KALINGA UNIVERSITY
RAIPUR

VALUE ADDED COURSES

Syllabus

Session 2020-21

③

VALUE ADDED COURSES

INDEX

INDEX

FACULTY OF ARTS & HUMANITIES

1. FASHION JOURNALISM

Total Duration: 40hrs

COURSE OBJECTIVE -

This course is designed for you if your dream is establishing your career as a successful Fashion or Lifestyle Journalist. You will gain a comprehensive understanding of the way the industry works, the techniques to write articles worth publishing, the dos and don'ts of pitching, and the hacks that will make you indispensable to editors.

UNIT-I
Introduction to Fashion and Lifestyle Journalism:

Design History, Fundamental of journalism.
What does a Fashion Journalist do?
Importance of Fashion Journalism.

UNIT-II
Fashion and Feature Writing :

Introduction to Fashion writing
Principles of Fashion writing.
Functions and responsibilities of Fashion writer.
Live interviews and Fashion Hacks.

UNIT-III
Fashion Journalism for Internet and Broadcasting Media :

Fashion sense (On Field and Studio)
Photo Journalism
Role of Social media
Impact of media towards Fashion Journalism.

UNIT-IV
Trend and Forecast Analyst:

PR
Fashion trend Analysis
Media Management
Fashion Blogging

The course not only provides the freedom to explore in the media and fashion industry but also lends them numerous possibilities like:
• Fashion Journalist
• Fashion Illustrators
• Communication Manager
• Trend & Forecast Analyst
• Fashion Merchandisers

Reference Books-

1. Fashion Journalism- Book by Julie Bradford.
2. Fashion Journalism: History, Theory, and Practice- Book by Peter McNeil and Sanda Miller.
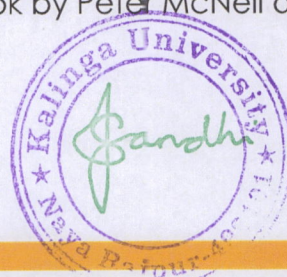
2. FOLK CULTURE STUDIES

Course Objectives:

To acquaint students with the folk culture , art and theatre with specific reference to Chhattisgarh and to develop critical thinking skills, research skills and social skills among students for folk culture.

UNIT-I
Introduction to Folk Culture

The concept of culture-definitions; Nature and scope, Great and little tradition, Culture and Folklore, Basic concepts of culture, Mono culture and cultural pluralism. Elite-Folk; Tribal; Alternate culture, Social Organizations, Marriage, Family and Kinship, Community, Language and Culture Social customs. Religion: Folk Religion Vs Elite Religion, Customs, rituals, rites and taboos Acculturation and Diffusion of Culture, Cultural trait, Culture Area, Culture and Subaltern Studies, Dominant views of culture, Subaltern views of culture

UNIT-II
Introduction to Folklore

Introduction to Folklore Nature and Scope of Folklore, Definitions : Folk, Folklore, Folklife, Folkloristics, Characteristics and Functions of Folklore, 'Popular Antiquities' to 'Folklore', Antiquarians, The Pioneers, Early Folklore Scholarship European, American Classification of Folklore, Macro, Micro Genres of Folklore, Oral Literature, Material Culture, Social Folk Customs, Performing Folk Arts, Folklore and other disciplines Folklore and Anthropology, Folklore and History, Folklore and other Subjects

UNIT-III
Introduction to Folk Art

The Concept of Art, Classical Art, Folk Art, Kinds of Folk Arts, Folk Paintings, Folk crafts, Performing Folk Arts, Practice and performance of a folkart form

UNIT-IV
Theories of Folklore

Folklore Theories: An Introduction, Diachronic, Synchronic, Panchronic Comparative and Culture theories, Monogenesis, Comparative Mythologists, The Indianists, The Finnish Method Polygenesis, Anthropological Theory, Functional Theory, Psychoanalytical Theory, Freudian Theory, Jungian Theory, Structuralism Proppian Model. Levistraussian Model, Contextual and Performance Theories, Performer and Audience, Context and Text Genre Theory, Ethnic Category, Analytic Category

UNIT-V
Folk Communication and Mass Media

Concepts and kinds of communication, Definitions, Kinds – Folk Media and Mass Media, Folklore and Communication Purpose of Communication, Performer and Audience, Types and Techniques Development and Folk Media Case Studies: 'Message through puppet plays' By Vijay Parmar, Communication Publication, New Delhi

Reference Books

Herskovits M.J. 1969 Cultural Anthropology, Calcutta, Oxford and IBH Publishing
Dorson, Richard M 1972 Folklore and Folklife, Chicago: Chicago University Press
Dundes, Alan (ed.) 1965 The Study of Folklore, Prentice Hall
Dorson Richard M 1973 Folklore Research around the world
Parmar Sham 1975 Traditional Folk Media in India, Geka Books, New Delhi

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3. PERSONALITY DEVELOPMENT AND GROOMIMG

COURSE OBJECTIVE -   **Total Duration: 40hrs**

This course is designed to make you ready for the current growing world and to improve your character, skills and capabilities. Setting these goals involve assessing yourself and identifying the areas in which you can improve to maximize your potential.

UNIT-I
PERSONALITY :

What is personality?
Finding your Personality
How to develop personality
Three main Influence of personality (HEREDITY, ENVIRONMENT, SITUATIONS)

UNIT-II
NEED A LITTLE PERSONALITY& TEAM BUILDING:

Maslow's hierarchy of needs.
Basic Personality Traits
Characteristics of an effective team.
Essentials of an effective team
Team Dynamics
Team Leading
Managing a Team

UNIT-III
PERSONALITY GROOMING :

Personal Hygiene
Social effectiveness
Business Etiquettes (power dressing)
Personal Growth & Improvement
Table Manners

UNIT-IV
BODY LANGUAGE & STRESS MANAGEMENT:

Non Verbal Communication
Type of body language
Role of body language
Types of stress, Symptoms and causes of Stress
Stress Management rules

UNIT- V
INTERVIEW PREPARATION:

Introduction skills
Resume writing
Dress code
Presentation Skills
Group discussion
Personal interview
Mock- Interview
Team Behavior

Reference Books
1.Personality Development and Soft Skills- BarunMitra
2.Soft Skill for-S.I. Hariharan -MJP Publications
3. Personality Development & Soft skill – Goycl Brothers Prakasan

5. HINDI LANGUAGE FOR FOREIGN STUDENTS

UNIT -I

Learn Hindi Lessons

1.Tell Your Name in Hindi

2.Your Introduction in Hindi

3.Describe Someone in Hindi

4.Introduce Someone in Hindi

5.Tell Who you are

6.Tell What you Have

UNIT -II

Learn Hindi Word & and Sentences

1.Daily Needs Names

2.Fruits Names

3.Vegetable Names

4.Hindi Numbers

5.Indian Festivals and Culture.

6.Great Indian Personalities

7.Exchanging Personal Detail, Introduction

8.Formal/Informal Speaking

UNIT -III

Hindi Exercise and Practice.

1.Greetings

2.Yes- No Question

3.Who and How People are

4.What (Identity), Nationality,Job

5.Shoping How much,What Kind...

6.Have,Want,Like, Uses

7.Directions, Where Can I get... Position and Place.

8.Talking about Accommodation

UNIT - IV

Tenses of Hindi.

1.Present Tense

2.Past Tense

3.Future Tense

4. General Hindi Grammar

UNIT -V

Verbal, Mock Test and Entertainment.

1.Mock Session

2.Drama

3.Role Plays

4. Situation

5. Story Reading

6.Poetry

7.Song

8.Bollywood scene

6. KOREAN LANGUAGE

Course Objectives: **Total Duration: 40hrs**

→ To achieve fluency in the language as well as a basic understanding of culture and nation as a whole.

→ To be able to Converse, Comprehend, Read and Write with comfort. This course is designed to develop the four language skills, speaking, listening, reading and writing in Korean. It covers the basic grammatical structures and vocabulary necessary for basic conversation, reading comprehension, and writing sentences to help the students build a solid foundation for further study in Korean language. The course also provides useful information concerning culture (whereculture touches on language and communication) and everyday life in Korea. Speaking: Ability to maintain simple face-to face conversation by asking and answering simple questions entirely in Korean Listening: Ability to comprehend the learned materials Writing: Ability to write simple sentences and expression Reading: Ability to comprehension simple texts

Syllabus and Lesson Plan:

Beginner

Class	Syllabus
Class 1	Consonants & Compound Consonants
Class 2	Vowels & Compound Vowels
Class 3	Simple Words Reading and Writing
Class 4	Revision Test & Homework Assessment
Class 5	Basic Vocabulary 1
Class 6	Grammar and sentence formation
Class 7	Grammar and sentence formation
Class 8	Revision Test and Homework Assessment
Class 9	Self Introduction
Class 10	Basic Questions and Answers(Where/When/Who)
Class 11	Basic Questions and Answers(How/ Why)
Class 12	Revision Test and Homework Assessment
Class 13	Basic Vocabulary 2
Class 14	Necessary Basic Conversation(Greeting)
Class 15	Necessary Basic Conversation (in public places)
Class 16	Revision Test and Homework Assessment
Class 17	Basic Grammar and Sentence Formation.(Tenses)
Class 18	Basic Conversation (using known vocabulary)
Class 19	Basic Vocabulary 3
Class 20	Revision Test & Homework Assessment
Class 21	Basic Comprehensive Reading Practice
Class 22	Basic Listening Practice
Class 23	Basic Vocabulary 4
Class 24	Final Revision Test & Evaluation

Class	Syllabus
Class 25	Review of Basics
Class 26	Basic Conversation in Social Situations
Class 27	Vocabulary 1
Class 28	Revision Test and Homework Assessment
Class 29	Basic Conversation in Social Situations
Class 30	Grammar and Sentence Formation(Banmal, Chundaenmal)
Class 31	Grammar and Sentence Formation (Banmal, Chundaenmal)
Class 32	Revision Test and Homework Assessment
Class 33	Vocabulary 2
Class 34	Expressing Emotion and Listening Comprehension
Class 35	Expressing Emotion and Listening Comprehension
Class 36	Revision Test and Homework Assessment
Class 37	Conversation in Social Situations
Class 38	Grammar and Sentence Composition(Tenses and usage in formal and informal speech)
Class 39	Vocabulary 3
Class 40	Revision Test and Homework Assessment

Course outcomes:

A student who successfully completes this course will have the opportunity to:

• understand and carry out a conversation on simple topics of daily-life and

• comprehend simple Korean texts and to write about their own everyday life at a basic level.

Reference Books:

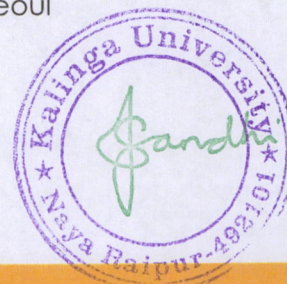Textbook: Seoul National University Korean: Beginner 1A, Young-Mee Cho, Hyo

Sang Lee, Choi EunKyu, Ho-Min Sohn, Sung-Ock Sohn, KLEAR-KF Textbooks

in Korean Language, Seoul National University Press, 2013

Workbook: Seoul National University Korean: Beginner 1A, Choi EunKyu, Seoul

National University Korean Press, 2013

Listening and Writing Exercise: Courseworks

FACULTY OF COMMERCE & MANAGEMENT

8. EFFECTIVE LEADERSHIP SKILLs

Total Duration: 40hrs

Objective :

1) The course broadens students' knowledge allowing them to understand psychological and social-psychological contexts of organization life.

2) The course is focused on individual, group and organization factors associated with leadership.

3) Students will be acquainted with the development of the concept of leadership up to the present and will be informed about the methods of research in this field.

Unit-I
Leadership

Basic definition of the concept and components of leadership. Trait approach in theories of leadership (development and the present situation). Personal characteristics that support effective leadership. Leader and values. The significance of self-knowledge for the role of leader (identity and integrity of leader)

Unit-II
Leadership Skills

Coaching skills, Leadership in groups: building and leading efficient teams, Conflict management and handling difficult conversations, Communications skills, especially listening skills

Unit-III
Leadership and Change

Personal leadership and leadership styles, Learning and learning to learn, Leadership of change, Appreciative inquiry and Appreciative leadership, People's reactions to change

Learning Outcome

- Have increased knowledge to understand and evaluate organisational, management and leadership problems and possibilities.
- Have increased knowledge and skills to design and change work organisation, to contribute to working environments in which everyone is able to contribute to organisational learning and success.
- Have increased awareness of his/her personal leadership style.

Reference Books:

1. Adair, J. (1988). Effective leadership. London. Pan Books.

2. Mumford, M.D., Zaccaro, S.J., Connelly, M.S., Marks, M.A. (2000). Leadership skills: conclusions and future directions. Leadership Quarterly, 11 (1), 155-70.

3. Northouse, P. G. (2007). Leadership: theory and practice. 4th ed. Thousand Oaks, CA: Sage Publications

4. Avery, G. C. (2005). Understanding Leadership. London: Sage Publications

5. Hersey, P. and Blanchard, P. (1969). The life cycle theory of leadership. Training and Development Journal, 23 (5), 26-34.

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9. INTRODUCTION TO INVESTMENT

Total Duration: 40hrs

Course Objective :

1. Understand different investment alternatives in the market.
2. Understand how securities are traded in the market.
3. Be able to analyze and price different securities.
4. Be able to manage a portfolio.

Unit-I

Basics of investment

Meaning, definition, saving, basics of investment process and the Time value of money, concept of Risk and Return.

