Inter Disciplinary Baskets for 4 year Non-AICTE UG programs (2023-24)
(Updated on 5th September, 2023)

Basket No	Inter Disciplinary Basket	Course Code	Course Name
For 1st Semester Basket A or D			
Basket A	Natural and Physical Sciences	GE1B-01	Medical Microbiology
		GE1B-02	Biochemistry & Nutrition
		GE1B-03	Earth Science
		GE1B-04	Fundamentals of space science
		GE1B-05	Basics of Human Genetics
		GE 1B-06	Fundamentals of marine science
		GE 1B-07	Basics of Evolutionary Biology
		GE 1B-08	Introduction to Interdisciplinary Health Science
Basket D	Library, Information, and Media Sciences	GE2B-01	A Hand on Study on Film
		GE2B-02	Digital Photography Basics and Beyond
		GE2B-03	Cinema and Other Arts
		GE2B-04	Understanding Visual Design Aesthetics
		GE2B-05	Study of Performing Arts
		GE2B-06	The Language of Graphic design: Basics and Beyond
For 2nd Semester Basket B or E			
Basket B	Mathematics, Statistics, and Computer Applications	GE3B-01	IT Literacy
		GE3B-02	Basic Mathematics & Statistics
		GE3B-03	Business Research Methods: Tool & Techniques
		GE3B-04	Mathematics for Computing
		GE3B-05	Probability & Statistics
		GE3B-06	Bio Statistics
		GE3B-07	Data Analysis with R
		GE3B-08	Learn Programming Fundamental with C
		GE3B-09	Programming with Python
		GE3B-10	Code in with Java
		GE3B-11	Computer Graphics
		GE3B-12	Computer Basics and Multimedia Software
		GE3B-13	Data Analysis with SPSS
BasketE	Commerce and Management	GE4B-01	Entrepreneurship Theory & Practice
		GE4B-02	Accounting
		GE4B-03	Principles of Management & Organizational Behaviour
		GE4B-04	Basics of Accounting & Finance in Healthcare Management
		GE4B-05	Marco Economics in Business
		GE4B-06	Business Regulatory Framework
		GE4B-07	Decision Support System

		GE4B-08	Entrepreneurship: Launching an Innovative Business
		GE4B-09	Handling Human Resources In Workplace
		GE4B-10	Social Media management, Advertising & Marketing
		GE4B-11	E-Commerce & M-Commerce
		GE4B-12	Digital Transformation & Industry 4.0
For 3rd Semester Basket C or F			
Basket C	Emerging Tech, Innovation & Others	GE5B-01	Study of Textiles
		GE5B-02	Introduction to Hospitality Industry and major Departments
		GE5B-03	Health Education & Communication
		GE5B-04	Hospital Support Services
		GE5B-05	Blockchain Technology
		GE5B-06	Introduction to 3D printing Technology
		GE5B-07	Advances in Medical Technologies
		GE5B-08	Fundamentals of IOT
		GE5B-09	Basics of Prescription reading and Medical transcription
		GE5B-10	Fundamental of Bioinformatics
Basket F	Humanities and Social Sciences	GE6B-01	Indian Constituency
		GE6B-02	Economics
		GE6B-03	Mind and Measurement
		GE6B-04	Sustainability & Fashion
		GE6B-05	Indian History & Culture
		GE6B-06	Values & Ethics
		GE6B-07	Enhancing Linguistic Competence & Developing Literacy Skills
		GE6B-08	Medical Ethics, Law and Etiquette
		GE6B-09	Law and Ethics
		GE6B-10	Surface & Soft Furnishings Design Development Techniques
		GE5B-11	Design and Human Evolution

(GE1B-01): MEDICAL MICROBIOLOGY

Credit Point:3

Total Credit Hours: 45 Hrs.

Course Objectives:

1. The objective of this course is that after 50 hours of lectures and demonstrations in Addition to clinical the student will be able to understand the causes, findings, investigations, management in relation with physiotherapy.
2. To understand various pathological conditions due to bacteria.
3. To understand viruses
4. To understand various pathological conditions due to viruses

Course Outcomes (CO):

Sl.No.	Course Outcome	Mapped Modules
1	The course will enable students to understand the conditions in Microbiology and its application in relation with physiotherapy.	Module I – Unit 1
2	Students will learn various pathological conditions due to bacteria's	Module I – Unit 2
3	After studying this course the students will understand various pathological conditions and their causative organisms.	Module II – Unit 3
4	Students will learn various pathological conditions due to viruses	Module II – Unit 4

Module I

Unit 1: Bacteria **[20L]**

Cell structure, classification of bacteria. Staining reactions— gram staining, spore staining, acid fast staining. Bacterial growth-nutritional requirement, physical factors affecting. Culture media, growth curve. Bactericidal agents- phenol, alcohol, ETC Sterilization-principles, types, methods.

Unit 2: Outline the bacteria causing the following diseases **[5L]**

RTI, Meningitis, Enteric infection, Anaerobic infection, UTI, Leprosy, TB, STD, Wound infection, Hospital acquired infection.

Module II

Unit 3: Virus **[15L]**

Elementary knowledge of viral morphology, viral genome and classification, viral replication.

Unit 4: Outline the virus causing the following diseases **[5L]**

HIV, Hepatitis, Polio, Measles, Rubella, Herpes

Suggested Readings:

1. Essentials of Medical Microbiology, Sastry Apurba S and Bhat Sandhya
2. The Short Textbook of Medical Microbiology, Satish Gupte
3. Jawetz Melnick & Adelbergs Medical Microbiology, Stefan Riedel, Stephen Morse, et al.
4. A Text Book of Microbiology, P.Chakraborty

Module No.	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level (If applicable)	Remarks (If any)
Module I Unit 1	Bacteria	20	40	1	4		
Module I Unit 2	Outline the bacteria causing the following diseases	5	10	2	4		
Module II Unit 3	Virus	15	40	3	4		
Module II Unit 4	Outline the virus causing the following diseases	5	10	4	4		

(GE1B-02): BIOCHEMISTRY& NUTRITION

Credit Point: 3

Total Credit Hours: 45 Hrs.

Course Objectives:

1. To understand the concept of solutions and how PH buffers work.
2. To understand the aspects of various nutrients and its preventive effects.
3. To understand the cell and it structure.
4. To obtain knowledge on nutrition and its function.
5. To have a detailed study on nucleic acid and enzymes.
6. To gain a vivid idea on Biological oxidation.
7. To understand the process of metabolism of different energy substances.
8. To understand general Mechanism of tissues & metabolism.
9. To differentiate regulation and production of different hormones.

Course Outcomes (CO):

Sl.No.	Course Outcome	Mapped Modules
1	Ability to understand the concept of solutions and how PH buffers work.	Module I – Unit 1
2	Ability to understand the aspects of various nutrients and its preventive effects.	Module I – Unit 2
3	Ability to define cell and its structures	Module I – Unit 3
4	Ability to gain knowledge on nutrition and its function.	Module I – Unit 4
5	Ability to get an idea on nucleic acid and on enzymes	Module II – Unit 5
6	Ability to define biological oxidation.	Module II – Unit 6
7	Ability to understand To understand the process of metabolism of different energy substances.	Module II – Unit 7
8	Ability to define general Mechanism of tissues & metabolism.	Module II – Unit 8
9	Ability to differentiate regulation and production of different hormones.	Module II – Unit 9

Module I

Unit 1: Biophysics **[5L]**

Concepts of PH and buffers, Acid-base equilibrium, osmotic pressure and its physiological applications.

Unit 2: Nutrition & Prevention **[5L]**

Nutritional aspects of carbohydrate, fat and proteins, Balanced diet, metabolism in exercise and injury. Diet for chronically ill and terminally ill patients.

Unit 3: Cell Organelle **[5L]**

Morphology, Structure and functions of cell, cell membrane, Nucleus, Chromatin, mitochondria, endoplasmic reticulum, Ribosome.

Unit 4: Introduction to nutrition **[5L]**

Definition, functions, sources, classification, monosaccharide, Disaccharides, Polysaccharides, Muco-polysaccharides and its importance, Definition, functions, sources, classification, simple lipids, compound lipids, derived lipids, Saturated and unsaturated fatty acids, Essential fatty acids and their importance, Blood lipids and their implications, cholesterol and its importance. Definition, Sources, Functions, Classification, simple protein, congregated proteins and derived proteins properties and reactions of proteins. Classification, Fat-soluble vitamins A, D, E, K Water soluble vitamins-B Complex and Vitamin C. Daily requirement physiological functions and disease of vitamin deficiency.

Unit 5: Nucleic acid & Enzymes **[5L]**

Structure and functions of DNA, RNA, Nucleosides, Nucleotides, biologically important Nucleotides including energy rich compounds. Definition, Classification, mode of action, factors, affection, enzyme action.

Module II

Unit 6: Biological Oxidation **[5L]**

Respiratory chain and process of Biological oxidation.

Unit 7: Metabolism on Energy Substances **[5L]** Metabolism of Carbohydrate, Lipid, Protein, Mineral: Glycolysis, TCA Cycle, Glycogenesis, Glycogenolysis, Gluconeogensis, maintenance of Blood glucose, Inter conversion of different sugars. Metabolism of cholesterol, Ketone bodies, Athero- sclerosis and obesity, Lipo Protein of their metabolism, Transamination, Transmethylation, Dearmination, Fate of Ammonia Urea synthesis and synthesis of creatinine, inborn errors of metabolisms.Iron, Calcium, Phosphorous, Trace elements.

Unit 8: Metabolism & the types of tissues **5L]**

Mucopolysacharides, Connective tissue proteins, Glyco-proteins, Chemistry and metabolism of bone and teeth. Metabolism of skin. Composition, Metabolism, Chemical mediators of nerve activities. Structure, metabolism of muscles, muscle contraction.

Unit 9: Regulation & Production of Hormones **[5L]**

General characteristics and Mechanism of Hormone actions, Insulin, Glucose, Thyroid and Para-Thyroid hormones. Cortical sex hormones.

Module No.	Content	Total Hours	%age of questions	Covered CO	Covered PO	Blooms Level(If applicable)	Remark (If any)
Module I Unit 1	Biophysics	5	9	1	4		
Module I Unit 2	Nutrition & Prevention	5	8	2	4		
Module I Unit 3	Cell Organelle	5	9	3	4		
Module I Unit 4	Introduction to Nutrition	10	17	4	4		
Module I Unit 5	Nucleic acids & Enzymes	5	8	5	4		
Module II Unit 6	Biological Oxidation	5	9	6	4		
Module II Unit 7	Metabolism on Energy Substances	10	16	7	4		
Module II Unit 8	Metabolism and types of tissues	10	16	8	4		
Module II Unit 9	Regulation & Production of Hormones	5	8	9	4		

Suggested Readings:

1. Textbook of Biochemistry, Chatterjee M.N –Jaypee Brothers
2. Textbook of Biochemistry for medical students, Vasudevan D.M – JaypeeBrothers
3. Clinical Biochemistry – Metabolic & Clinical aspects , Marshall & Bangert– Churchill Livingstone
4. Dietetics – B. Srilakshmi , New age International Publisher
5. Nutrition science -- B. Srilakshmi , New age International Publisher

(GE1B-03):EARTH SCIENCE

Mode: Offline **Credits: 3**
Nature: Theory

Course Objectives:
1. To help to understand the formation of earth and its plates.
2. To help to understand the elements of climate and meteorology
3. To help to gather knowledge about hydrology
4. To provide understanding of natural Hazards

Sl	Course Outcome	Mapped modules
CO1	Concepts of formation of earth & tectonic plates	M1
CO2	Brief idea about the elements of climate	M2
CO3	Knowledge about climatology & meteorology	M2
CO4	Concept of Hydrology	M3
CO5	Concept of Natural Hazards	M4

Learning Outcome/ Skills:
- Students will be able to understand the earth, rocks & minerals.
- Students will be able to correlate the climate changes with the influence of different factors
- Students will be able to understand different kinds of hazards and their causes

Module Number	Content	Total Hours	% of questions	Bloom Level (applicable)	Remarks,if any
THEORY					
M1	Earth Processes	10	20	1,2,3	NA
M2	Climatology and meteorology	15	40	1,2,3	NA
M3	Hydrology	15	30	1,2,3	NA
M4	Natural Hazards	5	10	1,2,3	NA
Total Theory			100		
	TOTAL	45			

Module 1: EARTH PROCESSES Origin and Formation of the Earth, Plate Tectonics, Earth Surface Processes , Rocks And Minerals **Total Hours: 10**
Module2: CLIMATOLOGY AND METEOROLOGY Elements of Climate, Weather Phenomenon, Meteorology, Hydrometeorology And Climate **Total Hours: 15**
Module3: HYDROLOGY Introduction to Oceanography, Ocean Currents, Hydrology, Hydrogeology **Total Hours: 15**
Module 4: NATURAL HAZARDS Introduction to Natural Hazards, Geological Hazards, Hydrological Hazards **Total Hours: 05**

References

1. Foundations Of Earth Science 8Th Edition by Frederick K Lutgens and Edward J Tarbuck and Dennis G Tasa,
2. Fundamentals Of Earth Science by Lal And Panna, Anmol Publishers
3. Book of earth Science, Vikram Singh, Rajesh 1st edition
4. Climatology : Atmosphere Weather Climate, K. Siddhartha

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(GE1B-04):FUNDAMENTALS OF SPACE SCIENCE

Mode: Offline **Credits: 3**
Nature: Theory

Course Objectives:

1. To help understand the solar system and planets
2. To provide knowledge about space physiology
3. To create knowledge about black hole, milky way and other galaxies
4. To create a knowledge about radio telescope

Sl	Course Outcome	Mapped modules
CO1	Explain in detail the solar system and planets.	M1
CO2	Effect of Gravitation and earth rotation	M1
CO3	Cardiovascular, neuromuscular and psychological changes at outer space	M2
CO4	Understand life support system in space	M2
CO5	To impart knowledge about Milky way and black hole	M3
CO6	Understand radio telescope	M3

Learning Outcome/ Skills:

- Students will be able to understand the Solar system, planets, asteroids, comets and meteoroids.
- Students will be able to know the effect of earth rotation and gravitation.
- Students will get a brief knowledge about different moon phases
- Students will be able to understand the physiological as well as psychological changes in space.
- Students will be able to know the milky way, black hole and galaxies.

Module Number	Content	Total Hours	% of questions	Bloom Level (applicable)	Remarks,if any
THEORY					
M1	Solar System Overview	15	30	1,2,3	NA
M2	Space Life	20	40	1,2,3	NA
M3	Galaxies and the Large Scale Structure of the Universe	10	30	1,2,3	NA
Total Theory			100		
	TOTAL	45			

Detailed Syllabus

Module 1: Solar System Overview

- Explore solar system and, learn about sun, planets, moon, asteroids, comets and meteoroids
- Effects of earth rotation and revolution
- Moon Phases: Waxing, waning and lunar cycle
- How gravity, the sun and the moon influences on tides

Total Hours: 15

Module2: Space Life

- Introduction to space life sciences
- The neuro sensory system in space
- The cardiovascular system in space
- The musculo skeletal system in space
- Psychological issues of space flight
- Life support system

Total Hours: 20

Module3: Galaxies and the Large Scale Structure of the Universe

- The Milky Way
- Other galaxies
- Black holes
- Planetary nebula
- Brief idea about radio telescope

Total Hours: 10

References

1. A Textbook Of Astronomy And Astrophysics by Mohit Kumar Sharma and Suresh Chandra,
2. Astronomy, William Waller
3. AN INTRODUCTION TO ASTROPHYSICS, Basu, 2022
4. Space Physiology And Medicine From Evidence To Practice, NICOGOSSIAN A E, SPRINGER

(GE1B-05):BASICS OF HUMAN GENETICS

Mode: Offline **Credits: 3**
Nature: Theory

Course Objectives:
1. To help to understand the Cell and Cell organelles
2. To gain knowledge about DNA structure and DNA replication
3. To help to understand of DNA sequencing
4. To help to understand about cloning

Sl	Course Outcome	Mapped modules
CO1	Knowledge about cell and cells organelles	M1
CO2	Understand Cell Cycle and Apoptosis	M1
CO3	Understand Histo protein, DNA structure and replication	M2
CO4	Knowledge about genome organisation	M2
CO5	Concept of DNA Technology & sequencing	M3
CO6	Concept of Genetic counselling	M4

Learning Outcome/ Skills:
- Students will be able to understand the basics of cell and cell organelles.
- Students will be able to know the DNA structure and DNA replication
- Students will be able to understand DNA technology and sequencing
- Students will able to know about genetic counselling.

