

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**ENG 101 BASIC ENGLISH**

**2L+0T+0P+2C**

**MM 100**

**MODULE I:** Parts of Speech, Basic Sentence Pattern (SVOCA), Types of sentences (Simple, Compound & Complex), and Translations.

**MODULE II:** Tenses: Definition, Kinds, Usage & Exercises.

**MODULE III:** Short Stories

- (a) The Gift of Magi: O Henry
- (b) The Fun They Had : Issac Asimov
- (c) The Missing Mail: R.K. Narayan

**MODULE IV:** Vocabulary Building: Prefix and Suffix, Antonym and Synonym.

**MODULE V:** Composition: Application Writing, Letter Writing, Short Stories writing with or without clues.

**Text/ Reference Books:**

1. High School Grammar and Composition, Wren & Martin.
2. English Communication Skills, B.S.Jain, Oxford University Press
3. Essential Eng. Grammar:A Self-Study Ref. and Pract. Book for Elementary Stu. of English with Answers, Raymond Murphy Cambridge University Press.
4. Intermediate Grammar Composition & Usage, M. L. Tickoo and A. E. Subramanian, S.Chand and Co.
5. Living English Structure, Stannard Alien, Longman pub.
6. A Practical English Grammar, Thomson and Martinet, ELBS pub.

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**PHY 101 BASIC PHYSICS-I**

**3L+0T+ 0P+3C**

**MM 100**

**MODULE I: Units and Dimensions:** Idea of various systems of units, SI units - Basic, Supplementary and Derived Units, Prefixes & Symbols, Dimensions and Dimensional Formulae.  
**Elasticity:** Elasticity, Stress and Strain, Elastic Limit & Hooke's law, Young's Modulus.

**MODULE II: Particle kinematics & Dynamics:** Distance & displacement, velocity, acceleration, equations of motion by graphical method, Concept of Force, inertia, Newton's laws of motion. Elementary idea of conservation of momentum.

**MODULE III: Gravitation & Satellites:** Newton's law of Gravitation, Acceleration due to Gravity, Kepler's laws of Planetary Motion (statement only) , Artificial Satellite (simple idea), Geo-Stationary Satellites, Escape Velocity .

**MODULE IV: Properties of Liquids:** Surface Tension & Surface Energy, Cohesive & Adhesive Force, Angle of Contact, Capillarity, Streamline & Turbulent Flow, Viscosity & Coefficient of Viscosity, Stoke's law.

**MODULE V: Sound Waves:** Velocity of Sound Waves, Newton's Formula, Factors affecting Velocity of Sound Waves, Propagation of Progressive Wave, Superposition of Waves, and Stationary Waves (without mathematical analysis).

**Text/ Reference books:**

1. Engineering Physics, Gaur & Gupta.
2. Applied Physics Vol.-I, Hari Harlal, NITTTR.
3. Principles of Physics Brijlal, Subhramanyam.
4. A Text Book of Applied Physics, N.S. Kumar .

## Vivekananda Global University, Jaipur

Semester I

Diploma(Common to all branches)

### CHY 101 BASIC CHEMISTRY

2L+1T+0P+2.5C

MM 100

**MODULE-I:Atomic Structure:** Constituents of the atom, Bohr's Model of the atom, Quantum number- Principle quantum number, Azimuthal quantum number, Magnetic quantum number, Spin quantum number, Aufbau's Number, Pauli's Exclusion method, Electronic configuration of elements ( 1 to 30).

**MODULE-II: Periodic Table:** Modern periodic table, study of periodicity in physical and chemical properties with special reference to- atomic and ionic radii, Ionization potential, electron affinity and electro negativity and their influencing factors.

**MODULE-III: Carbon Chemistry:** Definition of organic chemistry, difference between organic and inorganic compounds, classification and nomenclature- open chain and closed chain compounds, IUPAC system of nomenclature.

**MODULE-IV: Fuel:** Definition of fuel, classification of fuel, solid fuel, formation of coke, liquid fuel, refining of petroleum, synthetic petrol, knocking, anti-knocking agent, octane number and cracking of higher molecular weight hydrocarbon fuels.

**MODULE-V: Cement: Definition** of cement, constituents of cement, manufacture of Portland cement and chemistry of setting and hardening of cement.

#### Text/ Reference books:

1. Engineering Chemistry, P.C.Jain and Monica Jain, Dhanpat Rai Pub, Co., New Delhi.
2. A text book of Engineering Chemistry, S.S.Dara, S.Chand & Co.Ltd., New Delhi.
3. Chemistry in Engineering & Tech, Vol. I & II , Kuriacose ( TMH)
4. Engineering Chemistry, B.Sivasankar, Tata McGraw-Hill Pub.Co.Ltd, New Delhi.
5. Engineering Chemistry, B.K.Sharma, Krishna Prakasan Media (P) Ltd., Meerut.
6. Chemistry in Engineering and Technology Vol. I and II, Kuriakose, J.C. and Rajaram J., Tata McGraw-Hill Publications Co.Ltd, New Delhi.

**MAT 100 APPLIED MATHAMATICS-I**

**3L+1T+0P+3.5C**

**MM 100**

**MODULE 1: Quadratic equations-** Definition of polynomial in one variable with example, Factorization of  $ax^2+bx+c$ ,  $a \neq 0$  where a, b and c are real numbers, Standard form of a quadratic equation  $ax^2+bx+c=0$ ,  $a \neq 0$ , Solution of quadratic equation(only real roots) by factorization, By completing the square and by using quadratic formula, Relationship between discriminant and nature of roots. Simple problems on division algorithm for polynomial with real coefficient.