Unit-II

Market structure

Measuring expected returns, discussing risk, types of risk and returns to pricing assets.
Types of markets- Primary and secondary markets.

Unit-III

Securities to trade in- Long term

Equity share, Preference share, Bond, Debentures, Mutual funds. Short term- CD's, Commercial papers, Treasury bills, Bankers acceptance, Repurchase agreements.

Unit-IV

Financial Institution

Central banks, Retail &Commercial Banks, Internet Banks, Credit Unions, Saving & Loans Association, Investment Banks and Companies, Brokerage firms, Insurance Companies, Mortgage

Course Outcome:

1. To develop understanding about money investment
2. To understand working of different financial institutions
3. To understand need of money and its best utility.

Reference Books:

1. Essentials of Investments by Bodie, Kane, and Marcus, 9th edition, McGraw-Hill.
2. Introduction to Finance: Markets, Investments, and Financial Management, 17th Edition, Ronald W. Melicher, Edgar A. Norton.
3. Investment Analysis and Portfolio Management | 5th Edition by Prasanna Chandra.
4. Investments, 11th Edition by Zvi Bodies; Alex Kane; Alan J. Marcus; Pitabas Mohanty.
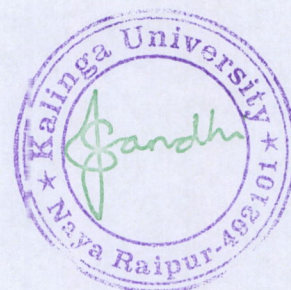
10. TALLY AND ACCOUNTING

Total Duration: 40hrs

Course Objective:
• To familiarize computer accounting practices as per Indian norms
• To introduce an Accounting software which indeed helps a small and medium business.

Course Outcome:
- Students will understand all functions of accounting taxation and payroll that a particularly midsized business needs.

Module 1

Accounting: Accounting is the most important feature of Tally ERP The main thought that comes in mind of a person when hearing about tally is accounting

Module 2

Billing: Billing is important part of business, this feature is included in Tally. Actually billing is included in accounting feature when ever you pass an accounting entry simultaneously a bill is generated which can be used for raising or sending invoice.

Module 3

Payroll: This feature is of use when you are having a good number of employees. For maintaining payroll in tally, there are functions like employee categories, employee groups, attendance, pay heads and course employees

Module 4

Inventory: Maintenance of stock is very important part of business as it gives better control on business sales hence movement of stock is integral part which can be kept under control .

Module 5

Banking: In this era of digitalization, without banking no business can survive. Banking functionality is very well covered by Tally. Though it was not present in earlier versions of Tally but it can be used in ERP-9 TAXATION: TDS GST both direct and indirect tax can be calculated automatically and its returns are also filed online with the help of Tally ERP

Reference Books:
1. Tally ERP 9 Training guide by Asok K. Nadhani, BPB Publications
2. Official Guide to Financial Accounting

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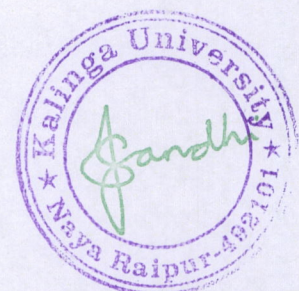
11. ENTREPRENEURSHIP

Total Duration: 40hrs

Course Objectives:
- To provide the Knowledge of Entrepreneurship
- To learn how to develop a business plan and marketing a product or service
- To develop the skills of Business idea and leadership
- To aware the issues Setting up the Organization
- To make students to understand the different dimensions of entrepreneurship.

Course Outcome:
Upon completion of the course, the student will be able to demonstrate knowledge of the following topics:
- Understanding the dynamic role of entrepreneurship and small businesses
- Organizing and Managing a Small Business
- Financial Planning and Control
- Forms of Ownership for Small Business
- Strategic Marketing Planning
- New Product or Service Development
- Business idea Creation

Module 1

Nature and Importance of Entrepreneurship
- Nature and Development of Entrepreneurship (Early period, Middle period, Industrial period)
- Definition of Entrepreneur Today
- Entrepreneurial Decision Process
- Role of Entrepreneurship in Economic Development
- Intrapreneurship, Entrepreneurship, Entrepreneurial Careers and Education
- The Future of Entrepreneurship
- Entrepreneurship Concept and Industrial Backdrop

Module 2

The Entrepreneurial and Intrapreneurial Mind
- The Entrepreneurial Process
- Identify and Evaluate the Opportunity
- Develop a Business Plan
- Determine the Resources Required
- Manage the Enterprise, Managerial versus Entrepreneurial Decision Making
- Causes for Interest in Intrapreneurship
- Corporate versus Intrapreneurial Culture
- Climate for Intrapreneurship
- Leadership Characteristics
- Establishing the Organization
- Factors affecting entrepreneurship — qualities of successful entrepreneurship.

Module 3

Starting The Business - Business Idea & Innovation
- Business idea,
- Product Planning and Development Process,
- Establishing Evaluation Criteria, Idea Stage, Concept Stage Product Stage, Test Marketing Stage
- Creativity, Innovation and entrepreneurship,
- Barriers to creativity, techniques for improving the creative process
- Corporate entrepreneurship, causes, climate,
- Intrapreneurial leadership characteristics, Establishing intrapreneurship in the organization

Module 4

Legal Issues for The Entrepreneur
- Various forms of organization,
- Legal Issues in Setting up the Organization.
- The various statutory registrations and clearances required.

Module 5

Project Preparation, Appraisal and Financing
- Project Preparation, feasibility and evaluation, what is the Business Plan?
- Various types of business plans, Format of business plan, Writing of business plan, Using and Implementing the Business Plan, Measuring Plan Progress, Updating the Plan, Why Some Business Plans Fail, Different sections of the business plan - The marketing plan, The organization plan,
- The financial plan, Debt or Equity Financing, Internal or External Funds, Funding from Banks and Financial institutions, Governmental and Developmental Sources, Various schemes, Types of Loans, Procedure, Private Placement, Types of Investors, Private Offerings, Bootstrap Financing, Venture Capita

Text Book:
1. Robert D Hirich & Peters Irwin – Entrepreneurship - McGraw Hill

Reference Books:
1. Vasant Desai :- Dynamics of Entrepreneurial Development and Management, HPH
2. Mohanty – Fundamentals of Entrepreneurship, Prentice Hall of India
3. S Anil Kumar & Others – Entrepreneurship Development – New Age Publication
4. Nicholas Siropolis – Entrepreneurship & Small Business Management – All India Publication
5. Harvard Business Review on Entrepreneurship – Tata McGraw Hill

FACULTY OF EDUCATION

13. MEDITATION AND STRESS MANAGEMENT

Course Objectives:

Total Duration: 40hrs

- To Recognize the concept of holistic health education
- Understanding dimension and determinant of health
- To assess the school health programme and its importance

Course Outcome:

- The students will understand the benefits and activities of Meditation, Stress management and physical fitness.

Unit -I
Philosophical bases of Health Education
- Role of institution (School, Family and Sports)
- Major Programme for Health Education and Yoga

Unit -II
Concept of Yoga
- Introduction and meaning of Yoga
- Type of yoga and their main features
- Benefits of Yoga

Unit -III
Meditation
- Meditation: Meaning Nature and Relationship with mind
- Importance of Meditation in school

Unit -IV
Stress Management
- Stress: Meaning, Nature, Types and Factors
- Role of Meditation in stress Management

Reference Books:

Dr A K Uppaland, Dr G P Gautam (2004) Physical Education and Health, Delhi: Friends publisher
Dr. Sopan Kangane and Dr Sanjeev Sonowane (2007) Physical Education(D.Ed) Pune, Nirali Publication.
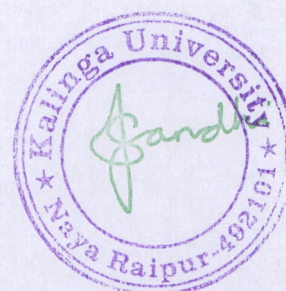
14. PROFESSIONAL ETIQUETTES

Total Duration: 40hrs

Course Objectives:
- Developing the attitude and behaviors appropriate to workplace situation and settings.
- Use interpersonal and communication skills to enhance his/her job effectiveness.
- Attitude and behaviors consistent with standard work place expectation
- Develop National ideals of education among students.

Course Outcome:

The study will develop the interpersonal and communication skills fundamental for success in the work place, students will develop their professional style, professional behavior, Interpersonal interaction, communicative and soft skills.

Unit -I
Objective contribute to Professional Development
- Etiquettes; Significance of Etiquettes
- Etiquettes for professional
- Work Place Etiquette

Unit -II
Concept of Professional Ethics
- Profession: Characteristics of Profession
- Teaching as a Profession
- Code of Professional Ethics

Unit -III
Effective Skills
- Soft Skill ; Significance of Soft skill
- Time Management Skill
- Event Management Skill

Unit -IV
Values and Profession
- Professional Values
- Knowledge thirst
- Sincerity in Profession

Reference Books

Malhotra P.L Education, Social Values and Social Work-Task for the New Generation, New Delhi: NCERT Kothari D S Education and Values, Report of the Orientation course-Cum-Workshop on education in Human Values, New Delhi.

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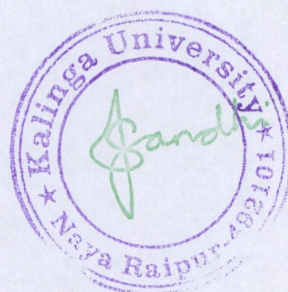
15. YOGA AND MEDITATION

Total Duration: 40hrs

Introduction

Yoga and Meditation are considered as art and science of healthy living by our ancient gurus. It is a method to bring harmony of body and mind for general well being. Yoga and Meditation is considered as one of the greatest gifts to the world by Indians for healthy living. Students in particular are benefitted by learning yoga.

Aim: At the end of successful completion of the course, the student will be able to understand the scientific basis of Yoga and meditation while practicing various yogasanas effectively and correctly for the personal benefit.

General Objectives of the Course:

1. To provide the necessary knowledge of the theory and practice of yoga so that the students learn to practice and also to teach yoga to all age groups for promoting their health and effectiveness
2. To give them a basic understanding of Yoga and its nature, scope, development of yoga through the ages, Different types of yoga , Meditation and its nature and scope, Different types of meditation, relevance to the modern life.
3. To provide the necessary knowledge of nature, characteristics and development of Indian philosophy, Indian Philosophical systems like Vedic thought, Nyaya Philosophy, Vaisesika Philosophy, Samkya Philosophy and Sankara philosophy.
4. To provide the necessary knowledge of Kriyas, Asanas, Mudras, Bandhas, Pranayama and meditative postures.

Duration of the Course:

The duration of the course will be for eight weeks (40 hours). Each working day shall consist of one hour of teaching (practical/theory).

Syllabus

The course consists of theory and practical training.

Theory Syllabus

Unit-I
Introduction

- Meaning and Definition of Yoga
- Aims and Objectives of Yoga

Unit-II
Foundation of Yoga

- The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi
- Yoga in the Bhagavadgita - Karma Yoga, Raja Yoga, Jnana Yoga and Bhakti Yoga

Unit -III
Asanas

- Classification of asanas and meditative posture
- Types of Bandhas ,mudras and kriyas

Unit –IV
Meditation

- Meditation : Meaning , Nature and relationship with mind
- Role of meditation in stress management

| S.No	Content
1	Loosening practices (Sithila vyama) i.Neck rotation ii. Shoulder rotation iii. Wrist rotation iv. Trunk rotation v. Forward and backward bending vi. Side bending vii. Twisting viii. Stretching
2	Suryanamaskar 12 Step of Suryanamaskara or sun salutation Asanas are trained in a sequence in synchronization with breath control
3	Standing Asanas i.Tadasana ii.Padhastasana iii.Ardhachakrasana iv.Trikonasana v.Parvritt trikonasana vi.Vriksasana vii.Garudasana viii.Katrichakrasana
4	Sitting asanas i.Vajrasana ii.Shashankasana iii.Suptavajrasana iv.Ustrasana v.Paschimottansana vi.Janusirsana vii.Ardha matsendriyasana
5	Prone asanas i. Makrasana ii. Bhujangasana iii. Shalabhasana iv.Dhanurasana
6	Supine asanas i.Sarvangasana ii.Matysasana iii.Halasana iv. Chakrasana v. Ardha chakrasana vi. Ardha halasana vii. Naukasana viii. Markatasana ix. Setubandhasana x. Shavasana

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S.No	Content
7	Kriyas i. Jala Neti ii. Sutra Neti iii. Dhauti (Vamana) iv. Kapalabhati v. Nauli vi. Trataka
8	Pranayama i. Anuloma-viloma ii. Ujjayi iii. Shitali iv. Sitkari v. Bhastrika vi. Bhramari vii. Suryabhedana viii. Chandrabhedana
9	Meditation i. Om meditation ii. Nadanusandhana iii. Cyclic Meditation
10	Bandhas & Mudras i. Jalandhara Bandha ii. Uddiyana Bandha iii. Jicha Bandha iv. Mula Bancha
11	Relaxation techniques
	Total

Reference books:

1. Light on yoga by B.K.S Iyengar
2. The yoga sutras of Patanjali by B.K.S Iyengar
3. Integrated approach of yoga therapy for positive health by H.R.Nagendra
4. Pranayama: The art and science by H.R.Nagendra
5. A monograph on Pranayama by Ishwar Baswaraddi, Morarji Desai National Institute of Yoga
6. A monograph of yogasanas by Ishwar Basawaraddi, Morarji Desai National Institute of Yoga
7. Understanding basic physiology by R.L.Bijlani

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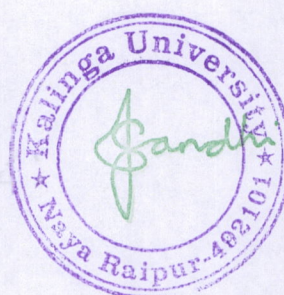
16. RESEARCH AND SOURCES DRAFTING

Total Duration: 40hrs

Unit -I

What are Research Resources?
• Primary sources include firsthand accounts, raw data, and other original material.
• Secondary sources include material that interprets and analyzes primary sources.
• Tertiary Resources

Unit -II

Planning and writing a Research Paper
• Sources into research writing
• Strict Objectivity
• Creation of Context
• Analysis or Interpretation
• Evaluation

Unit -III

Authoritative Sources
• General Resources :General Encyclopaedia, Online Web Pages, Wikipedia, Dictionaries, web pages
• Library databases and references : "peer reviewed journals" "using online resources"
• Check out the EMCC library online and physical holdings.
• Check your city library.
• Check your country library.
• Check other college and University libraries.

