, Basics of Operating System: Operating system, Basics of popular operating system (LINUX, WINDOWS). The User Interface: Task Bar, Icons, Menu, Running an Application. Operating System Simple Setting: Changing System Date And Time, Changing Display Properties, To Add Or Remove A Windows Component, Changing Mouse Properties, Adding and removing Printers. File and Directory Management: Creating and renaming of files and directories, Common utilities.

UNIT - III

INTRODUCTION TO INTERNET, WWW AND WEB BROWSERS: Introduction, Objectives. Basic of Computer Networks: Local Area Network (LAN), Wide Area Network (WAN). Internet: Concept of Internet, Applications of Internet, Connecting to the Internet, Troubleshooting, World Wide Web (WWW), Web Browsing Software, Popular Web Browsing Software. Search Engines: Popular Search Engines / Search for content, Accessing Web Browser, Using Favorites Folder, Downloading Web Pages, Printing Web Pages. Understanding URL, Surfing the web: Using e - governance website.

UNIT - IV

COMMUNICATIONS AND COLLABORATION: Introduction, Objectives, Basics of E - mail: What is an Electronic Mail, Email Addressing, Using E - mails: Opening Email account, Mailbox: Inbox and Outbox, Creating and Sending a new E - mail, Replying to an E - mail message, Forwarding an E - mail message, Sorting and Searching emails. Introduction to MS - Office: MS - Word, MS - Excel, MS - Power Point.

Practical based on UGEN - 102

Practical: 40

Internal Assessment: 10

Total Marks: 50

Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any two question
- Each question carries 10 marks.

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- Practical file carries 10 marks and 10 marks for viva-voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

List of Experiments:

- Different components of Taskbar
- Create Desktop icons
- Create Folder and Files on Desktop
- Run Application such as Notepad, MS Paint
- Change Mouse properties in Windows
- Connecting to the Internet
- Applying browsers software such as chrome, Internet Explorer
- Applying software download
- Create E-mail ID in a mail server
- Sending E-mail and working with Inbox
- Create Bio data in word
- Formatting text in Word
- Create excel database, apply auto sum
- Create presentation file with multiple slides
- Apply slide transition

Books Recommended:

- Fundamentals of Computers, V. Rajaraman, PHI Publication
- Computer Fundamentals, P. K. Sinha, BPB Publication
- Introduction to Computers with MS - Office 2007, Leon, TMH Publication

Paper Title: UAMV – 103: FUNDAMENTALS OF AUTOMOBILE ENGINEERING

Job Role: Automobile Junior Technician

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objectives: The course provides an in depth knowledge on the various dimensions of automobile engineering in addition to a few hand on training programs.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

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 an 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 wheeler, 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

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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 brake fluid.

Practical based on UAMV - 103

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any two question
- Each question carries 10 marks.
- Practical file carries 10 marks and 10 marks for viva-voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

List of Experiments:

- Identification of different chassis components of a vehicle.
- Identification of different components of S.I. engine.
- Identification of different components of C.I. engine.
- Identification of different components of lubrication system of an engine.
- Identification of different components of cooling system of an engine.
- Identification of different components of fuel supply system of S.I. engine.
- Identification of different components of fuel supply system of C.I. engine.
- Identification of different components of ignition system of S.I. engine.
- Identification of different components of starting system of an engine.
- Identification of different components of transmission system of a car.
- Identification of different components of steering system of a car.
- Identification of different components of suspension system of a car.
- Identification of different components of braking system of a car.

Books Recommended:

- K. K. Ramalingam, "Automobile Engineering", Scitech Publication, Chennai
- Tom Denton, "Automobile Mechanical and Electrical Systems" Indian Ed. , Routledge(T&F Group)Pub
- P. L. Kohli, "Automotive Chassis & Body", Tata McGraw Hill, New Delhi
- Newton Steeds and Garrot "Motor Vehicles", Butterworths, London.
- Judge A. W, "Mechanism of the Car", Chapman and Halls Ltd. , London.
- Crouse W. H, "Automotive Chassis and Body", Mcgraw - Hill, New York.
- K. K. Jain, R. B. Asthana, "Automobile Engineering", Tata McGraw Hill, New Delhi
- Dr. Kirpal Singh, "Automobile Engineering (Vol - 1)", Standard Publisher Distributors

Paper Title: UAMV – 104: WORKSHOP SCIENCE & TECHNOLOGY

Job Role: Automobile Junior Technician

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objectives: The course encapsulates the fundamentals of the subject, apart from the hardcore properties of the same to the students.