**MODULE 2: Trigonometry-** Elementary identities, Allied angle ( $\sin(180 \pm A)$ ,  $\sin(90 \pm A)$  etc.), sum and difference formula (without proof) and their application, product formula and C-D formula, Identities related to  $\sin 2A$ ,  $\cos 2A$ ,  $\tan 2A$ ,  $\sin 3A$ ,  $\cos 3A$  and  $\tan 3A$ .

**MODULE 3: Complex number-** Definition of complex number, operations on complex number (Addition, Subtraction, Multiplication and Division), conjugate complex number, modulus and amplitude of a complex number, polar form of a complex number.

**MODULE 4: Matrices and Determinants-**Definition and types of Matrix, transpose of a Matrix, Definition and properties of Determinants, Minors and cofactors, adjoint and inverse of a matrix, Cramer's rule, Solution of simultaneous linear equations.

**MODULE 5: Two dimensional coordinate geometry-** General introduction, distance formula and ratio formula, Straight line: definition, slope form, intercept form, perpendicular form, one point slope form, two point form and general form, perpendicular distance of a line from a point, definition and standard equations Circle, Parabola and Ellipse .Reduction of general equation of second degree to standard conic section.

**Text/ Reference books:**

1. Mathematics - XI &XII, NCERT.
2. Mathematics XI &XII, Rajasthan Board, Ajmer.
3. Mathematics XI &XII, R.D. Sharma, Dhanpat Rai Publications.
4. Polytechnic Mathematics, H. K. Dass, CBS Publishers & Distributors-New Delhi.
5. Text book on differential calculus, Chandrika Prasad, Pothishala Pvt. Limited.
6. Text book on integral calculus, Chandrika Prasad, Pothishala Pvt. Limited.
7. Differential Calculus, M. Ray, S. S. Seth & G. C. Sharma, S Chand, & Company Ltd.

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**DCS 101 APPLIED COMPUTER-I**

**2L+0T+0P+2C**

**MM 100**

**Module-I: Introduction:** Computer: An Introduction, Generation of Computers; Data Representation: Bit, Nibble, Byte, Word; Number System: Decimal, Binary, Hexadecimal & their Conversions; Idea of: Hardware, Software; Computer Languages and Translators: Machine, Assembly, High Level Language; Translators: Assembler, Interpreter, Compiler.

**Module-II: Introduction to Computer:** Central Processing Unit (CPU), Memory Unit; Input/ Out Devices: Keyboard, Mouse, Scanner, Monitor, Printers, Plotters, Bar Code Reader; Secondary Storage Devices: Hard Disk, CD, DVD; Block Diagram Showing Interconnection of Computer Parts.

**Module-III: Operating System:** Definition of Operating System (OS), Types of OS: Single user, Multi user, Multi Programming, Time Sharing, Multi Processing.

**Module-IV: Introduction to Windows XP:**Introduction to Windows Environment, Parts of Windows Screen, Icon, Menu, Start Menu, Minimizing, Maximizing, Closing Windows; Windows Explorer, Recycle Bin, Clipboard, My Computer, My Network Places; Control Panel: Adding New Hardware and Software, Display, Font, Multimedia, Mouse, Paint.

**Module-V: Information Concepts and Processing:** Definition of Data, Information, Need of Information, Quality of Information, Computer Virus and their types.

**Text/ Reference books:**

1. Computer Fundamental, V.K. Jain, Standard Pub. & Distributors.
2. PC Software for Windows made simple R.K. Taxali, TMH.
3. Mastering Windows XP, TMH.
4. BPB Editorial Board, BPB in Hindi.
5. Introduction to Networking, NANCE, PHI.
6. First Course in Computer Science, Sanjeev Saxena, Vikas Publishing House.
7. First Look Microsoft Office 2003, Murray, PHI.

**DME 101 BASIC MECHANICS**

**2L+0T+0P+2C**

**MM 100**

**MODULE-I:** Introduction, Mechanics and its utility, Concept of scalar and vector quantities, Effect of force, Tension and compression, Rigid body System of force-concept of coplanar and non coplanar forces including parallel forces, concurrent and nonconcurring forces, Resultant forces, Equilibrium Forces, Law of Parallelogram of forces, Lamias Theorem.

**MODULE-II:** Moment and Couple - Introduction to Moment, concept of varignon theorem, theorem of moments, Application to simple problems on levers Bell crank lever, compound lever steel yard beams and wheels, lever safety valve Moment of couple, simple applied problems such as pulley and shaft.

**MODULE-III:** Friction and application-Introduction to friction, Types of friction, statics, limiting and dynamical friction, statement of laws of friction Coefficient of friction, angle of friction, problems on equilibrium of a body resting on a rough inclined plane, simple problems on friction, Wedge screw jack.

**MODULE-IV:** Centre of gravity and Moment of Inertia-Concept, definition of centroid of plane figures, centre of gravity of symmetrical solid bodies, calculation of C.G. of regular bodies, calculation of C.G. of plain geometrical figures, Concept of moment of inertia, second moment of inertia, Radius of gyration, problems related to L T I and channel section.

