

SARDAR PATEL UNIVERSITY
FIRST YEAR B.Sc. (First Semester)
BIOLOGY (ZOOLOGY) FSBI-101
Invertebrata, Hemichordata and Applied Zoology
(EFFECTIVE FROM JUNE 2010)
(2 CREDITS, TWO PERIODS PER WEEK)
(TotalMarks-100, Internal-30marks, External-70)

UNIT 1

Outline classification and significance of classification, Major Invertebrate phyla(Protozoa to Hemichordata)

Type study of Amoeba- Systematic position, Habit & Habitat, Structure, Locomotion(Sol-gel Theory),Food,Feeding and nutrition(Ingestion methods, digestion, assimilation, diasimilation, egestion), Respiration , Excretion, Osmoregulation, Behaviour, Reproduction (Asexual methods-binary fission, multiple fission, sporulation and encystment)

Type study of Hydra- Systematic position ,Habit & Habitat, Structure-External and Internal(Histology of body wall, cells of body wall and their functions), Locomotion methods, Food, Feeding and nutrition(Ingestion , digestion, egestion), Respiration , Excretion, Osmoregulation, Nervous system, Reproduction (Asexual and sexual, Fertilization, Development, Regeneration(Excluding Behaviour)

UNIT 2

Study of Parasites-Filaria, Taenia solium and Plasmodium(External structure, lifecycle, pathogenicity, symptoms, prevention and drugs)

Type study of Earthworm- Systematic position ,Habit & Habitat, External Structure, Body wall and its functions), Coelom-composition and function, Digestive system, Food and Feeding mechanism, Physiology of digestion, Excretory system-types of nephridia, structure, Physiology of Excretion, Nervous system-central, peripheral and sympathetic, Sense organs-Epidermal receptors, buccal and photoreceptors, Reproductive system-male and female, copulation, cocoon formation and development (Excluding circulatory system)

UNIT 3

Type study of cockroach- Systematic position ,Habit & Habitat, External Structure, Segmentation-Head, mouth parts, thorax, walking legs, wings, abdomen, Body wall and its functions, Body cavity, Fat body-cells and function, Digestive system, Food and Feeding mechanism, Physiology of digestion, Digestive glands, Blood vascular system-Haemocoel, heart, haemolymph, circulation of blood, Respiratory system-spiracle and types, trachea, mechanism of respiration, Excretory system-types of excretory organs, structure of malphigian tubules, Physiology of Excretion, Nervous system-central, peripheral and sympathetic, Receptor organs-sensillae and photoreceptor organ, working of compound eye, Reproductive system-male and female, copulation, ootheca formation and development (Excluding endoskeleton and locomotion)

Metamorphosis in Insects-Definition, Types-(Ametabolous, hemimetabolous, holometabolous, gradual metamorphosis), Hormonal control of metamorphosis in brief

UNIT 4

Pearl culture-Composition, pearl producing molluscs, formation of pearls
Economic importance of Mollusca

Water vascular system in Echinoderms-Composition and working mechanism

Type study of Balanoglossus-Systematic position, Habit & Habitat, External Structure, body wall, coelom, Digestive system, food, feeding and digestion, Respiratory system and mechanism of respiration, Excretory system, Nervous system, Sense organs, Reproductive system, Fertilization and development, pre-larval development, larval development, tornaria larva, metamorphosis, Asexual reproduction (Excluding endoskeleton & Blood vascular system)

LIST OF REFERENCE BOOKS

- 1) Modern Textbook of Zoology (Invertebrates)- R.L. Kotpal
- 2) Textbook of Invertebrate Zoology Vol-I & II –G.S. Sandhu, H. Bhaskar
- 3) Invertebrate Zoology- Jordan and Verma
- 4) Biology of Animals(Invertebrate)- Ganguly, Sinha and Adhikari (Vol I & II)
- 5) Medical Parasitology -Dey & Dey
- 6) Economic Zoology-Shukla and Upadhyay
- 7) Handbook of Economic Zoology-Jawaid Ahsan, Subhash Prasad Sinha
- 8) Invertebrate Zoology by R.D. Barnes: W.B. Sauwonders

SARDAR PATEL UNIVERSITY
FIRST YEAR B. Sc. (First Semester)
BIOLOGY (BOTANY) FEBI-102
Plant Cytology and Taxonomy
(Effective from June 2010)
(2 CREDITS, TWO PERIODS PER WEEK)
(Total Marks-100, Internal-30 marks, External-70 marks)