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Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

Engineering materials: Contents : Properties and uses of common Engineering Materials such as Cast Iron, Mild Steel, High Carbon Steel, Alloy Steel, Stainless Steel, Copper, Brass, Tin , Zinc, Gunmetal, Bronze, White metal, Aluminium. Non Metals: Wood, Plastic, Rubber. Importance of safety Precautions in Workshop

UNIT - II

Fitting and Drilling: Contents: Cutting Tools - Chisels, Hacksaws, files, scrapers, Drill Bits, reamers Taps, Dies and Sockets. Striking tools : Hammers, Holding Devices : Vices, Marking Tools & Miscellaneous tools Checking & Measuring Instruments Calipers & Dividers Drilling Machines - Sensitive and Radial Drilling Machines Various Fitting and Drilling operations Sheet Metal Work Contents : Metals used for sheet metal work, sheet metal hand tools - measuring and cutting tools, stakes, Sheet metal operations - Shearing, bending, Drawing, Squeezing Sheet metal joints - Hem & Seam Joints, Fastening Methods - Riveting, soldering, Brazing and spot welding.

UNIT - III

Forging & Welding: Contents: Hand Tools, Heating Devices, Smith Operations, Machine Forging, Forging hammers, Forging press, Welding : Arc welding & Gas Welding Mechanical Working of Metals Contents : Hot working process - Rolling, Piercing, Drawing, Spinning, Extrusion. Cold Working Process: Rolling, Bending, drawing, spinning Extrusion, squeezing, peening, Advantages and limitations of cold working & hot working

UNIT - IV

Lathe & Grinding: Contents: Lathe main parts, simple operations, Grinding - working principle; Grinding wheel materials, Applications of Grinding.

Practical based on UAMV - 104

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any two question
- Each question carries 10 marks.
- Practical file carries 10 marks and 10 marks for viva-voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

List of Experiments:

- Identification of metals and non-metals
- Uses of different types of marking and measuring tools
- Uses of different types of cutting tools
- Different types of fitting jobs
- Methods of making permanent and semi permanent joints
- Hot working process
- Cold working process
- Different types welding and its application
- Different operation in lathe machine
- Different types of grinding machine and its application
- Different types of drill machine and its application

Books Recommended:

- Workshop Technology Vol. I & II - Hazra & Chaudhary, Asian Book Comp. , New Delhi.
- Workshop Technology, Vol. 1, 2 & 3 - Chapman, WAJ, Edward Arnold.
- A Textbook of Workshop Technology, J. K. Gupta

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Paper Title: UAMV – 191: ENGINEERING DRAWING

Job Role: Automobile Junior Technician

Internal Assessment: 20
Total Marks: 100
Time: 3 hours

Objectives: The course aims to sum up the different angles involved in the pattern of engineering drawing.

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any three question
- Each question carries 10 marks.
- Practical file carries 10 marks and 40 marks for practical work and viva - voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

UNIT - I

Introduction: Scope and objective of the subject, Importance of engineering drawing as a communication medium, Drawing instruments and their uses, Scales: Recommended scales, reduced & enlarged, Sheet sizes: A0, A1, A2, A3, A4, A5. Layout of drawing sheet, sizes of title block and its contents, Simple exercises on the use of drawing instruments.

Lettering and Dimensioning: Types of Lettering, Guide Lines for lettering, Recommended sizes of letters and numbers, Single stroke letters, Dimensioning - rules and systems of dimensioning - dimensioning, a given drawing.