**MODULE-V** Machines-Definition of Machines, Mechanical Advantage, Velocity Ratio ,Input and Output, Mechanical efficiency, Law of Machine, Lifting Machine such as levers, single pulleys, three system of pulleys, simple wheel and axle, Differential wheel and axle, simple screw jack, worm and worm wheel.

**Text/ Reference books:**

1. S.K Singh –Vaya Education of India, New Delhi.
2. R.S.Khurmi-S. Chand Publication,New Delhi.
3. M.M.Malhotra, R.Subramanian-New Age International.

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**ENG 102 BASIC ENGLISH LAB**

**0 L+0T+ 2P+1C**

**MM 100**

We envisage two successive stages for attaining skill in communication ability

1. Listening
2. Speaking

We can club them together as shown above.

1. Listening:

For improving listening skills the following steps are recommended

- I. Listening to pre-recorded tapes
- II. Reproduce vocally what has been heard
- III. Reproduce in written form
- IV. Summarise the text heard
- V. Suggest substitution of words and sentences
- VI. Answer questions related to the taped text
- VII. Summarise in writing

2. Speaking:

- I. Introducing English consonants sounds and vowel sounds.
- II. Remedial exercises where necessary
- III. Knowing word stress shifting word stress in poly syllabic words  
[For pronunciation practice read aloud a paragraph or page regularly while others monitor]

3. Vocabulary:

- I. Synonyms. Homonyms. Antonyms and Homophones
- II. Words often confused, as for example, [I/Me; Your/Yours; Its/It's; comprehensible/comprehensive; complement/compliment]
- III. Context based meanings of the words, for example, man [N], man[vb], step[N], step[vb]

**Text/ Reference books:**

1. Communication Skills for engineers and scientists, Sangeeta Sharma and Binod Mishra, PHI Learning Pvt. Ltd.
2. English for engineers: Made Easy, AedaAbidi and Ritu choudhary, Cengage Learning[New Delhi].

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**PHY 102 BASIC PHYSICS LAB-I**

**0L+0T+2P+1C**

**MM 100**

**List of Experiments (any six):**

1. To Measure the thickness of given wire & glass plate using Screw gauge.
2. To Measure Internal Diameter, External Diameter and Depth of the given pipe using Vernier Callipers
3. To Measure radius of curvature of a Lens using spherometer.
4. To determine the spring constant of given spring.
5. To Determine acceleration due to Gravity using Simple Pendulum
6. To Verify Newton's Law of Cooling.
7. To Determine the Velocity of Sound at room temperature using Resonance Tube.
8. To Determine the Refractive Index of Glass using Travelling Microscope.

**Text/ Reference books:**

1. Engineering Physics Gaur & Gupta.
2. Applied Physics Vol.-I Hari Harlal, NITTTR.
3. Principles of Physics Brijlal, Subhramanyam.
4. A Text Book of Applied Physics N.S. Kumar.



**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**CHY 102 BASIC CHEMISTRY LAB-I**

**0L+0T+2P+1C**

**MM 100**

**List of Experiments (any six):**

1. To determine the hardness of water by HCl method.
2. To determine the hardness of water by EDTA method.
3. To determine pH of a given sample by pH-meter.
4. To determine conductivity of a given sample by conductivity -meter.
5. To determine the strength of  $\text{CuSO}_4$  solution with the help of hypo solution
6. To determine the percentage of available chlorine in a given sample of bleaching powder.
7. To determine the strength of Ferrous Ammonium sulphate solution with the help of  $\text{K}_2\text{Cr}_2\text{O}_7$  solution using external indicator.
8. Preparation of standard solution of N/10, N/20 etc. (oxalic acid /hypo/ NaOH)

**Text/ Reference books:**

1. Practical Engineering Chemiostry, Dr.Sapna Dubey & Dr.Renu Gupta.
2. Handbook of technical Analysis, Banerji Jain Bros. Jodhpur.
3. Practical Engineering Chemistry, Dr.Sapna Dubey & Dr.Renu Gupta.
4. Vogel's Textbook of Quantitative Chemical Analysis (Latest ed.), Revised by G.H. Jeffery, J. Bassett, J. Mendham & R.C. Denney.
5. Applied Chemistry: Theory and Practice (Latest ed.), O.P. Vermani & A.K. Narula.

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**DCS 102 APPLIED COMPUTER LAB-I**

**0L+0T+ 2P+1C**

**MM 100**

**List of Experiments:**

1. Study of Computer Components
2. Practice of using My Computer, Windows Explorer
3. Practice of using Control Panel
4. Practice of My Network Places
5. Practice of CD and DVD Writing
6. Practice of Paint
7. Installation of Windows XP by using NTFS File System.

**DME 102 ENGINEERING DRAWING**

**0L+0T+ 2P+1C**

**MM 100**

**Introduction to Engineering Drawing:** Basic Introduction to Engineering Drawing, Drawing Instruments, Drawing Margins & title Block, Lettering, Type of lines, Dimensioning techniques, Scales: Types of scales, construction of Scales: plain Scales, Vernier Scales, Diagonal Scales, Comparative scales Engineering curves: Classification and application of Engineering Curves, Construction of Conics, Cycloidal Curves, Involutives and Spirals along with normal and tangent to each curve.

*(Draw in Sketch book)*

*(Sheet-1)*

**Projections of Point & Lines:** Introduction to principal planes of projections, Projections of the points located in same quadrant and different quadrants, Projections of line with its inclination to one reference plane and with two reference planes. True length and inclination

*(Sheet-2)*

**Projections of Solids and Section of Solids:** Classification of solids. Projections of solids (Cylinder, Cone, Pyramid and Prism) along with frustum with its inclination to one reference plane and with two reference planes. Section of such solids and the true shape of the section.

