ANNEXURE-I

DAYALBAGH EDUCATIONAL INSTITUTE
FACULTY OF ENGINEERING

B.TECH. (AGRICULTURAL, CIVIL, ELECTRICAL, FOOTWEAR TECH. & MECHANICAL): 2020-21

FIRST SEMESTER

Course Number	Course Title	Credits	End Sem. Exam.	Theory/ Practical
CHM181	APPLIED CHEMISTRY	3.0	Y	T
CHM182	APPLIED CHEMISTRY LAB.	1.0	Y	P
PHM181	APPLIED PHYSICS I	3.0	Y	T
PHM182	APPLIED PHYSICS LAB.	1.0	Y	P
MEM101	GRAPHIC SCIENCE	3.0	Y	T
MEM102	ENGINEERING DRAWING I	3.0	Y	P
MEM103	MANUFACTURING PROCESSES I	3.0	Y	T
MEM104	WORKSHOP PRATICE I	1.5	Y	P
MAM181	ENGINEERING MATHEMATICS I	3.0	Y	T
RDC181	AGRICULTURAL OPERATIONS I	1.5	N	P
RDC182	SOCIAL SERVICE	1.0	N	P
GKC181	SC.METH., G.K. & CURRENT AFFAIRS I	1.0	N	T
	Total Credits	28.0		

ANCILLARY COURSE (ON A CHOSEN SUBJECT) ANYONE COURSE FROM				
BBH101	BUSINESS ORGANISATION	3.0	YES	T
BOH181	ENVIRONMENTAL SCIENCES	3.0	YES	T
CEH181	THEORY OF DESIGN	3.0	YES	T
DBD101	BASIC STATISTICS	3.0	YES	T
DPH181	ART APPRECIATION	3.0	YES	P
ECH181	ESSENTIAL OF ECONOMICS	3.0	YES	T
ENH181	ENGLISH	3.0	YES	T
MUH181	SANGEET KRIYATMAK	3.0	YES	P
OMH101	COMMUNICATION TECHNIQUE HINDI I	3.0	YES	T
PYH181	INTRODUCTION TO PSYCHOLOGY	3.0	YES	T

Course Number: CHM181, Course Title: APPLIED CHEMISTRY
Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2000-01
Total Credits: 3, Periods (55 mts. each)/week: 3(L:3+T:0+P:0+S:0), Min.pds./sem.: 39

UNIT 1: WATER
Introduction. Sources of natural water. Impurities in natural water. Effect of impurities present in natural water for domestic and industrial purposes. Treatment of boiler feed water - (a) Internal treatment, (b) External treatment, problems. Lime soda process, Zeolite process. Analysis of water.
UNIT 2: FUELS-FUELS AND THEIR CLASSIFICATION
SOLID FUELS: Coal, different kinds, formation & origin of coal. Different theories. Analysis of coal. Determination of calorific values. Pulverised coal, coke and its manufacture. LIQUID FUELS: Petroleum. Origin. Refining of petroleum. Cracking. Synthesis of petrol. Gasoline. Knocking. Octane number, Diesel fuel knocking and cetene number. GASEOUS FUEL: Natural Gas, producer gas. Water gas. Comparison of solid, liquid and gaseous fuels. COMBUSTION: Combustion, Calculation of air required for combustion of fuel. Combustion by weight & volume. Fuel gas analysis. Orsat apparatus. Problems on combustion.
UNIT 3: LUBRICANTS
Lubrication of different types. Types of lubricants. Tests for lubricants. Additives for lubricants. Synthetic lubricants. Selection of lubricants. PLASTICS AND RUBBER: Plastic as engineering materials. Different types of plastic. Thermoplastic and thermosetting plastic. Natural and artificial rubber. Vulcanisation. Adhesive and their types. REFRACTORIES: Refractories, different types, properties and uses.
UNIT 4: INTRODUCTION TO METALLURGY
General principle of ore dressing. Preliminary methods in the extraction of metals. NON-FERROUS METALLURGY: Metallurgy of copper, Aluminium, lead and tin. Their alloys and their uses.
UNIT 5: FERROUS METALLURGY
Manufacture of pig iron, manufacture of cast iron. Types of cast iron. Manufacture of wrought iron, Manufacture of steel. Different methods. Impurities and their effects on properties of steel. S.G. iron.