UNIT - II

Geometric Construction: Bisecting a line - perpendiculars - parallel lines - division of a line, Angles - bisection, trisection, Tangent lines touching circles internally and externally, Polygons - Regular polygons - circumscribed and inscribed in, circles. , Conic sections - Definitions of focus, directrix, eccentricity, (i) Construction of Ellipse by Concentric circles method, (ii) Construction of parabola by rectangular method, (iii) Construction of Hyperbola when given the position of point, from X - axis and Y - axis.

UNIT - III

Orthographic Projection: Definition - Planes of Projection - Four quadrants - Reference line. , First angle projection - Third angle projection, Projections of points, Projections of straight lines, Projections of planes, Projections of solids, Conversion of pictorial views into orthographic views,

UNIT - IV

Isometric Projection: Definition - Isometric axes, lines and planes, Isometric Scale - Isometric view, Drawing of isometric views of plane figures, Drawing of isometric views of prisms and pyramids, Drawing of isometric view of cylinders and cones.

Sections of Solids: Need for drawing sectional views - section planes - true shape of a section, Sections of prisms and pyramids, Sections of cones and cylinders.

Books Recommended:

- Engineering Drawing: MB Shah and BC Rana, Pearsons
- Engineering Graphics and Drafting: P. S. Gill, S. K. Kataria and Sons.
- A Text Book of Engineering Drawing: RK Dhawan, S Chand & Company
- Engineering Drawing Plane and Solid Geometry : N. D. Bhatt, Charotar Publishing House.

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Year - 1 Diploma (SEMESTER - II)

Paper Title: UGEN – 201: SOFT SKILL & PERSONALITY DEVELOPMENT

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objective: On completion of the course, the students will be able to listen to lectures, public announcements, news on TV, radio and engage in telephonic conversation to communicate effectively and accurately in English used as spoken language for various purposes.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

Listening Skills: Barriers to listening; effective listening skills; feedback skills. Attending telephone calls; note taking. Activities: Listening exercises - Listening to conversation, News and TV reports. Taking notes on a speech / lecture.

UNIT - II

Speaking and Conversational Skills: Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics. The study of sounds of English, stress and intonation. Situation based Conversation in English.

UNIT - III

Essentials of Spoken English: Activities, Making conversation and taking turns, Oral description or explanation of a common object, situation or concept, Giving interviews.

UNIT - IV

Oral Presentation with / without audio visual aids. Group Discussion . Listening to any recorded or live material and asking oral questions for listening comprehension.

Practical based on UGEN - 201

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any three question
- Each question carries 5 marks.
- Practical file carries 5 marks and 20 marks for practical work and viva - voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

Planning for Practical session:

- Classroom technique to improve the soft skills
- Surprise writing on current issues
- General grooming sessions to face the interview
- Group discussions
- Motivational classes to improve communication and confidence power

Books Recommended:

- Soft skills Training - A workbook to develop skills for employment by Fredrick H. Wentz
- Personality Development and Soft skills , Oxford University Press by Barun K. Mitra

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Paper Title: UGEN – 202: BUSINESS ANALYSIS: ENVIRONMENT, SALES & MARKETING

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objective: The course will enable the students to understand, assimilate and apply the various dimensions of business and its associated affairs in the socio economic, socio cultural and socio political ambience.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

Business Environment - Introduction, Concept of Business, Levels of the Business Environment, Understanding the Environment, Economic Environment of Business, The Global Economic Environment, Economic Policies, Business and Economic Policies, Socio Cultural Environment, Business and Society, Business and Culture , Indian Business Culture, Culture and Organizational Behavior. Introduction to Political Environment, Political Environment and the Economic system, Types of Political Systems, Indian Constitution and Business, Changing Profile of Indian Economy , Business Risks Posed by the Indian Political System, Economic Systems, Financial Environment: Introduction, An Overview of the Financial System, Components of Financial System, Financial Institutions and their Roles, Financial Institutions in India, Role of Foreign Direct Investment

