# KALINGA UNIVERSITY

RAIPUR
INDIA

# Brochure of Value Added Courses

# ABOUT
## KALINGA UNIVERSITY

Kalinga University is committed to its mission to advance knowledge and educate students that will best serve the nation and the world in the 21st century. An educational oasis located in the peaceful greens of Naya Raipur, the 30 acre, Kalinga University campus presents a galaxy of opportunities for students with ample spaces for learning, living and growing. The basic values of Kalinga University are academic freedom, creativity and social responsibility. This means that everyone has an equal right to learn, to acquire knowledge, to participate and to make an impact on society. Kalinga University considers the development of its students complete only if it is all-round and therefore it leaves no stone unturned to ensure this. Every effort made is evident whether it is in the maintenance of the rich library, induction of well qualified faculty, nurturing a healthy hostel environment or running a rigorous personality development programme. With over years of academic excellence, Kalinga University has come to be recognised for pioneering a global culture in education in Chhattisgarh. We recognize, that as a university, it is our responsibility to not only disseminate knowledge but also to generate knowledge and become a spring of wisdom that would fuel the economy of India. We acknowledge that establishing a world-class university is all about developing a team of visionary academicians, research scholars and educational leaders, who have a global outlook and aspiration.

# INTRODUCTION

Emerging trends in technical and professional education call for value addition i.e. students must acquire something more than what is provided in the curriculum. No university curriculum can adequately cover all areas of importance or relevance. It is important for higher education institutions to supplement the curriculum to make students better prepared to meet industry demands as well as develop their own interests and aptitudes. Kalinga University offers a wide variety of short term certificate courses which are conducted after class hours or during semester breaks. These courses are conducted by professionals and industry experts and help students stand apart from the rest in the job market by adding further value to their resume. Value added courses are the types of courses which help a particular individual to develop skills in the chosen field of study.

# 1.Communication Skills

**Course Objectives:**
• Impart the fundamentals of English as a language.
• Deal systematically with the four aspects of language i.e. reading, writing, listening and speaking.
• Facilitate an improved academic performance.
• Remove fear which is a stumbling block for many in their quest for speaking better.

**Course Outcome:**
• Increased ability of kids to overcome anxiety and nervousness when preparing for public speaking
• Increased confidence in public speaking
• Ability to make quality speeches/presentations
• Improved English grammar, tenses and vocabulary and fluency in speaking

## MODULE I:

**Effective Communication:** Concept of Effective Communication, Components of Effective Communication- Conviction, confidence & enthusiasm, Type of communication, verbal, Non-Verbal Communication – its importance and Nuances :- Facial Expression, Posture, Gesture, eye contact, Appearance barriers in communication feedback

## MODULE II:

**Listening:** It's importance, Good and Bad listening, Listening Communication Process, Advantage of listening, How to become a good listener

## MODULE III:

**Language for Communication:** Language and Communication; General Principles of Writing; Improving Writing Skills, Essentials of good style, Expressions and words to be avoided; Grammar and Usage

## MODULE IV:

**Reading Skills:** Reading Skill; Purpose of Reading; Types of Reading; Techniques for Effective Reading.

## MODULE V :

**Employment Communication** - Resume: Contents of Good Resume; Guidelines for Writing Resume; Different Types of Resumes; Reason for a Cover Letter to Apply for a Job-Format of Cover Letter; Different Types of Cover Letters, Job Interview: Importance and Factors Involving Job Interview; Characteristics of Job Interview; Job Interview Process; Job Interview Techniques- Manners and etiquettes to be maintained during an interview; Sample Questions Commonly asked During Interview.

## Reference:

1. Effective Presentation Skills – Robert Dilts, Meta Publication
2. Business Communication Today - Bovee and Thill: Tata McGraw Hill,
3. Presentation Skills 2011

# 2.Professional Ethics

**Course Objectives:**
• To make students aware about professional ethics, in the course students will be taught different professional ethics, laws and moral values.
• To inculcate Ethics and Human Values into the young minds.
• To develop moral responsibility and mould them as best professionals.
• To create ethical vision and achieve harmony in life.

**Course Outcome:**
• By the end of the course student should be able to understand the importance of ethics and values in life and society.
• After the completion of the course students will be able to work in a professional manner in the organization.

## MODULE I:

**Ethics and Human Values:** Ethics and Values, Ethical Vision, Nature of Ethics, Profession and Professionalism, Professional Ethics, Code of Ethics, Ethical Decisions, Human Values – Classification of Values, Universality of Values

## MODULE II:

**CSR:** Conceptual bases, Socially responsible leadership and CSR' role in corporate governance, Basic initiatives in the field of CSR and sustainable development. Corporate CSR reports, Globalization of CSR. Features of CSR of multinational corporations**.**

## MODULE III:

**Professional ethics -** Profession and its moral value in life ,Profession- skill needed , Profession and ethics- commitment, honesty, accountability, Professional integrity, transparency, confidentiality, objectivity, respect, obedience to the law and loyalty.

## MODULE IV:

**Safety Social Responsibility and Rights:** Safety and Risk, moral responsibility of engineers for safety, case studies – Bhopal gas tragedy, Chernobyl disaster, Fukushima Nuclear disaster, Professional rights, Gender discrimination, Sexual harassment at work place.

## MODULE V :

**Global Issues:** Globalization and MNCs, Environmental Ethics, Computer Ethics, Cyber Crimes, Ethical living, concept of Harmony in life

**Reference Books :**

1. Chakraborty, S.K. Human Values for Managers
2. Badi, R.V. and Badi, N.V. Business Ethics, Vrinda Publications
3. Corporate Governance, 2 nd Edition, Mallin, OUP
4. Values and Ethics for Organizations, Chakraborty, OUP
5. Perspectives in Business Ethics, Hartman, Chatterjee

## 3. Yoga and Meditation

**Course Objectives:**

• Promoting positive health, prevention of stress related health problems and rehabilitation through Yoga.
• Invoke scientific attitude and team spirit to channelize their energies in to creative and constructive endeavors.
• To enable them to establish Yoga Therapy centers in the service of common man.

**Course Outcome**:

Upon completion of the course, the student will be able to demonstrate knowledge of the following topics:

• Develop body awareness.
• Learn how to use their bodies in a healthy way.
• Manage stress through breathing, awareness, meditation and healthy movement.
• Build concentration.
• Increase their confidence and positive self-image.
• Feel part of a healthy, non-competitive group.