SUGGESTED READINGS:
Agarwal CV: CHEMISTRY OF ENGINEERING MATERIALS
Jain & Jain: ENGINEERING CHEMISTRY
Swarup D: ELEMENTS OF METALLURGY

Course Number: CHM182, Course Title: APPLIED CHEMISTRY LAB.
Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2000-01
Total Credits: 1, Periods (55 mts. each)/week: 2(L:0+T:0+P:1+S:1), Min.pds./sem.: 26

List of Experiments
1. To determine the temporary hardness of water by E.D.T.A. method.
2. To estimate the Alkalinity and Chloride content of water.
3. To determine different Alkalinity present in a given solution/water sample.
4. To determine the strength of the given unknown copper sulphate solution iodometrically.
5. To determine the ester content of the given oil.
6. To determine the Flash and Fire points of the given lubricating oil.
7. To determine the variation of viscosity with temperature of the given oil by plotting a graph between viscosity and temperature.
8. To determine the degree of temporary hardness of given sample of water.

Course Number: PHM181, Course Title: APPLIED PHYSICS I
Class: B.Tech., Status of the Course: MAJOR, Approved Since Session: 2012-13
Credits: 3, Periods (55 mts. each) per week: 3(L:3+T:0+P:0), Min. Periods/Sem.: 39
UNIT 1: WAVES AND OSCILLATIONS

Traveling wave in one dimension, wave equation, examples, simple harmonic motion, examples: simple pendulum, LC circuit, damped oscillation, forced oscillation and resonance, origin of refractive index, dispersion.

UNIT 2: ACOUSTICS

Characteristics of musical sound, loudness, Weber-Fechner law, decibel, absorption coefficient, reverberation, reverberation time, Sabine's formula, acoustics of buildings. Ultrasonic production: Magnetostriction and piezoelectric methods, determination of velocity of ultrasonic waves (acoustic grating), applications.

UNIT 3: LAWS OF THERMODYNAMICS

Concept of mole, ideal gas, heat capacity, exact differential, First Law, Meyer's relation, isothermal and adiabatic processes, work done, Second Law, Carnot engine, Carnot's theorem, Kelvin's scale of temperature, Clausius' theorem and entropy, First Law revisited, statistical interpretations of temperature and entropy.

UNIT 4: CRYSTALLOGRAPHY

Crystalline and amorphous solids, system of crystals, symmetry operation, Miller indices, atomic radius, coordination number, atomic packing factor calculation, X-ray diffraction, powder photograph method. Liquid crystal, photonic crystal and nano-materials.

UNIT 5: QUANTUM MECHANICS

Inadequacy of classical mechanics, wave and particle duality of radiation, de Broglie concept of matter waves, Heisenberg's uncertainty principle, Schrodinger's wave equation, interpretation of wave function, eigenvalues and eigen functions, superposition principle, particle confined in one dimensional infinite square well potential.

SUGGESTED READINGS:

Physics for Scientists and Engineers Vols. I, II, III, Douglas C. Giancoli, Prentice Hall, 2008.
Fundamentals of Physics, 6th Edition, D. Halliday, R. Resnick and J. Walker, John Wiley and Sons (2001).
Berkeley Physics Course Vol. 1-5, Tata McGraw Hill (2008).
Feynman Lectures in Physics, Vols. 1-3, Pearson, 2008.

Course Number: PHM182, Course Title: APPLIED PHYSICS LAB.

Class: B.Tech., Status of the Course: MAJOR, Approved Since Session: 2012-13
Credits: 1, Periods (55 mts. each) per week: 2(L:0+T:0+P:2+S:0), Min. Periods/Sem.: 26
Based on Theory Course.

Course Number: MEM101, Course Title: GRAPHIC SCIENCE

Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2000-01
Total Credits: 3, Periods (55 mts. each)/week: 3(L:3+T:0+P:0+S:0), Min.pds./sem: 39

UNIT 1: GENERAL SCALES, LETTERING, VARIOUS TYPES OF PROJECTIONS

Projection of Points and Lines: Elements of projection. Problems of points and lines. Trace True length, inclination and shortest distance. Projections of Planes and Solids: Projection of plane figures. Traces of planes. Angle of Inclination of planes. Problems of points and planes, lines and planes. Angle between line and plane. Point of intersection. Intersection of planes. Dihedral angle. Projection of solids such as prism, pyramid, cylinder, cone, sphere. Auxillary views. Plane sections.