Unit -IV

Documentation Style
• common styles for research format writing,
• Modern Language Association (MLA)
• American Psychological Association (APA).
• Other documentation styles include:
• Council of Science Editors (CSE)
• Chicago style (at times synonymous to ' Turabian
• Associated Press Stylebook

Unit -V

Scholarly Resources: Academic Resources
• Written by experts with credentials or affiliations (PhD, M.D.)
• Written for other experts - each work is a voice in an ongoing conversation
• Scholarly language - technical, discipline specific vocabulary
• Verifiable and reliable evidence - look for citations
• Peer reviewed - editorial process where other experts review and assess information
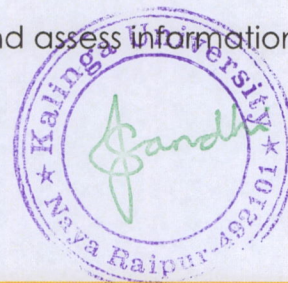
FACULTY OF ENGINEERING

17. 3-D Printing

Module 1

Introduction of 3D Printing, Types of 3D Printing, Working Principal of 3D printer

Module 2

Principle Processes – Extrusion, Wire, Granular, Lamination, Photo-polymerization; Materials – Paper, Plastics, Metals, Ceramics, Glass, Wood, Fiber, Sand, Biological Tissues Hydrogels, Graphene; Material Selection – Processes, applications, limitations.

Module 3

Inkjet Technology Printer – Working Principle, Positioning System, Print-head, Print bed, Frames, Motion control; Print-head Considerations -Continuous Inkjet, Thermal Inkjet, Piezoelectric Drop-On-Demand;

Module 4

Material Formulation for jetting; Liquid based fabrication -Continousjet, Mulitjet; Powder based fabrication – Colour-jet.

Module 5

Industrial Applications: Product Models, manufacturing – Printed electronics, Biopolymers, Packaging, Healthcare, Food, Medical, Biotechnology, Displays; Open source; Future trends.

Reference Books:

1. Functional Design for 3D Printing: Designing Printed Things for Everyday UseBook by Clifford Smyth
2. 3D Concrete Printing Technology: Construction and Building Applications by Jay. G . Sanjayan publisher Butterworth-Heinemann (1 February 2019)
3. 3D Printing: Technology, Applications, and Selection by Rafiq Noorani

18. ANSYS

Objectives: **Total Duration: 60hrs**

ANSYS is a analysis and design program used for steel, concrete, aluminum, and cold-formed steel design of virtually any structure including culverts, petrochemical plants, tunnels, bridges, etc. It is used for 3D model generation, analysis and multi-material design. The course objective is to train the students in Modeling, Designing , Integrated Design and Finite Element Analysis. Student will learn about various mentioned modules. The course is also useful for the faculty members of various engineering colleges , P.G and U.G Students of Engineering. To build a centre of excellence for learning where young talents can be nurtured to their fullest potential, through focus on teaching, learning, research and innovation in order to improve the quality of life of the community and the nation at large.

Outcomes:

1) To demonstrate the ability to create models for trusses, frames, plate structures, machine parts, and components using **ANSYS** general-purpose software.

2) To model multi-dimensional heat transfer problems using **ANSYS**.

3) To demonstrate the ability to evaluate and interpret FEA analysis results for design.

Unit -I
Introduction to the Finite Element Method

General Steps of the Finite Element Method , Explanation of 1D, 2D and 3D Elements with examples of ANSYS Elements , Need of FEM, Types of analysis that can be done using ANSYS , Advantages of the Finite Element Method, Limitations of FEA .

Unit -II
Solid Modelling & Meshing

Working with Boolean operations , Working Plane , Importing of 3D models, Shape Function Defining Element Types , Defining Section Properties , Assigning Element Attributes before meshing , Mesh Controls , The ANSYS Mesh Tool , Smart sizing , Meshing , Free Meshing , Mapped Meshing , Hybrid meshing.

Unit -III
Material Properties & Boundary Conditions

Material Library , Specifying properties, Types of Loads , Applying loads

Unit -IV
Solvers & Post-processing

Types of Solvers , Solver Setup , Load Step Options , Solving Multiple Load Steps, Contour Plot Viewing , Time History Postprocessor , Report Generator.

Unit -V
ANSYS Workbench

Introduction to ANSYS Workbench , Graphical User Interface , Static Structural Analysis , Modal Analysis , Thermal Analysis , Contact Recognition.

References:

1. Finite Element Modeling and Simulation with ANSYS Workbench, Second Edition – 24 September 2018 by Xiaolin Chen Yijun Liu.

2. Finite Element Simulations with ANSYS Workbench 2019 , 15 August 2019 by Huei-Huang Lee.

3. An Introduction to ANSYS Fluent 2020 by John Matsson.

4. Introduction to the ANSYS Parametric Design Language (APDL) - Second Edition – 16 August 2016 by Inc PADT, Eric Miller, Jeff Strain.

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19. MATLAB Programming

Total Duration: 40hrs

Pre-requisites of course: C Programming, Basics of Engineering Mathematics, No prior knowledge of Matlab is required. Basic computer literacy is expected.

Course Objectives:

1. To Impart the Knowledge to the students with MATLAB software. [This enhances programming knowledge in Research and Development].
2. To provide a working introduction to the Matlab technical computing environment. [Themes of data analysis, visualization, and programming].
3. To introduce students to the use of a high-level programming language, Matlab. [Scientific problem solving with applications and examples from Engineering].

About Matlab: MATLAB or (Matrix Laboratory) is a high performance fourth generation programming language which is used for technical computing. It provides multi paradigm numerical computing environment and was developed by Math Works. It is used for integrating computation, visualization, and programming so that the programming environment becomes easy to use. The applications of MATLAB are immense. It is a powerful linear algebra tool with a very good collection of toolboxes; therefore it finds applications in research and teaching on domains of robotics and automation.

	Course Outcomes:	Knowledge Level,KL
	Upon the completion of the course, the student will be able to:	
CO1	Understand the basics of Matlab	K3
CO2	Break a complex task up into smaller, simpler tasks	K4
CO3	Case Study (Any two Modules)	K4
CO4	Tabulate results and Analyse	K4
CO5	Bridge the skill gaps and will be ready for industry.	K4

KL-Bloom's Knowledge Level (K1, K2, K3, K4, K5,K6)
K_1– Remember K_2– Understand K_3–Apply K_4– Analyze K_5– Evaluate K_6– Create
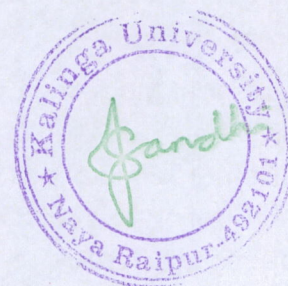
Detailed Syllabus:

UNIT -I
Basics of Matlab and MATLAB Compiler:

The Matlab user interface, working with Matlab data types, Creating matrices and arrays, Operators and control statements, Using scripts and functions, Data import and export, Using the graphical features

UNIT -II
Programming with simple examples:

UNIT -III
Discussion of Toolboxes with Applications:

Signal Processing, Image Acquisition Toolbox, Image Processing, Neural Network, Fuzzy Logic Toolbox

UNIT -IV
Simulink and Hardware Interfacing (Using Kits: Lego, Raspberry Pi, Mind storms etc.)

UNIT -V
Introduction to Simulink

Introduction, Getting Simulink, Creating and Simulating a Simulink Model, Simulink Solution of Differential Equation, Solvers, Keystrokes or Mouse Action for Handling Blocks and Lines, Assigning Variables, Observing Variables during Simulation, Storing/Saving Data, Linking Script File/M-file with Model File, Data Import, Export, Creating and Masking Subsystems, Solution Using Laplace Transform Approach, Simulation of Non-Linear System, Equivalent Circuit

Assessment:

1.Every student has to give periodic tests consisting of Programming tasks and Objective Questions
2.At the end of the Course each student will give a presentation on a topic covered in the course

Companies Using Matlab:

Companies ranging from automotive, banking, and software implement the MATLAB software. The lists of companies in automotive sector using the MATLAB Software are:

- Volvo
- Jaguar
- Mercedes
- BMW

A company from the software sector includes:
- Adobe Photoshop

All the Banking companies which involve crunches of calculations such as Citi Bank, HDFC do implement the concepts indirectly.

References Book-

[1]MATLAB Manuals and Handbooks

[2]Duane Hanselman, Bruce Little Field **"Mastering MATLAB 7"** ,Pearson Education India

20. NANO TECHNOLOGY FOR ENGINEERING APPLICATIONs

Course Objectives: **Total Duration: 40hrs**

1. Understand the fundamentals of nanotechnology.
2. Acquire knowledge in the basic concepts of statistical mechanics and thermodynamics for Nano systems.
3. Improve their ability in knowing the electronic property of nonmaterials.
4. Understand the major advance in molecular, optical, biochemical computing
5. Produce nanomaterials and products without harming the environment or human health.

Module 1

Elements of Nano science and Nanotechnology:- Introduction and scentific revolutions, Classification based on dimensionality, Synthesis of Nanomaterial, Applications in Nanotechnology.

Module 2

Nano thermodynamics:–Fundamental concepts of thermodynamics and Nano thermodynamics - background -the Nano perspective, Comparison with classical equilibrium thermodynamics.

Module 3

Nano electronics: Introduction to Nano electronics, Silicon MOS transistor from micro to nano, Nano computing, Nano information processing. Nano Transistor –MOSFETs - Advanced MOSFETs - Trigate FETs, FinFETs - CMOS.

Module 4

Nanotechnology for Environment Applications: Nanomaterial Remeciation, Nano Membranes, Nano Meshes, Nano Fibers, Nano Clays and Adsorbents ,Photo catalytic degradation of specific waterborne pollutant.

Module 5

Guidelines for Working with Engineered Nanomaterial: Introduction, Potential for Occupational Exposure, Factors Affecting Exposure to Nanomaterial, Engineering controls.

Reference/Text Books-

1. C.Dupas, P.Houdy, M.Lahmani, "Nanoscience: Nanotechnologies and Nanophysics", Springer-Verlag Berlin Heidelberg,
2. Richard E.Sonntag, Gordon J.VanWylen, "Introduction to Thermodynamics, Classical and Statistical", Wiley Publishing.
3. Louis Theodore "Nanotechnology Basic Calculations for Engineers and Scientists", John Wiley and Sons
4. Michael. C. Petty, "Molecular Electronics: From Principles to Practice", John Wiley & Sons Ltd
5. Vishal Sahni and Debabrata Goswami, "Nanocomputing: The Future of Computing", Tata McGraw-Hill Education,
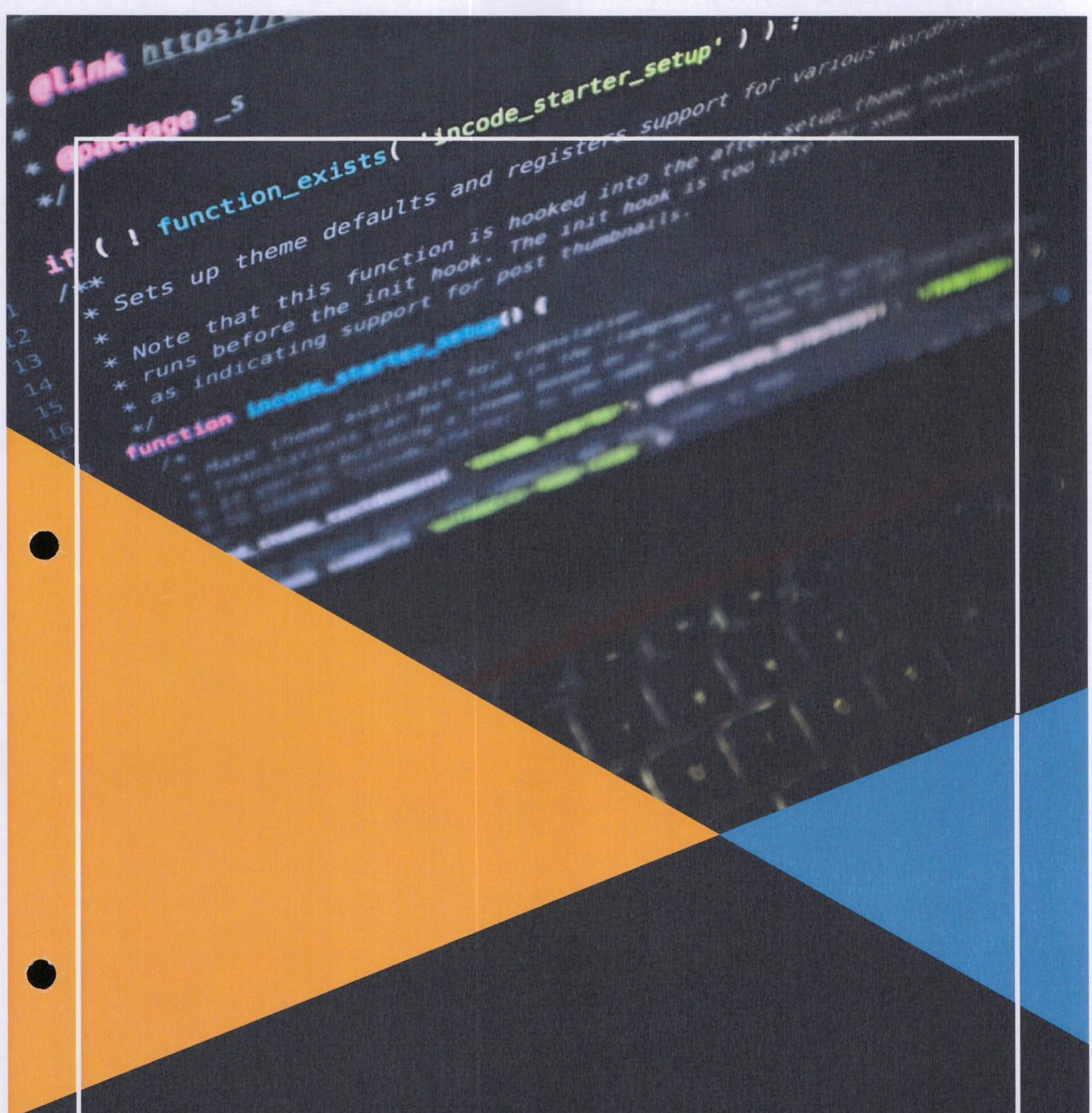
FACULTY OF INFORMATION TECHNOLOGY