*(Sheet-3)*

**Orthographic Projection :** Fundamental of projection along with classification, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method, full sectional view

*(Sheet-4)*

**Isometric Projection:** Principle of Isometric Projection Isometric scale, Isometric projections and Isometric Views, Isometric Views of standard shapes, Isometric views of standard solids.

*( Sheet-5)*

**Screw Threads.** Introduction, Definitions of crest, Roots, flank etc, Forms of screw threads, Triangle or V threads, Square Threads, Acme threads , Knuckle threads, Butterress threads, Conventional Representation of threads, Multiple start threads

*( Sheet-6)*

**Riveted Joints and Welded joints.** Introduction Riveting Caulking and fullering forms and proportions of rivet heads, Types of Riveted joints, Welded joints ,welding, Representation of welded joints

**Computer Aided Drafting:** Introduction to CAD, Advantages of CAD software's, Auto CAD, Auto CAD Commands and tool bars, Creating the Drawing, Changing properties, Dimensioning other object, Text editing, Isometric drawing.

**Reference/Text Books:**

1. Engineering Drawing Geometrical Drawing P.S.Gill , S.K.Katara & Sons.
2. Engineering Drawing, Dhanarajay A Jolhe ,Tata McGraw Hill.
3. Engineering Drawing, Basant Agarwal & CM Agarwal, Tata McGraw Hill.
4. Engineering Drawing, N.D.Bhatt, Charotar Publishing House Pvt. Ltd.

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**DME 103 BASIC MECHANICS LAB**

**0L+0T+ 2P+1C**

**MM 100**

**List of experiments:**

- 1) Use of Engineering calculator
- 2) To Verify the law of parallelogram and Triangle of forces
- 3) To find the Reaction at supports of a simple supported beam carrying points loads only.
- 4) To verify the law of principle of moments.
- 5) To find the mechanical advantage, velocity ration and efficiency of Differential wheel & axle.
- 6) To find the mechanical advantage, velocity ration and efficiency of Simple wheel and Axle.
- 7) To find the coefficient of friction between wood, steel, copper and glass.
- 8) To find the force in the jib and tie of a jib crane.
- 9) Determination of value of “g” by simple pendulum.
- 10) Determination of mechanical advantage velocity ratio & efficiency of First system of Pulley.
- 11) Determination of mechanical advantage velocity ratio & efficiency of Second system of Pulley.
- 12) Determination of mechanical advantage velocity ratio & efficiency of Third system of Pulley.
- 13) Determination of mechanical advantage velocity ratio & efficiency of worm and worm wheel.
- 14) Determination of mechanical advantage velocity ratio & efficiency of screw jack

**DEE 101 ELECTRICAL & ELECTRONICS WORKSHOP**

**0L+0T+ 2P+1C**

**MM 100**

**List of Experiments:**

1. Demonstration of tools commonly used in Electric Shop
2. Safety precautions , electric shock treatment
3. Demonstration of Common Electric material like: wires, fuses, ceiling fan, and allied items
4. Demonstration of Voltmeter, Ammeter, MultiMate(both Digital and Analog) and Energy meter
5. Wiring practice with type of the cabals in batten wiring, plastic casing-capping and Control of one lamp by two switch
6. Dismantle, study, find out fault, repair the fault, assemble and test domestic appliances like electric iron, electric mixer, ceiling and table fan, tube-light, water heater (geyser) and desert cooler.
7. Familiarization, demonstration and use of the following electronic Instruments:
  - a. CRO
  - b. DSO
  - c. Function Generator
8. Identification , familiarization and uses of commonly used of Electronics Elements like Active and Passive elements , Capacitor, Inductors Diodes Transistors, ICs(555 and Voltage regulators IC) with their symbols.
9. Demonstrate and practice the skill to Soldering and unsoldering of the PCB.
10. Various types of switches such as: normal/miniature toggle, slide, push button piano key, rotary, SPST, SPDT, DPST, DPDT, band selector, multi-way Master Mains Switch.

**Vivekananda Global University, Jaipur**

**Semester I**

**Diploma(Common to all branches)**

**ENG 110 SOFT SKILLS FOR LEARNERS**

**0L+0T+2P+1C**

**MM 100**

**Module I:** About our Institute, Vision and Mission,Importance of Soft Skills

**Module II:** Discipline and Responsibility,Conversational Skills,PresentationSkills

**Module III:** Overcoming stage-fear,Addressing Titles,Art of writing

**Module IV:** Asking questions,Conversational Starters

**Module V:** Vocabulary(Scenario based),Usage & Sentence Pattern

Text/Reference Books

1. Business communication design,Angell,Pamela,Mcgraw-Hill,New York
2. Grammer Finder,Eastwood ,John,Oxford University Press
3. Effective Technical Communication,Mitra,K.Barun,Oxford University Press
4. Communicate to conquer:A handbook of group discussion and interviews,PHI learning,New Delhi

**DME 104 WORKSHOP PRACTICE-I**

**Gas Welding Shop**

**Exercises:**

1. Demonstration on Brazing by the Instructor.
2. Demonstration on Soldering.
3. Demonstration on Gas Cutting.
4. Preparation of a Butt Joint by Gas Welding.