### MODULE I:

**Foundations of Yoga: History, Evolution of Yoga and Schools of Yoga:** Origin of Yoga, History and Development of Yoga, , Aim and Objectives of Yoga, True Nature and Principles of Yoga. Yoga in Modern Times: Yogic Traditions of Ramakrishna and Swami Vivekananda, Shri Aurobindo; Yoga traditions of Maharshi Ramana and Swami Dayanand Saraswati

### MODULE II:

**Behavioral Psychology:** Psychology as a Science of Behavior; Definition of Behavior; Psychic forces and human behavior, behavior and Consciousness, Psychological basis of behavior;

**Personality:** Nature and Types of Personality; Determinants of Personality: Heredity and Environment; Facets and Stages of Personality Development; Personality Theories of Sigmund Freud, Alfred Adler and C.G. Jung, Carl Rogers; Assessment of Personality:

## 4. Personality Development

**Course Objectives:**
The objective of the programme is to build self-confidence, enhance self-esteem and improve overall personality of the participants. The programme aims at grooming the participants through sensitizing them about proper behavior, socially and professionally, in formal and informal circumstances.

**Course Outcome**:
• Capable of performing better in their roles as leaders based on the situation.
• Create awareness in the participants with regard to the different aspects of interpersonal relations
•Improve participants to be better communicators by providing them with relevant inputs and also sharpening their skills

### MODULE I:

**Leadership:** Introduction to Leadership, Leadership Power, Leadership Styles, Leadership in Administration, Interpersonal Relations: Introduction to Interpersonal Relations, Analysis Relations of different ego states, Analysis of Transactions, Analysis of Strokes, Analysis of Life position.

### MODULE II:

**Communication:** Introduction to Communication, Flow of Communication, Listening, Barriers of Communication, How to overcome barriers of communication, Stress: Introduction to Stress, Causes of Stress, Impact Management Stress, Managing Stress.

### MODULE III:

**Group Dynamics:** Importance of groups in organization, and Team Interactions in group, Group Building Decision Taking, Team Building, Interaction with the Team, How to build a good team ,Conflict: Introduction to Conflict, Causes of Conflict, Management Managing Conflict.

### MODULE IV:

**Performance:** Introduction to Performance Appraisal, Appraisal Vertical Appraisal, Horizontal Appraisal, 360º Performance Appraisal, Methods of improving Techniques of Performance Appraisal ,Time as a Resource, Identify Important Time Management Wasters, Individual Time Management Styles, Techniques for better Time Management.

### MODULE V :

**Motivation:** Introduction to Motivation, Relevance and types of Motivation, Motivating the subordinates, Analysis of Motivation

**Reference Books:**
1. "Personality Development and Soft Skills" by Barun Mitra
2. "Personality Development" by Swami Vivekananda
3. "The Power of your Subconscious Mind" by Joseph Murphy

# 5. Self Management

**Course Objectives:**
- This course gives students an understanding of the concepts and tools needed for understanding and working on the "Self".
- It is useful for harnessing the immense powers hidden "with in" the self and these are the secret tools for self- change.
- The powers again emerge in the self as it withdraws from body consciousness activity and attitudes.

**Course Outcome**:
- Students should be able to understand the concepts and tools needed for understanding and working on the "Self".
- Students will know about harnessing the immense powers hidden "with in" the self and these are the secret tools for self- change

## MODULE I:

**Understanding the Self**-M.I.S Anatomy of the self-The mind-The intellect-The sub-conscious mind-Consciousness- The cyclic process with in the self- states of awareness-Innate and acquired qualities of the self- Powers to act.

## MODULE II:

**Process of thinking**- Thinking process-Developing thought pattern-Transforming thought pattern-External influences on thoughts-The power and effects of thoughts-Principles of positive thinking Methods to change thinking-Steps to change cycle of thinking.

## MODULE III:

**Powers of the self, Power to withdraw**- Power to pack up and let go- Power to love or tolerate-Power to accommodate- Power to discriminate-Power to decide-Power to face-Power to co-operate-Pro activities of powers-Interactivities of powers.

## MODULE IV:

**Managing  interferences-**  Perceptional Challenges-Attitudinal Challenges-Experience Challenges-Habituation Challenges, Mental positioning-Mental limits-Mental assumptions-Associated memories.

## MODULE V :

**Development of life skills & Relationship Management:** Communication skills-Body language-Verbal and Non-verbal-Team building -Purpose of living-Time managing skills-Time wasters and time killers-3Qs-conflict management. Relationship Management Significance-Levels of relationships-harmony in relations-Role of self esteem-Factors affecting relationships- relationships with family.

**Text Book:**
1. Brahma Kumaris, *The Spiritual powers of the soul*, Literature department, 1998 Brahma Kumaris Ishwariya Vishwa Vidyalaya, Pandav Bhawan, Mount Abu, Rajasthan
2. B.K.Chandra Shekhar, "*Science of Mind Simplified*",Diamond Pocket Books(p) Ltd, New Delhi 110 020,2010

**References:**
1. BK.Jayanti,"*The Art of Thinking*", Brahma Kumaris World Spiritual University, Londan NW102HH
2. Brahma Kumaris, "*Inner Beauty*", Literature department, Brahma Kumaris Ishwariya Vishwa Vidyalaya, Pandav Bhawan Mount abu,Rajasthan,2000

# 6. Interpersonal Skill

**Course Objectives:**
- To understand the nature of interpersonal communication
- To appreciate the importance of assertion in interpersonal communication and be introduced to some key assertion strategies
- To understand the interpersonal nature of giving feedback, receiving criticism and resolving conflicts
- To establish attentive listening as an assertion strategy
- To understand meeting skills as interpersonal skill

**Course Outcome**: Upon completion of the course, the student will be able to demonstrate knowledge of the following topics:
- Discuss learning goals
- Contribute to safe learning environment
- Have given thoughtful and diligent assessment of the learner's assets and needs prior to the exchange
- Recognize that effective feedback is usually uncomfortable
- Assess recipient's level of readiness for feedback
- Identify and address barriers to receiving feedback
- Develop a safe space for discussion and critical appraisal of the feedback given
- Mutually arrive at a meaningful assessment and plan of action towards learning objective

## MODULE I:

- Alive to facts and developments
- Commitment to democratic values
- Commitment to Pluralism
- Secular outlook
- Pride in Indian nation, culture, history and heritage
- Analytical approach
- Clearheaded
- Good communication skills