UNIT - II

Introduction to Legal Environment, Laws Impacting Industry in India, Intellectual Property Rights, Major Regulations Pertaining to Business, Regulatory Role of Government, Promotional Role of Government, Participatory Role of Government, Conciliatory and Judicial Role of Government , Impact of India's Industrial Policy on Economic Reforms, New Economic Policy, Globalization. India, WTO and Trading Blocs, Levels of Economic Integration/Trading Blocs, Effects of Economic Integration, Major Regional Trading Blocs, Commodity Agreement, World Trade Organization, WTO and India, Corporate Social Responsibility: Introduction, Meaning and Definition, Need for social responsibility of business, Social responsibility of business towards different groups, Barriers to social responsibility, Social responsibility of business in India, Public, Private, Joint and Cooperative Sectors

UNIT – III

Traditional and Modern Concepts of Marketing; Selling vs. Marketing; Marketing mix; Marketing Environment. Market Segmentation & its implication. Concept of Product, Product Planning and Development; Packaging: Role and Functions; Brand name and Trade mark; Product Life Cycle Concept; Distributions Channels and Physical Distribution. Price: Importance of Price in the Marketing Mix; Factors affecting Price of a Product/Service; Discounts and Rebates. Methods of Promotion; Advertising Media; Characteristics of an effective Advertisement

UNIT – IV

Salesmanship and Qualities of Salesman; Product knowledge; Customer knowledge: Buying Motives and Selling Points. Scientific Selling; Approach and Presentation: Methods of Approaching a Customer; Presentation Process and Styles; Presentation planning. Objection Handling: Types of objections; Handling customer objections. Closing Sales and Follow up: Methods of closing sale; Executing sales order; Follow-up; Sales Promotion Schemes: Sampling; Coupon; Price Off; Premium Plan; Consumer Contests and Sweeps Takes; POP Displays; Demonstration; Trade Fairs and Exhibitions; Sales Promotion Techniques and Sales Force.

Practical based on UGEN - 202

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

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Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any three question
- Each question carries 5 marks.
- Practical file carries 5 marks and 20 marks for practical work and viva - voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

Planning for Practical session:

- Study of international organization (WTO, WORLD BANK, IMF, AMA)
- Case studies on the recent Business Environment, Marketing, & Sales Promotion
- PPT presentation on selected issues
- Survey to collect the samples for project work

Books Recommended:

- Business Environment; By T. R. Jain, Mukesh Trehan, Ranju Trehan, VK Global Publications.
- Business Environment; By Vishwajeet Prasad, Gyan Publishing House.
- Business Environment; By Saleem, Pearson Education India.
- BUSINESS ENVIRONMENT; By VEENA KESHAV PAILWAR, PHI Learning Pvt. Ltd.
- Business Environment, by Suresh Bedi, Excel Books
- BUSINESS ENVIRONMENT: INDIAN AND GLOBAL PERSPECTIVE; FAISAL AHMED, M. ABSAR ALAMM, PHI Learning Pvt. Ltd.
- PRINCIPLES OF MARKETING; Kotlar Philip and Armstrong Gary, Pearson Education
- MARKETING MANAGEMENT; Ramaswamy, V.S. and S. Namakumari: Macmillian
- SALES MANAGEMENT; Condiff, Still and Govani et.al: Prentice Hall of India
- SALES MANAGEMENT; Text; Cases & Readings: Vaccaro J.P: Prentice Hall of India
- ADVERTISING & SALES PROMOTION; Kazmi & Batra: Excel Books

Paper Title: UAMV – 203: URBAN TRANSPORTATION REQUIRMENT & PLANNING

Job Role: Automobile Junior Technician

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objectives: The objective of this subject is to make the student understand the transportation requirement in the urban areas and to be aware of the basics of planning. The student should have basic knowledge about street, road and highways.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

Introduction & Urban Transportation System Planning: Role of transportation in urban development, Transportation problems in urban areas, Purpose of transportation planning, Transportation planning process and factors affecting it, Travel demand and factors affecting it, Urban transport forecasting.