**Sheet Metal Shop**

**Exercises:**

Preparation of following utility Jobs involving Various Sheet Metal Joints (Single and Double Hem Joints, Wired Edge, Lap Joint, Grooved Seam Joint, Single and Double Seam Joint) and Exercises (Soldering and Riveting Joints)

1. Preparation of a Soap Tray
2. Preparation of Mug

**Plumbing Shop**

**Exercises:**

1. Cutting and Threading on G.I. Pipe.
2. Exercise on PVC Pipe Fitting.
3. Repair of Taps and Cocks.

**Carpentry Shop**

**Exercises:**

1. Preparation of Bridle Joint.
2. Preparation of Mitre Joint.
3. Preparation of Job on Wooden Polishing Work.

**REFERENCE BOOKS:**

1. Workshop Practice, K.C.John, PHI Learning Pvt. Ltd.
2. Modern Workshop Technology, Henry Wright, BAKER Cleaver-Hume Press.
3. Workshop Technology, Hajra ,Chaudhary, Media promoters & publishers PVT. Ltd.
4. Workshop Technology, B.S.Raghuvanshi, Dhanpat Rai & Company (p) Limited.
5. Workshop Technology, Virendra Narula, Kataria & Sons Publications.
6. Comprehensive Workshop Technology, S.K.Garg, Laxmi Publications.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**ENG 103 COMMUNICATION SKILLS**

**2L+0T+0P+2C**

**MM 100**

**MODULE I:** Narration, Active- passive

**MODULE II:** Articles (A, An, The), Preposition, Proper use of Verbs, Special forms of verbs

**MODULE III:** Modals ( Can, Could, Should, Will, Would, May, Might, Must, Need Not, Dare Not, Ought To, Used To),

Phrasal Verbs (Work Up, Break Up, Stand up for, Turn Down, Pass away, Pass on, Back out, Carry out, Done for, Bring about, Go through, Ran over, Look for, Pick out)

**MODULE IV:** Short Stories

(a) The Home Coming: R. N. Tagore

(b) Reach for the top: Santosh Yadav

(c) How I Taught My Grandmother to Read: Sudha Murthy

**MODULE V:** Unseen Passage, Paragraph Writing, Essay Writing

**Reference/Text Books:**

1. High School Grammar and Composition by Wren & Martin
2. English Communication Skills by B.S.Jain, Oxford University Press
3. Essential Eng. Grammar:A Self-Study Ref. and Pract. Book for Elementary Stu. of English with Answers Raymond Murphy Cambridge University Press
4. Intermediate Grammar. Composition & Usage by M. L. Tickoo and A. E. Subramanian Pub: S.Chand and Co.
5. Living English Structure by Stannard Alien. Pub: Longman
6. A Practical English Grammar by Thomson and Martinet Pub: ELBS



Vivekananda Global University, Jaipur

Semester II

Diploma(Common to all branches)

**PHY 103 BASIC PHYSICS-II**

**2L+1T+0P+2.5**

**MM 100**

**MODULE I: Electrostatics:** Coulomb's Law , Intensity of Electric Field, Intensity due to a Point Charge, Electric Lines of Forces & Electric Flux, Electric Potential.

**D.C. Circuits:** Ohm's Law, Effect of Temperature on Resistance, Resistivity, Resistance in Series and Parallel, Wheatstone bridge, Meter Bridge.

**MODULE II: A.C. Circuits:** Faraday's Laws of Electro Magnetic Induction, Lenz's Law , Self and Mutual Inductance, Alternating Current, Behavior of Resistance, Capacitance and Inductance in an AC Circuit, Choke Coil.

**MODULE III: Semi Conductor Physics:** Energy Bands in Conductor, Semi Conductor & Insulator, Intrinsic and Extrinsic Semiconductors, PN-Junction Diode, Zener Diode , Junction Transistors, Working and Characteristic Curves.

**MODULE IV: Modern Physics:** Photo Electric Effect, Einstein's Equation, Lasers, Stimulated Emission and Population Inversion, Ruby Laser, Application of Lasers (brief idea only)

**MODULE V: Nuclear Physics:** Idea of Nuclear Force, Mass - Defect and Binding Energy, Nuclear Reactions, Radioactivity, Law of Radioactive Disintegration, Half Life & Mean Life , Idea of Nuclear Fission and Fusion , Nuclear Reactor.

**Pollution and its control:** Introduction to Pollution – Water, Air, Soil, Noise and Nuclear, Brief idea about Noise Pollution and its Control.

**Reference/Text Books:**

1. Engineering Physics, Gaur & Gupta.
2. Applied Physics Vol.-II Hari Harlal, NITTTR.
3. Principles of Physics Brijlal, Subhramanyam.
4. A Text Book of Applied Physics, N.S. Kumar.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**CHY 103 ENVIRONMENTAL SCIENCES**

**3L+0T+0P+3C**

**MM 100**

**MODULE-I: Introduction and natural resources:** Multidisciplinary nature and public awareness, renewable and non renewable resources and associated problems, forest, water , mineral, food , energy and land resources. Introduction to natural resources, conservation of natural resources and human role.

**MODULE-II: Ecosystem:** Ecological concepts, concept of ecosystems, types of ecosystems, ecosystem structure and functioning, energy flow, food chains and food webs, ecological pyramids

**MODULE-III: Biodiversity and Conservation:** Definition, genetic species and ecosystem diversity biogeographically, classification of Indian value of biodiversity at national and local levels, India as a mega-diversity nation , treats to biodiversity and endangered and endemic species of India, need for conservation of biodiversity.