Unit-1

- ◆ Viruses : History, Properties, Structure and symmetry, Lytic and Lysogenic cycle Bacteriophage, TMV
- ◆ Prokaryotic cell – Ultra structure of Bacterial cell, Morphological types of Bacteria, Vegetative, Asexual and Sexual (Transformation, conjugation and Transduction) reproduction in brief

Unit-2

- ◆ Eukaryotic Cell : Ultrastructure of eukaryotic cell.
- ◆ Ultrastructure and functions of Cell organelles: Cell wall, Plasma membrane, Mitochondria, Chloroplast, Endoplasmic Reticulum, Golgi Complex, Lysosomes and Ribosomes.
- ◆ Cell Division: Mitosis and its significance.

Unit-3

- ◆ Plant Morphology
- ◆ Phyllotaxy and its types – Alternate, Opposite and Whorled
- ◆ Leaf Morphology – Parts of simple leaf
- ◆ Compound leaf and its types – Pinnate compound and Palmate compound
- ◆ Inflorescence ;
Racemose : Raceme, Spike, Catkin, Spadix, Corymb, Umbel, Capitulum
Cymose: Monochasial, Dichasial and Polychasial
Special types: Verticillaster, Hypanthodium, Cyathium
Solitary: Terminal and Axillary
- ◆ Flower – Introduction to four Whorls of flower, types of flower based on position of ovary

Unit-4

- ◆ Gymnosperms : General characters
- ◆ Cycas : Distribution, Plant Habit, morphology, anatomy (with include leaflet and coralloid root only), Spore producing structures
- ◆ Angiosperms : General Characters
- ◆ Outline classification of Bentham and Hooker's system
- ◆ General characters of Families – Malvaceae, Solanaceae, Cucurbitaceae
- ◆ Plant of economic importance of –
Malvaceae : Jasud (Hibiscus rosa-sinensis), Bhoj Kanski(Abutilon indicum), Bhindi (Abelmoschus esculentus), Cotton(Gossypium arboretum)
- ◆ Solanaceae : Brinjal (Solanum melongena), Ashwagandha (Withania somnifera) Tobacco (Nicotiana tabacum), Chilli(Capsicum annum)
- ◆ Cucurbitaceae:Galka (Luffa cylindrica), Pumpkin(Cucurbita maxima) Kakdi (Cucumis sativus), Karela(Momordica charantia)

Suggested Reference Books:

1. Pelczar - Introductory Microbiology
2. Clifton - An Introduction to Bacteria
3. Verma, J.P -The Bacteria
4. Davis -Microbiology
5. P. K. Gupta -Cell Biology
6. C. B. Pawar - Cell Biology
7. Singh and Tomar -Cell Biology
8. Verma and Agrawal -Cell Biology
9. P. C. Vashishta – Gymnosperms
10. B. Johri & Biswas - Gymnosperms
11. N. S. Subramanyam –Modern Plant Taxonomy
12. O. P. Sharma - Plant Taxonomy
13. B. P. Pandey - Taxonomy of Angiosperms
14. P. C. Vashishta - Taxonomy of Angiosperms
15. Y. D. Tyagi & S. Kshetrapal - An Introduction to Taxonomy of Angiosperms

SARADAR PATEL UNIVERSITY
FIRST YEAR B.Sc. (FIRST SEMESTER)
BIOLOGY Practical (FSBI-103)
EFFECTIVE FROM JUNE 2010.
(2 Credits, Four hours per week)
(Total Marks-100, Internal – 30 Marks, External – 70 Marks)