UNIT - II

Transportation Plan Preparation: Definitions: corridor, corridor traffic forecasting, corridor traffic study, count, segment, point, segment capacity, screen line, Corridor identification, Mass transit system, Urban mass rapid transit system, Rail based transit – Metro, Light rail transit system (LRT), Mono rail, Sky rail, Road based transit – Bus rapid transit system (BRTS), Electric trolley bus, commuter Bus / City Bus.

UNIT - III

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Traffic Management and Control: Traffic Management measures; Arterial Management; Traffic Signs - principles, types and design considerations, road markings; Traffic Signals - types, optimal cycle length and signal settings, warrants; Regulation of Traffic - speed regulation, regulation of vehicle, parking regulations.

UNIT - IV

Transport and Environment: Traffic noise - factors affecting noise, abatement measures, standards; air pollution - factors affecting air pollution levels, abatement measures, standards; Traffic Safety- accident reporting and recording systems, factors affecting road safety; Transport Planning for Target groups - Children, adults, handicapped and women; Norms and Guidelines for highway landscape.

Practical based on UAMV - 203

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any three question
- Each question carries 5 marks.
- Practical file carries 5 marks and 20 marks for practical work and viva - voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

Planning for Practical session:

- Preparation of project work on assigned topics
- PPT presentation on the recent transport system and management
- Selected case studies
- Road safety week observation
- Model making on traffic signaling system

Books Recommended:

- Kadiyali, L. R., "Traffic Engineering and Transportation Planning", Khanna Publishers, New Delhi
- Hutchison, B. G., "Introduction to Transportation Engineering and Planning", Tata McGraw-Hill Pvt. Ltd.
- Morlok, Edward K., "Introduction to Transportation Engineering and Planning", Tata McGraw-Hill Pvt. Ltd.
- Vuchic, Vukan R., "Urban Public Transit System and Technology", PHI Learning, New Delhi
- Dickey, John W., "Metropolitan Transportation Planning", Tata McGraw-Hill Pvt. Ltd Prabhu T. J., "Mechanics of Solids", Private Publication, 2002.

Paper Title: UAMV – 204: BASIC ELECTRICAL & ELECTRONICS

Job Role: Automobile Junior Technician

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objectives: This subject provides knowledge of different principals of electrical engineering, basic idea of different electronic components, semi conducting devices, transducers and digital electronics used in the industry.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

Fundamentals of DC & AC Circuits: Introduction to DC and AC circuits, Active and passive two terminal elements, Ohms law, Voltage-Current relations for resistor, inductor, capacitor, Kirchhoff's laws, Mesh analysis, Nodal analysis, Ideal sources – equivalent resistor, current division, voltage division. Sinusoids, Generation of AC, Average and RMS values, Form and peak

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factors, concept of phase or representation, Introduction to three phase systems - types of connections, relationship between line and phase values. Introduction to magnetic circuits-Simple magnetic circuits-Faraday's laws, induced emfs and inductances.

UNIT - II

Electronic Components & Semiconductor Devices: Resistors, capacitors & inductors (properties, common types, I-V relationship and uses), Overview of Semiconductors - basic principle, operation and characteristics of PN diode, zener diode, BJT, JFET, optoelectronic devices (LDR, photodiode, phototransistor, solar cell)

UNIT - III

Transducers & Digital Electronics: Instrumentation – general aspects, classification of transducers, basic requirements of transducers, passive transducers - strain gauge, thermistor, Hall-Effect transducer, LVDT, and active transducers – piezoelectric and thermocouple.

UNIT - IV

Number systems: binary codes - logic gates - Boolean algebra, laws & theorems - simplification of Boolean expression - implementation of Boolean expressions using logic gates - standard forms of Boolean expression.