**MODULE-IV: Environmental pollution:** Definition , causes, effect and control of air pollution , water pollution, soil pollution, marine pollution, noise pollution, thermal pollution, electromagnetic pollution, nuclear hazards , human role in prevention of pollution, solid waste management, disaster management, floods , earthquake, cyclone, and landslide

**Firework Safety:** Combustion of firework and pollution (noise, smoke, fireworks fallout and residue pollution), heavy metal toxicity due to fireworks and associated health effects.

**MODULE-V: Social Issue and Environment:** Unsuitable to suitable development , urban problem related to energy and water conservation, environment protection act, wild life protection act, forest conservation act, environmental issues, population explosion, and family welfare programmed. Environmental and human health HIV, women and child welfare, role of information technology on environment and human health.

**Corruption:** definition and reasons, details of organizations/agencies working against corruption, role of individual against corruption and mode of action.

**Ethics :** Meaning , nature, determinants and objectives of ethics, ethics and its relation to values norms and morals, Indian ethos, Swami Vivekananda and ethics.

**Reference/Text Books:**

1. Agrawal,K.C.: Fundamentals of Environmental Biology,2001, Bikaner (India): Nidhi Publishers.
2. Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA.
3. Odum E.P.: Fundamentals of Ecology,1996, Dehradun: Natraj Publisher.
4. Chapman,J.L. & Reiss, M.J.: Ecology: Principles and Applications, 1995, Cambridge University Press.
5. Atmospheric pollution, by W Buch , Tata McGraw Hill(TMh).
6. Professional Ethics and Human Values, Govindarajan M, PHI Learning Private Limited , Delhi.
7. Corruption and Reform in India By Jennifer Bussell , Cambridge University Press.

**MAT 101 APPLIED MATHAMATICS-II**

**3L+1T+0P+3.5C**

**MM 100**

**MODULE 1: Sets and Relation :** Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Power set. Universal set. Venn diagrams. Union and intersection of sets, Difference of sets, Complement of a set, Ordered pairs, Cartesian product of sets, Definition of relation, Domain,Co-domain and range of a relation, Type of relation, Equivalence relation, Partitions.

**MODULE 2 Function:** Definition of function, range and domain of function, types of function, graphs of standard functions, Permutation function; Limits: Concept of limit, L.H.L., R.H.L., limit of standard functions; Concept of Continuity and Differentiability at a point (Simple Problems).

**MODULE 3: Differential Calculus-**Standard formulae (except Hyperbolic function), derivative of sum, difference, multiplication and division of two functions, differentiation of function of a function, differentiation of parametric functions, Geometrical meaning of  $\frac{dy}{dx}$ , derivative as a rate measure, second order derivative, maxima and minima of function with one variable.

**MODULE 4: Integral Calculus-**General introduction of integral calculus, integration of sum and difference of functions, integration by simplification, integration by substitution, integration by parts, integration of rational and irrational functions, integration of trigonometric functions, definite integral and its properties.

**MODULE 5 :- Vector algebra:** Definition, addition and subtraction of vectors, scalar and vector product of two vectors, scalar triple product and vector triple product.

**Reference/Text Books:**

1. NCERT, Mathematics - XI &XII.
2. Rajasthan Board, Ajmer -Mathematics XI &XII.
3. R.D. Sharma , Mathematics XI &XII, Dhanpat Rai Publications.
4. H. K. Dass, Polytechnic Mathematics, CBS Publishers & Distributors-New Delhi.
5. Chandrika Prasad, Text book on differential calculus, Pothishala Pvt. Limited.
6. Chandrika Prasad ,Text book on integral calculus, Pothishala Pvt. Limited.
7. M. Ray, S. S. Seth & G. C. Sharma, Differential Calculus, S Chand & Company Ltd.
8. M. Ray, S. S. Seth & G. C. Sharma, Integral Calculus, S Chand & Company Ltd.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**DCS 201 APPLIED COMPUTER-II**

**2L+0T+0P+2C**

**MM 100**

**Module-I: Computer and Communication:** Need of Data Transmission, Data Transmission Media, Serial and Parallel Data Transfer, Protocols, MODEM. Networking of Computers: LAN, WAN, MAN, LAN Topologies: Bus, Star, Ring And Hybrid.

**Module-II: Internet:** Introduction to Internet, Bridges, Routers, Switch, Gate way, www, Web Site, URL, e-mail, Web browsing, Web page, Introduction to http & ftp Protocol.

**Module-III: Information Processing:** Word processor, Introduction to MS-Word, Starting MS-Word, Special Features of MS-Word, Using Help, Opening Document, Typing and Editing, Copying, Inserting, Moving, Deleting, Copying from One Document to Others, Undo, Redo, Spell Check, Find and Replace, Formatting, Characters and Fonts, Spacing, Removing Characters Formatting, Inserting Symbols, Paragraphs, Page Setting, Header and Footer, Page Breaks, Borders and Shading, Print Preview and Printing, Tables and Columns, Mail Merge, Auto Text and Auto correct.

**Module-IV: Electronic Spread Sheet:** Introduction to MS-Excel, Working with Spread Sheet, Editing the Worksheet, Worksheet Formatting, Formula Entering, Function Wizard, Saving and Printing Work Book, Analysis Tools, Data Tools, Charts, Creating Excel Database.