21. DEEP LEARNING USING PYTHON

Course Objectives:

Total Duration: 40hrs

Deep Learning with Python, covers concepts that will help you dive into the future of data science and implement intelligent systems using deep learning with Python. Through this course, you'll learn convolutional, recurrent neural networks and build up the theory that focuses on supervised learning and integrate into your product offerings such as search, image recognition, and object processing. Finally, you'll start working with deep learning right away. This course will make you confident about its implementation in your current work as well as further research.

Course Outcomes:

At the end of the course, the student will be able to.
1. Enhance programming skills in core Python.
2. Demonstrate the concepts of important Python concepts such as Data handling, Functions, File Operations, Modules, Packages, Object-Oriented, API concepts, and many Python libraries such as Pandas, Numpy, Matplotlib and many more.
3. Understand and apply Deep Learning techniques to a variety of problems.

Module 1

Python Basics, Python Data Structures, Python Programming Fundamentals, Working with Data in Python, Working with NumPy Arrays.

Module 2

Data Analytics Overview, Python Environment Setup and Essentials, Mathematical Computing with Python (NumPy), Scientific Computing with Python (SciPy), Data Manipulation with Pandas, Machine Learning with Scikit–Learn, Data Visualization in Python using Matplotlib.

Module 3

Deep Neural Network and Tools, Multiple Outputs, Multiclass classification, Activation Functions, Feed forward, Convolutional Neural Net (CNN), Recurrent Neural Networks, Autoencoders.

Module 4

Backpropagation intuition, Chain Rule, Derivative Calculation, Fully Connected Backpropagation, Matrix Notation, Numpy Arrays, Learning Rate, Gradient Descent, EWMA, Optimizers, Inner Layers Visualization, Reinforcement Learning.

Module 5

Introduction to Tensorflow, Tensorflow :Eager execution and hello world, Tensorflow: Modelling an equation in Tensorflow, Calculating loss and gradient, Regression using tensorflow (Eager Execution and Eager Normalization), Gradient, Keras framework, Classification using MNIST.

Reference Books-

1. Deep Learning with Python, By Francois Chollet, Manning Publications; 1st edition.
2. Deep Learning using Python, By S Lovelyn Rose, L Ashok Kumar and D KarthikaRenuka, Wiley Publications.
3. Applied Deep Learning with Python, By Galea Alex, Packt Publishing Limited.

Module 4

Search Engine Marketing:

- Introduction to Search Engine Marketing
- Tools used for Search Engine Marketing
- PPC /Google Adwords Tool
- Display advertising techniques
- Report generation

Module 5

Tools and other Marking techniques:

- Google Analytics
- Online Reputation Management
- Email Marketing
- WhatsApp Marketing
- Affiliate Marketing
- Social Media Analytics
- Ad designing

Reference Books -

1. The New Rules of Marketing and PR: How to Use News Releases, Blogs, Podcasting, Viral Marketing and Online Media to Reach Buyers Directly – David Meerman Scott
2. Understanding Digital Marketing: Marketing Strategies for Engaging the Digital Generation – Damian Ryan and Calvin Jones
3. Groundswell: Winning in a World Transformed by Social Technologies – Charlene Li an Josh Bernoff
4. Marketing in the Age of Google: Your Online Strategy IS Your Business Strategy – Vanessa Fox

23. INTERNET OF THINGS USING ARDUINO

Course Objectives: **Total Duration: 40hrs**

The Internet is evolving to connect people to physical things and also physical things to other physical things all in real time. It's becoming the Internet of Things (IoT). The course enables student to understand the basics of Internet of things and protocols. It introduces some of the application areas where Internet of Things can be applied. Students will learn about the middleware for Internet of Things. To understand the concepts of Web of Things.

Learning Outcomes:

After doing this course, students should be able to design and deploy multiple IoT devices that could connect to the gateway.

Course Contents:

Module 1

IOT - What is the IoT and why is it important? Elements of an IoT ecosystem, Technology drivers, Business drivers, Trends and implications, Overview of Governance, Privacy and Security Issues.

Module 2

IOT PROTOCOLS - Protocol Standardization for IoT – Efforts – M2M and WSN Protocols – SCADA and RFID Protocols – Issues with IoT Standardization – Unified Data Standards – Protocols – IEEE802.15.4–BACNet Protocol– Modbus – KNX – Zigbee– Network layer – APS layer – Security

Module 3

IOT ARCHITECTURE - IoT Open source architecture (OIC)- OIC Architecture & Design principles- IoT Devices and deployment models- IoTivity : An Open source IoT stack - Overview- IoTivity stack architecture- Resource model and Abstraction

Module 4

IOT ARCHITECTURE - IoT Open source architecture (OIC)- OIC Architecture & Design principles- IoT Devices and deployment models- IoTivity : An Open source IoT stack - Overview- IoTivity stack architecture- Resource model and Abstraction

Module 5

The Arduino Environment: Introduction to the Arduino environment, the Arduino board, the Arduino IDE, and the Arduino compatible shields together with their libraries. Arduino board main components, inputs, and outputs. Arduino Integrated Development Environment (IDE), Compiling Code, Arduino Shields and Libraries.

Module 6

5Basics of C programming, composition of an Arduino programs, Arcuino tool chain, Arduino IDE, basic structure of a sketch, including the use of the setup() and loop() functions. Accessing the pins from a sketch for input and output, introduction on debugging embedded software on an Arduino, UART communication protocol, Synchronization, parity and stop, the use of the Serial library to communicate with the Arduino through the serial monitor.

Text Books:

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence", 1st Edition, Academic Press, 2014.
2. Massimo Banzi, "Getting Started with Arduino", First Edition, February 2009, O'Reilly Media, Inc

Reference Books:

1. Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands-onApproach)"1st Edition, VPT, 2014
2. Alex Bradbury and Ben Everard, "Learning Python with Raspberry Pi", Feb 2014, John Wiley & Sons
3. Michael Margolis, "Arduino Cookbook", First Edition, March 2011, O'Reilly Media,Inc
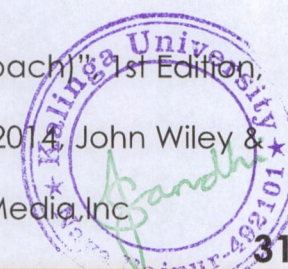
24. FOG COMPUTING

Course Objectives:

1. Become familiar with the concepts of Fog
2. Understand the architecture and its components and working of components and its performance
3. Explore Fog on security, multimedia and smart data
4. To understand the underlying principle of fog virtualization, fog storage, data management and data visualization.
5. To understand Fog Computing concepts and technologies.

Total Duration: 40hrs

Course Outcomes:

1. This course gives an overview of Fog Computing and its architecture, challenges and applications in different context.
2. appreciate the need for analyzing the most time-sensitive data at the network edge, close to where it is generated instead of sending vast amounts of IoT.
3. Make recommendations on fog computing solutions for an enterprise.
4. After successful completion of this course, the candidate will understand the differences to fog-based Internet services and can infer requirements for and the limitations of Fog services in the industry.

UNIT-I
INTRODUCTION TO FOG COMPUTING

Fog Computing Definition, Characteristics, Application Scenarios, Issues -Fog Computing and Internet of Things-Pros and Cons, Fact of Fog Computing -Need and Reasons for Fog Computing Fog Computing and Edge Computing-IoT, Fog, Cloud- Benefits

UNIT-II
ARCHITECTURE

Working Procedure, Performance Evaluation Components- Software Systems, Architecture-Modeling and Simulation -Challenges

UNIT-III
FOG PROTOCOLS

Fog Protocol, Fog Kit, Proximity, Detection Protocols- DDS/RTPS computing protocols

UNIT-IV
MANAGEMENT OF DATA AND SECURITY ANALYSIS

Smart Management of Big Data-Smart Data-Structure of Smart Data- Smart Data Life Cycle-System Architecture, Multi-dimensional Payment Plan- Security and Privacy Issues-Multimedia Fog Computing-Architecture-Deduplication-Hybrid Secure Deduplication- Security Challenges-Security Requirements.

UNIT-V
Case Study

Wind Farm, Agriculture farm, local weather station use case, Smart Traffic Light System, Wearable Sensing Devices--health condition monitoring use case, Wearable Event Device—sports use case, smart connected vehicles use case.

Reference Books

1. Ivan Stojmenovic, Sheng Wen," The Fog Computing Paradigm: Scenarios and Security Issues" Proceedings of the 2014 Federated Conference on Computer Science and Information Systems pp. 1–8
2. Fog Computing: Helping the Internet of Things Realize its Potential Amir Vahid Dastjerdi and Rajkumar Buyya, University of Melbourne
3. Farhoud Hosseinpour, Juha Plosila, Hannu Tenhunen,"An Approach for Smart management of Big Data in the Fog Conputing Context", IEEE 8th International Conference on Cloud Computing Technology and Science,2016.
4. Fog Computing: A Platform for Internet of Things and Analytics, Flavio Bonomi, Rodolfo Milto, Preethi Natarajan and Jiang Zhu, Big Data and Internet of Things: A Roadmcp for Smart Environments, Studies in Computational Intelligence 546, DOI: 10.1007/978-3-319-05029-4_7, © Springer International Publishing Switzerland 2014

25. MACHINE LEARNING WITH PYTHON

Course Objectives: **Total Duration: 40hrs**

1. To introduce students to the basic concepts and techniques of Machine Learning.
2. To develop skills of using recent machine learning software for solving practical problems.
3. To gain experience of doing independent study and research.
4. To acquire programming skills in core Python.
5. To acquire Object Oriented Skills in Python.
6. To develop the skill of designing Graphical user Interfaces in Python.

Course Outcomes:

At the end of the course, the student will be able to

1. Understand machine learning concepts and range of problems that can be handled by machine learning.
2. Compare and parameterize different learning algorithms.
3. Apply the machine learning concepts in real life problems.
4. Explain basic principles of Python programming language.
5. Implement object oriented concepts,
6. Implement database and GUI applications.

Module-1[4 hrs]

Introduction – Basics of Machine learning, Need for Machine Learning, Machine Learning Model, Challenges in Machine Learning, Applications of Machine Learning.

Module-2[6 hrs]

Python Ecosystem-

Introduction to Python ,Installing Python, Components of Python Machine Learning Ecosystem, Jupyter note book, Types of cells in Jupyter notebook- Using Pandas Series Data Structure, Data frame Data Structure.

Module-3[8hrs]

Different types of methods, Tasks suits for Machine Learning.
Pandas- Binary Operation in Data Frame, Advance Operations on Data Frame, Handling Missing Data

Module-4[8 hrs]

Data Loading for MACHINE LEARNING Projects-

Consideration while loading CSV data , Methods to load CSV Data File

Module-5[8 hrs]

Understanding data with Statistics-

Introduction,looking at raw data,checking dimensions of data, statistics summary of data, reviewing class distribution.

Module-6[6 hrs]

Understanding data with visualization

Introduction, Univariate plots, Density plots, Box and Whisker plots. Multivariate plot , Correlation Matrix plot, Scatter Matrix plot.

Text books-

Python Machine Learning Book by Sebastian Raschka.
Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IFython Book by Wes McKinney

Reference Books-

Building Machine Learning System with Python - Willi Richert, Luis Pedro Coelho
"Statistics and Machine Learning in Python" by Edouard Duchesnay and Tommy Löfstedt.

26. VEHICULAR AD- HOC NETWORK

Total Duration: 40hrs

Course Objectives:

1. To understand basics of Wireless 4G and 5G LTE (Long Term Evolution), OFDM Transmission.
2. To Study physical layer for downlink.
3. To Understand Wireless Ad Hoc Networks, Wireless mesh Networks, Broadband Wireless Access and Wireless Body Area Networks.
4. To Understand VANET, Architecture, Security Issues in VANETs etc.