Module Number	Content	Total Hours	% of questions	Bloom Level (applicable)	Remarks, if any
THEORY					
M1	Introduction to Cell	10	20	1,2,3	NA
M2	Basics of Genetics	15	40	1,2,3	NA
M3	Concept of molecular biology	15	30	1,2,3	NA
M4	Genetic counselling and management	5	10	1,2,3	NA
Total Theory			100		
	TOTAL	45			

Module 1: Introduction to CELL

From molecules to first cell, from prokaryotes to eukaryotes, from unicellular to multicellular organisms, cell colony, cell cohesion, internal environment or homeostasis of cells, Plasma membrane, Mitochondria, Cytoskeleton. Golgi complex, Endoplasmic reticulum, Ribosomes, Lysosomes and diseases, Peroxisomes, Nucleus and nucleolus.Cell cycle, Apoptosis, cell-cell communication

Total Hours: 10

Module2: Basics of Genetics

Structure of DNA. Histone proteins, Nucleosome, Solenoid structure, Molecular organization of DNA in chromosomes. Heterochromatin and Euchromatin. Human mitochondrial DNA. DNA replication – nuclear and mitochondrial, Transcription, Translation, control of gene expression – Eukaryotic.

Penetrance and expressivity, phenocopy, Gene interactions and modifying genes, Mechanism of sex determination, Sex linked inheritance, Linkage and crossing over.

Concepts of genome organization - split genes, overlapping genes, unique sequences, repetitive sequences, pseudogenes, Transposons, conserved genes. Population Genetics

Total Hours: 15

Module3: Concept of Molecular Biology

Enzymes used in DNA technology, Isolation and purification of DNA (genomic and plasmid) and RNA, Electrophoresis: Agarose, PAGE, Pulse-field electrophoresis, caplillary electrophoresis, 2D electrophoresis.

Polymerase chain reaction and its applications, DNA sequencing, ELISA. Concept of Blotting techniques- Southern, northern and western.

Basics concepts of Clone

Total Hours: 15

Module 4: Genetic Counselling & Management

Overview of genetic counselling, components of genetic counselling, information gathering and construction of pedigrees and their interpretation.

Risk assessment and counselling in common Mendelian and multifactorial syndromes, Management of genetic disorders,

Total Hours: 05

References:

1. The Basics of Genetics, Betsey Dexter Dyer
2. FUNDAMENTALS OF GENETICS, Dr. B. D. Singh
3. Principles of Genetics, Pranab Paul
4. Genetic Counselling, Usha Dave

(GE1B-06): MARINE SCIENCE

Mode: Offline **Credits: 3**
Nature: Theory

Course Objectives:

1. To help understand the physical properties of sea waves and tides.
2. To familiarise students about chemical composition of seawater and elements
3. To provide understanding of origin of sea water
4. To provide understanding of plankton and its characteristics
5. To gain knowledge about life cycle of sea weeds

Sl	Course Outcome	Mapped modules
CO1	Explain the Different kinds of tides and waves.	M1
CO2	Explain wave spectrum and wave forecasting	M1
CO3	Composition of seawater and elements of seawater	M2
CO4	Concept of planktons and its classification	M3
CO5	Concept of seaweed lifecycle	M3

Learning Outcome/ Skills:

- Students will be able to understand the tides and waves.
- Students will be able to understand the composition of sea water and their chemical properties
- Students will be able to understand different kinds of biological species and their characteristics

Module Number	Content	Total Hours	% of questions	Bloom Level (applicable)	Remarks,if any
THEORY					
M1	INTRODUCTORY PHYSICAL OCEANOGRAPHY	15	30	1,2	NA
M2	FUNDAMENTALS OF CHEMICAL OCEANOGRAPHY	15	40	1,2,3	NA
M3	BASICS OF BIOLOGICAL OCEANOGRAPHY	15	30	1,2,3	NA
Total Theory			100		
	TOTAL	45			

Module 1: INTRODUCTORY PHYSICAL OCEANOGRAPHY

Physical laws of ocean; chaos complexity & bifurcations, types of tides and tide generating forces; tidal theories- equilibrium & dynamic theories; types of ocean waves; wind generated waves in the oceans and their characteristics; shallow and deep water waves; wave spectrum and principles of wave forecasting; wave induced near shore current, Longshore current, reap current and sediment movement, storm wave and sediment

transport.

Total Hours: 15

Module2: FUNDAMENTALS OF CHEMICAL OCEANOGRAPHY

Constancy of composition for seawater; Chlorinity & the concept of salinity and the methods of their determination; classification of elements present in seawater; major, minor and trace elements their behaviour, distribution and biological interactions.

Physical Properties of seawater; typical distribution of water characteristics in the oceans, major water masses of the world's oceans and their characteristics;

Origin of seawater: composition of rain, river and sea water and the sources of dissolved elements in them. Crustal rock weathering and Sodium balance concept.

Total Hours: 15

Module3: BASICS OF BIOLOGICAL OCEANOGRAPHY

Plankton: Definition, Importance, classification based on size, mode of life and habitat.

Marine Animals: Classification, distribution and characteristics of zooplankton, nekton and benthos. Salient features of foraminifera, radiolarian, peripheral, coelenterates, Polychaeta, mollusks, crustaceans, echinodermsprotochordates and chordates of marine inhabitants.

Seaweeds: Life cycles of morphological and anatomical adaptations, life cycles of common seaweeds and their ecological role. Mangroves: Definition,World distribution of mangroves, osmoregulation mechanism and salt balancing in Mangrove. Morphological, anatomical and physiological adaptations of mangroves

Total Hours: 15

Reference:

1. Oceanography and Marine Biology: An Introduction to Marine Science, David W. Townsend,
2. Oceanography: An Invitation to Marine Science, Tom Garrison
3. Marine Biology 11th Edition by Peter Castro and Michael Huber
4. Introduction to the Biology of Marine Life, Morrissey, John (Author)

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(GE1B-07): BASICS OF EVOLUTIONARY BIOLOGY

Mode: Offline **Credits: 3**
Nature: Theory

Course Objectives:

1. To provide a comprehensive overview of Concept of Evolution.
2. To explain Origin of Life, especially Prokaryotes as well as Eukaryotes in detail.
3. To explore salient features of various theories of evolution
4. To develop comprehensive knowledge regarding various Sources of Variations and their role in evolution

Sl	Course Outcome	Mapped modules
CO1	Concept of Evolution and its importance.	M1
CO2	Origin of life, especially Prokaryotes as well as Eukaryotes.	M1
CO3	Salient features of various Theories of Evolution, Darwinism and NeoDarwinism.	M2
CO4	Hardy-Weinberg Equilibrium	M3
CO5	Evidence of Evolution analogy & homology	M3
CO5	To impart knowledge regarding the origin and evolution of man.	M4
CO6	To know the various sources of variation and their role in evolution.	M4

Learning Outcome/ Skills:

- Students will be able to understand the basic concept of evolution.
- Students will be able to correlate various evolution theories.
- Students will be able to understand the evidence of evolution.
- Students will be able to understand the evolution of human and evolutionary changes.

Module Number	Content	Total Hours	% of questions	Bloom Level (applicable)	Remarks,if any
THEORY					
M1	Life's Beginnings	05	20	1,2	NA
M2	Theories of Evolution	15	30	1,2,3	NA
M3	Evidences of Evolution	15	20	1,2,3	NA
M4	Product of Evolution	10	30	1,2,3	NA
Total Theory			100		
	TOTAL	45			

Detailed Syllabus

Module 1: Life's Beginnings Concept of Evolution , Origin of Life, Origin of Prokaryotes and Eukaryotes. **Total Hours: 05**
Module2: Theories of Evolution Early Ideas of Evolution, Darwin Theory for Natural Selection, Mutation theory for evolution, Modern synthetic theory of evolution. Classic Experiment: Lederberg's Experiment, Hardy-Weinberg Equilibrium **Total Hours: 15**
Module3: Evidences of Evolution Analogy and Homology, Embryological Evidences of Evolution, Evolutionary Paleontological Evidences, Molecular Phylogeny **Total Hours: 15**
Module4: Product of Evolution Micro-evolutionary Changes, Concept of Species & Speciation , overview of Adaptive Radiation, Evolution of Man **Total Hours: 10**

References

§ Mark Ridley. Evolution. 3rd Edition. Blackwell Pubishing. (2004).
§ Mathur, Tomar, Singh. Evolution and Behaviour. Rastogi Publication, Merrut.
§ Mohan P. Arora. Evolutionary Biology, Himalaya Publishing House, Bombay.
§ P. S. Verma and V. K. Agarwal. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology, Revised Edition. S. Chand Publication (2004).
§ Strickberger. Evolution. Prentic Hall. (2002).
§ Theodore H., Jr Eaton. Evolution. 1st Edition. W. W. Norton Publication. (1970).

Course Name : Introduction to Interdisciplinary Health Science
Course Code: GE IB – 08
Credits: 3 (2L+1 Tutorial)
Teaching Hours: 45

Objective: Interdisciplinary Health Sciences shall encourage students to examine today's complex health issues from a variety of perspectives. This Course provides a holistic view of health for general understanding and appreciation of concepts in and around health and life science.

The students will be able to:
CO1: Understand the basic concept of health.
CO2: Explain the current practices and demographics of health education in India
CO3: Illustrate effective communication strategies in health care sector
CO4: Extend the role of IT in Health Care Sector
CO5: Demonstrate the application of First Aid and CPR

Module 1- Concept of Health: 10 Hrs
Definition of physical health, mental health, social health, spiritual health determinants of health, indicatory of health, concept of disease, natural history of diseases, the disease agents, concept of prevention of diseases, Vaccinations India

Module 2 Evaluation & Practice of Health Education in India. 10 Hrs
Demography and family planning: Demography cycle, fertility, family planning, Contraceptive methods, behavioural methods, natural family planning methods, chemical methods, mechanical methods, hormonal contraceptives, population problem of India.

Module: 3 -Heath Communication: 10 Hrs
Basic Concept & Principles of Communication, Definition, Purpose, Types of Communication, Communication Process, Directions of Communication: Upward, Downward, Lateral, Factors influencing Communication, Barriers of Effective communication

Module 4: Role of IT in Health Sector 10 Hrs
Fundamentals of Management Information System, Introduction to Internet, Decision Support System (DSS), Definition, Relationship with MIS, Evolution of DSS, Characteristics, Classification, Objectives, Applications of DSS, Database Management System (DBMS): Need for using DBMS, Concept of tables, records, attributes

Module 5 : Basic First Aid Techniques 5 Hrs
Aims of first aid. Dealing with an emergency. Resuscitation (basic CPR). Recovery position. Initial Top to Toe Assessment. Hygiene and Hand Washing. First Aid Overview Flow Chart.

Reference Books:

1.Health Communication in the 21st Century, By Kevin B. Wright, Lisa Sparks, H. Dan O'Hair, Blackwell publishing limited, 2013,
2.Health Communication, R.D. Karma Published by Mohit Publications 2008.
3.Counseling Skills for Health Care Professionals, 1st Edition, Rajinikanth AM, Jaypee Brothers, 20
4. Brien, James A O'. : Management Information Systems, McGraw-Hill/lrwin.
5. Indian first aid manual 2016 (7th edition) Authorized manual – English version https://www.indianredcross.org/publications/FA-manual.pdf

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COURSE NAME: **A HAND ON STUDY ON FILM**

Course Code-GE2B-01

Mode: Offline/Blended
Credit: 3

Course Objective: The course is designed for those students who are passionate about Cinema and acting. A lot of young people of our nation are deeply I love with cinema and entertainment, but they often experience a dilemma between choosing their passion and career. This is a course that will fulfil the wish of a student to know the subject 'cinema'. This paper will give the student-

- An idea about how films are made.
- What are tricks of making a review?
- What is the proper way of acting?
- How camera works.

Outcome of this course-

- ✓ The students will be able to write their own blog related to films.
- ✓ They can think about film as a career option.
- ✓ Different corporate house prepare corporate films for their own propaganda. The student who is learning this paper they can lend their hand in making those corporate films.
- ✓ This paper has an extremely creative content in it. So it will be a big help for a student who is teaching a theory based subject this paper will provide a psychological relief and some practical exposure to a learning process.

Sl no.	Course outcome	Mapped module
1	This is made for building an idea about understanding every aspect of the work of Film making	M1,M5,M6
2	Student will gain some knowledge about proper planning and work management that occurs in the process of film making	M2
3	Anyone can make a story , but which story is fit for making a film or how one make his story fit for the screen. There is a detailed learning process for making a good screenplay.	M3
4	For feature films acting is one of the most vital factors. A detailed study about acting is the required for anyone who is interested about feature films.	M4
5	Camera shots and movement are the basic grammar of film making. This paper is containing all aspects of camera movements and shots.	M5, M6

6	Watching films is an inseparable part of the study of Film making.	M6

Detailed syllabus:

Module 1:
How to read a film

i. Module 1: Fiction and non-fiction: Learning meaning by watching a few famous documentary and feature films.
ii. How to make criticism.

Module 2:
Pre production, production and post production: A detailed study of three stages of a film production.

Module 3:
How to make a screenplay

i. Formation of concept.
ii. Writing a film script from a story.
iii. Dialogue writing.

Module 4:
Acting

i. Role playing.
ii. Understanding stage/set.
iii. Exercise through different workshops

Module 5:
Understanding Basic Shots and camera movement.

Module 6:
Watching iconic films from around the globe and maintaining a film diary.

List of Experiments:

1. Watching different genres of film from around the world.
2. Practicing different ways of acting.
3. Understanding the stage of a theatre production.
4. Understanding the set of a film.
5. Study of camera movements and different shots.

Suggestive reading:

1. James Monaco: How to read a film
2. *Directing: Film Techniques and Aesthetics* by Michael Rabiger's and Mick Hubris-Cherrier
3. Michael Rabiger's *Directing the Documentary*,
4. *Directing Actors* –Judith Weston
5. Our films their films- Satyajit Ray

Module Number	Context	Total hours	% age of questions	Blooms level (if applicable)	Remarks (if any)
1.	How to read a film	10	10	1,2	
2.	Pre production, production and post production	10	20	1,2,3	
3.	How to make a screenplay	10	20	3,4	
4.	Acting	10	10	2,3,4	
5.	Understanding Basic Shots and camera movement	10	20	1,2,3	
6.	Watching iconic films from around the globe and maintaining a film diary	10	20	1,2,3,4	
		60	100		

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Website : www.wbut.ac.in

Course Name: Digital Photography Basics and Beyond

Course Code-GE2B-02

Mode of study: Offline/ Blended
Credits: 3

Course Objectives:

If you love cameras and producing beautiful images, and have an eye for good angles and light, consider a flexible and creative career in Photography. This course is an ever-blooming field with numerous job opportunities as well as business opportunities. Various media agencies and news agencies hire photographers to post on their news channels, newspapers, magazines and websites. Apart from that, there is a constant demand for aesthetic photographers who can click pictures of landscapes, wildlife and other such themes.

Module	Course Outcome	Mapped modules
Module-1	Understanding Introduction to Photography (Analogue to Digital)	M1
Module-2	Understanding Photographic Composition	M1,M2
Module-3	Understanding Digital Basics & Digital Platform	M3
Module-4	Understanding Digital Capture	M3,M4
Module-5	Understand Scanning and Image Editing	M4,M5
Module-6	Understanding Digital Retouching & Image Enhancement	M6
Module-7	Understanding Digital Output	M6,M7

Module	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
Module-1	Introduction to Photography (Analogue to Digital)	3	10	1,2	
Module-2	Photographic Composition	10	25	2,3	
Module-3	Digital Basics & Digital Platform	5	10	2	
Module-4	Digital Capture	5	10	2,3	
Module-5	Scanning and Image Editing	7	10	2	
Module-6	Digital Retouching & Image	10	25	1,2,3	

	Enhancement				
Module-7	Digital Output	5	10	2,3	
		45	100		

Detailed Syllabus

Module 1	**1.0 Introduction to Photography (Analogue to Digital)**
	1.1History of photography 1.2 Learning about the digital revolution 1.3 Exposure traingle 1.3 Advantages and disadvantages of digital photography over film photography 1.4 Introduction to camera (Analogue to Digital) 1.5 Elements of photography.
Module 2	**2 Photographic Composition**
	2.1 Principles of Composition 2.2 Rules of Photographic Composition 2.3 Visual perspectives 2.4 Basics of color
Module 3	**3.0 Digital Basics & Digital Platform**
	3.1 Hardware and System Software - Windows Operating System 3.2 Representation of digital image: Resolution – Pixel Depth – PixelAspect Ratio – Dynamic Colour Range – File Size – Colour Models – Image Compression – File Formats – Calculating image resolution for outputs. 3.3 Digital image method of storing and processing digital image:Raster and Vector method 3.4 Image transportation through floppy, CD, zip and Internet.
Module 4	**4.0 Digital Capture**
	4.1 Digital Image formation – Image Sensors – Different Capturing Method: Digital camera – Scanner – Frame Grabber 4.2 DIGITAL CAMERA: Understanding how digital cameras work – Digital camera types: Floppy Disc type, Flash Card type, Hard Disc type – Overview of current digital cameras.
Module 5	**5.0 Scanning and Image Editing**
	5.1 SCANNING: Scanners as input devices- Workingof a Scanner– Scanning procedure – Scanning resolution. 5.2 IMAGE EDITING: Image editing through image editing softwares like Adobe Photoshop – Adjustment of Brightness, Contrast, Tonal and Colour Values –

	Experimenting with Level and Curve.
Module 6	**6.0 Digital Retouching & Image Enhancement**
	6.1 Image size – Resolution – Selection tools and techniques – History – Retouching tools – Layers – Photo mounting techniques – Incorporation of text into picture. 6.2 Digital Manipulation: Applying selective effects to images and filters with masks and different digital darkroom effects.
Module 7	**7.0 Digital Output**
	7.1 Placing photos in other documents – Using photos on the web. 7.2 Printers as output devices – Different types of Print, Proofing, Photo quality printing. 7.3 How can a digital image be printed?