UNIT 2: INTERSECTION AND DEVELOPMENT OF SURFACES

Intersection of cylinders, cones, prisms, pyramids. Development of various surfaces including the interpenetrated and sectioned solids.

UNIT 3: ISOMETRIC PROJECTION

Isometric scale. Projection of geometrical solids and various types of wood joints.

UNIT 4: PLANE GEOMETRY

Construction and drawing of curves such as Parabola, Ellipse, Hyperbola, Involute, Cycloid, & Helix.

UNIT 5: MACHINE DRAWING (THROUGH WORK-BOOK)

First and third angle projections. Orthographic views from the supplied blocks and isometric drawings (sketching only) missing lines and missing views. Views full in section. Rules for

dimensioning. Printing. Size and location of dimensioning. B.I.S. codes and conventions. Drawing of different machine parts (single pieces) with dimensioning.
NOTE: Projections to be practiced by first angle projection as per B.I.S. recommendations.
SUGGESTED READING:
Laxminarayanan VV: PRACTICAL GEOMETRY
Bhatt ND: ENGINEERING DRAWING
Aggrawal SD: WORK-BOOK ON ENGINEERING DRAWING

Course Number: MEM102, Course Title: ENGINEERING DRAWING I
Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2000-01
Total Credits: 3, Periods (55 mts. each)/week: 7(L:0+T:0+P:7+S:0), Min.pds./sem: 91

UNIT 1: PROJECTION OF POINTS AND LINES
Elements of projection. Problems of points and lines. Trace True length, inclination and shortest distance.
PROJECTIONS OF PLANES AND SOLIDS: Projection of plane figures. Traces of planes. Angle of Inclination of planes. Problems of points and planes, lines and planes. Angle between line and plane. Point of intersection. Intersection of planes. Dihedral angle. Projection of solids such as prism, pyramid, cylinder, cone, sphere. Auxillary views. Plane sections.
UNIT 2: INTERSECTION AND DEVELOPMENT OF SURFACES
Intersection of cylinders, cones, prisms, pyramids. Development of various surfaces including the interpenetrated and sectioned solids.
UNIT 3: ISOMETRIC PROJECTION
Isometric scale. Projection of geometrical solids and various types of wood joints.
UNIT 4: PLANE GEOMETRY
Construction and drawing of curves such as Parabola, Ellipse, Hyperbola, Involute, Cycloid, and Helix.
UNIT 5: MACHINE DRAWING (THROUGH WORK-BOOK)
First and third angle projections. Orthographic views from the supplied blocks and isometric drawings (sketching only) missing lines and missing views. Views full in section. Rules for dimensioning. Printing. Size and location of dimensioning. B.I.S. codes and conventions. Drawing of different machine parts (single pieces) with dimensioning.
NOTE: Projections to be practiced by first angle projection as per B.I.S. recommendations.
SUGGESTED READING:
Laxminarayanan VV: PRACTICAL GEOMETRY
Bhatt ND: ENGINEERING DRAWING
Aggrawal SD: WORK-BOOK ON ENGINEERING DRAWING

Course Number: MEM103, Course Title: MANUFACTURING PROCESSES I
Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2013-14
Total Credits: 3, Periods (55 mts. each)/week: 3(L:3+T:0+P:0+S:0), Min.pds./sem.: 39

UNIT 1: INTRODUCTION TO MANUFACTURING
Manufacturing processes and their classification. Socio-economic role. Role of sustainability in manufacturing. Industrial Safety: Introduction, types of accidents, causes and common sources of accidents, methods of safety, first aid. Engineering Materials: Introduction, classification, properties, types and applications. Metallic materials (ferrous and non-ferrous metals & their alloys) and Non-metallic materials (Wood, ceramics & plastics). Elementary introduction to heat treatment. Wood & Wood Working: Timber, Classification, structure, conversion, seasoning, defects and preservation of Timber. Joinery, painting and varnishing. Hand tools used in carpentry. Typical operations. Artificial woods. Adhesives.
UNIT 2: PRINCIPLES OF METAL CASTING
Pattern: Materials, types allowances and color codes. Elements of gating system. Moulding: Process, tools, sand, materials, classification of moulds, methods (Shell, CO2 and vacuum moulding). Machines. Cores. Melting furnaces and their operation. Casting: Expendable-mould processes (Sand, plaster, ceramic, rubber and expendable-graphite mould casting, lost-wax and lost-form processes), Multi-use-mould processes (Gravity & pressuredie casting and centrifugal casting). Casting defects.