## MODULE II:

- Depth of knowledge
- Determination
- Command over language
- Discipline
- Hardwork
- Initiative/enterprising
- Integrity
- Dress pattern/code

## MODULE III:

- Logical approach
- Methodical and systematic approach
- Proper mobilization and utilization of resources
- Strong moral values
- No jealousy
- No persecution complex
- No unreasonable fear
- Optimistic

## MODULE IV:

• Perseverance
• Planning
• Practical approach
• Practical knowledge
• Promptness to take decisions
• Sense of right and wrong
• Sincerity
• Willingness to take calculated risks
• Smile
• Appreciation
• Paying attention to others
• Active listening
• Team man
• Empathy

## MODULE V :

• Free from prejudice
• Flexible approach
• Sensible
• Supportive
• Understanding the expectations of others
• Politeness
• Emotional intelligence
• Fortitude
• Effective communication
• Impartiality
• And many more similar attributes

**Text Book:**

1.   Adler, R., & Elmhorst, J. (2002). Communicating at work (7th ed.). New York: McGraw-Hill.

**Reference Books:**

1. Dwyer, J. (1993). The Business Communication handbook (3rd ed.). New York: Prentice Hall.
2. Krizan, A., Merrier, P., & Jones, C. (2002). Business Communication (5th ed.). Ohio: South-Western College Publishing.
3. O'hair, D., Friedrich, G., & Shaver, L. (1998). Strategic communication (3rd ed.). Boston: Houghton Mifflin Co.
4. Paterson, R. (2001). The assertive book. Mumbai: Magna Publishing Co
5. Timm, P., & DeTienne, K. (1980). Managerial communication (3rd ed.). New Jersey: Prentice-Hall

## 7.Soft Skills

**Course Objectives:**

Soft skills include good work ethics, sound and positive attitude, eagerness/curiosity to learn, cultural sensitivity, fine business manners and values including effective communication skills. After completing the course students will be able to present themselves in effective and attractive manner.

**Course Outcome**:
• Deal with nerves and think more positively about public speaking
• Consider ways of grabbing the listener's attention, holding their interest, and concluding strongly
• Use body language and tone of voice to enhance their presentations
• Use slides and visual aids effectively

## MODULE I:

**Introduction to Soft Skills**

Oral/spoken communication skill & testing - voice and accent , voice clarity, voice modulation & intonation, word stress, etc.
• 5Ws & 1H & 7Cs for effective Communication
• Development Etiquette and manners
• Oral/spoken communication skill & testing - voice and accent , voice clarity, voice modulation & intonation, word stress, etc.
• Components of Effective Communication - Conviction, confidence & enthusiasm, Listening
• Communication Process & Handling them
• Listening-It's Importance, Good & Bad Listening
• Body Language
• Attitude (Positive and Negative Attitude )
• Good Personality

## MODULE II:

**Self Management**
• Self Evaluation
• Self Discipline
• Self Criticism
• Recognition of one's own limits and deficiencies
• Independency
• Thoughtful & Responsible
• Identifying one's strengths and weakness
• Planning & Goal setting
• Managing self – emotions, ego, pride

## MODULE III:

**Time Management Concept and Technique**
• Success Mindset
• 7th Habits of highly effective people
• Interpersonal skills.

## MODULE IV:

**Interpersonal Skill Development**
• Positive Relationship
• Positive Attitudes
• Empathise: Comprehend other opinions points of views, and face them with understanding
• Mutuality
• Trust
• Emotional Bonding,
• SWOT Analysis

## MODULE V :

• Presentation Skill
• Interview Skill Problem Solving
• Critical and Creative Thinking
• Discussion  Corporate Etiquette

**Reference:**
1. Effective Presentation Skills – Robert Dilts, Meta Publication
2. Presentation Skills 2011

## 7.Entrepreneurship

**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 I:

**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 II:

**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 III:

**MODULE III:  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 IV:

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

## MODULE V :

**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 Capital

## MODULE V :

**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

# 7.Presentation Skill

**Course Objectives:**
• To let the students learn, Importance of good presentation skill.
• To make students to understand the different dimensions of skilled presentation.
• To inculcate the spirit of effective presentation in students and make them efficient enough.
• To develop the skills of communication that is a requirement for a good professional.

**Course Outcome:**
• Deal with nerves and think more positively about public speaking
• Consider ways of grabbing the listener's attention, holding their interest, and concluding strongly
• Use body language and tone of voice to enhance their presentations
• Use slides and visual aids effectively
• Deliver an enthusiastic and well-practiced presentation

## MODULE I:

Preparation of presentation – 1st part – what, how, for whom, structure, principles and presentation technique, business presentation specifications, Report Writing, Developing Effective Presentation Skills.Oral Presentation: Principles of oral presentation, factors affecting presentation, sales presentation, training presentation, conducting surveys.

## MODULE II:

Speeches to motivate, effective presentation skills. Slide Presentation: Craft your message, Make visuals, Include proper content for your presentation. Verbal communication – jawbreakers, argumentation, usable and unsuitable phrases, Communication skills – listening, empathic reaction, how to question.

## MODULE III:

Stealing the show, opening door question, Conflict situation solving, attack from the audience. Communication skills as a work experience, vicious circle of attack and defense, Non verbal communication during presentation. How to manage stress? what to do with hands, legs?

## MODULE IV:

Activating the audience with nonverbal communication, body language, Work with audience – ice-breaking, get them in the mood, work with emotions, visualization tools, nonstandard situations Improvisation and unprepared presentations, personal typology, professional typology, social aspect, man-woman view.

## MODULE V :

Feedback – appreciation and critique, Paradigm of human cooperation – why there could be problems to start the communication and what to do with it – Defense against manipulation, how to say NO, stress management, Image and etiquette

**Reference:**
1. Effective Presentation Skills – Robert Dilts, Meta Publication
2. Business Communication Today - Bovee and Thill: Tata McGraw Hill,
3. Presentation skills 2011.

# 10. Understanding the Power of Self

**Course Objectives:**
• This course gives students an understanding of the concepts and tools needed for understanding and working on the "Self".
• It is useful for harnessing the immense powers hidden "with in" the self and these are the secret tools for self- change.
• The powers again emerge in the self as it withdraws from body consciousness activity and attitudes

## MODULE I:

**Understanding the Self**
• M.I.S Anatomy of the self-The mind-The intellect
• The sub-conscious mind-Consciousness- The cyclic process with in the self
• States of awareness-Innate
• Acquired qualities of the Self- Powers to act.