Suggested Readings

1. https://photographylife.com/photography-basics
2. Complete Digital Photography by TOM ANG
3. Photography Master class by Phil Ebiner
4. The Ultimate Photography Beginners Guide by Maverick Williams

Course Name: Cinema and Other Arts
Course Code: GE2B-03
Credit: 3
Mode: Offline/ Blended

Course Objective: The course is designed to provide a general understanding and appreciation of the history of world cinema, acclaimed international films, artists, and movements. The students will be able to gain a multiple cultural perspective based on the underlying theories and principles of cinema and media.

Sl	Course Outcome	Mapped modules
1	Understand the fundamental components of a Cinema and other arts	M1, M2, M3, M4, M5, M6
2	Remember the readings and understand the perspective	M1, M2
3	Understand the nuances of modern painting	M2, M3
4	Understand the nuances of Indian painting	M2, M3, M4
5	Understand and examine the Indian and Western music	M1, M2, M5
6	Analyze the music of parallel and commercial Indian cinema	M1, M2, M5, M6

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
Module 1	Pre-Renaissance	10	15	L1, L2	
Module 2	Renaissance and Perspective	10	15	LI, L2	
Module 3	Modern Painting	08	15	L1, L2	Workshop
Module 4	Indian Painting	08	15	L1, L2	Workshop
Module 5	Fundamentals of music	12	15	L2, L3	Workshop
Module 6	Music and cinema	12	25	L2, L3	Workshop
		60	100		

Detailed Syllabus:

M1	**Pre-Renaissance**: Visual representations in cave paintings, in folk cultures and early civilizations like Egypt Visual representations in Greece: A breakaway from earlier practices Visual representations in ancient and medieval India: Ajanta cave paintings,Mughal miniature, Kangra, Ragmalaetc
M2	**Renaissance and Perspective** The Renaissance at a Glancefrom The Enquiring Eye – European Renaissance Art, Development of the idea of perspective; Use of camera obscura and camera lucida Selected Readings from John Berger's Ways of Seeing, Dutch painting; Baroque, Rococo and Mannerism.

M3	**Modern Painting:**Impressionism, Expressionism, Surrealism, Cubism
M4	**Indian Painting** Raja Ravi Verma, Bengal School Contemporary Masters
M5	**Fundamentals of music:** Tone, note, key, octave, musical scales – diatonic and tempered scales, chords, melody, harmony, swar and shruti Folk music, forms and structures of Indian classical music, forms and structures of western classical music; Evolution of musical forms; Music industry and popular music; Urban folk music, Blues, Jazz, Rock
M6	**Music and cinema;** Music for Cinema Comparison of the two art forms – music and cinema; Ray and Ghatak's ideas on structural similarities of music and cinema Analysis of structures of films to compare with musical forms Musical accompaniment of films – from live musical accompaniment of silent era to present day. Diagetic and extra-diagetic music Analysis of music tracks of selected films Electronic Vs acoustic musical accompaniment (Has to be done as a workshop by a music composer) Item numbers of Bollywood films

Suggested Readings:

1. Andrei Tarkovsky, Sculpting in Time

2. Satyajit Ray, Our Films Their Films

3. RitwikGhatak, Rows and Rows of Fences

4. Penguin Dictionary of Music

5. S.C Deva, Music of India

6. E.H Gombirch, The Story of Art, Phaidon Publications

7. Hendrik Willen Van Loon, The Arts of Mankind

8. Hugh Honour and John F. Fleming, The Visual Arts: A History. Prentice Hall, 2005. Sylvan Barnet, A Short Guide to Writing About Art. Prentice Hall, 2007.

9. The Enquiring Eye – European Renaissance Art (National Gallery of Art, Washington)

10. Herbert Read The Meaning of Art 11. Walter Pater The Renaissance

12. John Berger, Ways of Seeing

13. Art Through the Ages by Helen Gardner

14. Nothing If Not Critical: Selected Essays on Art and Artists

15. The Story of Painting by Wendy Beckett

16. Minor: Art Historys History _p2 by Vernon Hyde Minor

17. Isms: Understanding Art by Stephen Little

18. The Visual Arts: A History by Hugh Honour

19. What Are You Looking At: 150 Years of Modern Art in a Nutshell by Will Gompertz

20. Art and Illusion: A Study in the Psychology of Pictorial Representation by E.H. Gombrich

Understanding Visual Design Aesthetics
Course Code-GE2B-04
Credit: 3

Course Objective- To familiarize the student with basic principles and fundamentals in visual art and design. To develop basic skills using tools and theory used in design process. To understand the creative process, develop techniques and methods of creative problem solving.

Sl	Course Outcome (CO)
1	To be able to relate and explain the History of graphic design and understanding of a role of graphic designer
2	To demonstrate graphic design help to think to how to crate movie poster
3	Understand of colour as per the tone of film and choosing appropriate colour
4	Evaluate concepts and apply typography to do film titling and create poster

CO	Blooms Level (if applicable)	Modules	%age of questions
CO1	1,2	M1, M2, M3	30
CO2	1,2	M1, M2	20
CO3	2,3	M2,M3, M4	30
CO4	2,3	M3,M4	20
			100

Detailed Syllabus :

Module 1 (M1) (10L)	Role of a graphic designer, Qualities of graphic designer, Creativity. A great graphic designer must be imaginative and they must be able to apply that imagination into their work • Consistency. ... • Problem solving. ... • Always learning. ... • Able to take criticism. ... • Patience
Module 2 (M2) (15L)	The distinction between art and design Introduction of fundamental elements and principles of visual design and it's application. Geometrical and organic shapes, Texture ,value, tone, negative space etc. • The principles of good design are the tools used by an artist or designer to create an effective composition or design. The principles are: balance, movement, repetition, emphasis, simplicity, contrast, proportion, space, and unity. • The Elements of Design are the language of the visual arts and The 7 elements of design consider space, line, form, light, color, texture and pattern.

	• Understanding the application and practice of elements of design and principal of design in graphic design.
Module 3 (M3) (10L)	Role of colour in design. Colour theory. Colour psychology. Colour strategy. • Understanding the color cycle and their uses. • What is color circle in art? • What do you mean by Colour circle? • There are three different types of colors: primary, secondary, and tertiary colors • How color creates mood for film
Module 4 (M4) (10L)	**Typography and Logo** The role of typography in design. Type face anatomy classification of typography - serif, san serif, script, decorative. • Definition and practice of San serif and serif font • Difference of San serif and serif font • How to chose font
Total	**45**

Suggested Readings:

1. Thinking with Type by Ellen Lupton
2. Logo Modernism by Jens Muller and R. Roger Remington
3. Graphic Design School: A Foundation Course for Graphic ...by David Dabner and Sandra Stewart

Course name: **Study of Performing Arts**

Course Code-GE2B-05

Mode: Offline/Blended
Credits: 3

Practical study of performing arts

This paper is basically a miniature version of one of the most popular subjects of our nation 'Arts and Aesthetics'. People who are interested in dance, music or acting they love to go through such an experience of hand on training about these performing arts. It is a relief from their regular theory classes and gives a scope of building creative instincts that can boost up their usual learning process of any subject. This paper will give the students-

- An idea about the different forms of Indian and western dance and acting.
- Different genres of music of our nation and worldwide.

Outcome of this course-

- ✓ The students will have a hand on experience in learning the art forms they are passionate about.
- ✓ The paper is a study of different art forms that make a human being extremely creative and it makes a person wise and open minded that will be reflected in handling different situations in the personal and professional life of the person who is studying this.

Sl no	Course outcome	Mapped module
1	Building up of a complete idea about various forms of performing arts	M1
2	Generating idea about the history of the practice of the three forms of art in our nation and worldwide.	M2
3	Knowledge about vocal and instrumental music practice and forms in India and worldwide.	M3
4	Gathering knowledge about different forms of dance in India and worldwide.	M4
5	Idea about theatre practice in the nation and in other countries worldwide.	M5
6	Hand on training of all types of performing arts.	M6

Detailed syllabus:

Module number	Context	Total hours	%age of questions	Blooms level (if applicable)	Remarks (if any)
1	Introduction to performing arts.	5	10	1, 2	
2	Idea about the origins of the practice of different medium of performing arts.	10	10	1,2	
3	Intense study of Music	5	20	2,3,4	
4	Intense study of Dance	10	20	2,3,4	
5	Intense study of Theatre	10	20	2,3,4	
6	Practical performance	5	20	5	
		45	100		

Module 1

What is the meaning of performing arts?

Module 2

Idea about the origins of the practice of different medium of performing arts

i. Dance
ii. Music
iii. Theatre

Module 3

Intense study of Music

i. Indian and Western music
ii. Different genre of Indian music
iii. Different genre of Western music

Icons of music: Beethoven, Bach, Mozart, Ravi Shankar, Elvis Presley, The Beatles, John Denver, Michael Jackson, Pink Floyd

Indian: PanditYashraj, Amzad Ali Khan, A.R.Rahman, R.D barman, Sachindev Barman, Begum Akhtar

Module 4

Intense study of Dance

i. Indian and Western forms of dance
ii. Icons in the field of dancing

International :Anna Pavlova, Michael Jackson,FredAstair,MarthaGraham,PatrickSwayze,CarmenAmaya,Willi Ninja, Indian: Uday Shankar, Rukmini Devi Arundale, PanditBirjuMaharaj, KelucharanMahapatra,GuruVipinSign,Shovna Narayan,SonalMansingh, Balasaraswati,Mrinalini Sarabhai

Module 5

Intense study of Theatre

i. Different types of theatre
ii. Iconic figures in Indian theatre- BadalSarkar, RudraprasadSengupta, UtpalDutta, RatanThiyam, GirishKarnad, Nasiruddin Shah, ShabanaAzmi, KaushikSen, BratyaBasu
iii. Iconic figures in theatre worldwide- Lee Strasberg, Constatine Stanislavski, Laurence Olivier, Bertolt Brecht, Shakespeare, Ibsen.

Module 6

Practical performance

I. One project on Music
II. one project on dance
III. One project of theatre

All of these projects will be based on practical performance of different small groups.

List of Experiments:

1. Intense practice of different genres of music
2. Intense practice of different genres of dance
3. Acting Workshops

Suggestive readings:

1. Indian performing arts-Utpal k Banerjee
2. Universal dance and drama-P. MediniHombal, Luminous books, Varnasi
3. Sangeetnatak academy journal- sangeetnatak academy, New Delhi.
4. Dance theare of India-crossing new aesthetics and culture-Neyogi Books
5. *The Viewpoints Book: A Practical Guide to Viewpoints and Composition* **by Anne Bogart and Tina Landau**
6. *The Empty Space* **by Peter Brook**
7. *History of the Theatre, 10th Edition* **by Oscar G. Brocket and Franklin J. Hildy**
8. *An Actor Prepares* **by Konstantin Stanislavski**
9. *Changed for Good: A Feminist History of the Broadway Musical* **by Stacy Wolf**
10. *The Cambridge Companion to African-American Theatre* **by Harvey Young, ed.**

Course Name: **The Language of Graphic design: Basics and Beyond**

Course Code-GE2B-06

Mode of study: Offline/ Blended
Credits: 3

Course Objectives:

The scope of Graphic Design has expanded in recent years and advances in communication technology have offered a host of new possibilities to the designer. The course aims to develop analytical skills and critical judgment enabling the student for technological and/or aesthetic innovations in the subject of Communication Design.
Graphic Design begins with the study of design history, theory and traditional design skills, then progresses to current graphic design practices and technology. Graduates are prepared for a wide range of careers in the industry. The program seeks to develop designers with strong aesthetic and analytic skills capable of solving real-world communication design problems, integrating a command of visual language with imagination, theory and technology.

Module	Course Outcome	Mapped modules
Module-1	Understanding Introduction to Multimedia	M1
Module-2	Understanding Study of Multimedia Computer	M1,M2
Module-3	Understanding Study of Operating System	M2,M3
Module-4	Understanding Basics of Internet	M4
Module-5	Understand Text Component in Multimedia	M5
Module-6	Understanding Image & Graphics component in Multimedia	M6
Module-7	Understanding Animation	M6,M7

Module	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
Module-1	Introduction to Multimedia	3	10	1,2	
Module-2	Study of Multimedia Computer	5	25	1,2,3	

Module-3	Study of Operating System	5	10	2	
Module-4	Basics of Internet	7	10	2,3	
Module-5	Text Component in Multimedia	5	10	2,3	
Module-6	Image & Graphics component in Multimedia	10	15	1,2	
Module-7	Animation	10	20	1,2,3	
		45	100		

Module	Topics
Module 1	**1.0 Introduction to Multimedia**
	1.1 What is Multimedia 1.2 Components of Multimedia 1.3 Multimedia product ideas 1.4 Product formats 1.5 Multimedia content 1.6 Multimedia Applications 1.7 Advantages of Multimedia.
Module 2	**2.0 Study of Multimedia Computer**
	2.1 Multimedia Platform & Accessories 2.2 Hardware and system software 2.3 Different configurations of Multimedia Personal Computer.
Module 3	**3.0 Study of Operating System**
	3.1 Introduction to Windows OS: Its different features 3.2 Functions and use 3.3 Management of files and folders.
Module 4	**4.0 Basics of Internet**
	4.1 Internet and its different features 4.2 Hardware and software used for Internet and their purpose 4.3 Concept of E-mail 4.4 Surfing the Website.
Module 5	**5.0 Text Component in Multimedia**
	5.1 Importance of text in Multimedia 5.2 Free Text – Field Text – Considerations for designing Text 5.3 Text Formats – Test Font and Point Sizes 5.4 Character Formats – Scrolling Text 5.5 Special Effects for Text 5.6 Text File Formats 5.7 Hypertext 5.8 Importing & exporting of documents.
Module 6	**6.0 Image & Graphics component in Multimedia**

	6.1 Introduction to Image & Graphics – Understanding kinds of Graphics – Making still images in multimedia application 6.2 DIGITAL IMAGE: Methods of storing & processing (Raster method, Vector method) – Factors influencing quality (Resolution, Pixel depth, Pixel aspect ratio) – Colour models. 6.3 METHODS OF CAPTURING: Scanner – Digital Camera – Frame Grabber. 6.4 IMAGE COMPRESSION: Lossy & Non-lossy – Image file formats. 6.5 CONCEPT OF DIGITAL DARKROOM: Working with image editing software like Adobe Photoshop – Acquiring, Importing & Exporting of images – Reduction & Enlargement of Images.
Module 7	**7.0 Animation**
	7.1 Animation & special effects 7.2 Animation Techniques: Traditional and Computer based animation 7.3 Image manipulation techniques: Tweening, Warping, Morphing 7.4 Two Dimensional Animation and concept of 2D animation softwares like Macromedia Flash etc. 7.5 Three Dimension Animation and concept of 3D Animation softwares like 3D Studio Max etc.

List of Experiments:

1. Windows: Functions & Use.
2. File Handling.
3. Understanding different features of Internet.
4. Experimentation of different typographic features.
5. Experiment with Visual balance, Colors.
6. Experiment within various Animation Techniques.
7. Understanding 2D and 3D Animation.
8. Understanding user interface of different Multimedia Software.

Suggested Readings

1. Graphic Design: The New Basics: Second Edition by Ellen Lupton
2. Universal Principles of Design, Revised and Updated: 125 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions, and Teach through Design by William Lidwell.
3. The Animator's Survival Kit by Richard E. Williams

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Course Name: IT Literacy

Course Code: GE3B-01

Mode-Blended

Course Objective: This course is designed impart a foundational level appreciation for the implementation of IT in business and management. Students will be utilizing digital tools for communication, researching and interpreting digital information, developing advanced spreadsheets, understanding operating systems and word processing functions, supporting the evaluation, selection and application of office productivity software appropriate to a sports management context.