Part-1 Zoology Practicals

1. Study of Planktons
2. Classification of Phylum Protozoa, Porifera and Coelenterata- Euglena, Plasmodium, Leucosolenia, Hyalonema, Bathsporgia, Aurelia, Physalia, Sea-anemone, Favia and Fungia and Study of permanent slides of Hydra- L.S, T.S through testis, T.S through ovary.
3. Classification of Phylum Platyhelminthes, Nematelminthes and Annelida – Planaria, Liverfluke, Tapeworm, Ascaris, Nereis, Earthworm, Leech.
4. Classification of Phylum Arthropoda – Peripatus, Crab, Millipede, Grasshopper, Butterfly, Spider and Metamorphosis in insects (Mosquito).
5. Classification of Phylum Mollusca, Echinodermata and Hemichordata – Dentalium, Chiton, Pila, Bivalve, Brittlestar, Sea Cucumber, Sea Urchin, Sea Lily and Balanoglossus.
6. Study of Parasites – Filaria, Plasmodium, Tapeworm and Trypanosoma.
7. Dissection of Earthworm: External Characters and Digestive system with mounting of setae and Spermatheca.
8. Dissection of Earthworm: - Reproductive system with mounting of Blood glands and Septal nephridia.
9. Dissection of Earthworm: - Nervous system with mounting of Ovary.
10. Dissection of Cockroach: - External Characters and Digestive system with mounting of Gizzard, Cornea, Spiracles and leg.
11. Dissection of Cockroach: - Reproductive system with mounting of Mouth parts and Salivary Glands.
12. Dissection of Cockroach: - Nervous system with mounting of Trachea, Male and Female Gonapophysis.

PART - 2 Botany Practicals.

1. Study of Electron Micrograph – Mitochondria, Chloroplast, Nucleus, Golgi Complex.
2. Study of various stages of Mitosis in Onion root-tip.
3. Study of virus infected plant specimens, Study of Bacteria with help of P.S.
4. Study of Internal Structure of Cycas leaflet (T.S) Cycas-Male Cone. Microsporophyll and Megasporophyll (specimens)
5. Study of Leaf.
6. Study of Inflorescence.
7. Study of Flower.
8. Study of aestivation and placentation.
9. Study of family: Malvaceae.
10. Study of family: Solanaceae.
11. Study of family: Cucurbitaceae.
12. Study of family: Rubiaceae.

SARDAR PATEL UNIVERSITY
FIRST YEAR B.SC (FIRST SEMESTER)
Effective Course FSELE101 - BIOLOGY
EFFECTIVE FROM JUNE-2010
(2 Credits, Two hours per week)
(Total Marks-100.Internal-30 Marks, External-70 Marks)

Unit-1 Animal Cell and Tissue

Prokaryotic and Eukaryotic cell
Animal cell-Structure and composition
Outline Classification of Animal tissues
Importance of Vitamins and Minerals, Deficiency diseases

Unit-2 Economic zoology and adaptation

Economically important insects
Environmental adaptations- Aquatic, Aerial, Desert, Burrowing, Arboreal And Mimicry
Poisonous and non poisonous snakes

Unit-3

- **Plant cell-** structure of prokaryotic and eukaryotic cell
- **Plant tissue-** structure and functions of:
Meristematic tissue (Apical and lateral tissue)
Permanent tissue simple tissue-parenchyma, collenchyama, sclerenchyma, Complex tissue- Xylem and phloem
- **Plant morphology**
Annuals, perennials,herbs,shrubs,trees,climbers
Leaf :Parts of leaf – leaf base,petiole,leaf lamina.
Type of leaf : Simple, Compound
Phyllotaxy : Alternate, Opposite and Whorled
Inflorescence:Racemose, Cymnose
Flower :Calyx, corolla, Androecium, Gynoecium

Unit-4

Economic Importance of Plants (Brief description of plant and uses)
Cereals- Wheat, Rice
Pulses: Chickpea, Pession pea
Plant Fibers: Cotton, Jute
Timber: Teak,sal
Vegetables-Tomato, Potato, Brinjal , Onion
Spices- Clove, Cinnamon
Oil yielding plants- Groundnut, Sunflower
Medicinal Plants- Tulsi, Neem

LIST OF REFERANCE BOOKS:

1. Invertebrate Zoology- Jordan and Verma
2. Economics Zoology- Shukla and Upadhyay
3. Handbook of Economics Zoology- Jawaid Ahsan, Subhash Prasad Smha
4. Vertebrate Zoology- Jordan and Verma
5. Evolution- Verma,Rastogi and Agrawal
6. Invertebrate zoology- R.L.Kotpal
7. Vertebrate Zoology- R.L.Kotpal
8. Human anatomy and physiology- Tortora and Grabowsky
9. Cell biology, genetics, molecular biology, evolution and ecology, P.S. Verma and V.k.Aggrawal
10. Books of Indian Birds-Salim Ali
11. N.S.Subramanyam- Modern Plant Taxonomy
12. O. P. Sharma- Plant Taxonomy
13. B. P. Pandey- Taxonomy of Angiosperms.
14. P. C. Vashishta- Taxonomy of Angiosperms.
15. Y. D. Tyagi & S. Kshetrapal- An Intoduction to Taxonomy of Angiosperms.
16. Hill- Economic Botany.
17. P. L. Kochar- Economic Botany
18. M. Daniel- A Phytochemical Approach to Economic Botany