## MODULE II:

**Process of thinking**
• Thinking process-Developing thought pattern
• Transforming thought pattern-External influences on thoughts
• The power and effects of thoughts
• Principles of positive thinking-Benefits of positive thinking
• Methods to change thinking-Steps to change cycle of thinking.

## MODULE III:

**Powers of the Self, Power to withdraw**
• Power to pack up and let go- Power to love or tolerate
• Power to accommodate- Power to discriminate
• Power to decide-Power to face-Power to co-operate
• Pro activities of powers-Interactivities of powers.

## MODULE IV:

**Managing interferences**
• Perceptional Challenges-Attitudinal Challenges
• Experience Challenges-Habituation Challenges
• Mental positioning-Mental limits-Mental assumptions
• Associated memories.

## MODULE V :

**Development of life skills & Relationship Management**
• Communication skills-Body language-Verbal and Non-verbal
• Team building -Purpose of living-Time managing skills-Time wasters and time killers
• 3Qs-conflict management. Relationship Management Significance
• Role of self esteem-Factors affecting relationships
• Relationships with family, Friends and colleagues
• Relationship with nature and environment-Relationship with the supreme

**Text Book:**
• Brahma Kumaris, *The Spiritual powers of the soul*, Literature department, 1998 Brahma
  Kumaris Ishwariya Vishwa Vidyalaya, Pandav Bhawan, Mount Abu, Rajasthan
• B.K.Chandra Shekhar, *"Science of Mind Simplified"*,Diamond Pocket Books(p) Ltd, New Delhi
  110 020,2010

**References:**
• BK. Jayanti, *"The Art of Thinking"*, Brahma Kumaris World Spiritual University, Londan
  NW 10 2HH
• Brahma Kumaris, *"Inner Beauty"*, Literature department, Brahma Kumaris Ishwariya Vishwa
  Vidyalaya, Pandav Bhawan Mount abu,Rajasthan,2000
• Brahma Kumaris, *"NEW BEGINNINGS"*, Literature department, Brahma Kumaris Ishwariya
  Vishwa Vidyalaya, Pandav Bhawan Mount abu,Rajasthan,1996

# 11. Computer Proficiency

**Course Objectives:**
• Use the basic vocabulary and terminology related to computer and word processing
• Open, save and format a basic document
• Type a simple note or a letter using Microsoft Word
• Perform basic format and editing on a word document
• Create tables and calendars
• Use different basic computer language software and programs to practice English and typing skills

**Course Outcome**:
• Set up logical storage locations on your hard drive so that you can easily store and retrieve information.
• Manage your MS Outlook files by using tools such as archiving, storage folders and message rules.
• Create a word document and navigate your way around the basic applications.
• Create an excel workbook and navigate your way around the basic applications.
• Create a professional email signature and learn how to edit and update it with important and timely
  company information.
• Create and present a basic PowerPoint presentation complete with headings, bullet points and
  pictures.

## MODULE I:

**Managing Your PC and MS Outlook**
Managing Your PC: This session will give you a basic overview of how the storage folders work on your computer's hard drive. You will learn to create logical storage folders and also learn how to search for files using Windows Explorer. MS Outlook Management: Storage Folders, Creating New Folders, View Options, Archiving, Creating a Professional Email Image: Create an email signature that encompasses your corporate image, Learn to access and update your signature so that you can make timely changes such as seasonal company messages and offers.

## MODULE II:

**Navigating Word**
Time Management Outlook Calendar Scheduling appointments Meeting requests Creating tasks Navigating your way around a word document Important Tools Navigating the applications Customization Creating a word document (from a template)Building the document Inserting a picture Inserting a table Editing a table Copy & paste text Printing the document

## MODULE III:

**Navigating Excel**
Navigating your way around an Excel workbook, Important Tools Navigating the applications customization Creating a workbook, Using Quick Fill Auto Sum Basic Formula's General Formatting Sorting Data Filters Creating a chart Print Set Up Printing the document Sending a workbook through email

## MODULE IV:

**Creating a PowerPoint Presentation**

Participants will learn to (and go through process of) Less is better, Important Tools, Navigating the applications, Customization, Creating slides (including a slide master), Creating bullet points, Inserting graphics, Inserting spread sheets, Edit options, Using layout to organise content Animation, Delivering the presentation – Running slide show Presentation View.

## MODULE V :

**Database Management with MS-Access**

Introduction to Databases Starting Access 2007 The Getting Started Page and Opening a Database What's New in Access 2007 Understanding the Access Program Screen Understanding the Ribbon Using the Office Button and Quick Access Toolbar Using Keyboard Commands Using Contextual Menus Using Help Database Basics Working with Database Objects Tour of a Table Adding, Editing and Deleting Records Tour of a Form Tour of a Query Tour of a Report Previewing and Printing a Database Object Selecting Data Cutting, Copying and Pasting Data Using Undo and Redo Checking Your Spelling Using the Zoom Box Exiting Access 2007

**Reference Books**:

1. Gill, Nasib S.: Essentials of Computer and Network Technology, Khanna Book Publishing Co., New Delhi.
2. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
3. Chhillar, Rajender S.: Application of IT in Busines s, Ramesh Publishers, Jaipur.
4. Donald Sanders: Computers Today, McGraw - Hill Publishers.
5. Davis: Introduction to Computers, McGraw -Hill Publishers.
6. V. Rajaraman : Fundamental of Computers, Prentice-Hall India Ltd., New Delhi.
7. Learning MS-Office2000 by R Bangia (Khanna Book Pub)
8. Teach yourself MS -Office by Sandlers (BPB Pub).
9. Using MS Office by Bott( PHI). Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

## 12.Human Values

**Course Objectives:**
1. To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings
2. To facilitate the development of a Holistic perspective among students towards life and profession as well as towards happiness and prosperity based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Universal Human Values and movement towards value-based living in a natural way

3. To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually fulfilling human behavior and mutually enriching interaction with Nature Thus, this course is intended to provide a much needed orientational input in value education to the young enquiring minds.