Sl	Course Outcome	Mapped modules
1	Identify the principal components of a relevant computer system and describe computer technology for communication in management.	M1, M3
2	Interpret fundamental hardware components that make up a computer's hardware and the role of each of these components relevant to Management.	M1,M2
3	Relate the usage of Digital innovations in Sports Threats and Opportunities of Digital Application in Sports, SWOT analysis.	M2, M4
4	Explain the role of information technology in presentation supporting the functions of large sport events and their stakeholders, as well as the needs of sports federations.	M1, M2, M3
5	To understand the emerging technological trends, as well as solutions and applications that will impact broadcasting and media industries and spectators' experience.	M1, M4, M5, M6
6	Demonstrate developing technology solutions and understanding the limits of data capture (what, how, and why) in sport.	M4, M6

Module	Content	Total Hours	%age of questions	Blooms Level	Remarks (If any)
M 1	Data and Information Storage	12	20	1,2	
M2	Digital Transformation and innovation in Sports Management	10	15	1, 2	
M3	Presentation Software	08	15	1, 2	
M4	Management Information System	06	15	1, 2	
M5	DOS System commands and editors	10	15	2,3	
M6	Programs involving the use of arrays with subscripts and pointers	12	20	2, 3	
		58	100		

Detailed Syllabus:

Module 1 – Data and Information Storage – Data and Information, definition and meaning, Data Storage device: Primary storage – RAM, ROM, EEROM, PROM, EPROM; Secondary storage – direct access devices, serial access devices: hard disks, CD-ROM, DVD Central Processing Unit – Control Unit. Computer languages, machine language, assembly language and high level language, role of assembler and compiler. Storage devices, floppy disc, hard disc, CD ROM and DVD. Importance of Computer as data storage for Businessand Management. **Fundamental Hardware Applications in Sports Management** – RFID Chips, Sensors, Timing System, andtheir applications in Sports Management. **Operating System and Application Software**– Meaning of software; broad classification of software;

system. Software and application software; utilities. Systems software – Operating systems: Brief introduction to different types of operating systems like DOS, Windows, Unix, Linux etc.,Importance and application of Cloud, Mobile, Artificial Intelligence in Sports Management. Use. **[Total Hours – 12]**
Module 2 - Digital Transformations and Innovations– Digital Transformation and future changes, challenges in Management, factors of success, Impact of Digital media on business, new digitized innovations in modern Management. Impact of Digital media, SWOT analysis.**Role of Data Bases -** Roles, Types, Functions, Current Practice and Future Potentials, Importance of digital technology in Management. **[Total Hours – 10]**
Module 3 - Presentation Software - Power Point – Creating new presentations – Auto content wizard – Using template – Blank presentation – Opening existing presentations – Adding, editing, deleting, copying , hiding slides – Presentations – Applying new design – Adding graphics – Using headers and footers – Animations text – Special effects to create transition slides – Controlling the transition speed – Adding sounds to slides – Using action buttons. **Word processing software:** WORD – Creating a new document with templates & Wizard – Creating own document – Opening/modifying a saved document – converting files to and from other document formats – Using keyboard short-cuts & mouse – Adding symbols & pictures to documents – header and footers – Finding and replacing text – spell check and Grammar check – Formatting text - paragraph formats - adjusting margins, line space – character space – Changing font type, size – Bullets and numbering – Tables – Adding, editing, deleting tables – Working within tables – Adding, deleting, modifying rows and columns – merging & splitting cells. **Spreadsheet software -** EXCEL – Working with worksheets – cells – Entering, editing, moving, copying, cutting, pasting, transforming data – Inserting and deleting of cells, rows & columns – Working with multiple worksheets – switching between worksheets – moving, copying, inserting & deleting worksheets – Using formulas for quick Calculations – Working & entering a Formula – Formatting a worksheet – Creating and editing charts – elements of an Excel Chart – Selecting data to a chart – Types of chart – chart wizard – Formatting chart elements – Editing a chart – Printing charts. **[Total Hours - 08]**
Module 4 - Management Information Management (MIS) - database management, data communications, transaction processing information systems, decision support systems, information reporting systems, office automation, networks, expert systems, and systems analyses and design. **ERP**: Introduction – Need for ERP – Advantages – Major ERP Packages – Applications. **[Total Hours - 06]**
Module 5 - DOS System commands and Editors (Preliminaries) used in Sports Management. **UNIX system** commands and vi (Preliminaries) – Applications in Management. **Programs to demonstrate control structure:** text processing, use of break and continue, etc. **Programs involving functions and recursion,** Use and application in Business and Management. **[Total Hours - 10]**
Module 6 - Programs involving the use of arrays with subscripts and pointers, Programs using structures and files. Applications of C Language. **Microsoft office -** Word, Excel, PowerPoint, Mail merge, Internet – Use and Applications. **[Total Hours – 12]**

Suggested Readings:

1.Mano – Computer System Architecture; Pearson Education
2.Tanenbaum – Structured Computer Organization,Pearson Education
3.Martin & Powell – Information Systems: A Management Perspective; mcgraw-Hill
4.Laudon & Laudon – Management Information Systems: Pearson Education
5.Comer: Computer Networks and the Internet: Pearson Education Graham Curtis – Business Information Systems: Addison Wesley

6Introduction to Computers with MS-Office, Leon, TMH
7.An Introduction to Database Systems - C.J. Date, Pearson Education
8Windows 98 6 in one by Jane Calabria and Dorothy Burke – PHI
9.Using Microsoft Office 2000 by Ed, Bott – PHI
10.Enterprise Resource planning (ERP): Text and case studies by Murthy, C S V, HPH
11.Teach yourself SAP in 24 hours by George Anderson; Danielle Larocca - Pearson Education
12.Teach yourself SAP in 24 hours by George Anderson; Danielle Larocca - Pearson Education
13.Running MS – DOS by Van Wolverton, 20th Anniversary Edition
14.C Programming Language (Prentece Hall Software) by Brian W. Kernighan
15.Let Us C by Yashavant Kanetkar.
16.Data Structure Through C by Yashavant Kanetkar
17.C in depth by Deepali Srivastava and S.K.Srivastava

Paper Code: GE3B-02

Basic Mathematics and Statistics

Total Credit: 3

Total hours of lectures: 60 hours

Course Objective: The course is designed to provide a basic applied knowledge of mathematics. The students will be to apply the number system & basic algebra, set theory, determinants and matrices, limits, continuity, differentiation & Integration, data frequency & distribution and measures of central tendency and measures of dispersion for solving business problems.

statistical problems

Sl	Course Outcome	Mapped modules
1	Remembering	M1,M2,M3,M4,M5,M6
2	Understanding the course	M1,M2,M3,M4,M5,M6
3	Applying the general problem	M1,M2,M3,M4,M5,M6
4	Analyse the problems	
5	Evaluate the problems after analysing	
6	Create using the evaluation process	

Module Number	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
M 1	The Number System and Basic Algebra	8	10	1,2	
M 2	Set Theory and Permutation and Combination	10	15	1,2	
M 3	Determinants and Matrices	10	15	1,2	
M 4	Limits, Continuity, Differentiation and Integration	16	35	1,2,3	
M 5	Data, Frequency Distribution	6	10	1,2,3	
M 6	Measures of Central Tendency and Measures of Dispersion	10	15	1,2,3	
		60	**100**		

Sl.	Topic/Module	Hour
1.	**Module 1 : *The Number System*** – Positive and Negative Integers, Fractions, Rational and Irrational Numbers, Real Numbers, Problems Involving the Concept of Real Numbers. ***Basic Algebra*** – Algebraic Identities, Simple Factorizations; Equations: Linear and Quadratic (in Single Variable and Simultaneous Equations). Surds and Indices; Logarithms and Their Properties (Including Change of Base); Problems Based on Logarithms.	8
2.	**Module 2** : ***Set Theory***-Introduction; Representation of sets; Subsets and supersets; Universal and Null sets; Basic operations on sets; Laws of set algebra; Cardinal number of a set; Venn Diagrams; Application of set theory to the solution of problems	7

	Permutations and Combinations – Fundamental principle of counting; Factorial notation. Permutation: Permutation of n different things; of things not all different; restricted permutations; circular permutations. Combination: different formulas on combination; complementary combination; restricted combination; Division into groups. Mixed problems on permutation and combination	
3.	**Module 3**: ***Determinants***- Determinants of order 2 and 3; minors and cofactors; expansion of determinants; properties of determinants; Cramer's rule for solving simultaneous equations in two or three variables ***Matrices***- Different types of matrices; Matrix Algebra – addition, subtraction and multiplication of matrices; Singular and non-singular matrices; adjoint and inverse of a matrix; elementary row / column operations; Solution of a system of linear equations using matrix algebra. Concept of Eigen Value, Eigenvector.	7
4	**Module 4:** Differentiation: Meaning & geometrical interpretation of differentiation; standard derivatives (excluding trigonometric functions); rules for calculating derivatives; logarithmic differentiation. Integration: Meaning, Standard formulas, Substitution, Integration by parts (Excluding Trigonometric functions)	4
5.	**Module 5**: ***Data***-Collection, Editing and Presentation of Data: Primary data and secondary data; Methods of collection; Scrutiny of data. Presentation of data: textual and tabular presentations; Construction of a table and the different components of a table. Diagrammatic representation of data: Line diagrams, Bar diagrams, Pie charts and divided-bar diagrams.	7
5.	**Module 5** : ***Frequency Distributions***- Attribute and variable; Frequency distribution of an attribute; Discrete and continuous variables; Frequency distributions of discrete and continuous variables; Bivariate and Multivariate Frequency Distributions. Diagrammatic representation of a frequency distribution: case of an attribute; case of a discrete variable: column diagram, frequency polygon and step diagram; case of a continuous variable: histogram and ogive.	7
6.	**Module 6** : ***Measures of Central Tendency***- Definition and utility; Characteristics of a good average; Different measures of average; Arithmetic Mean; Median; Other positional measures – quartiles, deciles, percentiles; Mode; Relation between Mean, Median and Mode; Geometric and Harmonic Mean. Choice of a suitable measure of central tendency.	10
7	**Module 7: *Measures of Dispersion***- Meaning and objective of dispersion; Characteristics of a good measure of dispersion; Different measures of dispersion – Range, Quartile deviation, Mean deviation, Mean Absolute deviation, Standard deviation; Comparison of the different measures of dispersion. Measures of relative dispersion – Coefficient of Variation. Combined mean and standard deviation, Combined mean and standard deviation. Introduction to Skewness, Kurtosis, Moments.	10

Suggested Readings

1. H. S. Hall & S. R. Knight – Higher Algebra; Radha Publishing House.
2. Reena Garg, Engineering Mathematics, Khanna Publishing House.
3. Sancheti& Kapoor – Business Mathematics; Sultan Chand & Company.
4. R. S. Soni – Business Mathematics – Pitambar Publishing House.
5. N G Das, Statistical Methods (Combined edition volume 1 & 2), McGraw Hill Education.
6. J K Sharma: Business Statistics, fifth edition, Vikas Publishing house.

(GE3B-03) : BUSINESS RESEARCH METHODS: TOOLS & TECHNIQUES

Credit Points– 3

Course Objectives

1. To understand the **basic concept, meaning and types of research** and its applications in various domains of business.
2. To formulate **research problems and hypotheses**, know about different types of hypotheses and write a research proposal. Should be able to identify the overall process of designing a research study from its inception to its report.
3. To understand **research design** as the blue print of the research process, in depth understanding of different types of research design with their implications.
4. To understand the concept and types of data used in research, and also to know about different types of data collection processes.
5. To familiarize students with different types of **scaling techniques**. Students should be able to distinguish between categorical and continuous measures.
6. To understand **questionnaire designing** and its type. Should be able to understand types of questions to be included in a questionnaire. Learn various advantages and disadvantages of the instrument.
7. To gain the concept of **population, sampling, sampling frame, sampling design** etc. Determination of sample size, understanding of sampling and non sampling error.
8. To formulate **research hypotheses**, to understand different ways to conduct a statistical test of a hypothesis, criteria to select an appropriate statistical test to answer a research question or hypothesis.
9. Able to understand the way of writing a **research report**, its type, structures and the guidelines for visual representation.
10. To gain knowledge with **ethical issues** in research, including those issues that arise in using quantitative and qualitative research

Course Outcomes (CO)

SN.	Outcome	Mapped Modules
1.	Apply Research & Development to solve managerial problems.	Module I/Unit 1

2.	Identify research problems and formulate hypotheses for effective outcome. Write an appropriate research proposal to conduct the research.	Module I/Unit 2
3.	Formulate research design by understanding different types of design and its implementation in different problem situation.	Module I/Unit 3
4.	Select appropriate type of data and design relevant data collection process.	Module I/Unit 4
5.	Use suitable scaling techniques for attitude measurement. Classify numerical and categorical variables for data analysis.	Module I/Unit 5
6.	Design fitting questionnaire for data collection purpose.	Module II/ Unit 6
7.	Select appropriate sample units, sample size and types of sampling method. Design proper sampling design.	Module II/ Unit 7
8.	Formulate and test hypotheses using appropriate statistical technique.	Module II / Unit 8
9.	Write a research report maintaining all its structure to present the research output.	Module II / Unit 9
10.	Conduct research ethically maintaining all the integrity for an unbiased outcome.	Module II / Unit 10

MODULE I

Unit 1 - Introduction to Research: Meaning of research; Types of research- Exploratory research, Conclusive research; The process of research; Research applications in social and business sciences; Features of a Good research study. **(4L)**

Unit 2 - Research Problem and Formulation of Research Hypotheses: Defining the Research problem; Management Decision Problem vs Management Research Problem; Problem identification process; Components of the research problem; Formulating the research hypothesis- Types of Research hypothesis; Writing a research proposal- Contents of a research proposal and types of research proposals. **(6L)**

Unit 3 - Research Design: Meaning of Research Designs; Nature and Classification of Research Designs; Exploratory Research Designs: Secondary Resource analysis, Case study Method, Expert opinion survey, Focus group discussions; Descriptive Research Designs: Cross-sectional studies and Longitudinal studies; Experimental Designs, Errors affecting Research Design. **(8L)**

Unit 4 - Primary and Secondary Data: Classification of Data; Secondary Data: Uses, Advantages, Disadvantages, Types and sources; Primary Data Collection: Observation method, Focus Group Discussion, Personal Interview method. **(6L)**

Unit 5 - Attitude Measurement and Scaling: Types of Measurement Scales; Attitude; Classification of Scales: Single item vs Multiple Item scale, Comparative vs Non-Comparative scales, Measurement Error, Criteria for Good Measurement. **(6L)**

MODULE II

Unit 6 - Questionnaire Design: Questionnaire method; Types of Questionnaires; Process of Questionnaire Designing; Advantages and Disadvantages of Questionnaire Method. **(6L)**

Unit 7 - Sampling: Sampling concepts- Sample vs Census, Sampling vs Non Sampling error; Sampling Design- Probability and Non Probability Sampling design; Determination of Sample size- Sample size for estimating population mean, Determination of sample size for estimating the population proportion. **(8L)**

Unit 8 - Testing of Hypotheses: Concepts in Testing of Hypothesis – Steps in testing of hypothesis, Test Statistic for testing hypothesis about population mean; Tests concerning Means- the case of single population; Tests for Difference between two population means; Tests concerning population proportion- the case of single population; Tests for difference between two population proportions. **(6L)**

Unit 9 - Research Report Writing: Types of research reports – Brief reports and Detailed reports; Report writing: Structure of the research report- Preliminary section, Main report, Interpretations of Results and Suggested Recommendations; Report writing: Formulation rules for writing the report: Guidelines for presenting tabular data, Guidelines for visual Representations. **(6L)**

Unit 10- Ethics in Research: Meaning of Research Ethics; Clients Ethical code; Researchers Ethical code; Ethical Codes related to respondents; Responsibility of ethics in research **(4L)**

Suggested Readings:

1. Business Research Methods – Donald Cooper & Pamela Schindler, TMGH.
2. Business Research Methods – Alan Bryman & Emma Bell, Oxford University Press.
3. Research Methodology – C.R.Kothari, New age International Publishing House
4. Research Methodology—Ranjit Kumar, Sage Publication

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Mathematics for Computing
(GE3B-04)

Subject: Mathematics for Computing	
Course Code: (GE3B-04)	**Maximum Marks: 100**
Teaching Scheme	**Examination Scheme**
Theory: 3	**End Semester Exam: 70**
Tutorial:1	**Attendance: 5**
Practical:0	**Continuous Assessment: 25**
Credit:3	**Practical Sessional internal continuous evaluation: NA**
	Practical Sessional external examination: NA

Aim:

Sl. No.	
1.	To develop formal reasoning.
2.	Create habit of raising questions
3.	Knowledge regarding the use of Mathematics in Computer Science
4.	Ability to communicate knowledge, capabilities and skills related to the computer engineer profession

Objective:Throughout the course, students will be expected to demonstrate their understanding of Mathematics by being able to do each of the following

Sl. No.	
1.	To understand and solve mathematical problems
2.	To impart knowledge regarding relevant topics .
3.	To familiarize students with linear Algebra, differential and integral calculus, numerical methods and statistics.