Practical based on UAMV - 204

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any two question
- Each question carries 10 marks.
- Practical file carries 10 marks and 10 marks for viva-voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

List of Experiments:

- Measurement of electrical quantities (like voltage, current, power, power factor in RLC circuits)
- Testing of the following popular components:
 - Resistor
 - Potential meter
 - Inductor (Only continents)
 - Capacitor
 - Diode
 - BJT
 - LED
 - SCR
 - Few digital ICs and analog ICS.
- Techniques of Soldering.
- Familiarization of the following equipment.
- Multi-meter:- voltage, current, resistance measurement.
- Regulated Power Supply: - Set up for certain output voltage and measure it with multimeter.
- Signal generator and CRO: - check the signal generator frequencies and amplifier with CRO.
- V.I. Characteristics of the following components:- a) Rectifier diode b).Zener Diode
- 555 application.

Books Recommended:

- “Electrical Engineering Practice Laboratory Manual”. Subhransu Sekhar Dash & K.Vijayakumar, Vijay Nicole Imprints Private Ltd
- “A Primer on engineering practices Laboratory”, Jeyachandran K, Natarajan S & Balasubramanian S, Anuradha Publications.
- “Engineering practices Laboratory manual”, Jeyapooan T, Saravanapandian M & Pranitha S, Vikas Publishing House Pvt., Ltd.

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Paper Title: UAMV – 205: PETROL ENGINE

Job Role: Automobile Junior Technician

Theory: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Objectives: The course aims at sharing of knowledge of the different aspects of petrol engine, ranging from construction and operation to different systems and chambers among the students.

Instructions:

- The syllabus of this paper has been divided into FOUR units.
- Examiner will set a total of **NINE** questions comprising two questions from each unit, including Question No. 1 (compulsory) of short answer type covering the whole syllabus.
- The students are required to attempt one question from each unit and the entire Compulsory Question No. 1.
- All questions carry equal marks.

UNIT - I

ENGINE CONSTRUCTION AND OPERATION: Constructional details of four stroke petrol engine, working principle, air standard Otto cycle, actual indicator diagram, two stroke engine construction and operation, comparison of four stroke and two stroke engine operation, firing order and its significance. Port Timing, Valve Timing of petrol engines.

UNIT - II

SI ENGINE FUEL SYSTEM: Carburettor working principle, requirements of an automotive carburettor, starting, idling, acceleration and normal circuits of carburettors. Compensation, maximum power devices, constant choke and constant vacuum carburettors, fuel feed systems; mechanical and electrical fuel feed pumps. Petrol injection, MPFI.

UNIT - III

IGNITION SYSTEM: Types and working of battery coil and magneto ignition systems, relative merits and demerits, centrifugal and vacuum advance mechanisms. Types and construction of spark plugs, electronic ignition systems.

UNIT - IV

COOLING AND LUBRICATION SYSTEM: Need for cooling system, Types of cooling system: air cooling system, liquid cooling system, forced circulation system, pressure cooling system. Lubrication system; mist, wet sump lubrication system, properties of lubricants.

COMBUSTION AND COMBUSTION CHAMBERS: Combustion in SI engine; stages of combustion, flame propagation, rate of pressure rise, abnormal combustion, detonation, effect of engine variables on knock, knock rating. Combustion chambers; different types, factors controlling combustion chamber design.

Practical based on UAMV - 205

Practical: 40
Internal Assessment: 10
Total Marks: 50
Time: 3 hours

Instructions:

- Examiner will set total of four questions covering the whole syllabus.
- Student will attempt any two question
- Each question carries 10 marks.
- Practical file carries 10 marks and 10 marks for viva-voce.
- Practical paper will be conducted by the college and marks will be submitted to University.

List of Experiments:

- Construction of cylinder, piston, connecting rod, crankshaft and their relative movement
- Operation of two stroke and four stroke petrol engine
- Difference between four stroke and two stroke S.I. engine
- Valve timing if S.I. engine
- Principle of operation of simple carburetor
- Fuel circuit of MPFI (Petrol) engine
- Ignition system

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- Servicing of spark plug
- Components of cooling system
- Purpose of lubrication system
- Purpose of oil pump for lubrication system
- Identification of combustion chamber

Books Recommended:

- Ganesan. V, "Internal Combustion Engines", Tata McGraw - Hill Publishing Co. , New Delhi, 2003
- Automotive Engines, S. Srinivasan