**Course Outcome**:
• The methodology of this course is exploration and thus universally adaptable. It involves a systematic and rational study of the human being vis-à-vis the rest of existence.
• It is free from any dogma or value prescriptions
• It is a process of self-investigation and self-exploration, and not of giving sermons. Whatever is found as truth or reality is stated as a proposal and the students are facilitated to verify it in their own right, based on their Natural Acceptance and subsequent Experiential Validation
• This self-exploration also enables them to critically evaluate their pre-conditionings and present beliefs

## MODULE I:

**Course Introduction -** Need, Basic Guidelines, Content and Process for Value Education
• Understanding the need, basic guidelines, content and process for Value Education
• Self Exploration–what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self exploration
• Continuous Happiness and Prosperity- A look at basic Human Aspirations
• Right understanding, Relationship and Physical Facilities- the basic requirements for fulfillment of aspirations of every human being with their correct priority
• Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
• Method to fulfill the above human aspirations: understanding and living in harmony at various levels

## MODULE II:

**Understanding Harmony in the Human Being -** Harmony in Myself! • Understanding human being as a co-existence of the sentient 'I' and the material 'Body' • Understanding the needs of Self ('I') and 'Body' - Sukh and Suvidha • Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer) • Understanding the characteristics and activities of 'I' and harmony in 'I' • Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail • Programs to ensure Sanyam and Swasthya - Practice Exercises and Case Studies will be taken up in Practice Sessions

## MODULE III:

**Understanding Harmony in the Family and Society-** Harmony in HumanHuman Relationship • Understanding Harmony in the family – the basic unit of human interaction • Understanding values 'in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship • Understanding the meaning of Vishwas; Difference between intention and competence • Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship • Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals • Visualizing a universal harmonious order in society- Undivided Society (Akhand Samaj), Universal Order (Sarvabhaum Vyawastha )-

from family to world family! - Practice Exercises and Case Studies will be taken up in Practice Sessions

## MODULE IV:

Understanding Harmony in the Nature and Existence - Whole existence as Co-existence • Understanding the harmony in the Nature • Interconnectedness and mutual fulfillment among the four orders of naturerecyclability and self-regulation in nature • Understanding Existence as Co-existence (Sah-astitva) of mutually interacting units in all-pervasive space • Holistic perception of harmony at all levels of existence - Practice Exercises and Case Studies will be taken up in Practice Sessions.

## MODULE V :

Implications of the above Holistic Understanding of Harmony on Professional Ethics • Natural acceptance of human values • Definitiveness of Ethical Human Conduct • Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order • Competence in professional ethics: a) Ability to utilize the professional competence for augmenting universal human order b) Ability to identify the scope and characteristics of people-friendly and and eco-friendly production systems, c) Ability to identify and develop appropriate technologies and management patterns for above production systems. • Case studies of typical holistic technologies, management models and production systems • Strategy for transition from the present state to Universal Human Order: a) At the level of individual: as socially and ecologically responsible engineers, technologists and managers b) At thelevel of society: as mutually enriching institutions and organizations.

**Reference Books**:

1 B L Bajpai, 2004, Indian Ethos and Modern Management, New Royal Book Co., Lucknow. Reprinted 2008.
 2. PL Dhar, RR Gaur, 1990, Science and Humanism, Commonwealth Purblishers.
3. Sussan George, 1976, How the Other Half Dies, Penguin Press. Reprinted 1986, 1991
4. Ivan Illich, 1974, Energy & Equity, The Trinity Press, Worcester, and HarperCollins, USA
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, limits to Growth, Club of Rome's Report, Universe Books.
 6.Subhas Palekar, 2000, How to practice Natural Farming, Pracheen(Vaidik) Krishi Tantra Shodh, Amravati. 7. A Nagraj, 1998, Jeevan Vidya ek Parichay, Divya Path Sansthan, Amarkantak
8. E.F. Schumacher, 1973, Small is Beautiful: a study of economics as if people mattered, Blond & Briggs, Britain.
9. A.N. Tripathy, 2003, Human Values, New Age International Publishers.

## 13. PHP CODE

**Course Objectives:**
• To know about  the basic concept of  PHP
• To know about  the Functions of  PHP
• To know about the Working of  PHP•To understand  the databases  which support PHP

**Course Outcomes:**
• Students  understand about  the basic concept of  PHP
• Students  known about  the Functions of  PHP
• Students understand the Working of  PHP
• Students  known about  the databases  which support PHP

## MODULE I:

**Introduction:** The origin of PHP, PHP is better than Its alternatives, Interfaces to external Systems, Hardware and Software requirements, What a PHP Script Looks Likes, Web designing basics and WYSIWYG, editors, Receiving User Input, Repeating Code
**Basic PHP Development:** How PHP scripts work, Basic PHP syntax, PHP data types, Dynamic variables, Static Vs. Dynamics Optimization

## MODULE II:

**String Manipulation:** Formatting String for presentation, Formatting string for storage, Comparing String, Matching and replace Substring
**Control Structures:** If (), else if () condition statement, The switch statements, Using the? Operator, Using the while Loop, The do while statement, Using the for () Loop, Breaking out of Loops, Nesting loops

## MODULE III:

**Functions:** What is a function, Creating a function, Returning value from function, User defined functions, Dynamic function calls, Variable scope, Accessing variable with the global statement, Function calls with the static statement, Setting default values for arguments.
**Working with The File System:** Creating and deleting a file, Reading and writing text files, Working with directories in PHP, Checking for existence of file.

## MODULE IV:

**Working with Forms:** Forms, Super global variables, Super global array, A script to acquire user input, Accessing user input, Combine HTML and PHP code, Using hidden fields, Redirecting the user, File upload and script
**Introduction to Database:** What is RDBMS technology?, Introduction to SQL, Connecting to MYSQL, Selecting a database, Adding data to a table, Displaying returned data on web pages, Finding the number of rows, Inserting data, Deleting data, Entering and updating data

## MODULE V :

Cookies, Session, Advanced option in pHp, application development

**References:**
1.The Joy of PHP Programming: A Beginner's Guide – by Alan Forbes
2.PHP & MySQL Novice to Ninja – by Kevin Yank
3.Head First PHP & MySQL – by Lynn Beighley & Michael Morrison
4.Learning PHP, MySQL, JavaScript, and CSS: A Step-by-Step Guide to Creating Dynamic Websites – by Robin Nixon
5.PHP & MySQL Web Development – by Luke Welling & Laura Thompson

## 14. Android Development

**Course Objectives:**
a.Students develop competence and confidence in android programming
b.Understand the entire Android Apps Development Cycle
c.As well as it would also enable the students to independently create new Android Applications.