Pre-Requisite:

Sl. No.	
1.	**Knowledge of basic algebra, trigonometry and calculus .**

Contents		**6 Hrs./week**	
Chapter	**Name of the Topic**	**Hours**	**Marks**

01	**Modern algebra** Set, Relation, Mapping, Binary Operation, Addition Modulo n, Multiplication modulo n, semi group, properties of groups, subgroup.	**3**	**7**
02	**Trigonometry** Radian or circular Measure, Trigonometric Functions, Trigonometric ratios of angle θ when θ is acute, trigonometric ratios of certain standard angles, allied angles, compound angles, multiple and sub- multiple angles.	**6**	**5**
03	**Limits and Continuity** The real number system, The concept of limit, concept of continuity.	**6**	**5**
04	**Differentiation** Differentiation of powers of x, Differentiation of ex and log x, differentiation of trigonometric functions, Rules for finding derivatives, Different types of differentiation, logarithmic differentiation, differentiation by substitution, differentiation of implicit functions, differentiation from parametric equation. Differentiation from first principles.	**6**	**7**
05	**Integrations** Integration of standard Functions, rules of Integration, More formulas in integration, Definite integrals.	**6**	**7**
06	**Differential equations** First order differential equations, practical approach to Differential equations, first order and first degree differential equations, homogeneous equations. Linear equations, Bernoulli's equation, Exact Differential Equations.	**6**	**6**
07	**Complex Numbers** Complex Numbers, Conjugate of a complex number, modulus of a complex Number, geometrical representation of complex number, De Moivre's theorem, n^{th} roots of a complex number.	**5**	**5**
08	**Matrices and Determinants** Definition of a matrix, Operations on matrices, Square Matrix and its inverse, determinants, properties of determinants, the inverse of a matrix, solution of equations using matrices and determinants, solving equations using determinants.	**5**	**8**
09	**Infinite Series** Convergence and divergence, series of positive terms, binomial	**5**	**7**

	series, exponential series,logarithmic series.		
10	**Probability** Concept of probability, sample space and events, three approaches of probability, kolmogorov's axiomatic approach to probability, conditional probability and independence of events, bay's theorem.	**5**	**5**
11	**Introduction to Statistics** Measures of central Tendency, Standard Deviation, Discrete series. Methods, Deviation taken from assumed mean, continuous series, combined standard deviation, coefficient of variation, variance.	**3**	**8**
	Sub Total:	**48**	**70**
	Internal Assessment Examination & Preparation of Semester Examination	**4**	**30**
	Total:	**52**	**100**

Assignments:

Based on the curriculum as covered by subject teacher.

List of Books

Text Books:

Name of Author	**Title of the Book**	**Edition/ISSN/ISBN**	**Name of the Publisher**
S. K. Mapa	Higher Algebra		Levant Books
O'Regan, Gerard	Mathematics in Computing		
Chakravorty and Ghosh	Advanced Higher Algebra		U N Dhar Pvt. Ltd

Reference Books:

Das and Mukherjee	Integral Calculus		U N Dhar Pvt. Ltd
Das and Mukherjee	Differential Calculus		U N Dhar Pvt. Ltd

Probability & Statistics
(GE3B-05)

Subject: Probability & Statistics	
Course Code: (GE3B-05)	**Maximum Marks: 100**
Teaching Scheme	**Examination Scheme**
Theory: 3	End Semester Exam: 70
Tutorial:1	Attendance: 5
Practical:0	Continuous Assessment: 25
Credit:3	Practical Sessional internal continuous evaluation: NA
	Practical Sessional external examination: NA

Aim:

Sl. No.	
1.	The aim of this course is to equip the students with standard concepts and tools at an intermediate to advanced level that will serve them well towards tackling various problems in the discipline.
2.	The objective of this course is to familiarize the students with statistical techniques.

Objective: Throughout the course, students will be expected to demonstrate their understanding of probability & statistics by being able to learn each of the following

Sl. No.	
1.	The ideas of probability and random variables and various discrete and continuous probability distributions and their properties.
2.	The basic ideas of statistics including measures of central tendency, correlation and regression.
3.	The statistical methods of studying data samples.

Pre-Requisite:

Sl. No.	
1.	Knowledge of basic algebra, calculus.
2.	Ability to learn and solve mathematical model.

Contents		**6 Hrs./week**	
Chapter	**Name of the Topic**	**Hours**	**Marks**
01	Definition of Partial Differential Equations, First order partial differential equations, solutions of first order linear PDEs; Solution to homogenous and nonhomogeneous linear partial differential equations of second order by complimentary function and particular integral method. Second-order linear equations and their classification, Initial and boundary conditions, D'Alembert's solution of the wave equation; Duhamel's principle for one dimensional wave equation. Heat diffusion and vibration problems, Separation of variables method to simple problems in Cartesian coordinates. The Laplacian in plane, cylindrical and spherical polar coordinates, solutions with Bessel functions and Legendre functions. One dimensional diffusion equation and its solution by separation of variables.	**18**	**20**
02	Probability spaces, conditional probability, independence; Discrete random variables, Independent random variables, the multinomial distribution, Poisson approximation to the binomial distribution, infinite	**18**	**25**

	sequences of Bernoulli trials, sums of independent random variables; Expectation of Discrete Random Variables, Moments, Variance of a sum, Correlation coefficient, Chebyshev's Inequality. Continuous random variables and their properties, distribution functions and densities, normal, exponential and gamma densities.Bivariate distributions and their properties, distribution of sums and quotients, conditional densities, Bayes' rule.		
03	Basic Statistics, Measures of Central tendency: Moments, skewness and Kurtosis - Probability distributions: Binomial, Poisson and Normal - evaluation of statistical parameters for these three distributions, Correlation and regression – Rank correlation. Curve fitting by the method of least squares- fitting of straight lines, second degree parabolas and more general curves. Test of significance: Large sample test for single proportion, difference of proportions, Tests for single mean, difference of means, and difference of standard deviations. Test for ratio of variances - Chi-square test for goodness of fit and independence of attributes.	**20**	**25**
	Sub Total:	**56**	**70**
	Internal Assessment Examination & Preparation of Semester Examination	**4**	**30**
	Total:	**60**	**100**

Assignments:

Based on the curriculum as covered by subject teacher.

List of Books

Text Books:

Name of Author	**Title of the Book**	**Edition/ISSN/ISBN**	**Name of the Publisher**
Erwin Kreyszig	Advanced Engineering Mathematics	9 th Edition	John Wiley & Sons
N. G. Das	Statistical Methods	0070083274, 9780070083271	Tata Mc.Graw Hill
Reference Books:			
P. G. Hoel, S. C. Port and C. J. Stone	Introduction to Probability Theory		Universal Book Stall
W. Feller	An Introduction to Probability Theory and its Applications	3rd Ed.	Wiley

Bio Statistics
Paper Code: GE3B-06
Total Credit: 3

Sl.	Topic/Module	Hour
1.	**Module 1:** Statistics&Samples. Handling&PresentingNumericalInformation.Pie-Diagram,BarDiagram,Histogram,FrequencyPolygon.ScatterDiagram.	10
2	**Module 2:** Measures of Central tendency- mean, median & mode Measures of Dispersion variability-range standard deviation	10
3	Module 3 The Normal Distribution-characteristics Best Fitting Normal Distribution. Student' s't 'distribution. Data Collection for Vital Statistics:- Birth Deaths Featal Deaths	10
4	Module 4 Health Information: Data & Information HealthInformationSystem-components,uses,sourceBasicDescriptivemethods, Distribution table	10
5	**Module 5** Frequency distribution, Presentation of statistical data, Measure of central tendency and location Measures of dispersion	10
6	**Module6** Probability: Introduction, Measurement of Probability, Frequency Probability, Laws of probability for independent events, Conditional events Bayes' Theorem and its application in community screening programme Decision analysis Sampling variation and Bias Method of sampling, Sampling & non sampling errors. Test of significance, Standard errors, Chi-square test, Correlation &Regression	10

Suggested Reading:

1. AShortTextBookofMedicalStatistics-HillA.B,10thEd,ELBS
2. ElementaryStatisticsforMedicalWorkers,IndervirSingh,JaypeeBrothers
3. Element of Health Statistics-Rao NSN
4. Statistical Methods in the Biological & Health Science: J. Susan Milton (McGraw- hill)
5. An Introduction to Biostatistics, a manual for students in health sciences:

P.S.S. Sunder Rao: J. Richard
6. AnintroductiontoProbability&Statistics,N.G.Das,Vol.1&II

Course Name: **Data analysis with R**

Course Code: GE3B-07

Mode- Offline/ Blended **Credits: 3**

Course Objectives: The course has been designed to explore the R programming language, understand the different constructs it uses. The concept of data and data analysis and using R programming to perform basic statistical data analysis .You will learn how to install and configure software necessary for a statistical programming environment and describe generic programming language concepts as they are implemented in a high-level statistical language.

Sl.	Course Outcome	Mapped modules
1	Understanding the background and history of R	M1
2	Understanding the nuts and bolts of R	M2
3.	Understanding concept of basic programming in R	M3,M4
4	Understanding loops in R	M4
5	Understanding functions and Debugging in R	M5,M6
6.	Understanding simulation and profiling in R	M6

Module	Content	Total Hours	%ageof Questions	Blooms Level (if applicable)	Remarks (If any)
M1	Background, Getting Started	5	5	1	
M2	Basics of R programming	12	30	1,2,3	
M3	Subsetting	10	15	1,2,3	
M4	Control structures and Functions	18	30	1,2,3	
M5	scoping rules and Loop functions	10	15	1,2,3	
M6	Debugging tools,simulation and profiler	5	5	1,2	
		60	100		

Detailed Syllabus:

Module 1:

Getting started, Background: Installing R on Windows, Writing Code / Setting Your Working Directory (Windows), Overview and History of R,R Console Input and Evaluation,

Module 2:

Data Types - R Objects and Attributes,Vectors and Lists,Matrices,Factors,Missing Values,Data Frames,Names Attribute,Reading Tabular Data,Reading Large Tables,Textual Data Formats,Interfaces to the Outside World.

Module 3:

Subsetting– Basic,Lists,Matrices,Partial Matching,Partial Matching, Removing Missing Values,VectorizedOperations.Working with swirl.

Module 4:

Control structures: If-else, For loops, While loops,Repeat, Next, Break.
Functions: user defined functions, anonymous functions.

Module 5:

Scoping Rules - Symbol Binding, R Scoping Rules, Optimization Example ,Coding Standards.
Dates and Times

Module 6:

Loop Functions - lapply ,Loop Functions – apply, Loop Functions –mapply, Loop Functions – tapply, Loop Functions - split
Debugging Tools - Diagnosing the Problem, Basic Tools, Using the Tools
The str Function
Simulation - Generating Random Numbers, Simulating a Linear Model, Random Sampling, R Profiler.

Suggested Readings:

- R for Data Science Hadley Wickham ,Garrett Grolemund, O'REILLY
- R Programming for Beginners Paperback, SandipRakshit, Mcgrawhill
- R Programming for Data Science*Roger D. Penghttps://leanpub.com/rprogramming*

MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL
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Website : www.wbut.ac.in

Course Name: **Learn Programming Fundamental with C**

Course Code: GE3B-08

Mode- Offline/ Blended **Credits: 3**

Career Objective: Programming is an increasingly important skill, whether you aspire to a career in software development, or in other fields. This course is the first in the specialization Introduction to Programming in C. Programming is fundamentally about figuring out how to solve a class of problems and writing the algorithm, a clear set of steps to solve any problem in its class. This course will introduce you to a powerful problem-solving process—the Seven Steps—which you can use to solve any programming problem. In this course, you will learn how to develop an algorithm, and then progress to reading code and understanding how programming concepts relate to algorithms.
The C language is particularly well suited as an introduction to coding: It's a tried-and-true language, and it allows understanding computing processes at a deep level.

Sl	Course Outcome	Mapped modules
CO1	Understanding program, programming and its requirements	M1
CO2	Understanding Algorithm	M2
CO3	Understanding Basic Data Type and Type conversion	M3
CO4	Understanding c programming fundamental, compiling Debugging, Running program	M4
CO5	Understanding Data Types flow of control	M5
CO6	Understanding Advance function recursion, array , pointer	M6

Detailed Syllabus:

Module	Content	Total Hours	%ageof questions	Blooms Level (if applicable)	Remarks (Ifany)
Module 1	will learn how to approach a programming problem methodically. This module discuss about to execute a piece of code by hand	11	10	2	
Module2	Discussion about the basic data types, "non-number" types, and complex, custom types	11	10	2	
Module 3	History of CCompiling, debugging, and running a program with different examples	11	20	2,3	
Module 4	Logical operators, expressions, and short-circuit evaluationThe conditional statement if and if-elseThe iterative statement	11	10	2	
Module 5	Enums as an ADTEnums codeThe C preprocessorUse assert for program correctnessAssert code	8	25	2,3	

	Introduction to struc				
Module 6	Intro to the ADT listList of one element codeFull list codeDetails of list processingHonors: Introduction to binary trees	8	25	1,2,3	
		60	100		

Module 1-Discuss about a powerful process for solving any programming problem—the Seven Steps. You will learn how to approach a programming problem methodically, so you can formulate an algorithm that is specific and correct. This module discuss about to execute a piece of code by hand, and clearly illustrate what each statement does and what the state of the program is.
Module 2- This module discuss about types beyond integers, both their conceptual representations, and their hardware representations in binary. Discussion about the basic data types, "non-number" types, and complex, custom types
Module 3-History of CCompiling, debugging, and running a program, Compiling, debugging, and running a program Example - Circle codeExample – MarathonSimple input/output –Fahrenheit Simple input/output – milesCharacter sets and tokensCommentsKeywordsIdentifiersOperatorsExpressions and precedence Expression and evaluationDeclarationsFundamental types and size ofThe char type
Module 4-Logical operators, expressions, and short-circuit evaluationThe conditional statement if and if-elseThe iterative statement whilewhile-cnt-char-explained, while-code – exampleThe for statement and its while analogoddball operators-conditional and commaternary-operator code exampleBreak and continue and switch Function definition, Return statementFunction prototype, Function variables—with call-by-value explained, Function definitions and scope rulesSimple recursion, Recursion- factorial codeRecursion Fibonacci code, Pointers and simple arrays, initialize arraysWhat is a pointerCall-by-reference simulatedarray as a parameterarray-bubble-sort codemerge sort overview
Module 5-Discussion about:- Enums as an ADTEnums codeThe C preprocessorPreprocessor codeUse assert for program correctnessAssert code Introduction to struc (More advanced ADTs)How to access struct membersIntroduction to the ADT stackUsing a stack to reverse a string
Module 6-Discussion about:- Intro to the ADT listList of one element codeFull list codeDetails of list processingHonors: Introduction to binary trees Honors: Detailed binary tree codeIntroduction to File I/OBasic File/I/O codeDouble Spacing a FileUse of Main (argc, argv) Honors - List Code with deletion

Suggested Reading:

1) Let Us C by Yashavant Kanetkar
2) "The C Programming Language" by Brian W Kernighan / Dennis Ritchie

Course Name: **Programming with Python**

Course Code: GE3B-09

Mode-Offline/Blended
Credits: 3

Course Objectives: This course is designed to teach everyone the basics of programming computers using Python. We cover the basics of how one constructs a program from a series of simple instructions in Python. The course has no pre- requisites and avoids all but the simplest mathematics. Anyone with moderate computer experience should be able to master the materials in this course. Once a student completes this course, they will be ready to take more advanced programming courses. This course covers Python 3. We will move past the basics of procedural programming and explore how we can use the Python built-in data structures such as lists, dictionaries, and tuples to perform increasingly complex data analysis. We will cover how one can treat the Internet as a source of data. We will scrape, parse, and read web data as well as access data using web APIs. We will work with HTML, XML, and JSON data formats in Python.

Sl	Course Outcome	Mapped modules
CO1	Understanding program, programming and its requirements	M1
CO2	Understanding decision statements and branching	M2
CO3	Understanding string anf file manipulation	M3
CO4	Understanding list and dictionaries with examples	M4
CO5	Understanding Tuples and regular expressions	M5
CO6	Understanding HTTP related to Python, JSON	M6

Module	Content	Total Hours	%age of questions	Blooms Level (if applicable)	Remarks (If any)
Module 1	Introduction to python , installation	5	10	1,2	
Module 2	Decision statement, functions, looping	10	10	1,2	
Module 3	String , files	10	20	1,2	
Module 4	List and dictionaries	10	20	1,2	
Module 5	Tuples and Regular expression	10	20	1,2	

Module 6	Networking, HTTP , web services, JSON	15	20	1,2,3	
		60	100		

Detailed Syllabus

Module 1- Definition of program, computer languages, python as language, installation of python, writing simple python code, data types (Basic) , expressions
Module 2- Conditional statements, using functions, working within functions, loops and iterators, definition of loop, different types of loops, functions, passing values to function
Module 3- String , Manipulating string, writing programing using string, Files and processing Files
Module 4- List , Manipulating list, list and string, dictionaries, counting with dictionaries, dictionaries and files
Module 5- Tuples , comparing tuples, dictionaries and tuples, using tuples as key in dictionaries, sequences , character matching in regular expression
Module 6- HTTP, retrieving images over HTTP, retrieving web pages with urllib, parsing HTML and scraping the web, XML, parsing XML, JSON, parsing JSON, security and API usage

Suggested Readings:

- AUTOMATE THE BORING STUFF WITH PYTHON,AL SWEIGART, NO STARCH PRESS
- Python: The Complete Reference , Martin C Brown, McGraw Hill Education
- https://docs.python.org/3/tutorial/index.html for References.

Course Name: Code in with Java
Course Code: GE3B-10

Mode- Offline/ Blended **Credits: 3**

Course Objectives: Learn to code in Java and improve your programming and problem-solving skills. You will learn to design algorithms as well as develop and debug programs. Using custom open-source classes, you will write programs that access and transform images, websites, and other types of data. Our goal is that by the end of this course each and every one of you feels empowered to create a Java program that's more advanced than any you have created in the past and that is personally interesting to you. In achieving this goal you will also learn the fundamentals of Object Oriented Programming, how to leverage the power of existing libraries, how to build graphical user interfaces, and how to use some core algorithms for searching and sorting data. This course is project-based, so we'll dive right into the project immediately!