SARDAR PATEL UNIVERSITY
F. Y. B. Sc. (Semester – I)
Syllabus of FSCH-101 (GENERAL CHEMISTRY)
[02 Credits]
(Effective from June – 2010)
Total Marks: 100 [30+70]

UNIT 1 Analytical Chemistry

(07 hrs)

Introduction, Applications, Stages of analysis, Selecting the methods, Quantitative analysis, Limitations of analytical methods, classification of errors, accuracy, precision, how to reduce systematic errors, significant figures, mean and standard deviation, distribution of random errors, reliability of results.

Reference Book:

1. Vogel's textbook of quantitative chemical analysis, 6th Edition, J Mendham, R C Denney, J D Barnes, M J K Thomas

UNIT 2 Ionic Equilibria in Aqueous Solution

(08 hrs)

Sparingly soluble salts, Common – ion effect, Selective precipitation, Arrhenius theory of Acids and Bases, The Lowry – Bronsted Concept, Strength of Acids and Bases, The Lewis concept, The pH Scale, Self Ionization of Water.

Reference Book:

1. University Chemistry By Bruce H Mahan 4th edition, Narosa Publishing House.

UNIT 3 Alkanes, Alkenes and Alkynes

(08 hrs)

Introduction of Hydrocarbons, Physical properties of alkanes, Higher alkanes- The homologous series, Nomenclature, Alkyl groups, Common names of alkanes, IUPAC names of alkanes, Classes of carbon atom and H-atoms, Physical properties, Geometric Isomerism, Name of alkenes, Nomenclature. Qualitative and quantitative analysis of organic compounds. Molecular formula: its fundamental importance, Quantitative elemental analysis, Quantitative elemental analysis: Carbon, Hydrogen and Halogen (Carius Method), Empirical Formula, Molecular weight: molecular formula, Quantitative elemental analysis (Kjeldahl & Dumas methods)

Reference Book:

1. Organic Chemistry by Morrison & Boyd 6th Edition.

UNIT 4 Basic Concepts of Coordination Chemistry

(07 hrs)

Definition of Some Terms, Classification of Ligands, Chelation, Classification of Chelates, Uses of Chelates, Co-ordination Number and Stereochemistry of Complexes, Nomenclature of Co-ordination Compounds.

Reference Book:

1. Selected Topics in Inorganic Chemistry, Wahid U. Malik, G. D. Tuli, R. D. Madan.

SARDAR PATEL UNIVERSITY
F. Y. B. Sc. (Semester – I)
Syllabus of FSCH-102 (INORGANIC CHEMISTRY)
[02 Credits]
(Effective from June – 2010)
Total Marks: 100 [30+70]

UNIT 1 Atomic Structure

(08 hrs)

De Broglie's Concept of Dual Character of Matter, De Broglie's Wave Equation, Derivation of De Broglie's Equation, Heisenberg's Uncertainty Principle, Problems Based on De Broglie's Wave Equation and Heisenberg's Uncertainty Principle, Schrodinger Wave Equation, Derivation of Schrodinger Wave Equation, Other Forms of Schrodinger Wave Equation, To Convert Cartesian Coordinates into Polar Coordinates, Schrodinger Wave Equation for H Atom in Cartesian and Polar Coordinates, Significance of Ψ and Ψ^2 , Electron Probability Function D, Plot of $R_{n,l}$ against r and its Relation with the Electron Probability Density Around Point at a Distance of r from the Nucleus, Values of Angular Wave Function $\theta_{l,m} \times \Phi_m$ for s and p Orbitals and to their Shapes, Shielding Effect and Effective Nuclear Charge, Factors Affecting the Magnitude of σ and Z_{eff} and their Variation in the Periodic Table, Slater's Rule for Calculating σ and Z_{eff} , Problems.

Reference Book:

1. Advanced Inorganic Chemistry Volume I, Satyaprakash, G D Tuli, S K Basu, R D Madan.

UNIT 2 Periodic Properties

(07 hrs)

Brief Introduction of Periodic Table, Ionization Energy, Successive Ionization Energies, factors Affecting Magnitude of Ionization Energy, Variation of IE Values in Main Group Elements, Variation of IE Values in Different Groups, Ionization Energies of Isoelectronic Species, to Find out the Order of Second IE Values of the Elements of Second Period, Difference Between Ionization Potential and Electrode Potential of a Metal.