**Course Outcomes**:
d.Upon completion of the course, the student will be able to write applications in Android.
e.Students will be able to appreciate the concept of virtual machine
f.Understand Emulators
g.Appreciating and understanding DDMS
h.Writing small codes, indenting, Styles

### MODULE I:

**JAVA Concepts & OOPs Concepts**
Inheritance in detail , Exception handling , Packages & interfaces , JVM & .jar file extension , Multi threading (Thread class & Runnable Interface), SQL, DML& DDLQueries in brief

### MODULE II:

**Introduction to Android**
What is Android? , Setting up development environment, Virtual Machine & .apk file extension, Fundamentals: a. Basic Building blocks, Activities, Services, Broadcast Receivers & Content providers b. UI Components Views & notifications c. Components for communication -Intents & Intent Filters , Android API levels (versions & version names) , Application Structure (in detail) AndroidManifest.xml , uses-permission & uses-sdk, Resources & R.java , Assets , Layouts & Drawable Resources , Activities and Activity lifecycle , First sample Application

### MODULE III:

**Emulator-Android Virtual Device** Launching emulator , Editing emulator settings , Emulator shortcuts , Logcat usage, Introduction to DDMS , Second App:- (switching between activities), Develop an app for demonstrating the communication between Intents, Basic UI design, Form widgets , Text Fields , Layouts , [dip, dp, sip, sp] versus px, Examples

### MODULE IV:

**Preferences ,Shared Preferences**
Preferences from xml , Examples , Menu , Option menu , Context menu , Sub menu , menu from xml , menu via code, Examples, Intents (in detail) , Explicit Intents , Implicit intents , Examples , UI design , Time and Date, Images and media, Composite ,Alert Dialogs& Toast, Popup,Examples

### MODULE V :

**Tabs and Tab Activity**
Examples, Styles & Themes, styles.xml, Drawable resources for shapes, gradients (selectors), Style attribute in layout file, Applying themes via code and manifest file, Examples, Content Providers, SQLite Programming ,SQLiteOpenHelper, SQLiteDatabse, Cursor, Reading and updating Contacts ,Reading bookmarks

**Reference Books:**
a.“Programming Android Java Programming for the New Generation of Mobile Devices” by Zigurd Mennieks
b.“Android Cookbook” by Ian F Darwin
c.“Android Programming: The Big Nerd Ranch Guide” by Bill Phillips and Chris Stewart

## 15. Office Automation

**Course Objectives:**
• To provide an in-depth training in use of Office Automation packages.
• Essential for a modern office for day to day office management.
• The course also helps candidates to get acquainted with IT and Private office Management.

**Course Outcomes**:
Upon completion of the course, the student will be able to demonstrate knowledge of the following topics:
• Use office automation system applications.
• Students would be able to documents, spreadsheets, make small presentations and would be acquainted with internet.
• Depth knowledge of Office Automation packages

### MODULE I:

**Fundamental of Computer &Internet Basic:** Desktop computers, Block diagram of a computer, Input and output devices, memory and storage devices, different ports and its uses, Different type of printers. Software: OS, Windows OS, Application software. Networking, different LAN and WAN connections, connecting to a network, testing connection, Internet, IP address, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services.

### MODULE II:

Windows XP: Windows concepts, Features, Windows Structure,Desktop, Taskbar, Start Menu, My Computer, Recycle Bin, Windows Accessories- Calculator, Notepad, Paint, Wordpad, Character Map, Windows Explorer, Entertainment, Managing Hardware & Software, Installation of Hardware & software, Using Scanner, System Tools, Communication, Sharing Information between programs.

### MODULE III:

**Word Processing**; MS Word: Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut, Editing, Previewing, Printing,& Formatting a Document, Advanced Features of MS Word, Find & Replace, Using Thesaurus, Using Auto-Multiple Functions, Mail Merge, Handling Graphics, Tables& Charts, Converting a word document into various formats like- Text, Rich Text, Word perfect, HTML,PDF etc.

## MODULE IV:

**Worksheet- MS-Excel:** Worksheet basics, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric Values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, Keyboard shortcuts, Working With single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Absolute & relative addressing, Worksheet with ranges, formatting of worksheet, Previewing & Printing work sheet, Graphs and charts, Database, Creating and Using macros, Multiple worksheets- concepts, creating and using.

## MODULE V :

**MS Power Point**: Creating slide show with animations, creating a lank presentation, auto layout, Power point screen: screen layout and Views, insert a new slide, applying design template, changing slide layout, reordering and hiding slides, slide show and editing custom slide. Resizing a text box , Text box properties, Delete a text box, Bulleted lists, Numbered lists, Adding notes, Video and Audio, Adding text, Editing options, Formatting text, Replace fonts, Line spacing, Change case, Spelling check, Color schemes , Adding clip art, Adding an Image from a file, Editing graphic, Auto-Shapes, WordArt, Backgrounds, Action buttons Slide animation preview Slide transitions, Slide show options Slide master Header and footer Slide numbers Date and time.

**Database Management &  MSACCESS Database Basics**: Databases, Records · Fields, data types, Database Types · Library Catalogues Introduction into Microsoft Access, Starting Up Microsoft Access, Creating New, and Opening Existing Databases, Creating a database using a wizard Creating a database without using a wizard, Tables - What they are and how they work, Create a table from scratch in Design view, Primary Keys, Switching Views, Entering Data, Manipulating Data, Advanced Table Feature Examples, Relationships - How to link multiple tables together, Forms -What they are and how they work, Creating A Form Using AWizard, Reports - What they are and how they work, Creating A Report Using A Wizard, Creating Mail Merge Labels using a Wizard .

**Reference Books**
• Professional Office Procedure by Susan H Cooperman, Printice Hall
• Information Technology:Principles , Practices and Opportunities by James ASenn, Printice Hall
• Technology And Procedures for Administrative Professionals by Patsy Fulton-Calkins, Thomson Learning
• Public Information Technology and E-Governance: Managing the Virtual State (Paperback) by G. David Garson.