Course Outcomes:

On completion of this course the student will be able to:

1. Explain basics of Wireless 4G and 5G LTE (Long Term Evolution), OFDM Transmission.
2. Design the physical layer for downlink. (a,b)
3. Describe Wireless Ad Hoc Networks, Wireless mesh Networks, Present salient features of Broadband Wireless Access and Wireless Body Area Networks.
4. Describe the VANET, Architecture, Security Issues, Challenges in VANETs

Module 1

3G review, The context for the long term evolution, Requirements and targets for the long term evolution, 4G Technologies, and 5G Technologies Network architecture and protocols: Introduction, overall architecture overview, protocol architecture.

Module 2

Wireless Ad Hoc Networks, Mobile Ad Hoc Networks, Wireless Sensor Networks, Wireless Mesh Networks, Wireless body area networks (WBAN). Network Architecture, Network components, design issues, Network protocols, WBAN technologies. WBAN applications.

Module 3

BROAD BAND WIRELESS ACCESS: Introduction to broad band wireless access, WIMAX Genesis and framework, Protocol layers and topologies.

Module 4

VANET (Vehicular Ad-Hoc Network), architecture of VANET, Communication Architecture, applications of VANET, layer architecture of vehicular network, characteristics of VANET, attacks in VANET, Routing Architecture, Security Issues in VANETs, Clustering Algorithm in VANET for Data Security.

Reference Books-

1. Stefania Sesia, Issam Toufik and Matthew Baker,"LTE-The UMTS Long Term Evolution"from theory to practice, John Wiley & sons ltd, 2009
2. Dr.Sunilkumar S Manvi and Mahabaleshwar S Kakkasageri, "Wireless and Mobile Networks Concepts and Protocols", Wiley India, 2010.
3. Loutfinuaymi, "WIMAX Technology for wireless Broadband Wireless Access", Wiley,2007.
4. Xin Wang, "Mobile AdHoc Networks Applications", inteo, 2011.

27. CYBER SECURITY

Course Objective: **Total Duration: 40hrs**
1. To secure the information stored and conveyed which is an invaluable resource of any organization
2. To update the knowledge of students in network security issues

Course Outcome:
The students gain the most comprehensive knowledge and skills in the Network Security providing
an opportunity to equip the Network System Administrators & Information Security Officers to
understand the security concerns, vulnerabilities, attacks and to plan and implement the desired
e-Security solutions.

Module 1
Networking Concepts Overview:
Basics of Communication Systems, transmission Media,ISO/OSI and TCP/IP Protocol Stacks, Local Area
Networks, Wide Area Networks,Internetworking, Packet Formats, Wireless Networks, The Internet

Module 2
Information Security Concepts:
Information Security Overview, Information Security Services, Types of Attacks, Goals for Security,
E-commerce Security, Computer Forensics, Steganography, Security Engineering

Module 3
Security Threats and vulnerabilities:
Overview of Security threats, Hacking Techniques, Password Cracking, Insecure Network connections,
Malicious Code, Programming Bugs, Cyber crime and Cyber terrorism, Information Warfare and
Surveillance

Module 4
Cryptography:
Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message
Authentication and Hash functions, Digital Signatures, Public Key infrastructure, Diffe-Hellman key
exchange protocol, Applications of Cryptography
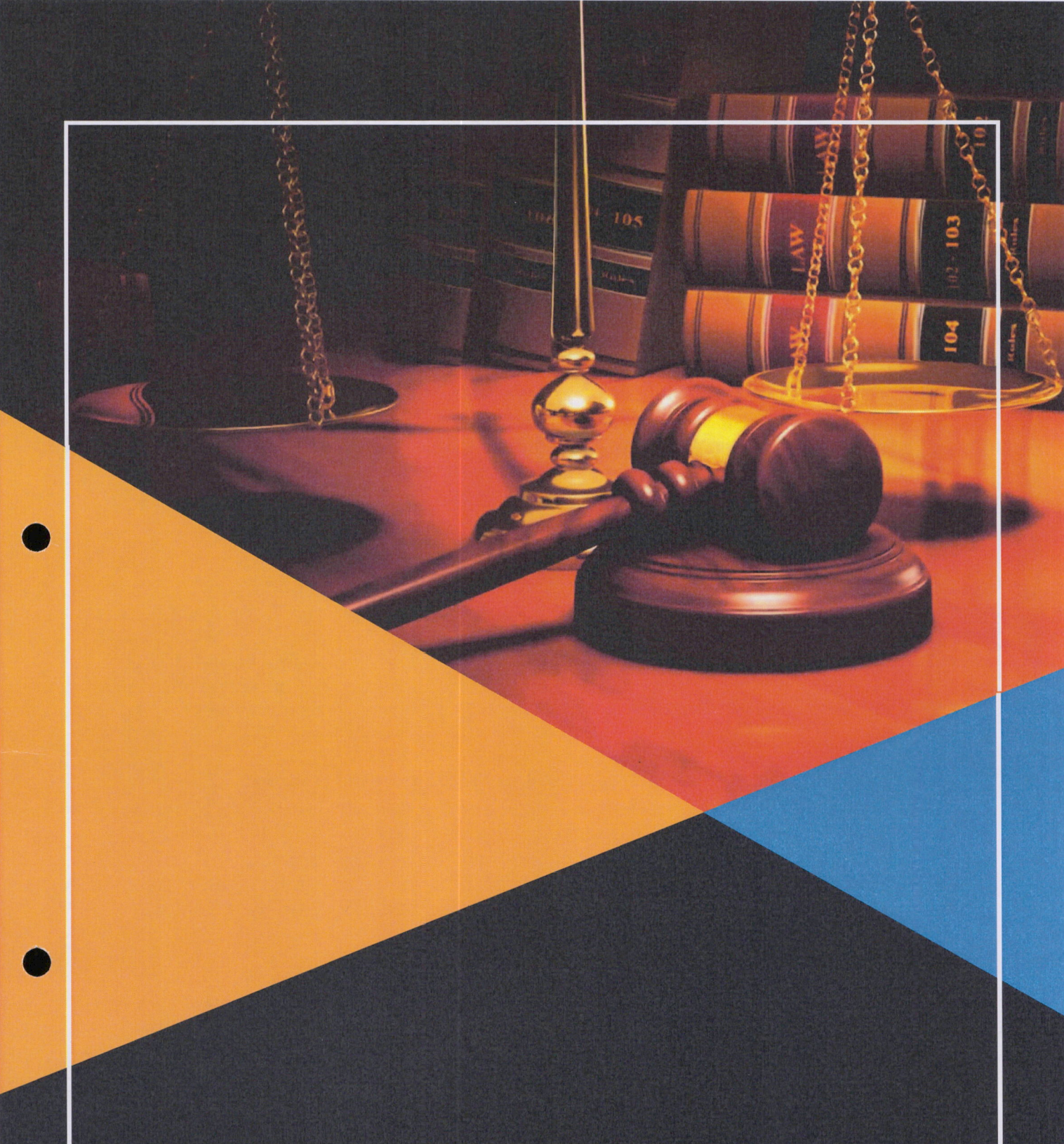
Module 5
Security Management Practices:
Overview of Security Management, Information Classification Process, Security Policy,
Risk Management, Security Procedures and Guidelines, Business Cont nuity and Disaster Recovery

Reference Books:
- Future Crimes: Inside the Digital Underground and the Battle for our Connected World by
Marc Goodman.
- Spam Nation: The Inside Story of Organized Cybercrime- from Global Epidemic to Your
Front Door by Brian Krebs.
- Data and Goliath: The Hidden Battles to Collect Your Data and Control Your World by
Bruce Schneier.

FACULTY OF LAW

28. FUNDAMENTALS OF COMMERCIAL CONTRACTS

Program Objectives: **Total Duration: 40hrs**

• practical concepts and techniques for contract preparation and understanding
• the essentials of the contracting lifecycle
• how to identify and manage risk and opportunity within a commercial agreements
• important concepts in contracts and associated legal considerations
• the principles and process of contract management

Module 1 Basics of Contract Lectures: 8

1. Sources of Contract Law: Common Law, UNCISG, Judicial Opinions, Other Sources.
2. Formation of Contract: Offer, Proposal, Consideration, Acceptance, Revocation, Standing Offers, Counter Offer, Tenders.
3. Kinds of Contracts: Valid, Void, Voidable, Contingent and Quasi Contract and E-contract, distinguish between Agreement and Contract, FIDIC Form of Contracts for Construction Industries.
4. Capacity to Contract: Minors, Lunatic and Legally Incapacity

Module 2 Kinds of Contracts Lecture: 8

1. Contracts of Indemnity and Guarantee: Concepts of indemnity and guarantee.
2. Agency and Agent: concept of Agency, rights and liabilities of principle and agent.
3. Formalities of the contract of sale (Ss. 4- 10), Distinction between 'sale' and 'agreement of sell, Distinction between 'sale and hire-purchase agreement'.
4. Formation of an Entity: Memorandum of Association & Articles of Association, Partnership, LLP Incorporation Document and LLP Agreement, Trust Deed, Conversion of Partnership into Limited Company, Association of persons agreement, Section 25 company – Memorandum and Articles of Association

Module 3 Concepts of Contract Drafting & Contract Management Lectures: 12

1. Contract Drafting Process: Guidelines for drafting, Importance of Multiples drafts, Guidelines for Revising the Draft of Contract, Basic Language and terminologies.
2. Elements in a Draft of Contract: Titles, Preamble(Recitals), Definition, Consideration, Covenants, Representation and Warranties, Indemnification and Breach and Cure, Termination and remedies
3. Force Majeure Clause, Risk Allocation in a Contract and Remedies for Breach of Contract
4. Contract Management Process

Module 4 General Kinds of Commercial Contracts Lectures: 12

1. Business Agreements Types: Agency Agreement, Advertising Agreement, Annual Maintenance contract, Bonds, Dealership / Distribution agreement, Franchise Agreement, Hire Purchase Agreement, Memorandum of Understanding, Stock Purchase Agreement, Agreement between Producer and Distributor, Retainership Agreement, Indemnity
2. Corporate And Cyber Law Agreements: Shareholder's Agreement, Listing Agreements, Share Purchase Agreement, Software Services Agreement, Privacy Policy and Users Agreement, Website Development Agreement, Internet Services Agreement, Software Escrow Agreement

Reference Books-

1. Practical Guide To Drafting Commercial Contracts, Bhumesh Verma 2nd Edition 2020, Oakbridge Publishing Pvt Ltd
2. Drafting of Contracts Templates, Ravi Singhania, Bloomsbury Publication
3. A Book on Drafting of Commercial Contract and Agreements by CA Rajkumar S. Adukia
4. Textbook on Law of Contract and Specific Relief, Avtar Singh, 7th Edition 2019, EBC Publications
5. Company Law, Avtar Singh, 17th Edition 2018, EBC Publications
6. The Indian Contract Act 16th Edition 2021 by Mulla, Lexis Nexis.
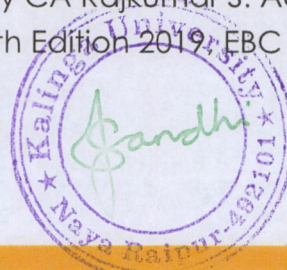
29. LAWS FOR ENGINEERS AND MANAGERS

Total Duration: 40hrs

UNIT -1
THE CONSTITUTION OF INDIA
a) The Preamble
b) The State
c) Fundamental Rights
d) Directive Principles of State Policy
e) Fundamental Duties
f) Writ Jurisdiction

UNIT -2
LABOUR LAWS
a) History of Labour Legislation in India
b) ILO
c) Basis of The Employee Compensation Act, 1923
d) The Factories Act, 1948
e) The Industrial Dispute Act, 1947
f) The Payment of Wages Act, 1936

UNIT -3
INTELLECTUAL PROPERTY RIGHTS
a) Berne and Paris Convention
b) The Wipo Protocol
c) Patent and Its Rights
d) Trademark
e) Copyrights
f) The Designs Act, 2000

UNIT -4
CYBER LAWS
a) Introduction to Cyber Space, Cyber Crime and its Laws
b) Introduction to Information Technology Act, 2008
c) Cyber Laws and IPC along with Evidence Act
d) Rule Book for IT Engineers and Management working in Cyber Space

UNIT -5
PUBLIC INTERNATIONAL LAW & HUMAN RIGHTS
a) State
b) Asylum
c) Recognition
d) UDHR
e) Citizenship

Reference Books:
1. THE CONSTITUTION OF INDIA by V.N.Shukla
2. SHORTER CONSTITUTION OF INDIA by D.D.Basu
3. LABOUR AND INDUSTRIAL LAW by S.N.Mishra
4. LABOUR AND INDUSTRIAL LAW by P.K.Pachi
5. LAW RELATING TO INTELLECTUAL PROPERTY RIGHTS by Virendra Kumar Ahuja
6. INTELLECTUAL PROPERTY RIGHTS by P.Narayanan
7. INFORMATION TECHNOLOGY LAW AND PRACTICE by Vakul Sharma
8. INFORMATION TECHNOLOGY AND CYBER CRIME LAW IN INDIA by Babu Sarkar
9. AN INTRODUCTION TO PUBLIC INTERNATIONAL LAW by S.K.Verma
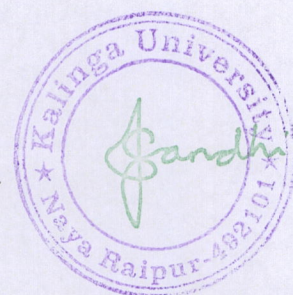
- Spade, Joan, The Kaleidoscope of Gender, Sage, Los Angeles, 2008.
- Rege, Sharmila (ed), Sociology of Gender: The Challenge of Feminist Sociological Knowledge, Sage, New Delhi, 2003.
- Marriage and the reproduction of caste Endogamy and exogamy: Uma Chakravarti, Gendering Caste: Through a Feminist Lens, Kolkata, Stree, 2003.
- Sharmila Rege, Dalit Feminist Standpoint, in Anupama Rao ed. Caste and Gender, Delhi Kali for Women, 2003.