UNIT 3: DEFORMATION PROCESSES
Bulk Deformation Processes: Basic concepts of plastic deformation. Hot & cold working of metals. Theory and principle of common bulk deformation processes (Rolling, forging, extrusion and drawing). Forging hammers, Drop hammers (Mechanical, friction board and belt type). Metal forming defects. Sheet Metal Processes: Introduction.
UNIT 4: WELDING
Gas and Arc welding processes. Fluxes. Filler materials. Resistance welding processes (spot, seam, Flash, butt and procession). Welding defects. Types of joints and edge preparation.
UNIT 5: BASICS OF METAL CUTTING & MACHINE TOOLS
Machine Tools: Introduction to Metal Cutting. Nomenclature of a Single Points Cutting Tool and Tool Wear. Use of Coolants in machining. Construction, specification, working principles and operations of machine tools such as Lathe, Drill, Milling, Sawing, Shaper, Planer, Grinder and Slotter. Estimation of speed, feed, depth of cut and time.

SUGGESTED READINGS:
MANUFACTURING PROCESSES FOR ENGINEERING MATERIALS: Serope Kalpakjian & Steven R. Schmid (Pearson Eduction)
DEGARMO'S MATERIALS & PROCESSES IN MANUFACTURING: J.T. Black & Ronald A. Kohser (John Wiley & Sons, Inc.)
MANUFACTURING PROCESSES: B.H. Amstead, Phillip F. Ostwald & Myron L. Begeman (John Wiley & Sons, Inc.)
PROCESSES AND MATERIALS OF MANUFACTURE: Roy A. Lindberg (PHI Learning Pvt. Ltd.)
WORKSHOP TECHNOLOGY (Vol. I to II): B.S. Raghuwanshi (Dhanpat Rai & Co.)
WORKSHOP TECHNOLOGY (Vol. I to III):W.A.J. Chapman (CBS Publishers & Distributors Pvt. Ltd.)
MANUFACTURING SCIENCE, Amitabh Ghosh & Ashok Kr Mallik (Affiliated East West Press Pvt. Ltd.)

Course Number: MEM104, Course Title: WORKSHOP PRACTICE I
Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2000-01
Total Credits: 1.5, Periods (55 mts. each)/week: 3(L:3+T:0+P:3+S:0), Min.pds./sem: 39

Moulding Shop: Practice of making different moulds from patterns (a) Bevel Gear (b) Fan Back Cover (c) Pulley (d) File Handle. Finally casting practice. Demonstration of moulding tools etc.
Fitting Shop: (a) Demonstration of fitting tools (b) Practice of filling hacksawing, marking, cutting, chipping, measuring etc. on MS pcs.
Carpentry Shop: (a) Demonstration of carpentry tools (b) Practice of plaining, marking, measuring, cutting by chisels (firmer, dovetail & mortise), sawing etc. on *Chir* wood.
Practice of making different joints: (a) Cross lap joint (b) Corner lap joint (c) Mortise & Tennon joint (d) Tee-Lap joint.

Course: MAM181, Title: ENGINEERING MATHEMATICS I
Class: B. Tech., Status of Course: MAJOR COURSE, Approved since session: 2017-18
Total Credits: 3, Periods (55 mts. each)/week:3(L-3-0+P/S-0), Min pds./sem:39

UNIT 1
Linear independence of vectors, Rank of a matrix, Solution of system of linear simultaneous equations, Characteristics roots and vectors, Cayley-Hamilton theorem.
UNIT 2
Functions of one variable: definition of limit and its applications, Mean value theorems, indeterminate forms, successive differentiation, Liebnitz theorem.
UNIT 3
Functions of several variables: Limit of real valued functions of several variables, Partial, directional and total derivative, Euler's theorem, Taylor Series(in one and two variables), Maxima and Minima, Jacobians.
UNIT 4
Limit of vector valued functions of one variable, Differentiation and Integration of vector valued functions, arc length, Double and Triple Integrals and their applications to area and volume.
UNIT 5

Gradient, Divergence and curl. Line and Surface Integrals, Gauss, Green's and Stroke's Theorem (without proof). Simple Applications.