**Module-V: Power Point :** Introduction to Power Point, Creating a Presentation/Slide, Adding Animation in Slide, Running a Slide Show.

**Reference/Text Books:**

1. Computer Fundamental, V.K. Jain, Standard Pub. & Distributors.
2. PC Software for Windows made simple, R.K. Taxali, TMH.
3. Mastering Windows XP, TMH.
4. BPB Computer Course, BPB Editorial Board, BPB in Hindi.
5. Introduction to Networking, NANCE, PHI.
6. First Course in Computer Science, Sanjeev Saxena, Vikas Publishing House.
7. First Look Microsoft Office 2003, Murray, PHI.

**DME 201 BASIC MACHINES**

**2L+0T+0P+2C**

**MM 100**

**MODULE 1:** Introduction of machines, types of machines, History of machines , Conventional and non-conventional machine, mechanism, links , joints , how machines are effects our daily life.

**MODULE 2:** Basic mechanical machine, Lathe machine and its types, shaper machines, planer, slotter, drilling, power hack saw machine, grinding machine.

**MODULE 3:** Engine and its types, working of engines, various types of hydraulic machines like pump, turbine, compressor and its types.

**MODULE 4:** Basic electrical and electronics machine: - Introduction of electrical and electronics machines, transformer, generator and its types, CRO machines, general application of electrical and electronics machines in our daily life.

**MODULE 5:** Miscellaneous machines: - What is Automation, how the manual machine converted into automatic machine such as various examples of Automatic machine, CNC, Robot, UTM, vacuum cleaner.

**Reference/Text Books:**

1. Mechanical engineering, R.S.Khurmi.
2. Workshop technology, Hajra Choudhary.
3. Hydraulic machines, R.K. Bansal.
4. Automobile Engine, Kripal Singh.
5. Electrical Machine, Asfaq Husaain.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**ENG 104 COMMUNICATION SKILLS LAB**

**0L+0T+2P+1C**

**MM 100**

We envisage two successive stages for attaining skill in communication ability

1. Listening
2. Speaking

We can club them together as shown above.

1. Delivering Short Discourses:
  - I. About oneself
  - II. Describing a place, person, object
  - III. Describe a picture, photo.
2. Group Discussion:
  - I. Developing skill to initiate a discussion [How to open]
  - II. Snatching initiative from others [Watch for weak points, etc.]
3. Expand a topic sentence into 4-5 sentence narrative.

**Reference/Text Books:**

1. Communication skills for engineers and scientists, Sangeeta Sharma and Binod Mishra, PHI Learning Pvt. Ltd.
2. English for engineers: Made Easy, AedaAbidi and Ritu choudhary, Cengage Learning,[New Delhi]

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**PHY 104 BASIC PHYSICS LAB-II**

**0L+0T+2P+1C**

**MM 100**

**List of Experiments(any six):**

1. To Determine Refractive Index of Glass using Prism.
2. To verify ohm's law.
3. To Measure the internal resistance of a Galvanometer by Half-Deflection Method
4. Law of Resistances (series & parallel combination).
5. To determine the resistivity of the material of given wire using meter bridge.
6. To compare emf of two Primary Cells using a Potentiometer
7. To determine Focal Length of a Convex Lens by boy's method
8. To draw Characteristic Curves of PN Diode.

**Reference/Text Books:**

1. Engineering Physics, Gaur & Gupta.
2. Applied Physics Vol.-II, Hari Harlal, NITTTR.
3. Principles of Physics, Brijlal, Subhramanyam.
4. A Text Book of Applied Physics, N.S. Kumar.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**CHY 104 BASIC CHEMISTRY LAB-II**

**0L+0T+2P+1C**

**MM 100**

**List of Experiments (any six)**

1. To determine the dissolved ammonia in given sample water
2. Determine the dissolved carbon dioxide of a given sample of water
3. Determination of acid value of oil.
4. Analysis of a mixture containing two salts.
5. Determination of percentage purity of an acid by titration with standard acid.
6. Determination of percentage purity of a base by titration with standard alkali solution.
7. To determine the strength of Ferrous Ammonium sulphate solution with the help of  $K_2Cr_2O_7$  solution using internal indicator.
8. Prepare Mohr's salt or F.A.S. (Ferrous ammonium sulphate)

**Reference/Text Books:**

1. Practical Engineering Chemistry, Dr.Sapna Dubey & Dr.Renu Gupta.
2. Handbook of technical Analysis, Banerji Jain Bros. Jodhpur.
3. Practical Engineering Chemistry, Dr.Sapna Dubey & Dr.Renu Gupta.
4. Handbook of technical Analysis, Banerji Jain Bros. Jodhpur.
5. Practical Engineering Chemistry, Dr.Sapna Dubey & Dr.Renu Gupta.
6. Vogel's Textbook of Quantitative Chemical Analysis (Latest ed.), Revised by G.H. Jeffery, J. Bassett, J. Mendham & R.C. Denney.
7. Applied Chemistry: Theory and Practice (Latest ed.), By O.P. Vermani & A.K. Narula.