Electron Affinity, Relation Between EA of $X_{(g)}$ Atom and IE of $X_{(g)}^-$ Ion, EA_2 Represents Energy Required, Factors Affecting the Magnitude of Electron Affinity, Variation of Electron Affinity in Main Group Elements of the Periodic Table, Variation of Electron Affinity Values of Elements of Different Groups.

Electronegativity, Different Methods Used for Calculating Electronegativity, Factors Affecting the Magnitude of Electronegativity, Variation of Electronegativity in a Group of s and p Block Elements, Variation of Electronegativity of The Elements of Different Group. Variation of Electronegativity in a Period of s and p Block Elements, Applications of Electronegativity.

Reference Book:

1. Advanced Inorganic Chemistry Volume I, Satyaprakash, G D Tuli, S K Basu, R D Madan.

UNIT 3 Chemical Bond 1

(07 hrs)

The Lewis Theory, Sidgwick – Powell Theory, Valence Shell Electron Pair Repulsion (VSEPR) Theory, effect of Lone Pairs, Effect of Electronegativity, Isoelectronic Principle, Some Examples using VSEPR Theory, Valence Bond Theory (VBT), Hybridization involving s and p Orbitals (sp , sp^2 , sp^3)

Reference Book:

1. Concise Inorganic Chemistry, 5th Edition, J D Lee

UNIT 4 Chemical Bond 2

(08 hrs)

Molecular Orbital Method, LCAO Method, s-s Combination of Orbitals, s-p Combination of Orbitals, p-p Combination of Orbitals, Rules for Linear Combination of Atomic Orbitals, Examples of Molecular Orbital Treatment for Homonuclear Diatomic Molecules H_2^+ , H_2 , He_2^+ , He_2 , Li_2 , Be_2 , B_2 , C_2 , N_2 , O_2 , O_2^- , O_2^{2-} and F_2 .

Reference Book:

1. Concise Inorganic Chemistry, 5th Edition, J D Lee

SARDAR PATEL UNIVERSITY
F. Y. B. Sc. (Semester – I)
Syllabus of FSCH-103 (Chemistry Practicals)
[02 Credits]
(Effective from June – 2010)
Total Marks: 100 [30+70]

[A] Volumetric

1. To determine amount Cu^{+2} by using Fast sulphon Black – F indicator
2. To determine amount of Ni^{+2} by EDTA using murexide indicator.
3. To determine amount of Mg^{+2} by EDTA using Eriochrom Black – T

[B] Analysis of Inorganic substances

$\text{Pb}(\text{NO}_3)_2$, CdCl_2 , $\text{Cu}_3(\text{PO}_4)_2$, CaCO_3 , $\text{Al}_2(\text{SO}_4)_3$, MnSO_4 , NiCO_3 , CuS , ZnS , BaCl_2 , $\text{Sr}(\text{NO}_3)_2$, ZnCO_3 , MgSO_4 , AlPO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$, KBr , $\text{KCl}/\text{NH}_4\text{Cl}$, KI , $(\text{NH}_4)_3\text{PO}_4$, ZnO , MnO_2

Reference Book:

1. Vogel's textbook of quantitative chemical analysis, 6th Edition, J Mendham, R C Denney, J D Barnes, M J K Thomas
2. Practical Chemistry, O P Pandey, D N Bajpai, S Giri
3. An Advanced course in Practical Chemistry, Ghoshal, Mahapatra, Nad.

SARDAR PATEL UNIVERSITY
Subject
: Physics:
First Semester
Course No. FSPH-101
(Effective from June – 2010)
Properties of Matter and Sound Wave
(Two Credit Course – 2 Hours per week)

UNIT:1 Elasticity -1

Introduction, Load, Stress and Strain, Hooke's Law & Stress-strain diagram
Three types of elasticity, Work done per unit volume in elongation strain
Deformation of a cube - Bulk modulus, Modulus of rigidity, Young modulus,
Relation connecting the elastic constants, Poisson's ratio, Limiting values of σ ,
Determination of Poisson's ratio for rubber.