SUGGESTED READINGS:
THOMAS & FINNEY :CALCULUS AND ANALYTICAL GEOMETRY
E KREYSZIG : ADVANCED ENGINEERING MATHEMATICS
B S GREWAL: ENGINEERINGMATHEMATICS

Course Number: GKC181, Course Title: SC. METH., G.K. & CURRENT AFFAIRS I
Class: B.Tech., Status of Course: Core Course, Approved since session: 2016-17
Total Credits: 1, Periods (55 mts. each)/week: 1 (L:1+T:0+P:0+S:0), Min.pds./sem.: 13

UNIT 1: GEOGRAPHY INDIA
Location, Physical Features, Major mountains, rivers, ocean, demographic background, States and Union Territories, population, literacy and other facts, Dams and rivers, Important towns and the rivers on which they are located, National Parks and Wild Life Sanctuaries, Railways, Civil aviation, Major ports, Crops and minerals.
UNIT 2: GEOGRAPHY WORLD
Our Solar System (Sun and nine planets), Earth- rotation (or the daily rotion), revolution (the annual motion), latitudes and longitudes, Continents, Oceans, Seas, Peaks, Major rivers, Famous Waterfalls, Major countries of the world and their Capitals, Languages, Religions & Location, Major crops, Mineral wealth and their producer countries.
UNIT 3: HISTORY-INDIA
Important dates of Indian History from Indus Valley Civilization to present day, History of Indian Independence, Historically important Places, Important dates and days.
UNIT 4: HISTORY-WORLD
Main civilization of ancient times, World Wars-their causes. Important events and dates in World History. Ancient Monuments, Important Places.
UNIT 5: ENVIRONMENTAL STUDIES-NATURAL RESOURCES
(a) Multidisciplinary Nature of Environmental Studies- Definition, Scope and Importance, Need for Public Awareness (b) Natural Resources- Forest, Water, Mineral, Food, Energy, Land, Animal Products, Role of Individual in Conservation of Natural Resources, Equitible use of Resources for Sustainable Life Style.

SUGGESTED READING:
NCERT: TEXT BOOKS ON HISTORY, GEOGRAPHY, CIVICS MANORAMA YEAR BOOK
MR Agarwal: GENERAL KNOWLEDGE DIGEST
NEWS PAPAERS AND MAGAZINES:
HINDI & ENGLISH DAILY NEWS PAPERS INDIA TODAY
COMPETITION MASTER SPORTS STAR
COMPETITION SUCCESS REVIEWS

Course Number: RDC181, Course Title: AGRICULTURAL OPERATIONS I
Class: B.Tech., Status of Course: CORE COURSE, Approved since session: 2000-01
Total Credits: 1.5, Periods (55 mts. each)/week: 3 (L:1+T:0+P:2+S:0), Min.pds./sem: 39

Land Surveying: Introduction. Measurement of distance. Different types of instruments used in measurements. Obstacles in measurement.
(a) Chain Surveying-Instruments used. Method of conducting and plotting. Compass survey. Instruments required. Method of conducting and plotting.
(b) Plane Table Survey. Various instruments used. Different methods of conducting plane table survey.
(c) Levelling. Instruments used. Method of conducting levelling to find out longitudinal sector along a line.
Agriculture Farming: Importance of Agriculture in Indian economy and life. Soil. Its constituents. Their importance and classification.
Preparation of land for Agriculture Farming: Levelling. Ploughing. Watering. Manuring.
Different Operations of Farming: Sowing, Weeding, Interculture, Harvesting.

Course Number: RDC182, Course Title: SOCIAL SERVICE
Class: B.Tech., Status of Course: CORE COURSE, Approved since session: 2000-01
Total Credits: 1, Periods (55 mts. each)/week: 2 (L:0+T:0+P:2+S:0), Min.pds./sem: 26

The students are exposed to social service and youth activities in and around the campus to inculcate social upliftment through dignity of labour and moral values.