Sl	Course Outcome	Mapped modules
CO1	Understanding programming, Java technology, architecture	M1
CO2	Understanding java class, data types, decision statements, loops	M2
CO3	Understanding string, CSV libraries, basic statistical operations	M3
CO4	Understanding objects, overloading, scope, memory Models	M4
CO5	Understanding GUI Programming , inheritance, polymorphism	M5
CO6	Understanding Event driven programming , Implementing algorithm (searching and sorting).	M6

Module	Content	Total Hours	%age of questions	Bloom s Level (if applicable)	Remarks (If any)
Module 1	Java technology and Architecture	5	10	2	
Module 2	Java class , data types, decision statements, loops	10	10	2	
Module 3	string, CSV libraries, basic statistical operations	10	20	2,3	
Module 4	Objects, overloading, scope, memory Models	5	10	2	
Module 5	GUI Programming , inheritance, polymorphism	15	25	2,3	

Module 6	Event driven programming , implementing algorithm (searching and sorting).	15	25	1,2,3	
		60	100		

Detailed Syllabus

Module 1- Definition of program and different programming languages, discussion on Java Technology, using BlueJ to program in Java, variables, operators, functions, conditions
Module 2- Classes, methods, types, looping, different types of loop, packages, writing basic programs.
Module 3- String, positions in string, java Math, using CSV libraries (Apache common CSV), devise algorithm about CVS data, analyze CVS data across multiple CVS files and applying basic statistics.
Module 4- Class and objects, create objects, overloading methods, private, public, memory models with primitive data, memory models with objects, introduction to scope.
Module 5- GUI in java, using PApplet, resizing image, color, canvas, loading/displaying image, setting up map visualization (image processing), Inheritance, Reference vs object types, visibility modifier, class hierarchy , method overriding, polymorphism, abstract class and interface
Module 6- Event driven programming, events in unfolding Maps, buttons in unfolding Maps, listerner Hierarchy, implementation of searching and sorting algorithms in java

Suggested Readings

- Java : The complete Reference , Herbert Schildt, McGraw Hill Education
- Image Processing in Java, Douglas A. Lynon, Prentice Hall.
- Data structures, Algorithms and Applications in Java, Sartaj Sahni, Universities Press.

- https://docs.oracle.com/en/java/index.htm (Reference)

Course Name: Computer Graphics

Course Code: GE3B-11

Mode - Offline / Blended

Course Objective: The course is designed to make students understand various types of display device, color scheme, picture elements, understand the basic concept of drawings of geometric objects in digital device, understand the basic concept of geometric transformation of objects, clipping and curve, understand the concept of mathematical projection, hidden surface elimination.

Contents		6 Hrs./week	
Module	**Name of the Topics**	**Hours**	**Marks**
1	Application of Computer Graphics, Graphics Devices, Cathode Ray Tube, Liquid Crystal Device, Raster Scanning, Random Scanning, Refresh Rate, Resolution, Aspect Ratio, Frame Buffer, Refresh Buffer.	**6**	**8**
2	Points and Lines, DDA Line Drawing Algorithm, Bresenham's Line Drawing Algorithm, Midpoint Circle Drawing Algorithm, Bresenham's Circle Drawing Algorithm.	**8**	**10**
3	2D Geometric Transformation: Basic Transformation, Translation, Rotation, Scaling, Matrix Representation, Homogeneous Coordinates, Composite Transformations, Pivot Point Rotation, Fixed Point Scaling, Reflection, Shearing, General 3D Rotations, Translation, Scaling.	**16**	**25**
4	Window-to-Viewport Coordinate Transformation, Clipping Operations: Point Clipping, Line Clipping, Cohen-Sutherland Line Clipping Algorithm, Midpoint Subdivision Line Clipping Algorithm, Liang-Barsky Line Clipping Algorithm, Polygon Clipping, Sutherland-Hodgeman Polygon Clipping Algorithm.	**14**	**15**
5	Curve Generation, Interpolation & Approximation methods, Parametric Continuity Condition, Properties of Bezier Curve, Cubic Bezier Curve, Parallel Projection, Perspective Projection, Visible Surface Detection, Z-Buffer Method.	**12**	**12**
Sub Total:		**56**	**70**
Internal Assessment Examination & Preparation of Semester Examination		**4**	**30**

Total:	**60**	**100**

List of Experiments (Using C Programming):

1. Graphics Preliminaries with Different Shapes, Objects, Color Assignments.
2. Implementation of DDA Line Drawing Algorithm.
3. Implementation of Bresenham's Line Drawing Algorithm.
4. Implementation of Midpoint Circle Drawing Algorithm.
5. Implementation of Bresenham's Circle Drawing Algorithm.
6. Implementation of Simple Translation/Rotation/Scaling/Reflection of Geometric Objects.
7. Implementation of Composite Translation/Rotation/Scaling of Geometric Objects.
8. Implementation of Cohen-Sutherland Line Clipping Algorithm.
9. Implementation of Liang-Barsky Line Clipping Algorithm.
10. Implementation of Graphics Application (Moving Boat, Rotating Wheel, Olympic Symbol etc).

List of Books
Text Books:

Name of Author	Title of the Book	Edition/ISSN /ISBN	Name of the Publisher
Doland Hearn, M. Pauline Baker	Computer Graphics C Version	2nd	Pearson
Zhigang Xiang, Roy A. Plastock	Theory and Problems of Computer Graphics	2nd	Tata McGraw-Hill
Yashavant Kanetkar	Graphics Under C	3rd	BPB Publication

Reference Books:

Name of Author	Title of the Book	Edition/ISSN /ISBN	Name of the Publisher
James D. Foley, Andries Van Dam, Steven K. Feiner, F. Hughes John	Computer Graphics – Principles & Practice in C	2nd	Pearson
Anirban Mukhopadhyay, Arup Chattopadhyay	Graphics & Multimedia	2nd	Vikas

Paper: Computer basics and multimedia software
Paper Code: GE3B-12
Contact Hours/Week: 3L
Credit: 3

Objective: To understand the basic online and offline tools of information technology and implementation of them in contemporary industry requirement. Giving students a basic idea about Computer, Operating Systems, Ms Word, Excel, and Google tools alongside the knowledge and skills for making good presentations using MS Office or similar.

Course Content

1	• Data and Information: Analog Vs Digital • Types of computer memory • Operating System: Windows, iOS, Android, Linux	7
2	• Basic Computer Language.	5
3	• MS Package: word, power point, excel, outlook • Networking and email: LAN, MAN, WAN, Baseband, Broadband.	6
4	• Basics of HTML. • Google tools: docs, slides, spreadsheets, forms, drive.	6
5	• Data Base Management System (DBMS).	6

SUGGESTED READINGS:

Computer Basics and C Programming, V Rajaram
HTML 5.0 For Beginners, Vinod Kumar Murugesan

Course Name: Data Analysis with SPSS
Course Code:GE3B-13

Mode- Offline/Blended **Credits:3**

Course Objective:

The main objective of the course will be on to solve their research question using SPSS software. As We know that, students are facing problem specially who are pursuing research in their subject that how to manage and analyze the data after collection of survey questionnaire. Course will be focus on how to analyze survey questionnaire using SPSS software? Also students should make aware to choose appropriate statistical technique and interpret results. This software will help to train students in SPSS Software also help to expose the students to the analysis of statistical data

SI	**Course Outcome**	**Mapped modules**
CO1	Understanding SPSS interface,type of data	M1
CO2	Understanding to work with data file, table looks, changing font style and size.	M2
CO3	Understanding to work with various kind of diagram	M3
CO4	Understanding to work with descriptive statistics and correlation with SPSS	M4
CO5	Understanding to work with testing of hypothesis	M5

Learning Outcome/ Skills:

- Students will be able to operate the SPSS interface, import files, work with handling data.
- Students will be able to analysis data through diagram.
- Students will be able to work descriptive statistics using SPSS.
- Students will be able to test the hypothesis using SPSS.

Module	Content	Total Hours	% of questions	Blooms Level (if applicable)	Remarks (if any)
Module1	Interface	8	15	1	
Module2	Data handling	10	15	2.2	
Module3	Diagrammatic representation	12	20	2	
Module4	Descriptive Statistics	15	25	2.3	
Module5	Testing of Hypothesis	15	25	2.3	
	TOTAL	60	100		

Module -1: Interface:
Windows, types of windows, variable name, variable labels in dialog box, data type, measurement level, variable list, auto recovery, restore point.

Total hours: 8

Module-2: Data handling:
Open SPSS data file, save file, import from other data source, data entry, labeling for dummy numbers, recode in to same variable, recode in to different variable, transpose of data, insert variables and cases, merge variables and cases. Data handling: Split – select cases – compute total scores – table looks – Changing column - font style and sizes

Total hours: 10

Module-3: Diagrammatic representation:
Simple Bar diagram – Multiple bar diagram – Sub-divided Bar diagram - Percentage diagram - Pie Diagram – Frequency Table – Histogram – Scatter diagram – Box plot.
Total hours: 12

Module-4: Descriptive Statistics:
Mean, Median, Mode, SD- Skewness- Kurtosis. Correlation – Karl Pearson's and Spearman's Rank Correlation, Regression analysis: Simple and Multiple Regression Analysis.

Total hours: 15

Module-5: Testing of Hypothesis:

Parametric – One sample – Two sample Independent t – test – Paired t – test. Non – parametric: One sample KS test- Mann-Whitney U test – Wilcoxon Signed Rank test - Kruskal Wallis test – Friedman test- Chi- square test. Analysis of variance: One way and Two-way ANOVA
Total hours: 15

References:
1. Clifford E. Lunneborg (2000). Data analysis by resampling: concepts and applications. Dusbury Thomson learning. Australia.
2. Everitt, B.S and Dunn, G (2001). Applied multivariate data analysis. Arnold London.
3. Jeremy J. Foster (2001). Data analysis using SPSS for windows. New edition. Versions 8-10. Sage publications. London.
4. Michael S. Louis – Beck (1995). Data analysis an introduction, Series: quantitative applications in the social sciences. Sage. Publications. London.

(GE4B-01): ENTREPRENEURSHIP THEORY & PRACTICE

Credit Point:3.

Course Objective

1. To understand the function of the entrepreneur in the successful, commercial application of innovations.
2. To investigate methods and behaviours used by entrepreneurs to identify business opportunities and put them into practice.
3. To discuss how ethical behavior impacts on business decisions for a selected business startup.
4. To get better knowledge about the necessary traits for an Entrepreneurs.
5. To build and check the feasibility of business projects and the development of the projects for the same.
6. To provide the overview of Business Ethics and its importance.
7. To understand the various Management and Business scenarios of Ethics.
8. To get the overall knowledge on corporate culture and its impact on business.

Course Outcomes (CO):

SL NO.	Course Outcome	Mapped Modules
1.	This will help to understand the basics and needs of Entrepreneurship.	Module I - Unit 1
2	This will help Entrepreneurs develop the need and nature so, that they can run their business.	Module I - Unit 2
3	This unit helps to generate startups with various business decisions.	Module I - Unit 3
4	Helps the student to develop certain skills of Entrepreneurship.	Module I - Unit 4
5	This helps to develop business projects which develop to build business projects.	Module II - Unit 5
6	Student will able to describe examples of entrepreneurial business and actual practice, both successful and unsuccessful, and explain the role and significance of entrepreneurship as a career, in the firm, and in society.	Module II - Unit 6
7	Student will able to understand the importance and role of ethical, sustainability, innovation and global	Module II - Unit 7

	issues for strategic decision making.	
8	Student will evaluate different modes of entering into enterpreurship. Student will able to understand the importance and role of ethical, sustainability, innovation and global issues for strategic decision making.	Module II - Unit 8

Module I

Unit1:Introduction to Entrepreneurship [4L] Theories of Entrepreneurship, Role and Importance of Entrepreneur in Economic Growth.

Unit 2: Entrepreneurial Behaviour [10L]

Entrepreneurial Motivation, Need for Achievement Theory, Risk-taking Behavior, Innovation and Entrepreneur

Unit 3: Entrepreneurial Traits [8L]

Definitions, Characteristics of Entrepreneurs, Entrepreneurial Types, Functions of Entrepreneur

Unit 4: Project Feasibility Analysis [12L]

Business Ideas - Sources, processing; Input Requirements, Sources of Financ ing, Technical Assistance, Marketing Assistance, Preparation of Feasibility Reports, Legal Formalities and Documentation.

Module II

Unit 5: Creativity [8L]

Introduction – Meaning - Scope – Types of Creativity – Importance of Creativity – Steps of Creativity

Unit 6: Innovation [8L]

Introduction –Steps in Innovation – Stages of of Innovation – Technology aspects in Innovation.

Unit 7: Understanding the Market [4L]

Types of Business: Manufacturing, Trading and Services – Market Research - Concept, Importance and Process - Market Sensing and Testing

Unit 8: Resource Mobilization [6L]

Types of Resources - Human, Capital and Entrepreneurial tools and resources- Selection and utilization of human resources and professionals like Accountants, Lawyers, Auditors, Board Members, etc. Role and Importance of a Mentor- Estimating Financial Resources required. Methods of meeting the financial requirements – Debt vs. Equity

Suggested Readings:

1. Entrepreneurship, Arya Kumar, Pearson.
2. Introducing Entrepreneurship Development, Chakraborty, Tridib, Modern Book Agency.
3. Entrepreneurial Policies and Strategies, Manimala, M.J., TMH
4. Everyday Entrepreneurs - The harbingers of Prosperity and creators of Jobs , Dr. Aruna Bhargava.

Subject: Accounting
Course Code: GE4B-02

Subject: Accounting	
Course Code: GE4B-02	**Maximum Marks:** 100
Teaching Scheme	**Examination Scheme**
Theory: 3	**End Semester Exam**: 70
Tutorial:	**Attendance:** 5
Practical:0	**Internal Assessment**: 25
Credit: 3	**Practical Sessional internal continuous evaluation**:
	Practical Sessional external examination:

Aim:	
Sl. No.	
1.	Build a foundation to understand the various concepts of Financial Accounting
2.	Gain a better understanding of Accounting Mechanics, Accounting Standards and dealing with Financial Statements of Companies

Objective:	
Sl. No.	
1.	To articulate the financial concepts of accounting in companies
2.	To gain a clear understanding of Financial Accounting with the help of case studies

Pre-Requisite:	
Sl. No.	
1.	NA

Contents		**Hrs./week**	
Chapter	**Name of the Topic**	**Hours**	**Marks**
01 Introduction to Accounting	• Introduction to concepts of Accounting • Concept and necessity of Accounting • An Overview of Income Statement and Balance Sheet.	2	6
02 Introduction and Meaning of GAAP	• Introducing the meaning of GAAP • Concepts of Accounting • Impact of Accounting • Concepts on Income Statement and Balance Sheet.		
03 Accounting Mechanics	• Understanding of Accounting Mechanics • Process leading to preparation of Trial Balance and Financial Statements		
04 Preparation of Financial Statements with	• Understanding the Preparation of Financial Statements with Adjustment Entries.	2	6

Adjustment Entries.			
05 Revenue Recognition and Measurement	• Describing Revenue Recognition and Measurement • Capital and Revenue Items • Treatment of R & D Expenses • Preproduction Cost • Deferred Revenue Expenditure etc.	2	6
06 Fixed Assets and Depreciation Accounting	• Describing Fixed Assets and Depreciation Accounting • Evaluation and Accounting of Inventory	2	6
07 Preparation and Complete Understanding of Corporate Financial Statements	• Preparation and Complete Understanding of Corporate Financial Statements • 'T' Form and Vertical Form of Financial Statements.	2	6
08 Important Accounting Standards	• Corporate Financial Reporting – Analysis of Interpretation thereof with reference to Ratio Analysis. Fund Flow, Cash Flow. • Corporate Accounting. Accounting of Joint Stock Companies: Overview of Share Capital and Debentures, Accounting for Issue and forfeiture of Shares, Issue of Bonus Share, Issue of Debentures.	2	6
09 Financial Statements of Companies	• Financial Statements of Companies: Income Statement and Balance Sheet in Schedule VI. Provisions of the Companies Act: Affecting preparation of Financial Statements, Creative Accounting, Annual Report, Presentation and analysis of Audit reports and Directors report. (Students should be exposed to reading of Annual Reports of Companies both detailed and summarized version).	2	6
10 Inflation Accounting & Ethical Issue in Accounting	• Describing Inflation Accounting & Ethical Issue in Accounting	2	6
11 Case Studies and Presentations	• Case Studies and Presentations	**10**	**10**
	Sub Total:	**30**	**70**
	Internal Assessment Examination & Preparation of Semester Examination		**30**
	Total:		**100**

List of Books
Text Books:

Name of Author	Title of the Book	Edition/ISSN/ISBN	Name of the

			Publisher
P C Tulsian ,	Financial Accounting	2002/ 9788177582284	Pearson
Gregory Becker	Accounting Principals:The ultimate Begineers Guide to Accounting	978-1081670290	Pearson
Reference Books:			
M C ShuklaS C GuptaT S Grewal	Advanced Accounting Vol - I	2018/ 978-9352533022	S.CHAND
M C ShuklaS C GuptaT S Grewal	Advanced Accounting Vol - II	2018/ 978-8121911009	S.CHAND

(GE4B-03): PRINCIPLES OF MANAGEMENT & ORGANIZATIONAL BEHAVIOUR

Credit Point 3

Course Objective

1. To help the students to develop cognizance of the importance of management principles.
2. To understand the planning process in the organization.
3. To enable them to analyze and understand the environment of the organization.
4. To study the system and process of effective controlling in the organization.
5. To understand the concept of behavior in a organizational settings & to explain, predict and influence behavior of others.
6. To help the students to develop the concepts of Human Behaviour.
7. To know the concept of motivation &how to motivate people for their work according to various theories.
8. To enable them to understand the group behavior & the communication process in an organization.
9. To help the students to develop the process of leading individuals, managing conflicts.
10. To enable them to understand the culture of the organization & execute the strategy according to the situation.