**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**DCS 202 APPLIED COMPUTER LAB-II**

**0L+0T+2P+1C**

**MM 100**

**LIST OF PRACTICALS:**

1. Visit to Internet Site.
2. Creating e-mail Account, Sending and Receiving e-mails.
3. Sending e-mail with Attachment & Signature.
4. Searching Web Page/ Site using Search Engine (eg. google.com, yahoo.com, altavista.com etc.).
5. Exercise Based on MS-Word: Document Preparation, Printing Document, Mail Merge usage, Draw Table
6. Exercise Based on Ms-Excel Work Book Preparation, Printing Workbook, Data-base usage, Draw Charts
7. Exercise Based on Power Point Creating Slide, Adding, Animations in Slide, Running Slide.

**DME 202 COMPUTER AIDED DRAWING**

**0L+0T+2P+1C**

**MM 100**

**Isometric Projections:** Isometric projection of planes and solids.

[At least 3 Problems in AutoCAD and 3 problems in Sketch book]

**Orthographic Projection:** Introduction to orthographic projection, concept of first angle and third angle projection, drawing of simple machine elements in first angle projection.

[At 4 problems on AutoCAD and 4 problems in sketch book]

**Section of solids:** Introduction to sectional views, Section of right solids by normal and inclined planes.[At least 2 problems on AutoCAD and 2 problems in sketch book]

**Conventional representation of materials:** Common features, Springs, Gear Assemblies, Materials, Interrupted views and Braking of Shaft, Pipe, Bar, Surface finishing & Machining Symbols

[At least 2 problems on AutoCAD and 2 problems in sketch book]

**Miscellaneous:** Welded joints, riveted joints, Belt and pulleys, screw fasteners, Bearings; Ball, roller, needle, foot step bearing Belt and pulleys, pipe joints.

[At least one problem from each on AutoCAD and sketch book preparation of all topics]

**Reference/Text Books:**

1. N.D. Bhatt, Elementary Engg. Drawing, Chartor Pub. House, Anand, India.
2. D. N. Johle, Engineering Drawing, Tata Mcgraw-hill Publishing Co. Ltd..
3. P.S. Gill, Engineering Graphics.
4. N.D. Bhatt, Machine Drawing, Chartor Publishing house, Anand, India.
5. Warren J. Luzzader, Fundamentals of Engineering Drawing, Prentice Hall of India, New Delhi.
6. Fredderock E. Giesecke, Alva Mitchell & others, Principles of Engineering Graphics, Maxwell McMillan Publishing.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**DME 203 BASIC MACHINES LAB**

**0L+0T+2P+1C**

**MM 100**

**List of Experiments:**

1. To study the two & four stroke spark ignition, internal combustion engine.
2. To study the two & four stroke compression ignition, internal combustion engine.
3. To Study of lathe machine.
4. To Study of shaper machine.
5. To Study of drilling machine.
6. To Study of electrical pump.
7. To Study of reciprocating pump.
8. To Study of electrical generator.
9. To Study of compressor.
10. To Study of electric Transformer.
11. To Study of Cathode Ray Oscilloscope (CRO) machine.
12. To determination of mechanical advantage velocity ratio & efficiency of single purchase winch crab.
13. To determination of mechanical advantage velocity ratio & efficiency of double purchase winch crab.

**DME 204 WORKSHOP PRACTICE-II**

**0L+0T+4P+2C**

**MM 100**

**Carpentry Shop**

**Exercises :**

- 1. Preparation of Cross-Half Lap Joint.**
- 2. Preparation of T-Lap Joint.**

**Electric arc Welding Shop**

**.Exercises :**

- 1. Preparation of Lap Joint by Electric arc Welding.**
- 2. Preparation of T-Joint by Electric arc Welding.**

**Fitting shop:**

**Exercises :**

- 1. Marking Filing & Hack Sawing Practice.**
- 2. Production of Utility Job involving Marking, Filing and Hack Sawing.**
- 3. Production of Utility Job involving Marking, Filing and Hack Sawing Drilling and Tapping.**

**Machine Shop:**

**Exercises :**

- 1. To perform Facing and turning operation on a given work piece.**
- 2. To perform knurling and chamfering operation on a given work piece.**
- 3. To perform drilling operation and step turning on a given work piece.**

**Reference/Text Books:**

1. Workshop Practice, K. C. JOHN, PHI Learning Pvt. Ltd.
2. Modern Workshop Technology, Henry Wright, BAKER Cleaver-Hume Press.
3. Workshop Technology, Hajra, Chaudhary , Media promotors & publishers pvt. Ltd.
4. Workshop Technology , B.S. Raghhuwanshi , Dhanpat Rai & Company (p) Limited
5. Workshop Technology, Virendra Narula, Kataria & sons publications.
6. Comprehensive Workshop Technology, S.K. Garg, Laxmi Publications.

**Vivekananda Global University, Jaipur**

**Semester II**

**Diploma(Common to all branches)**

**ENG 111 PRACTICE ON SOFT SKILLS**

**0L+0T+2P+1C**

**MM 100**

**Module I:** Positive Attitude, Conflict Management

**Module II:** Peer pressure and where to draw the line? Ethics and Ethos, Role of Social Media

**Module III:** Quick Revision-Noun, Verb and Subject –Verb agreement

**Module IV :** Active –Passive Voice, Direct and Indirect Speech

**Module V :** Modals, Vocabulary

**Text/Reference Books**

1. Business communication Design, Angell Pamela , Mcgraw-Hill, New York.
2. Grammar Finder, Eastwood, John, Oxford university press.
3. Effective technical communication, Mitra, K. Barun, Oxford university press
4. Communicate to conquer: A handbook of group discussion and interviews, PHI learning, New Delhi.