Course Number: BBH101, Course Title: BUSINESS ORGANISATION
Class: B.Tech., Status of Course: HALF COURSE, Approved since session: 2016-17
Total Credits:3, Periods(55 mts. each)/week: 4(L-4+ T-O+P/S-O), Min.pds./sem.: 52
[SAME AS BAH231/251/291]

UNIT 1: INTRODUCTION [10 pds]
Nature, Object, Meaning and Importance of Business Organisation. Social responsibilities of Business. Functions of Business Organisation.
UNIT 2: FORMS OF BUSINESS ORGANISATION [10 pds]
Factors Determining the Forms of Business Organisation, Sole Proprietorship,Partnership.
UNIT 3: JOINT STOCK COMPANIES [15 pds]
Definition, Kinds, Formation, Management, Meetings & Winding up.
UNIT 4: ADVERTISING [10 pds]
Meaning, Object and Advertising Media, Importance of Advertisement and Advertisement Copy.
UNIT 5: STOCK & PRODUCE EXCHANGES [7 pds]
Meaning, Functions, Importance and Control of Stock & Produce Exchanges.

SUGGESTED READINGS:
Bhushan YK: BUSINESS ORGANISATION & MANAGEMENT Shukla MC: BUSINESS ORGANISATION & MANAGEMENT
Sharlekar SA: MODERN BUSINESS ORGANISATION AND MANAGEMENT
Jagdish Prakash: BUSINESS ORGANISATION AND MANAGEMENT
Agarwal RC: BUSINESS ORGANISATION AND MANAGEMENT (HINDI)
Mehrotra HC & Gupta BS: BUSINESS ORGANISATION AND MANAGEMENT (HINDI)
Bhushan YK: BUSINESS ORGANISATION AND MANAGEMENT (HINDI) Gupta CB: BUSINESS ORGANISATION

Course Number: BOH181, Course Title: ENVIRONMENTAL SCIENCES
Class: B.Tech., Status of Course: NF HALF COURSE, Approved since session: 1998-99
Total Credits: 3, Periods (55 mts. each)/week: 3(L:3+T:0+P:0+S:0), Min.pds./sem.: 39

UNIT 1 [8 pds]
Definition Environment, Atmosphere, Hydrosphere, Lithosphere and Biosphere. Biomass andproductivity; Energy Flow.
UNIT 2 [8 pds]
Conservation & Management of Environment; Biodiversity. Organizations. and movements involvedin conservation of Environment. From Stockholm to Rio_de_Janerio.
UNIT 3 [8 pds]
Pollution of air, water and soil and its abatement.
UNIT 4 [8 pds]
Environment and physiological adaptations in animals and man.
UNIT 5 [7 pds]
Biotechnology and Environment. Intellectual Property Rights (IPR) and Protection (IPP).

SUGGESTED READINGS:
Sharma PD: ENVIRONMENTAL BIOLOGY
Gupta PK: BIOTECHNOLOGY
Ambast RS: ENVIRONMENTAL POLLUTION AND MANAGEMENT
Hester RE: UNDERSTANDING OUR ENVIRONMENT

Course Number: CEH181, Course Title: THEORY OF DESIGN

Class: B.Tech., Status of Course: NF HALF COURSE, Approved since session: 2014-15
Total Credits: 3, Periods (55 mts. each)/week: 3(L:0+T:0+P:3+S:0), Min.pds./sem.: 39

UNIT 1: SHAPE, COLOR AND TEXTURE [8 pds]

An introduction to various design elements such as line, shape, mass, colour etc including the theoretical aspects such as properties of line compositions, family of shapes, percepts.

UNIT 2: ANALYSIS OF FORMS AND COLOR THEORY [8 pds]

Making two dimensional and three dimensional compositions involving various elements of design such as Line, Shape, Color, Texture, Transparency, Mass, Space etc., aimed at understanding the principles of design such as Repetition, Harmony, Contrast, Dominance, Balance, Dynamism, etc.

UNIT 3: THREE DIMENSIONAL SCULPTURES [8 pds]

Making three dimensional sculptures involving the basic platonic solids and abstract sculptures using various techniques/ materials such as POP, wire/ matchstick, soap, clay etc., involving the principles of art.

UNIT 4: ANALYSIS OF SIMPLE OBJECTS [8 pds]

Critical analysis of simple man-made objects to understand the underlying concepts in their design. Studies to understand function- Aesthetic Relationship, and Anthropometrics.