UNIT:2 Elasticity -2

Twisting couple on a cylinder (or wire), Torsional pendulum, Determination of η –
Statistical method (Horizontal twisting apparatus for a rod), Maxwell's vibrating
needle method, Determination of M.I with the help of torsional pendulum,
Bending of beam, Bending moment, The cantilever - when the weight of beam is
ineffective, Depression of a beam supported at the ends-when the beam is loaded
at the centre

UNIT: 3 Sound -1

Introduction to transverse and longitudinal waves, Velocity of longitudinal
waves in gaseous medium, Calculation of velocity of sound in air, Effect of
pressure, temperature and humidity on the speed of sound, Velocity of sound
in metal rod, Kundt's tube, Applications of Kundt's tube

UNIT: 4 Sound - 2

Doppler's effect, Applications of Doppler's principle, Musical sound and noises
Characteristics of musical sounds, Intensity of sound, Measurement of
intensity, Ultrasonic waves, Production of ultrasonic waves, Detection of
ultrasonic waves, Properties of ultrasonic waves, outline of the applications of
ultrasonic waves

Reference books:

1. Elements of properties of matter
D. S. Matur, S. Chand & Co., New Delhi
2. Engineering Physics
R. K. Gaur and S. L. Gupta
Dhanpatrai Publication (P) Ltd., New Delhi

SARDAR PATEL UNIVERSITY
Subject
: Physics:
First Semester
Course No. FSPH-102
(Effective from June – 2010)
Network Analysis, Optics and Laser
(Two Credit Course – 2 Hours per week)

UNIT: 1 Network Analysis

Elementary Network Theory

Network terminology, Network analysis by mesh currents (two & three mesh network) Circuit analysis by Node-pair voltages (one & two node pair voltage method), Voltage divider theorem, Superposition theorem, Thevenin's theorem, Norton's theorem

UNIT: 2 Bridges and their application

DC bridges

Whetstone Bridge, Basic operation, Measurement errors, Thevenin equivalent circuit, Kelvin Bridge, Effects of connecting leads

AC bridges and their application

Condition for bridge balance, Application of the Balance equation, Maxwell Bridge, Hay Bridge, Schering Bridge, Wien Bridge

UNIT: 3 Optics

Interferometry:

Jamin's refractometer or interferometer, Rayleigh's refractometer, Michelson's Interferometer, Types of fringes, white light fringes, Uses: measurement of wavelength of light of a monochromatic source, measurement of refractive index of a thin plate

Resolving power of optical instruments:

Meaning of resolving power, Rayleigh's criterion for resolution, R. P. of Grating, R. P. of Prism, R. P. of Telescope, R. P. of Microscope

UNIT: 4 Lasers

Introduction & Properties of LASER, Stimulated absorption, Spontaneous emission and Stimulated emission, Relation between Einstein's A and B coefficients, Population Inversion and Pumping, Main components of LASER source, Nd:YAG LASER, CO₂ LASER, Application of LASER in material processing Holography and Other applications of Laser

Reference books:

1. Principles of Electrical Engineering (2nd Edition)
Vincet Del Toro
Prentice-Hall of India Private Ltd.
2. Electronic Instrumentation and Measurement
Techniques (3rd Edition)
W. D. Cooper and A. D. Helfrick,
Prentice-Hall of India Private Ltd
3. A textbook of light
D. N. Vasudeva (10th Edition)
Atma Ram & Sons, New Delhi
4. Engineering Physics
R. K. Gaur and S. L. Gupta
Dhanpatrai Publication (P) Ltd.,New Delhi
5. Engineering Physics
K. Rajagopal
Prentice-Hall of India Private Ltd

SARDAR PATEL UNIVERSITY
Subject
: Physics (Practicals):
First Semester
Course No. FSPH-103
(Effective from June – 2010)
(Two Credit Course – 4 Hours per week)

1. η by statical method
2. Torsional pendulum
3. Melde's experiment
4. Sonometer
5. Y by cantilever
6. Poisson's ratio for rubber
7. η by Maxwell's needle
8. Resolving power of prism
9. Characteristics of PN junction diode(Forward & Reversed bias)
10. Half wave rectifier (Evaluation of A.C. components)
11. Full wave rectifier (Evaluation of A.C. components)
12. Zener diode characteristics
13. Conversion of galvanometer in to voltmeter
14. Conversion of galvanometer in to ammeter
15. Least square fitting for given linear data

Note: To provide flexibility, up to the maximum of 20% of total experiments can be replaced/ added to the list by the Board of Studies.