## 16. Desktop Publication (DTP)

**Course Objectives:**
This course provides an opportunity to produce a series of publications suitable for portfolio inclusion. Students will use industry-standard page-layout and graphics software. They will gain a thorough grounding in print production technology and procedures, including how to communicate with other print professionals, estimate costs, and deal with digital output

**Course Outcome:**
• Acquire and apply the skills to write works of fiction and non-fiction, edit professionally, create digital content, design print and web-based products, develop and manage writing and editing projects
• apply and creatively adapt theoretical and technical knowledge and skills to reflect the needs and expectations of varied readerships and markets

## MODULE I:

Introduction to DTP, Introduction to Printing, Types of Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate ware making, Use of Desk Top Publishing in Publications, Importance of D.T.P in Publication, Advantage of D.T.P in Publication, Mixing of graphics & Image in a single page production, Laser printers - Use, Types, Advantage of laser printer in publication

## MODULE II:

Introduction to adobe PageMaker/In-Design, PageMaker tool box, PageMaker palettes Menus, Icons and dialog box, the control palette, page layout, creating and saving documents, typography,Modifying character attributes, importing graphics, Editing and cropping images, Using the picturepalette, The color palette.

## MODULE III:

Introduction to Coral Draw graphics, Features of Corel Draw, Corel Draw Interface, Tool Box, Effects, Drawing and Coloring, Creating Basic Shapes, Working with Bitmaps, Applying effects on Bitmaps, Introduction to Text Tool, Artistic and paragraph text, Wrapping Text around Object.

## MODULE IV:

Introduction to Basics of Quark express, navigating a QuarkXPress Document, Setting Up the Document, multi-page documents, formatting text, Manipulating Graphics

## MODULE V :

Introduction to Photoshop, Understanding Tools & Workspace, Image/Photo Editing-Mixing-Enhancements, Converting Color to b/w and b/w to Color, Shortcuts to work efficiently, Creating Web Graphics.

**TEXT & REFERENCE BOOKS:**
1.Adobe PAGE MAKER .
2.Prakhar complete course for DTP

## 17. Webpreneurship

**Course Objectives:**
• Students will gain basic knowledge about web solutions.
• To Navigate Internet Market, including online advertising, search, social media, and online privacy.
• Students will learn to quantitatively and qualitatively evaluate an experiment to measure the effectiveness of business decisions and online advertising effectiveness in particular.
• Students will also gain knowledge to design and implement an experiment. Students will become users of a social media management platform. Students will learn and apply best practices for social media marketing

**Course Outcomes**:
Upon completion of the course, the student will be able to demonstrate knowledge of the following topics:
• Understanding the dynamic role of webpreneurship and small businesses
• Organizing and Managing a Small Business
• Financial Planning and Control
• Blogging and Micro blogging, Social networking Facebook
• Video sharing, social shopping and opinions
• Business idea  Creation

## MODULE I:

**Digital Marketing**
• Keyword Research and analysis.
• Search engine Optimization of the website
• Dynamic Optimization of the website

## MODULE II:

**Basics of SEO friendly website design**
• Website architecture analysis
• Search Engine Submissions
• Google algorithms-Panda & Penguin
• Directory Submission on web
• Advanced link building and concept of link popularity, posting on Forums, Blogs.

## MODULE III:

**-Competitor Analysis**
• LSI (Latent Semantic Indexing)
• Google Sandbox Effect, Search Engine Spam,
• Webmaster & Google analytics,
• Optimizing for Google, Yahoo and Bing,
• Google AdWords.

## MODULE IV:

**Social Media marketing**
• Social Media, social networking
• Social media marketing defined
• Blogging and Micro blogging, Social networking Facebook
• Video sharing, social shopping and opinions
• Social events & wikis, Social media, social networking

## MODULE V :

**Facebook Video sharing social shopping**
• Opinions Social events & Wikis Social news
• Social book and marking Social media strategy

• Facebook Marketing, Google+ Marketing
• Twitter Marketing, LinkedIn Marketing

**Reference Books**
"How to Think and Become a Successful Webpreneur : It's a Matter of Choice Not Talent" by Richard Essi

## 18. Matlab Basics

**Course Objectives:**
• MATLAB introduces students to basic MATLAB programming concepts.
• MATLAB is a software package for carrying out numerical computations and analyses.
• It uses blocks of data called matrices (MATLAB stands for matrix laboratory).
  MATLAB is probably the most commonly used scientific and engineering numerical software

**Course Outcomes:**
• Become familiar with fundamental operations in Matlab
• Perform statistical data analysis, data interpolation by Matlab, solve differentiation equation with Matlab
• Acquire a reasonable level of competence in designing optimization algorithms, solve linear programming, constrained and unconstrained optimization problems by Matlab
• Apply Matlab to solve practical engineering problemsMaster used skills in Matlab programming, code debugging.

**Topic 1:** Introduction to MATLAB, Creating Variables, Some Useful MATLAB Functions, Data Types,
**Topic 2:** Script Files
**Topic 3:** Introduction to Arrays, Graphing
**Topic 4**: Good Programming Practices
**Topic 5**: Input and Output Statements
**Topic 6**: Conditional Statements
**Topic 7**: Loops
**Topic 8:** Nested Loops
**Topic 9:** Arrays
**Topic 10:** Array Functions

**Textbooks**
• MATLAB: A Practical Introduction to Programming and Problem Solving, 3rd edition, Stormy Attaway,Elsevier

**Reference Books:**
• Bansal/Goel/Sharma-MATLAB and its Applications in Engineering-Pearson Education India; Second edition (1 March 2016)

Peter I. Kattan
• MATLAB For Beginners: A Gentle Approach
• Gander, Walter-Learning MATLAB A Problem Solving Approach
• Lipsman, R.L. (et al.) -Multivariable Calculus with MATLAB®
• Quarteroni, Alfio, Saleri, Fausto, Gervasio, Paola-Scientific Computing with MATLAB and Octave- Springer

## 19. Big Data

**Course Objectives:**
• Students able to know about the concept and challenge of big data (3 V's: volume, velocity, and variety).
• Students able to  applying skills and tools to manage and analyze the big data.