Course Outcomes (CO):

SL NO.	Course Outcome	Mapped Modules
1	Students will be able to have clear understanding of managerial functions like planning, and have same basic knowledge on international aspect of management	Module I – Unit 1
2	Students will be able to explain the relationship between strategic, tactical and operational plans	Module I – Unit 2
3	Students will be able to understand the concept of organization.	Module I – Unit 3
4	Students will be able to analyze isolate issues and formulate best control methods	Module I – Unit 4
5	Students will be able to develop insight on how employees behave & perform in the workplace.	Module II – Unit 5
6	Students will get knowledge to improve personal adjustment & interpersonal relationship	Module II – Unit 6

7	Students will be able to analyze & compare different models used to explain individual behavior related to motivation & rewards.	Module II – Unit 7
8	Students will be able to explain group dynamics & demonstrate skills required for working in groups.	Module II – Unit 8
9	Students will learn to explore & will develop a sense of confidence & belief in themselves & their ideas.	Module II – Unit 9
10	Students will be able to understand that how organizational culture influences the behavior of organizational members.	Module II – Unit 10

Module I

Unit 1: Introductionto Management [4L] Nature, purpose and scope of management, Skills and roles of a Manager, Functions, Development of Management Theories (Classical, Neo-Classical and Modern)

Unit 2: Planning Process [6L]

Types of plans, Levels of planning, planning process, Management by objectives, Strategic Management, premising and forecasting; Decision-Making process, barriers, styles of decision making

Unit 3: Organizing Procedure [8L]

Organizational design and structure, Coordination, centralization and de- centralization, Delegation, Authority & power – concept & distinction, Line and staff organizations.

Unit 4: Controlling System [8L]

Concept, planning-control relationship, process of control, Types of Control, Control Techniques, and Staffing: Human Resource Management and Selection

Module II

Unit 5: Introduction to Organizational Behaviour [4L]

The nature and determinants of organizational behaviour, need for knowledge of OB, contributing disciplines to the field, OB Model

Unit 6: Individual differences [6L]

Learning, Values, attitudes, Personality (MBTI, Big Five Model), Emotional Intelligence, Perception, Attribution theory

Unit 7: Work Motivation[6L]

Early Theories (Mc. Gregory's Theory X & Y , Abraham Maslow's Need Hierarchy Theory Herzberg's Two Factor Theory) & Contemporary Theories (Mc. Clelland's 3 Needs Theory , Alderfer's ERG Theory , Adam's Equity Theory & Vroom's Expectancy Theory, Goal Setting Theory), Application of

Motivation Theories & workers participation management.

Unit 8: Group Behaviour[6L]

Types of Groups, Stages of Group Development, Group Decision Making, understanding Teamwork: Types of Teams, Creating Effective teams, Communication: significance, types, barriers, overcoming barriers.

Unit 9: Leadership[6L]

Basic Approaches (Trait Theories, Behavioral Theories & Contingency Theories) & Contemporary Issues in Leadership. Conflict: levels of conflict, resolving conflicts; power and politics: sources of power, use of power

Unit 10: Organization culture and Change[6L] Effects of culture, changing Organizational culture forces of change, Resistance to change, the change process.

Suggested Readings:

1. Management, Robbins, Stephen P, and Mary Coulter, Prentice Hall, New Delhi. Robbins, Stephen P: Organizational Behavior" Prentice Hall
2. Principles of Management, Govindarajan & Natarajan, Prentice Hall of India Private Limited.
3. Management, Stoner, Freeman & Gilbert, Jr., Prentice Hall of India private Limited
4. Organizational Behavior: Human Behavior at Work, Newstrom, John W. and Keith Davis, Tata McGraw-Hill.

(GE4B-04): BASICS OF ACCOUNTING AND FINANCE IN HEALTHCARE MANAGEMENT

Credit Point: 3

Course Objective

1. To understand the meaning of accounting, different accounting concepts and principles.
2. To understand the rules of journal, ledger and trial balance.
3. To understand different concepts and methods of depreciation and provision.
4. To understand the preparation of final accounts with different adjustment.
5. To understand the knowledge of business finance, financial management and management decision.
6. To understand the concept and classification of working capital and importance of working capital management.

Course Outcomes (CO):

SL NO.	Course Outcome	Mapped Modules
1	Ability to know the objective and advantages of accounting.	Module I – Unit 1
2	Ability to know how to record the journal entries, posting to the ledger and preparation of trial balance.	Module I – Unit 2
3	Ability to calculate depreciation by applying various methods.	Module I – Unit 3
4	Ability to prepare trading account, profit & loss account and balance sheet along with different	Module I – Unit 4
	adjustments.	
5	Ability to determine the value and wealth maximization of business and scope of financial management.	Module II – Unit 5
6	Ability to compute working capital using both the cash cost approach and the operating cycle approach.	Module II – Unit 6

Module 1

Unit1: Meaning and Scope of Accounting[5L] Accounting: meaning, Objective, Scope and Advantages; Accounting Principles: GAAP, Accounting Concepts and Accounting Conventions; Cash Basis and Accrual Basis of Accounting.

Unit2: Recording of Business Transactions[15L] Accounting Cycle, Golden Rule of Accountancy, Journal, Ledger, Trial Balance, Capital and Revenue expenditure.

Unit 3: Depreciation and Provision[8L] Concept of Depreciation;Causes of Depreciation; Depletion,

Amortization; Depreciation accounting; Methods of recording depreciation; Straight line and Diminishing Balance method.

Provision and Reserve: Preparation of provision for doubtful debt account, provision for discount on Debtors, provision for discount on Creditors, Differentiate between Provision and Reserve.

Unit4: Preparation of Final Accounts[12L] Trading account; Profit and Loss Account; Balance Sheet; Adjustment entries with respect to Closing stock, Outstanding Expenses, Prepaid Expenses, Pre-received Income, Accrued Income, Depreciation, Provision for Bad Debts, Stock lost by Fire, Goods withdrawal by Proprietors, Free sample

Module II[8L]

Unit 5: Introduction to Financial Management

Meaning, Core Elements, Objectives and Scope, Role of Finance Manager, Profit Vs Goal Maximization, Investment Decision, Financing Decision, Dividend Decision.

Unit6: Working Capital Management[12L] Definition, Classification of Working Capital Management, Factors of Working Capital Management, Operating Cycle, Practical problem on Working Capital Requirement.

Suggested Readings:

1. Financial Accounting, Ashoke Banerjee, Excel Books
2. Financial Accounting, Basu & Das, Rabindra Library
3. Financial Accounting, M. Hanif, A. Mukherjee, TMH.
4. Financial Management: Theory and Practice, Chandra, P., TMH.
5. Financial Management, Pandey, I.M., Vikas Publishing House Pvt. Ltd.

(GE4B-05) : MACRO ECONOMICS IN BUSINESS

Credit Points– 3

Course Objectives

1. To understand the differentiation between macro & micro economics and scope of macro economics
2. To demonstrate the concepts of national income accounting with all the measurement parameters
3. To determine the concept of multiplier in the economy along with income and savings function
4. To describe IS LM framework and effectiveness of the fiscal & monetary policy
5. To understand the concepts of demand and supply of money with understanding of effects of inflation in the economy
6. To explore the concepts of balance of trade and payment with international trade theories.

Course Outcome

SL NO.	Course Outcome	Mapped Modules
1.	Students will be able to define macroeconomics	Unit 1
2	Students will be able to explain how economic indicators like GDP are used to assess the state of the economy and differentiate between and calculate nominal and real GDP	Unit 2
3	Students will be able to examine factors that shift aggregate supply and aggregate demand & explain why multiplies works and how to calculate its size	Unit 3
4	Students will be able to understand fiscal policies, including automatic, expansionary, and contractionary fiscal policies along with how monetary policy affects GDP and the interest rates and will establish general equilibrium in real and monetary sector	Unit 4
5	Students will be able to define money & inflation, explain the functions of money, and define liquidity and how money is created by lending, demonstrate the controlling measures of inflation.	Unit 5
6	Students will be able to understand Balance of Payment statement & international trade theory	Unit 6

MODULE I

Unit 1: Concepts of Aggregate demand & supply

Macroeconomics – scope and basic concepts, Concept of Aggregate Demand and Aggregate Supply, Marginal Propensity to Consume(MPC), APC, MPS, MPI: Basic concepts Only, Paradox of thrift. (8L)

Unit 2: National Income

National Income Accounting - Concepts and measurement of GDP, GNP, NNP, NI and DPI - Circular flow of income – Real and Nominal GDP –Implicit deflator. (10L)

Unit 3: Income Determination

Theory of Equilibrium Income Determination: Simple Keynesian Model; Consumption, saving and investment functions – National income determination; Investment and Government expenditure multipliers (10L)

MODULE II

Unit 4: IS-LM framework

Commodity market and Money market equilibrium; Derivation of IS and LM curves –Shifts of IS and LM curves-equilibrium in IS-LM model – Effectiveness of monetary and fiscal policies. (8L)

Unit 5: Money and Inflation

Concept of demand for and supply of money. Quantity theory of money and Keynesian theory of demand for money. Measures of money supply – High powered money – Money multiplier. Concept of Inflation – Demand-pull and cost-push theories of inflation – Monetary and fiscal policies to control inflation – Instruments, objectives and limitations. (12L)

Unit 6: Balance of Payments

Items of BOP, Causes of Disequilibrium in BOP, Strategies to Correct Adverse BOP Situation, Purchasing Power Parity Theory (Only basic concept), Absolute and Comparative Cost Advantage Theory, Gains from international trade. (12L)

Suggested Readings

1. W. H. Branson, Macro Economic Theory and Policy
2. Joydeb Sarkhel, Macro Economic Theory
3. Banerjee & Majumdar, Fundamentals of Business Economics
4. Dornbusch, Fischer & Startz, Macroeconomics, TMH
5. Debes Mukherjee: Essentials of Micro and Macro Economics, Central

(GE4B-06) : BUSINESS REGULATORY FRAMEWORK

Credit Points– 3

Course Objectives

1. To understand the Basic Concepts of Indian Contract Act 1872.
2. To understand the concept of Sale of Goods Act 1930.
3. To know the concept of Negotiable Instrument Act 1881.
4. To know the concept of Consumer Protection Act 1986.
5. To understand the concept of Companies Act 2013
6. To explore the issues related to IT act 2000.

Course Outcomes (CO)

Sl. No	Course Outcome	Mapped Modules
1	Memorize the Basic Concepts of Indian Contract Act	Module I/ Unit 1
2	Understand the concept of Sale of Goods Act	Module I/ Unit 2
3	Memorize the concept of Negotiable Instrument Act.	Module I / Unit 3
4	Memorize the concept of Consumer Protection Act.	Module II/ Unit 4
5	Understand the concept of Companies Act 2013	Module II/ Unit 5
6	Learn the concepts of IT act 2000	Module II/ Unit 6

MODULE I

Unit 1: Indian Contract Act 1872

Elements of contract -Offer and Acceptance - Consideration - Legal capacity -Intention to create legal relations - Free Consent -Legality of the Object - Possibility of Performance - Void and Voidable Agreement-Contingent Contract -Discharge of Contract-Indemnity and Guarantee-Quasi Contract -Bailment and Pledgement - Agency Contract. (12L)

Unit 2: Sale of Goods Act 1930

Formation of contracts of sale-Goods and their classification, price -Conditions &Warranties-Performance the contract of sale - Unpaid seller and his rights-Hire Purchase agreement, Auction (12L)

Unit 3: Negotiable Instrument Act 1881

Definition of negotiable instruments- Features-Types of negotiable instruments -Dishonor of a Negotiable Instrument (10L)

MODULE II

Unit 4: Consumer Protection Act 1986
Concept - Consumer protection Councils -Dispute Redressal Procedures (10L)

Unit 5: Companies Act 2013
Concept -Type of Companies- steps in formation of a company-Concept and features of AOA MOA and prospectus –Meetings (10L)

Unit 6: Information Technology Act 2000
Overview of Computer and Web Technology , Need for Cyber Law , Cyber Jurisprudence at International and Indian Level , Jurisdictional Aspects in Cyber Law , Issues of jurisdiction in cyberspace , Types of jurisdiction ,Prerequisites of jurisdiction, Cyber Crimes , Cyber Crimes Vs. Conventional Crime, Reasons for cybercrimes and cyber criminals ,Cyber Crimes against Individuals, Institution and State. (6L)

Suggested Readings

1. Sen & Mitra: Commercial law; World Press
2. Pathak: Legal Aspect of Business, TMH
3. Das & Ghosh: Business Regulatory Framework: Ocean Publication, Delhi 4.Pillai & Bagavathi: Business law ,S Chand
6. Tulsian: Business law: Tata Mcgrawhill

Course: Decision Support System
Code: GE4B-07
Credits:3

Course Objective:

1. To review and clarify the fundamental terminologies, ideas and concepts associated with Decision Support Systems and other aligned systems.
2. To discuss and grow skills in the analysis, design and implementation of computerized Decision Support Systems.
3. To understand and evaluate the importance of Decision Support Systems in organizational and social context.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2, M3, M4, M5, M6
2	Understanding the course	M1, M2, M3, M4, M5, M6
3	Applying the general problem	M3, M4, M5, M6
4	Analyse the problems	M2, M4, M5.
5	Evaluate the problems after analysing	M2, M3.
6	Create using the evaluation process	M1, M2 (Case study), M3, M4, M5, M6.

Module Number	Content	Total Hours	%age of questions	Bloom's Level (if applicable)	Remarks (If any)
M 1	Introduction	10	10	L1, L2	
M 2	Application of DSS techniques	10	25	L1, L2, L4	
M 3	Excel Basics	10	10	L1, L2, L3	
M 4	Advanced excel functions	10	25	L1, L2, L3, L4	
M 5	Pivot tables and statistical functions	10	25	L1, L2, L3, L4	
M6	Intro to VBA	10	5	L1, L2, L3	
		60	**100**		

Paper Code: GE4B-07
Decision Support System
Total Credit: 3

Sl.	Topic/Module	Hour
1.	**Module 1:** Understand concepts of a Decision Support System (DSS) and its effect on management, purpose of a DSS. Data warehousing, Differentiate between the data warehouse, Data Marts, and Data Mining. Differentiate between OLAP and OLTP systems. Contrast data, information, and knowledge as they apply to the DSS. Define computer-based inferencing. Discuss various tools assisting IT professionals surrounding DSS.	10
2.	**Module 2**: Application of DSS techniques to real-world scenarios and situations Construct an expert system using a programming language or the Microsoft Office suite of tools. Perform data analysis using Microsoft Excel pivot tables. Apply the Nominal Group Technique (NGT) and the Delphi method. Use linear programming methods to solve multivariate problems.	10
3.	**Module 3**: Excel Basics, Formatting, Referencing and Names, Functions and Formulas, Charts: When to use which chart.	10
4.	**Module 4** : Advanced excel functions: vlookup, hlookup, fuzzy lookup, match, index, statistical functions, etc.	10
5.	**Module 5**: Pivot Tables, Statistical Analysis , The Solver and other tools (what-if analysis etc).	10
6.	**Module 6**: Intro to VBA, Recording Macros, Objects and Variables.	10

Suggested Readings:

1. Clyde W. Holsapple: Decision Support Systems: A Knowledge Based Approach, West Group
2. Douglas Schwartz : Decision Support Systems, Clanrye International
3. Clyde W. Holsapple: Decision Support Systems: Theory and Application, Springer-Verlag .
4. Manish Nigam: Advance Excel 2019 Training Guide: Tips and tricks to kick start your excel skills, BPB Publications.
5. Wayne Winston: Microsoft Excel Data Analysis and Business Modeling, Microsoft Press.

Course Name: **Entrepreneurship: Launching an Innovative Business**

Paper Code: GE4B-08

Mode:Offline/Blended
Credits: 3

Course Objective: -

This course will assist aspiring and active entrepreneurs in developing great ideas into great companies. With strong economies presenting rich opportunities for new venture creation, and challenging economic times presenting the necessity for many to make their own job, the need to develop the skills to develop and act on innovative business opportunities is increasingly vital.This course will also help the aspiring or active entrepreneurs who want to understand how to secure funding for their company.