Websites:-

http://www.womenwarpeace.org/issues/violance/GBVnairobi/finale
http://www.unmillenuim project; org/goals/index.htm.
http://www.womenwarpease.org
http://www.womenanddevelopment.org/issues/violance/GBVnairobi/finale
http://www.unmillenuim project; org/goals/index.htm.
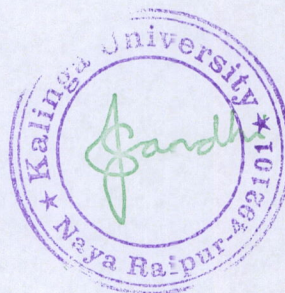http://www.jstore.org, www,tisswscmaterial

32. IPR COPYRIGHT & TRADE MARK FUNDAMENTALS

Objectives of the course: **Total Duration: 40hrs**

The course is designed to create awareness about the laws relating to intellectual property rights. It aims at providing knowledge about the framework of intellectual property rights. Students will be able to understand various types of intellectual properties, its implications and significance. The case studies will help students understand practical side of intellectual property rights laws.

Introduction to IPR and Patent aspects

- General Introduction of IPRs
- Indian Patent System in Brief
- Important Amendments of Indian Patents Act & Rules
- What is IPR
- Definition and brief understanding of Different IPR forms like Patents, Trade Marks,
- Designs, Copyrights, and Geographical Indications etc

Basic concept in Patents

- Patentable and non-patentable inventions
- Patentability criteria and requirements
- Practical study of Novelty and Non-obviousness
- Patent Specifications
- Provisional, complete Application and their contents and different types of Patent Applications(Basics)
- Claims and their interpretation
- Prosecution of Patent Application
- Prior art search in Patents
- Drafting Patent Specification (Practical session)

Trade Marks and Designs

- Introduction to Trade Marks, What is Trade Marks?, Search of Trade Marks
- Filing and Prosecution of Trade Marks & Study of Trade Marks Applications and drafting of Trademarks Applications (Practical session)
- Introduction to Designs & some other important aspects in Designs
- Study of Designs Applications (Practical session)

International Treaties, PCT and National Phase Applications

- WIPO & International treaties (part-I)
- PCT Application and some important Aspects
- National Phase Application and some important aspects
- Patent Opposition and Revocation
- Compulsory License and Pharma Industry
- Relevant Sections on Patent Law

Duration of course

40 hours

Reference Books:

- Transforming Dimension of IPR:Challenges for New Age LibrariesForeword byProf. (Dr.) Ranbir SinghVice Chancellor, National Law University, Delhi
- Overlapping Intellectual Property Rights by Neil Wilkof&Shamnad Basheer (eds.)
- Intellectual Property Law by P. Narayanan
- Law Relating to Intellectual Property by Dr. BL Wadhera
- Intellectual Property Rights-Infringement and Remedies by Ananth Padmanabhan

Articles

- Intellectual Property Law by Michael R. PatrickGPSoloVol. 30, No. 2, NICHE PRACTICES (MARCH /APRIL 2013),
- Intellectual Property Law by CYNTHIA G. SEALThe Complete LawyerVol. 14, No. 1
- RECENT DEVELOPMENTS IN INTELLECTUAL PROPERTY LAW by David A. GauntlettTort & Insurance Law JournalVol. 34, No. 2, Annual Survey of Tort and Insurance Law (WINTER 1999
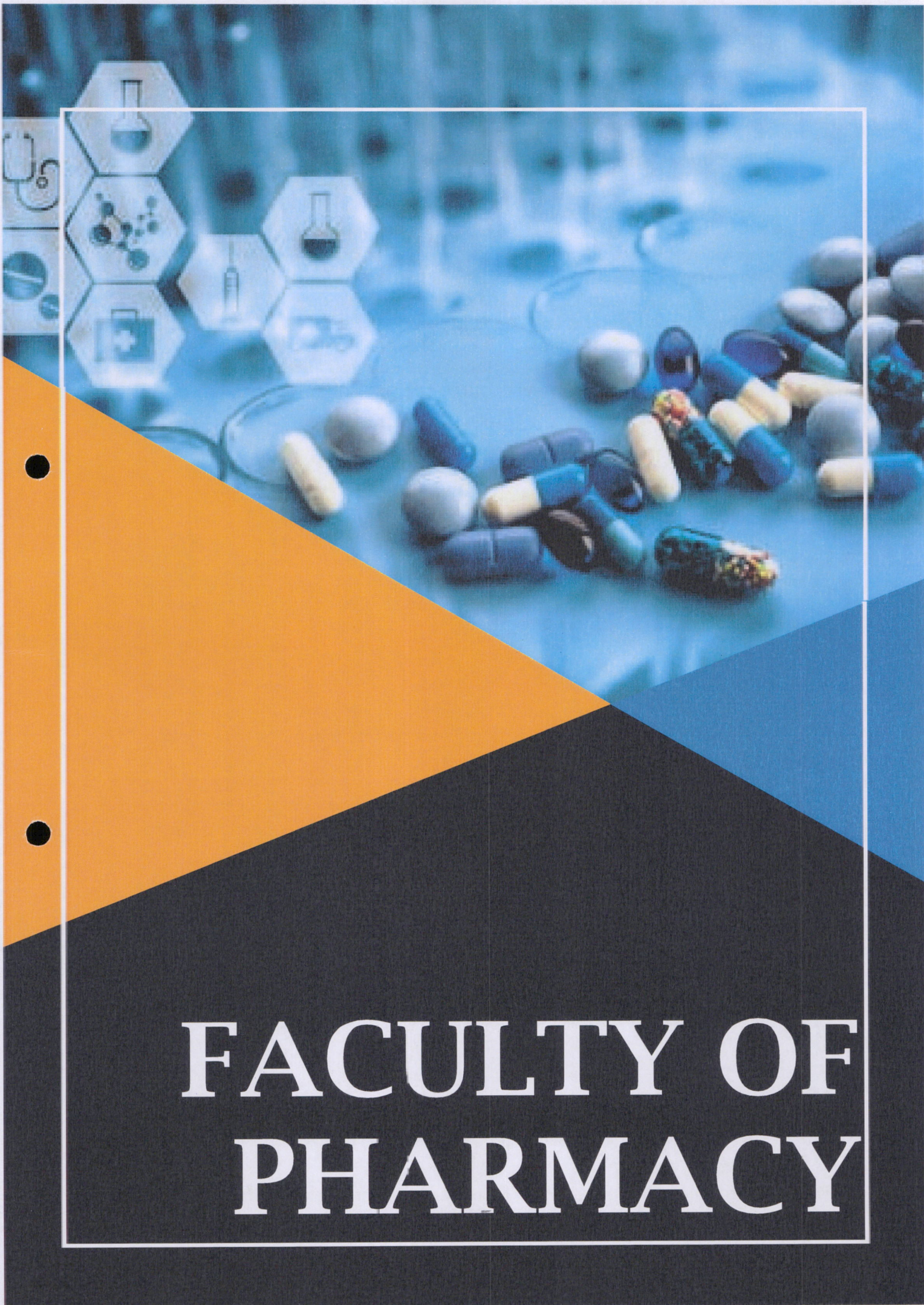
FACULTY OF PHARMACY

33. Complementary and Alternative Medicine (CAM)

Objectives of the course: After completion of this course student will;   **Total Duration: 40hrs**

- be able to identify medicinal plants (family/genus -level) identify by name and understand the effects of plant chemical constituents on humans.
- be able to clearly and logically articulate their ideas in writing and orally.
- be able to find reliable information about medicinal plants and herbal supplements at the library or on the internet demonstrate understanding of the importance of medicinal plants among different cultures through clear, logical writing demonstrate how different cultures approach plant use in different ways and how plants and people interact.
- be able to determine physiological changes at different stages of lifecycle.
- be able to discuss, contrast and evaluate the roles of nutrition within the complex processes of pregnancy, lactation, child development and ageing.

UNIT-I
Terminologies
Definitions – Classification of medicinal plants based on
their effects – Ecological status with special reference to India.

UNIT-II
Drugs acting on brain and nervous system
Rheumatic arthritis – Psychoactive drugs – Depressants, Stimulants, hallucinogens – sources, effects, basic mechanism of action.

UNIT-III
Cardiovascular diseases
Blood pressure – cardiac drugs of plant origins – alkaloids, anticoagulants – basic mechanism of action. Pulmonary / respiratory disorders – asthma – bronchitis – common cold – allergy – Remedy from plants.
Drugs for urinogenital disorders
Roots of Withania somnifera – Memory stimulants – Centella asiatica – Drugs for dissolving kidney stones – Musa paradisica (pseudostem) – Antiinflammatory drugs – Cardiospermum – Anticancer drugs – Catharanthus roseus.

UNIT-IV
Nutrition In Childhood Preschool and School going
a) Growth and Development b)Nutritional Requirement's c)Factors

influencing food intake d)Nutritional Concerns.

Nutrition in Adolescence
a) Growth and Development-Physiologic changes b) Nutritional Requirements

c) Situations with special needs.

UNIT-V
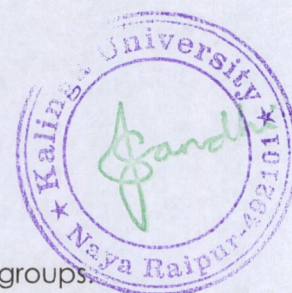### Nutrition in adults
a) Nutrient needs modifications for different activity levels and different income groups.

Nutrient requirements during old Age
a) Process of Aging, b) Nutrient Requirements, Nutrition Related problems of old Age, Nutrition

and Bone health in brief) c) Degenerative diseases, d) Health care of elderly and concepts of

the use of supplements

(50)

Further Studies :

1. Kumar, N.C. (1993). An Introduction to Medical botany and Pharmacognosy. Emkay Publications, New Delhi.
2. Rao, A.P. (1999). Herbs that heal. Diamond Pocket Books (P) Ltd., New Delhi.
3. Faroogi, A.A., and B.S. Sreeramu (2004). Cultivation of Medicinal and Aromatic Crops. University Press (India) Pvt. Ltd., Hyderabad.
4. Tribal medicine – D.C. Pal & S.K. Jain 1998, Naya Prakash, 206, Bidhan Sarani, Calcutta – 700 006.
5. Contribution to Indian ethnobotany – S.K. Jain 1995, 3 rd edition, Scientific publishers, P.B.No. 91, Jodhpur, India.
6. An Introduction to Medicinal Botany and Pharmacognosy – N.C. Kumar, Emkay Publications, Delhi.
7. Pharmacognosy, S.B.Gokhale, Dr.C.K. Kokate, A.P. Purohit Publisher: Nirali Prakasham, Pune.
8. Mudambi, SR and Rajagopal, MV. Fundamentals of Foods, Nutrition and Diet Therapy; Fifth Ed; 2012; New Age International Publishers
9. Mudambi, SR, Rao SM and Rajagopal, MV. Food Science; Second Ed: 2006; New Age International Publishers
10. Wardlaw GM, Hampl JS. Perspectives in Nutrition; Seventh Ed; 2007; McGraw Hill.
11. Lakra P, Singh MD. Textbook of Nutrition and Health; First Ed; 2008; Academic Excellence.
12. Manay MS, Shadaksharaswamy. Food-Facts and Principles; 2004; New Age International (P) Ltd
13. Potter NN, Hotchkiss JH. Food Science; Fifth Ed; 2006; CBS Publishers and Distributors.
14. Suri S. and Malhotra A. Food Science, Nutrition & Food Safety Pearson India Ltd. 2014.
15. Jain P et al. Poshan va swasthya ke mool siddhant (Hindi); First Ed; 2007; Acadamic Pratibha.

34. FOOD PROCESSING AND FOOD PRESERVATION

Total Duration: 40hrs

Scope: Food processing and preservation deals with the study of understanding the principles of processing plant/animal foods and their preservation techniques. It helps to study the need for processing foods, composition and nutritive value of plant foods and storage practices. To understand the present scenario in India with respect to processing of different plant foods.

Course Outcome/ Objective of Course:

1. To equip students with the knowledge of basic chemistry of food components, the chemical and biochemical reactions in foods.
2. To impart students a systematic approach to basic and applied aspects of food processing and technology.
3. To familiarize students with the various theoretical and practical aspects of food quality and its control.
4. To encourage students to work in conjunction with relevant food industry to get a deeper insight into the subjects of Food Science and Technology. 5. To provide students with an opportunity to conduct independent research.

Unit – I

Food Processing- An Overview Cereals, Millets and Pseudo cereals Nutritive value, Composition and structure of Cereals-an overview. -Post Harvest Processing and Technological Aspects of Cereals - Milling and Processing of Cereals for Value Added Products (Puffs, Flakes, Extruded products, Pasta, Bakery items) -Quality and Grading of Grains -Recent Advances in Milling of Rice, Wheat and Millets -Flour Fortification to Improve Nutritive Value - Specialty Corn for Value Addition - Malting Technology- An Overview - Breakfast Cereals- An Overview Pulses and Legumes -Nutritive value and Composition of Pulses and Legumes-An overview. - Milling and Processing of Pulses for Value Added Products -Germination, Decortication and Splitting of pulses and legumes -Elimination of Toxic Factors -Fermented and Non-Fermented Soy Products.