Communication Skills In English-1
(Semester 1)
FSEN-101
2 Credits: 4 hours a week

Internal – 30
External – 60
Total Marks: 90

- 1) Reading: The objectives are to enable the students to
- a) Read for information news features, articles, newspapers and texts
 - b) Reading from a collection of units in a compiled text

Book Prescribed: 'Corridors to Communication' by Ranu Vanikar
(Orient Longman) Units 1 to 5

- 2) Writing: The objectives are to enable the students to
- a) Form words properly using prefixes/ suffixes
 - b) Use phrasal verbs
 - c) Use appropriate and related registers
 - d) Writing paragraphs, developing points/ ideas
 - e) Writing letters of invitations (inviting/ accepting/ declining), letters of complaint to civil authorities.

Books Recommended:

- 1) Champa Tickoo and Jaya Sasikumar(2000). Writing with a Purpose. Chennai, OUP
 - 2) David Jolly (1998). Writing Tasks: An authentic task approach to individual writing needs. (Cambridge University Press)
- 3) Listening: The objectives are to enable the students to listen and understand
- 1) Short lectures, descriptions, and narrations, rapid talks, passages read aloud Spoken and/or dictated and identify Language functions
 - 2) Conversations based on familiar situation, and
 - 3) Note Making

Books Recommended:

- 1) English by D Sasikumar and P V Dhamija. (With Audio Cassette)
(Tata McGraw Hill Publication Ltd, New Delhi.) (Units 1-13)
 - 2) On We Go (A B.B.C. Video Course)
- 4) Speaking: The objectives are to enable the students to
- 1) Use greetings and formulae in everyday conversations.
 - 2) Use notions and functions of common use
 - 3) Use grammatically correct and appropriate structures to organize Thoughts

Books Recommended:

- 1) Grant Taylor. English Conversation Practice. (Tata McGraw Hill, New Delhi)
- 2) R P Bhatnagar and R T Bell (1999) Communication in English, (Orient Longman, Hyderabad)

Evaluation:

Reading aloud	05 Marks
Reading Comprehension	10 Marks
Listening Comprehension	10 Marks
Speaking: (1) Viva (on the given topics)	10 Marks
Speaking: (2) Based on the Journal	05 Marks
Writing: (1) Letter Writing	10 Marks
Writing: (3) Concord	05 Marks
Writing: (4) Phrasal Verbs	05 Marks
Writing: (5) Prefix/Suffix	04 Marks
Writing: (6) Dialogue Writing	06 Marks

	60 Marks

Information and Communication Technology
Semester-1
FSICT-101
(Effective from June-2010)
Detailed Syllabus

Unit 1

Components of a Computer System

1. Computer hardware and Software
2. Difference between hardware and software
3. Main components of a general purpose computer: CPU, main internal memory (including RAM and ROM), input devices, output devices and secondary/backing storage.
4. Basics of Windows operating systems: Nature and Function of OS, Basic Commands

Unit 2

Input and Output Devices

1. Input Devices: keyboards, numeric keypads, Pointing devices(mouse, touchpad), remote control, joysticks, touch screen, magnetic strip readers, chip readers, scanners, digital cameras, microphones, sensor, barcode reader, webcam, video camera etc.
2. Output Devices: Monitors(CRT, TFT, LCD), projectors, printers(laser, desk jet, dot matrix), plotters, speakers.
3. Uses of output devices stating the advantage and disadvantage of each.

Unit 3

Storage Devices

1. Common backing storage media (including CD and DVD (Rs and RWs), floppy disc, hard disc, memory sticks/pen drives, flash memory cards etc.
2. Comparative advantages and disadvantages of using different backing storage media.
3. Importance and need of backup
4. Difference between main/internal memory and backing storage: relative benefits of each in terms of speed and permanence.

Data Types

1. Data Types : logical/Boolean, alphanumeric/text, numeric (real and integer), date
2. File, record, field and key field.

Unit 4

Computer Networks

1. Modem and its purpose
2. Difference between analog data and digital data
3. Need for conversion between analog and digital data
4. Advantage and disadvantages of using common network environment such as internet
5. User id and password: Purpose and Use
6. Methods of communication such as fax, e-mail, bulletin boards and tele/video conferencing
7. Difference between Local Area Network (LAN), Wireless Local Area Network and Wide Area Network (WAN)
8. Network topologies like star, ring, bus and hybrid
9. The internet and intranets: Characteristics and purpose
10. Issues of confidentiality and data security surrounding common network environments
11. Encryption and authentication techniques.