UNIT 5: ARCHITECTURAL DOCUMENTATION [7 pds]

A simple buildings, design of utilitarian spaces, waiting spaces, living spaces, working spaces, design of simple structure- additive and subtractive forms.

SUGGESTED READINGS:

Charles Wallschlaeger & Synthia Busic Snyder, Basic Visual Concepts & Principles for artists, architects & designers, Mc Graw
hill, USA, 1992.
Paul Zelanski & Mary Pat Fisher, Design principles & problems, 2nd Ed, Thomson & Wadswoth, USA, 1996
Owen Cappleman & Michael Jack Kordan, Foundations in Architecture: An Annotated Anthology of beginning design projects, Van Nostrand Reinhold, New York.
Rewin Copplestone, Arts in Society, Prentice Hall Inc, Englewood Cliffs, N.J. 1983.
Paul Laseau, Graphic Thinking For Architects and Designers, John Willey & Sons, New York, 2001

Course: DBD101, Title: BASIC STATISTICS

Class: PGDBDLOR, Status of Course: MAJOR COURSE, Approved since session: 2016-17
Total Credits: 3, Periods(55 mts. each)/week:4(L-4+T-0+P/S-0), Min.pds./sem:52

UNIT 1 [10 pds]

Important concepts of probability: Conditional probability, independent events, Bayes' theorem. Random variables: Discrete and continuous, Probability density function, Mathematical expectation.

UNIT 2 [10 pds]

Discrete probability distribution: Binomial, Negative binomial, Poisson. Continuous probability distributions: Uniform, Normal, Normal approximation to the binomial distribution.

UNIT 3 [10 pds]

Simple Correlation, Karl Pearson Coefficient of Correlation, Linear Regression, Regression Coefficients, Properties of Regression Coefficients, Angle between Two Lines of Regression, Coefficient of Determination.

UNIT 4 [11 pds]

Basic idea of Sampling and Sampling Distribution.Hypothesis testing-Null and alternative hypothesis, level of significance, One tailed and two tailed tests, Type I and Type II errors, z-test, t-test, chi square test and F-test.Analysis of Categorical Data: Chi-square Goodness-of-Fit Test. Contingency Analysis: Chi-Square Test of Independence.

UNIT 5 [11 pds]

Non Parametric Test: Runs Test, Mann-Whitney U Test, Wilcoxon Matched-Pairs Signed Rank Test, Kruskal-Wallis Test, Friedman Test, Kolmogorov-Smirnov Test, Spearman's Rank Correlation.

SUGGESTED READING:

Hogg RV, Craig AL: INTRODUCTION TO MATHEMATICAL STATISTICS

Yule UG, Kendall MG: AN INTRODUCTION TO THE THEORY OF STATISTICS
Medhi J: MATHEMATICAL STATISTICS
Kapur&Saxena: MATHEMATICAL STATISTICS
Walpole & Meyers: STATISTICS FOR ENGINEERS AND SCIENTISTS

Course Number: DPH181, Course Title: ART APPRECIATION

Class: B.Tech., Status of Course: NFH COURSE, Approved since session: 1998-99
Total Credits: 3, Periods (55 mts. each)/week: 3(L:0+T:0+P:3+S:0), Min.pds./sem.: 39
1) Work 1 [9 pds]
2) Work 2 [9 pds]
3) Work 3 [9 pds]
4) Work 4 [9 pds]
5) Sketching work 30 nos. [3 pds]
NOTE: Designing based on (a) Ornamental Geometrical and Abstract Motifs (b) Enlargement (c) Greeting Card (d) Painting.

Course Number: ECH181, Course Title: ESSENTIALS OF ECONOMICS

Class: B.Tech., Status of Course: HALF COURSE, Approved since session: 2016-17
Total Credits: 3, Periods (55 mts. each)/week: 3(L-3+T-0+P/S-0), Min.pds./sem.:39
UNIT 1: NATURE AND SCOPE OF ECONOMICS
Meaning and Definitions of Economics; Scarcity and Choice; Economic Problem; Opportunity sets;
Economic System; Role of Price Mechanism; Positive and Normative Economics; Microeconomics
and Macroeconomics
UNIT 2: THEORY OF CONSUMER BEHAVIOUR
Demand; Law of demand; Elasticity of demand-degrees, types and methods of measurement; Law
of supply; Utility Analysis
UNIT 3: THEORY OF PRODUCT PRICING
Market forms; Cost and Revenue Analysis; Price and output determination under Perfect competition, Imperfect competition and Monopoly
UNIT 4: THEORY OF FACTOR PRICING
Nature of Factor Market; Marginal productivity theory; Concept of Rent, Wages, Interest and Profit
UNIT 5: INFLATION AND RECESSION
Meaning, causes, consequences and control of Inflation, Recession and Stagflation; Commercial
Banks: Functions, Credit Creation and New Products; Role of Central Bank and credit control