Unit – II

Fruits and Vegetables- Nutritive value, Composition and Classification of fruits and vegetables-An overview. -Post Harvest Management Techniques, Processing and Preservation of Fruits of Himalayan Regions, Temperate Fruits and Tropical Fruits -Controlled Atmosphere Storage of Perishables - Packaging Requirements, Methods of Packaging and Quality Aspects of Minimally Processed Fruits and Vegetables - Modified Atmosphere Packaging of Fruits and Vegetables -Frozen, Canned, Dry Storage of Fruits and Vegetables _Ohmic Processing of Foods, Extrusion Technology, High Pressure Technology, Ozonation, Dehydration and Sun Drying -Effect of Gamma Radiation on Physio-chemical and Sensory Qualities of Fruits and vegetables -Innovative Techniques in Minimal Processing of Fruits and Vegetables. -Value Added Products (Jams, Jellies, Marmalades, Preserves, Purees, Powders, Drinks, Squash, Fruit Wine)

Unit – III

Meat, Poultry and Eggs- Classification, Nutritive Value and Composition-An Overview. Meat - Meat industries in India -Slaughtering technique of animal and slaughtering practices -Meat cuts and portions of meat. -Post mortem changes in meat (Rigor Mortis) -Color of meat -Meat processing- Smoking and Curing, Prepared meat products including fermented meats, sausages, bacon, salami, kebabs. -Frozen meat and meat storage -Packaging of meat products. -Meat microbiology and safety -Meat plant hygiene – GMP and HACCP - By-products from meat industries and their utilization Poultry -Processing of poultry meat and eggs. -Spoilage and control. -By-product utilization -Value Added Products (Frozen chicken, dehydrated powders, Salami, Sausages) Eggs -Egg Types, Composition -Quality check and grading of eggs -Value added products (Frozen eggs, canned egg whites/yolks, pasteurized egg products.

Unit – IV

Seafood- Fish processing industries in India. -Classification of fresh water fish and marine seafood - Commercial handling, storage and transport of raw seafood. -Average composition of seafood. - Freshness criteria and quality assessment of fish and seafood -Spoilage of fish and seafood. -Methods of processing and preservation of fish- Canning, Freezing, Drying, Smoking and Curing. - Value Added Seafood products – fish meal, fish protein concentrate, fish liver oil, fish sauce and surimi -Seaweed, Algal products.

UNIT – V

Milk and Milk Products- Pasteurization, Homogenization and Standardization -Manufacture of condensed milk, milk powder, cheese, ice-cream,cream, butter, ghee, Khoa, Curd, Paneer, Lactone, malted and flavored beverages, lactose, evaporated and dried products, their evaluation and quality parameters, defects encountered during production, packaging and storage. -Substitutes for milk and milk products. - Casein and caseinates, lactose, whey protein concentrates and isolates, milk coprecipitates, and other by -products. -Technology of baby foods, weaning foods, therapeutic foods. -Fortification and enrichment. - - Probiotic milk product -Lactose free Milk Products -TQM in Food Industry. Technology of milk and dairy products.

Reference Books:

1. Khetarpaul N (2010) Emerging Trends in Post-Harvest Processing and Utilization of Plant Foods. ATPA
2. P J Fellows (2009) Food Processing Technology: Principles and Practice. Woodhead Publishing Series in Food Science, Technology and Nutrition
3. AmalenduChakraverty and Arun S. Mujumdar. (2003) Handbook of Postharvest Technology: Cereals, Fruits, Vegetables, Tea, and Spices.
4. D. K. Salunkhe and S.S. (1995) Handbook of Fruit Science and Technology: Production, Composition, Storage, and Processing
5. Scottsmith and Hui Y.H (Editiors) (2004) Food Processing – Principles and Applications London Blackwell Publishing.
6. Subbulakshmi, G and Udipi, S. A. (2001).Foods Processing and Preservation, New Delhi: New Age International (P) Ltd. Publishing
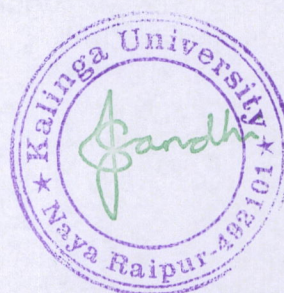
35. PHARMACEUTICAL SALES AND MANAGEMENT

Course Objectives: **Total Duration: 40hrs**

Objective of this course is to acquaint the students with the concepts tools and techniques of sales and management in Indian context. It will also expose the students with the current practices in the field.

Unit – I

Introduction: Selling as a part of marketing, sales management process, role of sales manager, concept of personal selling, sales management and salesmanship, process of personal selling, qualities of a successful salesman.

Unit – II

Goals in sales management: Goal setting process in sales management, analyzing market demand and sales potential, techniques of sales forecasting, preparation of sales budget, formulating selling strategies, designing sales territories and sales quota.

Unit – III

Sales force management: Organizing the sales force, designing the structure and size of sales force, recruitment and selection of sales force, leading and motivating the sales force, training and compensating the sales force, evaluating sales force performance.
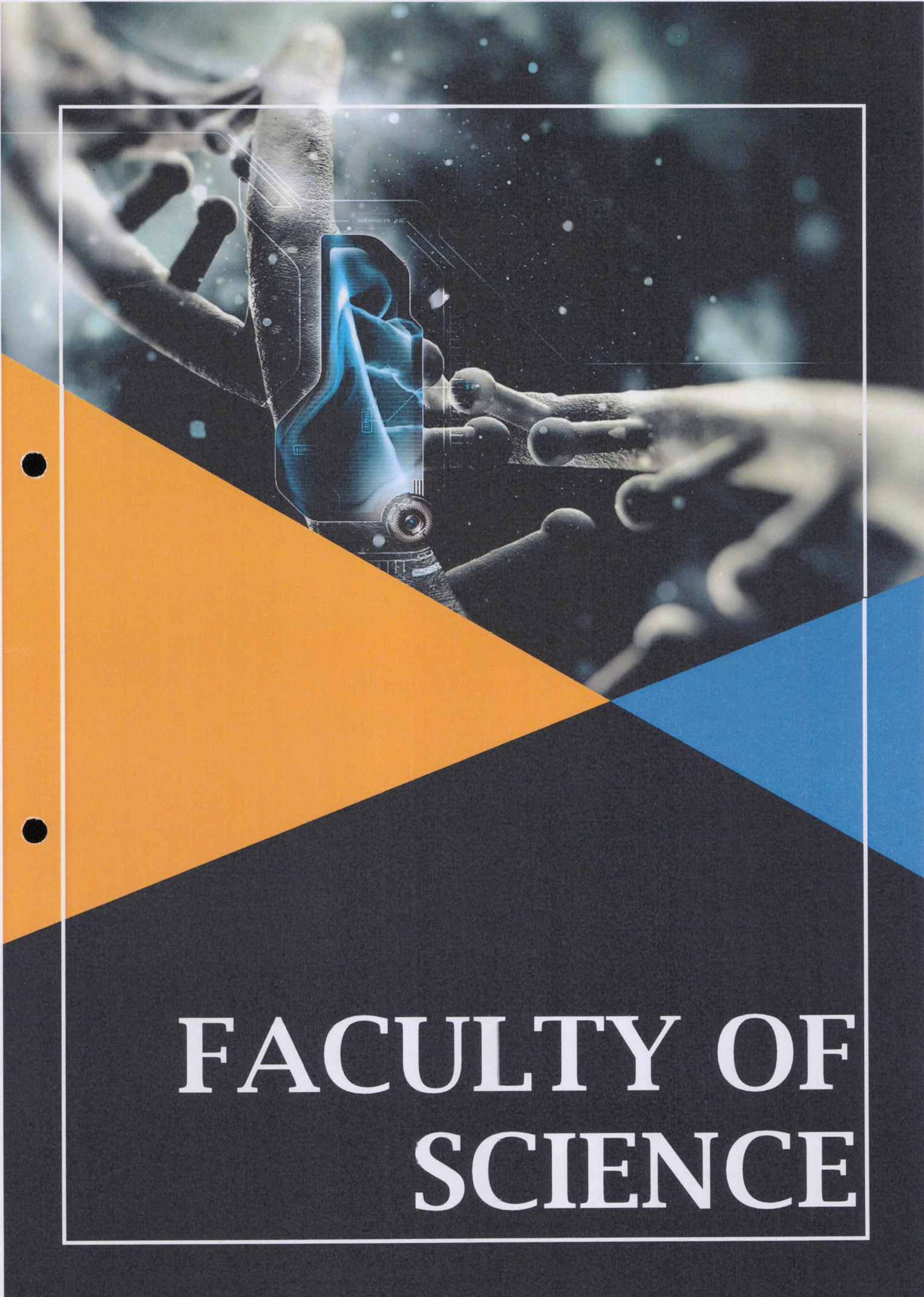
Unit – IV

Advertisement Management: Purpose and function of advertising. Advertising planning and decision making: Planning framework, communication and persuasion process. Social, legal and regulatory factors in advertising. Group influence and word of mouth advertising: Reference group influence on brand choice, factors influencing the degree of group influence.

UNIT – V

Role of media, selection of media for advertising, formulation of message, art of copywriting. Branding and packaging strategies: Brand equity, image and personality, packaging decisions, perceptual mapping of customers, control aspects of advertising, advertising budget.

Reference Books:

1. Batra, R. Myers J.G. and Aeker D.A., Advertising Management, PHI Publications, Delhi.
2. Still R.R., Cundiff E.W., Govoni N.P., Sales Management, Decision Strategies and Cases, Prentice Hall India, Delhi.
3. Sangade C.H., Frybenger V. and Rotzoll K., Advertising Practice and Theory, AITBS Publisher & Distributors, Delhi.
4. Wells W., Burnett J., Moriatry S., Advertising Practice & Principles, PH Publications, Delhi.
5. Arens W.F., Contemporary Advertising McGraw Hill/Irwin, New York.
6. Mohan M., Advertising Management, Tata McGraw Hill, New York.
7. Khan M., Sales and Distribution Management, Excel Books, Noida.
8. Gupta S.L., Sales and Distribution Management, Excel Books, Noida.
9. Ingramn T.N., La Forge R.W. and Avila R.A., Sales Management Anclysis and Decision Making, Harcourt College Publishers, California.
10. Stanton W.J. and Spiro R., Management of Sale Force, McGraw Hill/Irwin, New York.

FACULTY OF SCIENCE

37. APPLIED OPTIMIZATION TECHNIQUES

Course Objectives: **Total Duration: 40hrs**

- This course gives the fundamental knowledge to the students of quantitative techniques used in many industries as well as management sectors.
- To build up the capabilities to the students to get the optimality at the limited resources in the various situations in the industries/business sectors.

Course Outcomes
At the end of this course:

- Students are able to convert the real world problem to the mathematical modeling
- Students are able to get the optimal solution at the limited resources in industries or business sectors.
- Students can understand the queueing situations and find the optimal solution using the models for different situations.

Module I

Optimization Techniques General structure Of L.P.P, Application areas of Linear programming, General mathematical model of L.P.P., Formulation of L.P.P. Introduction of simplex method .

Module 2
Operation Research Techniques

Decision Theory: Steps of decision-making process, types of decision making environments,
Theory of games: Two –person zero sum game with pure strategies and mixed strategies. Dominance property.

Queueing theory: some terminologies, probability distributions in queueing system, Kendall's notation for representing queueing models. Classification of queueing models.

Module 3
Inventory management

Introduction, types of inventory models, classification of inventory models. Replacements problems when the replacement is justified, individual replacement policy: Morality theorem. Recruitment and promotion problems.

Job sequencing: Terminology and notations, Principal of assumptions, solution of sequencing problems. Processing n jobs through 2 machines. Processing 2 jobs through m machines.

Module 4
Project Management

Application of PERT/CPM techniques, Network diagram representation, Time estimation and critical path calculation, Uses of PERT/CPM (network0 for management. Application areas of PERT/CPM techniques. Simulation and its application.

Module 5

Introduction to modern optimization technique- ANN, Genetic Algorithms, Memetic algorithms, Antz colony algorithm, Tabu Search.

Reference Books:

1. Sharma J.K., Operations Research: Theory and Applications, Macmillan India, New Delhi
2. S.D.Sharma ,Operation Research ,Kedar Nath Ram Nath,Meerut
3. Kanti swarup, Operation Research, Sultan Chand, New Delhi.
4. Taha, H.A., Operaps Research: Introduction, Macmillan, New York.
5. Ackoff, R.L. and Sasini, M. W., Fundamentals of Operations Research, Wiley & Sons, New York. Hadley, G.: Linear Programming, Narosa Publications House.

38. ETHNOBOTANY

Unit -I
Ethnobotany

Introduction, concept, scope and objectives; Ethnobotany as an interdisciplinary science. The relevance of ethnobotany in the present context; Major and minor ethnic groups or Tribals of India, and their life styles. Plants used by the tribals: a) Food plants b) intoxicants and beverages c) Resins and oils and miscellaneous uses. **(8 Lectures)**

Unit -II
Methodology of Ethnobotanical studies
a) Field work b) Herbarium c) Ancient Literature d) Archaeological findings e) temples and sacred places.