Course Outcome (CO):-

Sl No.	Course Outcome	Mapped Modules
1	Identifying and analyzing entrepreneurial opportunities	M1, M2, M3, M4, M5, M6
2	Enhancingentrepreneurial mindset	M1, M2
3	Improvingstrategic decision-making	M1, M2, M3, M4
4	Developing the ability to build innovative business models	M1, M3, M4
5	Exploring kinds of investors invest by stage	M5, M6
6	Understanding different fund-raising options	M5, M6

Module No.	Content	Total Hours	%age of Questions	Blooms Level	Remarks
M1	Introduction to Innovation and Entrepreneurship	12	20	1,2,3	
M2	Entrepreneurial Mindset, Motivations, and Behaviors	10	20	1,2	
M3	Industry Understanding	10	15	1,2	
M4	Customer Understanding and Business Modeling	12	20	1, 2, 3	
M5	Early Stage Investment Landscape	10	15	1, 2	
M6	Sources of Capital for the Early Stage Company	6	10	1, 2	
		60	100		

Detailed Syllabus:-

Module- 1:- Introduction to Innovation and Entrepreneurship

What is entrepreneurship, Who is an entrepreneur, Entrepreneurship, creativity, & innovation, entrepreneurial opportunities, factors influence the feasibility of an innovation,The world's most

innovative companies, Types of innovation, Entrepreneurs and strategic decisions, The opportunity analysis canvas.

Module- 2:-Entrepreneurial Mindset, Motivations, and Behaviors

Introduction to entrepreneurial mindset, motivations, and behaviors, Entrepreneurial mindset, Entrepreneurial motivations, How to decide to become an entrepreneur?, Entrepreneurial behaviors, Risk taking in entrepreneurial decision-making, Risk, uncertainty, and stakeholder involvement.

Module- 3:-Industry Understanding

Introduction to industry understanding, Knowledge conditions, Demand conditions, Industry lifecycle, Industry structure, Competitive advantage, Learning curve, Complementary assets, Reputation effects, Product-market fit.

Module- 4:-Customer Understanding and Business Modeling

Introduction to customer understanding, Macro changes that increase new venture opportunities, How can government and entrepreneurs work together, Why is skills training and development important for entrepreneurs and government?, Exploring real market needs, Satisfying real market needs, Strategic positioning, Strategic planning, Value innovation, Opportunity identification.

Module- 5:-Early Stage Investment Landscape

New Venture Finance, Investment landscape, What are the information venture capitalists look for in a "good plan", What are the financial statements investors want to see, Howto develop a balance sheet, content of an income statement, purpose of the cash flow statement.

Module- 6:-Sources of Capital for the Early Stage Company

Sources of capital, Where to find investors, consider friends and family as investors, What's bootstrapping, Are incubators and accelerators a fit, What are angel investors.

Suggested Readings:

1. Entrepreneurship, Innovations & Start-Ups in Indiaby Dr Savita Joshi; New Century Publications
2. A Practical Guide to Entrepreneurship: Be Your Own Boss by Alison Price and David Price.
3. Fundamentals of Entrepreneurship by Dr. G.K. Varshney.
4. Fundamentals of Entrepreneurshipby N.K. Jain.
5. Management and Entrepreneurship by Havinal Veerabhadrappa, New Age International (P) Ltd.
6. Entrepreneurship: Theory and Practice by Raj Shankar; McGraw Hill Education.
7. Entrepreneurship: Development and Management by Dr. Vasant Desai and Dr. Kulveen Kaur; Himalaya Publishing House.
8. Entrepreneurship Development & Management by Dr. R.K. Singal.

9. Fundamentals of Entrepreneurship by Dr. A.N. Bharti, Dr. Vishwjeet Singh, Sanjay Gupta, Dr. Pramod Kumar Tripathi.

10. Entrepreneurship: Text and Cases by P Narayana Reddy, Cengage Learning.

Course name: **HANDLING HUMAN RESOURCES IN WORKPLACES**

Paper Code: GE4B-09

Mode-Offline/Blended **Credits: 3**

Course Objectives: The course has been designed to explore the Human Resource Management concept. The learner will be able to apply the knowledge of recruitment, selection, appraisal, training, compensation and effect on the personal and professional.

Sl	Course Outcome	Mapped modules
CO1	Explaining the concept Human Resource, functions, history, scope	(M1)
CO2	Understanding the Recruitment, Selection	(M2)
CO3	Explaining the concept of Training, Performance Appraisal	(M3)
CO4	Explain the concept Wage and salary and attrition	(M4)
CO5	Understanding new policies of Human Resource Management	(M5)
CO6	HRD in Public ,private and MNCs	(M6)

Module	Content	Total Hours	%ageofquestions	Blooms Level (ifapplicable)	Remarks (If any)
Module 1	Explaining the concept Human Resource, functions, history, scope	6	15	2	
Module 2	Understanding the Recruitment, Selection	9	20	2	
Module 3	Explaining the concept of Training, Performance Appraisal	8	20	2	
Module 4	Explain the concept Wage and salary and attrition	10	15	2	
Module 5	Understanding new policies of Human Resource Management)	12	15	2	
Module 6	HRD in Public ,private and MNCs	15	15	1,2	
		60	100		

Detailed Syllabus:

Module 1- Definition of HRM, objective of HRM, Theory pf HRM, Function of HRM, role of HR manager, Scope of HRM
Module 2- Definition of recruitment, sources of recruitment, recruitment techniques used in different Industries, definition of selection, selection methods, techniques used in Govt. sectors
Module 3- Understanding the concept of training and development, techniques of training used in IT, Govt, MNCs, Concept of appraisal, Modern techniques of appraisal (BASRS,360 DEGREE, HRA etc.), Case study of using modern appraisal techniques in Industries
Module 4- Concept of wage and salary, calculation of salary, concept pf DA,DP, Fringe benefits, Concept of leave structure, Wage and salary administration, process, Concept of PF,BONUS,PENSION. Concept of attrition
Module 5- New HRM policies used in new trends. Case study and term paper.
Module 6- **Practical** HRD in Public ,private and MNCs term paper

Suggested Readings

1. Human Resource Management --- Gary Dessler
2. Human Resource Management--- P.Subba Rao
3. Human Resource Management --- Millokovich

Course Name: Social Media management, Advertising & Marketing

Paper Code: GE4B-10

Mode: Blended/Offline **Credits: 3**

Course Objective: Social media management helps to capitalize on the surging popularity of social media platforms by creating and overseeing engagement, branding and marketing Campaigns.

Sl	Course Outcome	Mapped modules
1.	Understand Social Media	M1
2.	Understand Audience	M2
3.	Understand content	M3
4.	Understand Content Management	M3,M4
5.	Evaluation of study	M5
6.	Understanding social media advertising	M6
7.	Effects of Ad in social media	M6,M7
8.	Privacy policy for ad in social media	M8
9.	Concept of marketing in social media	M9
10.	Branding	M10

Module number	Content	Total Hour	% of question	Blooms level	Remark in any
1.	Social media: Concept	10	5	1	
2.	Audience : Definition and nature	4.5	5	2	
3.	Content creation	4.5	10	3	
4.	Content management: concept and application	6	10	2,3	
5.	Project on assignment-1 Project on Assignment 2	6	10	3	
6.	Social media advertising	4.5	5	2	
7.	AD in social media	5	10	2	
8.	How to put Ad in social media	4.5	10	3	
9.	Marketing in social media	4.5	10	3	
10.	Branding in social media	4.5	10	3	
11.	Capstone Project	6	15	3	
		54	100		

Detailed Syllabus:

Module 1: Social media: Concept; what is social media, Social media management (definition), Digital marketing: concept, scope and limitation,

Module 2: Audience: Definition and nature, Understanding social media pages, Choice of social media platforms.

Module 3: Content creation: What is content in social media, impact, role, influences, judging the impact of Post in various social media platform: anatomy and structure, Role of various posts in social media, nature of post (text, audio, and audio visual, visual?)

Module 4: Content management: concept and application How to create content (intro, body, Overview), Planning of storyboard, Judging the content, Make a deadline for the content (maintaining time frame,),scheduling the content, auditing the content, Social media content management.

Module 5: Project on assessing the content in various social media platforms (Facebook, Instagram)

Module 6: Social media advertising: Fundamentals of advertisement in social media, overview, Concept of Ad in social media, Paid ad in social media, Anatomy of Advertisement in social media platforms.

Module7: Advertisement in social media: Identify the nature of ad in social media, creating effective ad, writing copy for ad, working with brief.

Module 8: How to put Ad in social media: what is data, Policy of social media, norms of putting ad in social media, privacy policy, and data protection: various government regulations relating to data, Self- Regulation, Company Data policy

Module 9: Posting ad in social media, Anatomy of various ad in Face book, Instagram

Module 10: Brand: existence, purpose, identity, connection

Module 11: Capstone project

SUGGESTED READING:

1. Content Writing, Joseph Robinson
2. Writing for the Web; Lynda Felder
3. Handbook of Social Media Management; Value , Chain and Business Models in Changing Media Markets: Mike Friedrichsen, Wolfgang Mühl-Benninghaus
4. Strategic Social Media Management: Theory and Practice: Karen E. Sutherland
5. Social Media Marketing:Tracy L. Tuten, Michael R. Solomon

The New Community Rules: Marketing on the Social We:Tamar Weinberg

Course Code: GE4B-11
Course: E-Commerce & M-Commerce
Credit-3

Course Objective:

1. To understand the basic concepts and technologies used in the E-commerce and M-commerce.
2. To develop knowledge about challenges, security issues from business perspective in the E-commerce and M-commerce domain.
3. To familiarize students with HLML and CSS.

Sl	Course Outcome	Mapped modules
1	Remembering	M1, M2, M3, M4, M5, M6, M7
2	Understanding the course	M1, M2, M3, M4, M5, M6, M7
3	Applying the general problem	M3, M4, M6
4	Analyse the problems	M3, M4, M6
5	Evaluate the problems after analysing	
6	Create using the evaluation process	M7

Module Number	Content	Total Hours	%age of questions	Bloom's Level (if applicable)	Remarks (If any)
M1	E-Business Framework	8		L1, L2	
M2	Network Infrastructure for E-Commerce.	6		L1, L2	
M3	E-Business: Requirements and Architecture.	6		L1, L2, L3, L4	
M4	Security in Electronic	6		L1, L2, L3, L4	

	Business.				
M 5	E-marketing	6		L1, L2	
M6	Mobile-Commerce	8		L1, L2, L3, L4	
M7	HTML	10 P		L1, L2	
		60	**100**		

Sl.	Topic/Module	Hour
1.	**Module 1:** E-Business Framework: Definition of E-Business, Origin of E-Business, History of the Internet, E-Business Opportunities for Businesses, Working of E-Business, E-Business Vs the Traditional Business Mechanism, Advantages of E-Business, Disadvantages of E-Business, Main Goals of E-Business.	5
2.	**Module 2**: Network Infrastructure for E-Commerce – I: Local Area Network (LAN), Ethernet: IEEE 802.3: Local Area Network (LAN) Protocols, Wide Area Network (WAN), The Internet, TCP/IP Reference Model, Domain Names, Hyper Text Markup Language (HTML), Simple Exercises in HTML.	5
3.	**Module 3**: E-Business: Requirements and Architecture: Requirements of E-Business, Functions of E-Business, E-Business Framework Architecture, I-way or Information Highway. Business Models: Evolution of Internet Business Models, Business Models in Practice, Business Model: The Six Components.	5
4.	**Module 4**: Security in Electronic Business: Intranet and Extranet Security: Threats and Protection, Protection Methods, Data and Message Security, Firewalls. Encryption: Cryptography, Encryption, Digital Signature, Virtual Private Network.	5
5.	**Module 5**: E-Marketing: Challenges of Traditional Marketing, Retailing in E-Business Space, Internet Marketing, Advertisement and Display	5

	on the Internet, E-Business for Service Industry. EDI, E-CRM and E-SCM: Electronic Data Interchange (EDI), E-CRM, E-SCM	
6.	**Module 6:** Mobile Commerce: Overview of M-Commerce - Wireless Application Protocol (WAP), Generations of Mobile Wireless Technology, Components of Mobile Commerce, Networking Standards for Mobiles.	5
7.	**Module 7:** HTML: Creating web pages using HTML tags, elements, basic and advanced text formatting, multimedia components, designing web pages, document layout, Lists, Tables, Hyperlinks, Working with frames, forms, controls etc.	15
8.	**Module 8:** Introduction to Cascading Style Sheets: Concept of CSS, Creating Style Sheet, CSS Properties, CSS Styling(Background, Text Format, Controlling Fonts), Working with block elements and objects, Working with Lists and Tables, CSS Id and Class, Box Model(Introduction, Border properties, Padding Properties, Margin properties), CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align, Pseudo class, Navigation Bar, Image Sprites, Attribute sector), CSS Color , Creating page Layout and Site Designs.	15

Suggested Readings:

1. Joseph, P.T. (2005). E-Commerce an Indian Perspective (2e), New Delhi Prentice-Hall of India
2. Kaspersky, (2008). The Cybercrime Ecosystem Whitepaper, Kaspersky Lab
3. O'Brien, J. (2004). Management Information Systems Managing Information Technology in The Business Enterprise, New Delhi Tata McGraw-Hill.
4. Rayport, J. F. & Jaworski, B. J. (2002). Introduction to E-Commerce, New York McGraw-Hill Irwin.
5. Stair, R. M. & Reynolds, G. W. (2001). Principles of Information Systems, 5e, Singapore Thomson Learning.
6. Ramesh Bangia: Learning HTML, Khanna Book Publishing Company.
7. Powell Thomas: HTML & CSS: The Complete Reference: McGraw Hill Education India.
8. Elisabeth Robson and Eric Freeman: *Head First HTML and CSS:* Packt.

Subject: Digital Transformation and Industry 4.0	
Course Code: GE4B-12	**Maximum Marks: 100**
Teaching Scheme	**Examination Scheme**
Theory: 3	End Semester Exam: 70
Tutorial: 1	Attendance : 5
Practical: 0	Continuous Assessment: 25
Credit: 3	Practical Sessional internal continuous evaluation: NA
	Practical Sessional external examination: NA

Aim:	
Sl. No.	
1	To understand all elements of transformation efforts
2	To make students aware of current situation in various industry vertices.

Objective:	
Sl. No.	
1	To offer students an introduction to Industry 4.0 (or the Industrial Internet), its applications in the business world.
2	Understand the drivers and enablers of Industry 4.0
3	Understand the opportunities, challenges brought about by Industry 4.0 and how organisations and individuals should prepare to reap the benefits
4	To understand concepts of digital transformation and its application.

Pre-Requisite:	
Sl. No.	
1	Basic knowledge of computer and internet.
2	Should be aware of current situation in various industry vertices.

Contents			
Chapter	**Name of the Topic**	**Hours**	**Marks**
01	**Introduction to Industry 4.0** The Various Industrial Revolutions , Digitalisation and the Networked Economy , Drivers, Enablers, Compelling Forces and Challenges for Industry 4.0 , The Journey so far: Developments in USA, Europe, China and other countries , Comparison of Industry 4.0 Factory and Today's Factory , Trends of Industrial Big Data and Predictive Analytics for Smart Business Transformation	**9**	**10**
02	**Road to Industry 4.0**: Internet of Things (IoT) & Industrial Internet of Things (IIoT) & Internet of Services , Smart Manufacturing , Smart Devices and Products , Smart Logistics, Smart Cities , Predictive Analytics	**8**	**10**
03	**Related Disciplines, System, Technologies for enabling Industry 4.0:** Cyberphysical Systems , Robotic Automation and Collaborative Robots , Support System for Industry 4.0 , Mobile Computing , Related Disciplines , Cyber Security	**8**	**10**

04	**Role of data, information, knowledge and collaboration in future organizations :** Resource-based view of a firm , Data as a new resource for organizations , Harnessing and sharing knowledge in organizations , Cloud Computing Basics , Cloud Computing and Industry 4.0	**8**	**10**
05	**Business issues in Industry 4.0 :** Opportunities and Challenges , Future of Works and Skills for Workers in the Industry 4.0 Era , Strategies for competing in an Industry 4.0 world	**6**	**10**
06	**Digital Transformation :** Introduction to Digital Transformation, Digital business transformation, Causes of disruption and transformation, Digital transformation myths and realities, Digital Transformation and customer experience, 4 pillars in customer experience transformation, Digital transformation in marketing	**8**	**10**
07	**Digital transformation across various industries :** Retail industry, Government and the public sector, Insurance industry, Healthcare, Banking: Royal Bank of Scotland case study, Fintech: Travelex case study, Public Sector: The MET office case study	**9**	**10**
	Sub Total:	**56**	**70**
	Internal Assessment Examination & Preparation of Semester Examination	**4**	**30**
	Total:	**60**	**100**

Name of Author	**Title of the Book**	**Edition/ISSN/ISBN**	**Name of the Publisher**
Alp Ustundag and EmreCevikcan	Industry 4.0: Managing The Digital Transformation		Springer
Reference Books:			
Dominik T. Matt, Vladimir Modrak, Helmut Zsifkovits	Industry 4.0 for SMEs: Challenges, Opportunities and Requirements		Springer