SUGGESTED READINGS:
Lipsey, R.G. and Chrystal, K.E.: An Introduction to Positive Economics, OUP
Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education, Inc., 8th edition, 2007
N. Gregory Mankiw, Economics: Principles and Applications, India edition by Southwestern, a part of Cengage
Richard T. Froyen, *Macroeconomics*, Pearson Education Asia, 2nd edition, 2005

Course Number: ENH181, Course Title: ENGLISH I

Class: B.Tech., Status of Course: NF HALF COURSE, Approved since session: 2009-10
Total Credits: 3, Periods (55 mts. each)/week: 3(L:3+T:0+P:0+S:0), Min.pds./sem: 39
UNIT 1
(a) Phrase, Clause, Sentence- kinds, concepts and uses (b) Reported speech (c) Active and Passive voice.
UNIT 2
(a) Articles (b) Concord.
UNIT 3
(a) Verbs and properties of Verbs (b) Punctuation Marks (c) Anomalous Finites.
UNIT 4
(a) Time Tense and Tense Sequence (b) Conditional (c) Question Tags.
UNIT 5

Word Formation and Word Power.

SUGGESTED READINGS:
Wood FT: A REMEDIAL ENGLISH GRAMMAR FOR FOREIGN STUDENTS
Allen WS: LIVING ENGLISH STRUCTURE: A PRACTICE BOOK FOR FOREIGN STUDENTS

Course Number: MUH181, Course Title: SANGEET KRIYATMAK I
Class: B.Tech., Status of Course: NF HALF COURSE, Approved since session: 2015-16
Total Credits: 3, Periods (55 mts. each)/week: 3(L:0+T:0+P:3+S:0), Min.pds./sem.: 39

UNIT 1: Sargam evam Alankar
UNIT 2: Bhajan
UNIT 3: Patriotic Song
UNIT 4: Raag Yaman ki Bandish
UNIT 5: Taal-Dadra, Keherwa, Roopak evem Teentaal

Course Number: OMH101, Course Title: COMMUNICATION TECHNIQUES HINDI I
Class: B.Tech., Status of Course: MAJOR COURSE, Approved since session: 2016-17
Total Credits: 3, Periods (55 mts. each)/week: 3 (L-3+T-0+P/S-0), Min.pds./sem: 39
UNIT 1:
UNIT 2:
UNIT 3:
UNIT 4
UNIT 5:

Course Number: PYH181, Course Title: INTRODUCTION TO PSYCHOLOGY
Class: B.Tech., Status of Course: HALF COURSE, Approved since session:1998-99
Total Credits:3, Periods(55 mts. each)/week:4(L-4+T-0+P/S-0), Min.pds./sem.:52

UNIT 1: (a) What is Psychology? Its scope and methods (b) Nervous system-(i) C.N.S. (ii) A.N.S. (iii) P.N.S.
UNIT 2: (a) Attention-Meaning, Kinds and Determinants (b) Perception-definition, characteristics, Process, Gestalt approach (c) Illusions: Causes and Types.
UNIT 3: (a) Learning-Meaning, Types, Theories-Thorndike, Kohler, Pavlov, Skinner.
UNIT 4: (a) Memory-Definition, Types, Basic Model; Forgetting: Meaning and causes (b) Intelligence- Nature and measurement.
UNIT 5: (a) Motives-Nature and Types (b) Personality-Development, determinants, Types.

SUGGESTED READINGS:
Ruch: PSYCHOLOGY AND LIFE Hilgard ER and Atkinson RC: INTRODUCTION TO PSYCHOLOGY
Munn NL: INTRODUCTION TO PSYCHOLOGY Garrett HE: GENERAL PSYCHOLOGY
Baron RA: PSYCHOLOGY