(6 Lectures)

Unit -III
Role of ethnobotany in modern Medicine

Medico-ethnobotanical sources in India;Significance of the following plants in ethno botanical practices (along with their habitat and morphology) a) *Azadiractha indica* b) *Ocimum sanctum* c) *Vitex negundo*. d) *Gloriosa superba* e) *Tribulus terrestris* f) *Pongamia pinnata* g) *Cassia auriculata* h) *Indigofera tinctoria*. Role of ethnobotany in modern medicine with special example *Rauvolfia sepentina*, *Trichopus zeylanicus*, *Artemisia*,*Withania*.
Role of ethnic groups in conservation of plant genetic resources. Endangered taxa and forest management (participatory forest management). **(10 Lectures)**

Unit -IV
Ethnobotany and legal aspects

Ethnobotany as a tool to protect interests of ethnic groups. Sharing of wealth concept with few examples from India. Biopiracy, Intellectual Property Rights and Traditional Knowledge. **(8 Lectures)**

Unit -V
Ethnobotany and Folk medicines.

Definition; Ethnobotany in India: Methods to study ethnobotany; Applications of Ethnobotany: National interacts, folk medicines of ethnobotany, ethnomedicine, ethnoecology, ethnic communities of India. **(8 Lectures)**

Suggested Readings

1) S.K. Jain, Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.
2) S.K. Jain (ed.) Glimpses of Indian. Ethnobotny, Oxford and I B H, New Delhi – 1981
3) Lone et al,. Palaeoethnobotany
4) S.K. Jain (ed.) 1989. Methods and approaches in ethnobotany. Society of ethnobotanists, Lucknow, India.
5) S.K. Jain, 1990. Contributions of Indian ethnobotny. Scientific publishers, Jodhpur.
6) Colton C.M. 1997. Ethnobotany – Principles and applications. John Wiley and sons – Chichester
7) Rama Ro, N and A.N. Henry (1996). The Ethnobotany of Eastern Ghats in Andhra Pradesh, India. Botanical Survey of India. Howrah.
8) Rajiv K. Sinha – Ethnobotany The Renaissance of Traditional Herbal Medicine – INA –SHREE Publishers, Jaipur-1996 9)
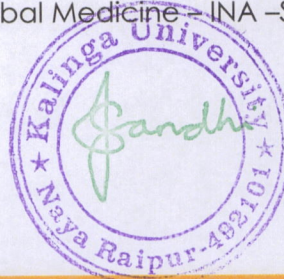
39. MUSHROOM CULTIVATION

Course Objectives:

- To understand the basics of mycology.
- To enhance student's knowledge and skills, which allow them to establish a mushroom cultivation enterprise, or to cultivate mushrooms in a form of extra-earnings, or simply as a hobby.
- Appropriate knowledge belongs principally to a new applied science and practice of using the world of mushrooms - in the economic purposes.
- Obtained skills allow to make research work about plant resources, gives knowledge how to manage mushroom production or establish a small wild plantation in home garden for own family needs.
- Tells the way how to make common projects with growing farms.

Course Outcomes (COs):

1. Appreciate the importance of embarking on self-employment and has developed the confidence and personal skills for the same.
2. Indentify business opportunities in chosen sector / sub-sector and plan and market and sell products / services
3. Start a small business enterprise by liaising with different stake holders
4. Effectively manage small business enterprise
5. Take up Mushroom Cultivation and run it profitably
6. Selection of important types of Mushroom and their cultivation
7. Maintain Mushroom farm in a hygienic and scientific way
8. Work out the economics of Mushroom Cultivation
9. Take up value added products of Mushroom i.e. preparation of Mushroom Pickle, Powder, Papad and different items of Food

Module 1

Mushroom cultivation: Introduction, history and biology of mushrooms
Nutritional value of mushrooms: (Proteins, amino acids, mineral elements, carbohydrates, fibers, vitamin);
Medicinal value of mushrooms
Poisonous mushrooms and mushroom poisoning, edible mushrooms

Module 2

Mushroom cultivation in India and world
Mycorrhizal mushrooms and their role in plant growth
Cultivation Technology: Infrastructure, equipments and substrates in mushroom cultivation:
Polythene bags, vessels, inoculation hook, inoculation loop, love cost stove, sieves, culture racks, mushroom unit or mushroom house, water sprayer, tray, boilers, driers, pure culture.

Module 3

Spawn: types of spawn, preparation of spawn, mushroom bed preparation
factors affecting mushroom bed preparation.
Compost: materials used for compost preparation, compost technology in mushroom production
Casing; raw material used for casing, preparation of casing material;
 important sanitation during various stages of mushroom cultivation.

Module 4

Cultivation of important mushrooms: General process for the cultivation of Agaricus bisporus, Pleurotus ostreatus and Volvariella volvaceae.
Pests and Pathogens of mushrooms and their management with reference to Agaricus bisporus.
Advantages and applications of mushroom cultivation
Problems with mushroom cultivation

Module 5

Storage and food preparation from mushrooms

Methods of storage of mushroom cultivation. Long term and short term storage of mushrooms.

Foods/recipes from mushrooms

Mushroom research centers/farms: National level and regional level.

Marketing of mushrooms in India and world.

LIST OF PRACTICAL FOR MUSHROOM CULTIVATION

Practical outcome:

1. Students/ farmers by using mushroom cultivation in their field can create the source of income.
2. Students residing in cities can produce mushroom in small scale in house for own family uses.
3. They can get the jobs in educational institutes as mushroom cultivation technician.
4. The candidate can generate income by supplying edible mushroom.

List of Practical (Optional)

1. Morphology and identification of local mushroom Flora and preserved specimen of mushroom
2. Sterilization of glassware, equipments,and culture media used in mushroom cultivation
3. Preparation of culture media: Potato Dextrose medium, Richards medium
4. Preparation of spawn: Grainspawn, Strawspawn, Sawdustspawn
5. Preparation of compost and known compost formulations
6. Cultivation procedure for *Agaricusbisporus* and *Pleorotusostreatus*
7. Criss-cross bed and out-door method for cultivation of *Volvariella volvaceae*

Reference Books:

1. Kannaiyan, S. Ramasamy, K. (1980). A hand book of edible mushroom, Today & Tomorows Printers & Publishers, New Delhi.
2. Pandey B P 1996. A textbook of fungi. Chand and Company New Delhi.
3. Pathak, V. N. and Yadav, N. (1998). Mushroom Production and Processing Technology. Agrobios Jodhpur.
4. Mushroom Cultivation, Tripathi, D.P.(2005) Oxford &IBH Publishing Co. PVT.LTD, New Delhi.
5. Mushroom Production and Processing Technology, Pathak Yadav Gour (2010) Published by Agrobios (India).
6. Harander Singh 1991. Mushrooms-The art of cultivation- Sterling Publishers.

41. NUMBER THEORY & LOGICs (BASICS MATHEMATICAL CONCEPTS)

Total Duration: 40hrs

Course Objectives:
- To provide the basic knowledge of number theory in mathematics and its application in the Applied Science fields.
- This course will help students to get the ideas how to apply the concept of logical mathematics in real world problems.

Course Outcomes:
At the end of the course:
- Students can understand the knowledge of number systems and its various application in real life.
- Students can apply the concept of fuzzy logic and its applications.

Module 1

Basic concept of set theory, Cartesian product of sets, Relation and its properties, Function, Types of functions, Natural numbers, Integers and rational numbers, Real numbers.

Module 2

Sequences, Arithmetic progression, Geometric Progression, Harmonic progression. Infinite series and its convergence. Mathematical Induction.

Module 3

Prime numbers, Divisors, GCD, Fundamental theorem of arithmetic, Euclidean algorithm, Euler phi- function and its application, Chinese - remainder theorem,
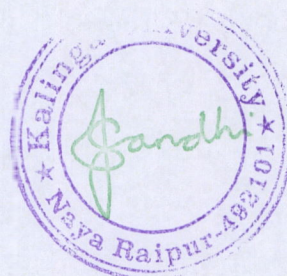
Module 4

Proposition and statements, Truth table, Logical operators, Arguments, Normal forms, Boolean algebra, Boolean identities, Disjunctive conjunctive normal forms.

Module 5

Application of Boolean algebra in switching circuits, Logic gates its properties, Fuzzy set and its operations, Algebraic operations on fuzzy sets. Applications of fuzzy sets.

Reference/Text Books-

1. A Textbook of Discrete Mathematics, Swapan Sarkar, S. Chand New Delhi.
2. Textbooks of Mathematics,R.D.Sharma 11th, 12th standard.
3. Higher Engineering Mathematics, B.S. Grewal Khanna Publisher, New Delhi.

42. BAG MAKING

Total Duration: 40hrs

Course Objectives:

Bag making is a value added course designed by fashion design department, with an objective of accessory designing as a part of a whole design field.

Module 1

Introduction to bags
Importance of bags from history
Types of bags

Module 2

Materials required for bag construction
Basic pattern draft of bag
Indian and western styles of bags

Module 3

Brands specializes in bag making
Specifications of a branded bag

Module 4

National & International brands in Bags
Local Market visits for Bags variety
Pricing policy for Bags

Module 5

Work placement
Dissertation
Self directed final major project

Reference/Text Books-

The Bag Making Bible: The Complete Creative Guide to Sewing Your Own Bags by Lisa Lam
Fashionary Bag Design: A Handbook for Accessories Designers by Nicole Claire Mallalieu.
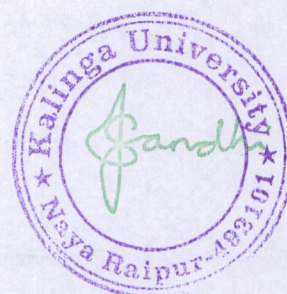
44. VERMICOMPOSTING

Total Duration: 40hrs

Course Objectives:

- To inculcate concepts of biofertilizers like Vermicomposting.
- To understand techniques in Vermicomposting.
- To increase employability of the students.
- To improve the soil quality by promoting the biofertilizers.
- They can generate employments,
- They will also turn towards organic farming,
- Will help to maintain the environment pollution free and they can generate employments,
- Will help to maintain the environment pollution free.

Course Outcomes (COs):

- To convert unwanted, organic matter, particularly food scraps and paper into fertile soil.
- Acquire skills for entrepreneurship.

Module 1

- Vermicomposting: Introduction and Application
- Types of Earthworm and Classification
- Life history of Earthworms
- Advantages of Waste Management by Vermicomposting

Module 2

- Vermicompost Production: Establishment of Vermicomposting
- Different Methods of Vermicomposting: Small and large scale Bed method, Pit method
- Harvesting the Compost
- Storing and packing of Vermicompost

Module 3

- Physical Parameters of vermicompost
- Nutrient content of vermicompost and their role in agriculture
- Vermiwash collection, composition & use
- Benefits of vermicompost

Module 4

- Role of earthworm in bio-transformation of the residues generated by human activity
- Role of nutrients for plants growth, Advantages of organic fertilizers
- Choosing the right worm & useful species of earthworms,
- Organic farming: special technology

Module 5

- Separation Techniques: Vermicompost collection, Earthworms separation
- Effect of ambient conditions and wastes on vermicompost
- Pests and diseases of Earthworms
- Precautions while Vermicomposting

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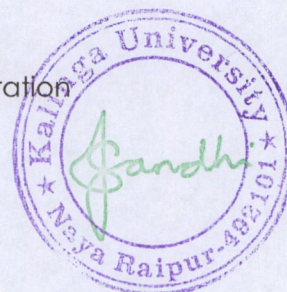
LIST OF PRACTICAL FOR VERMICOMPOSTING

Practical outcome:

1. Students/ farmers by using vermicompost in their field can increase the crop yield.
2. Students residing in cities can produce vermicompost in small scale for garden/household plants.
3. They can get the jobs in educational institutes as vermicompost/vermiculture technician.
4. The candidate can generate income by supplying verms, vermiwash, & vermicompost.

List of Practical:

1. Key to identify different types of earthworms
2. Field trip- Collection of native earthworms.
3. Study of Digestive system of earthworm.
4. Study of Reproduction of earthworm.
5. Establishment of Vermicomposting unit Pit method.
6. Establishment of Vermicomposting unit Bed method.
7. Vermicompost production,
8. Harvesting and packaging.
9. Study of Pests and diseases of Earthworms.
10. Study about Vermiwash.

Reference Books:

1. The Textbook of Vermicompost, Vermiwash and Biopesticides : Keshav singh and et al Publisher: Biotech Books.
2. The Book Hand Book of Biofertilizers & Vermiculture Publisher: Engineers India Research Institute.
3. Handbook of organic Farming and Organic Foods With Vermicomposting Neem Publisher: Engineers India Research Institute.
4. Text Book of Applied Zoology: Vermiculture, Apiculture, Sericulture, Lac Culture, Agricultural Pests and their Controls: Pradip Jabde Publisher: Discovery Publishing House.
5. The Worm Farmer's Handbook Mid- to Large-Scale Vermicomposting for Farms, Businesses, Municipalities, Schools, and Institutions :Rhonda Sherman Publisher: Chelsea Green Publishing
6. Vermiculture Technology: Earthworms, Organic Wastes, and Environmental Management: Clive A. Edwards, Norman Q. Arancon, Rhonda L. Sherman Publisher: CRC Press 2010.
7. Commercial Vermiculture: How to Build a Thriving Business in Redworms: Peter Bogdanov.
8. Worm Farming: Setup A Sustainable Vermiculture Earthworm Composting Ranch: Brian Grant Publisher: Sparrow Publications.
9. Bhatt J.V. & S.R. Khambata (1959) "Role of Earthworms in Agriculture" Indian Council of Agricultural Research, New Delhi.
10. Edwards, C.A. and J.R. Lofty (1977) "Biology of Earthworms" Chapman and Hall Ltd., London.