**Course Outcomes**: Upon completion of the course learners will -
• understand the concept and challenge of big data and why existing technology is inadequate to analyze the big data
• collect, manage, store, query, and analyze various form of big data
• gain hands-on experience on large-scale analytics tools to solve some open big dataproblems

### MODULE I:

Introduction to Big Data: Big Data introduction – -Big data: definition and taxonomy - Big data value for the enterprise - Setting up the demo environment - First steps with the Hadoop "ecosystem" The 3 V's, their challenges and application domains. The Hadoop ecosystem: - Introduction to Hadoop - Hadoop components: MapReduce/Pig/Hive/HBase - Loading data into Hadoop - Handling files in Hadoop - Getting data from Hadoop

### MODULE II:

Collection of Big Data: -Eventual Consistency and NoSQLsystems MongoDB- Google BigTable Querying big data with Hive - Introduction to the SQLLanguage - From SQLto HiveQL

### MODULE III:

Large-Scale Data Analytics Systems:- Auto-Parallel Data Programming; -Map Reduce -Hive and Parallel Databases Basic Statistical Analysis: -Fruad and Benfords Law,-Bayesian Introduction, -Heteroskedasticity

### MODULE IV:

Machine Learning Systems for Big Data -Big data & Machine learning - Quick into to Machine learning - Big Data & Machine Learning - Machine learning tools - Spark & SparkML- H2O-Azure ML Graph Analytics: Graph structures (diameter, connectivity, centrality), PageRank, Triangle counting.

### MODULE V :

Sentiment Analysis , Data Visualization: Data types and dimensions; Visual encoding and perception

**Text Book:**
1.DATA ANALYTICS- Anil Maheshwari - McGraw Hill

**Reference Books:**
1.Understanding Big Data: Analytics For Enterprise Class Hadoop And Streaming Data- Chris Eaton and Zikopoulos - McGraw Hill
2.Big Data for Dummies -by Judith Hurwitz and Alan Nugent. Paul C Zikopoulos,
3.Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data - EMC Education Services
4.Machine Learning for Big Data-by Jason Bell.
5.Handbook of Big Data Technologies-Editors Albert Y.Zomaya,Sherif Sakr

## 20. Mural Art

**Course Objectives: -**
• Mural for a community or public space.
• Student learn how to paint, how to make a proposal for a public space and meet with the community that will house and help in making the mural.
• Self-portraits and portraits of co-students as well as understanding architectural spaces will be emphasized.
• Student learn about mural paintings history, its social, local and international roots.

**Course Outcome: -**
• At the end of this course student should be able to demonstrate proficiency in the following:
• issues and implementation of public art.
• Develop a finance and process strategy to conduct public art in a foreign or local community.
• Explore a personal driving force and apply that stimulus visually to the public realm.
• Find the balance between personal, group and the community vision.

### MODULE I:

Introduction to Murals & types of Murals., Different types of Murals used in Residential Buildings. Different types of Murals used in Commercial Buildings.

### MODULE II:

A Brief Study of Mural Paintings. Creative Paintings-Student has to develop his own idea in mural designing

### MODULE III:

Developing Murals in Canvas. Mural Paintings Composition, Details of Materials used in Mural Paintings

### MODULE IV:

Fresco paintings details, Carving in Stone & Wood, Designing Murals in Stone, Tools used for Designing in stone

### MODULE V :

Use of different materials (i.e, P.O.P, China Clay, Copper, Glass) in Murals, Designing technical murals with sand surface, new sheetrock, glass, etc., Finishing in Mural Design (Remove greases , dirt, painting murals), Student will display his/her work in Exhibition.

**Text Book:**
1. The Mural Book: A Practical Guide for Educators by Janet Braun-Reinitzand Rochelle Shicoff. Crystal Production

**Reference Book:**
• Mural Painting Secrets For Success: Expert Advice For Hobbyists And Pros by Gary Lord . Publisher North Light Books
• Painting Murals step by step by Charles Graud. F & W Media Inc.
• The Mural Book: APractical Guide for Educators Paperback – November 7, 2001 by Janet Braun-Reinitz (Author), Rochelle Shicoff (Author)artistic goals.

## 21. Speaking and Writing English Effective: A Practical Course

**Course Objectives:**
• This course aims to prepare students to communicate effectively in both speaking and writing in various professional contexts.
• In order to achieve this, students will be given intensive training to acquire the forms and proper register for telephone communication, greetings and introductions, and formal and informal presentations, and to master the forms and proper register for writing emails, reports, and formal proposals, business letters, research papers and articles and the preparation of letters of introduction to accompany Curriculum Vitae for job applications.

**Course Outcome:**
• The students developed the habit of expressing things in English
• Students became efficient in writing grammatically correct English
• It created professional awareness in terms of writing and speaking

### MODULE I:

Learning the Sounds of English, Production of Speech Characteristics of Voice Organization of Speech (from Speaking English Effectively by Krishna Mohan & N.P. Singh)

### MODULE II:

Modes of Delivery Speeches for Special Occasion Motivation and Personality Development Pronouncing individual sounds (from Speaking English Effectively by Krishna Mohan & N.P. Singh) Acquiring the right intonation (Practice Material by course teacher) Developing conversational ability (Practice Material by course teacher)

### MODULE III:

Public Speaking and Oral Presentation (from Developing Communication Skills by Krishna Mohan & Meera Banerji) Role Play (Practice Material by course teacher) Welcome Address – Vote of Thanks – Inaugural address – Speeches based on situations – Immortal speeches by various personalities (Models chosen by course teacher)

### MODULE IV:

Correct English Usage Tests: Building Blocks – Spotting Errors – Sentence Improvement Vocabulary Tests: Building Blocks – Test of Synonyms – Test of Antonyms – Test of Analogy (From Objective English by Edgar Thorpe & Showik Thorpe)

### MODULE V :

English Proficiency Tests: One Word Substitutions – Idioms and Phrases – Idiomatic Use of Verbs – Cloze Tests (From Objective English by Edgar Thorpe & Showik Thorpe) Written Communication: Business Correspondence – Job Applications with Letters of introduction and Curriculum Vitae – Technical Proposals – Research Paper and Articles – Advertising and Job Description (from Developing Communication Skills by Krishna Mohan & Meera Banerji)

**Text Books:**
- Mohan, Krishna and Banerji, Meera. Developing Communication Skills. New Delhi, Trinity Press, 2015.
- Mohan, Krishna and Banerji, Meera. Speaking English Effectively. New Delhi, Trinity Press, 2015.
- Thorpe, Edgar and Thorpe, Shovik. Objective English. 6 th Ed. New Delhi: Pearson, 2016

## 22. Impact of Medicinal Plants on Society

**Course Objective:**
• To identify the medicinal plants species in local area
• To identify the medicinal property and its use
• Documentation and cataloguing of newly identified plant species

**Course Outcome**
• To understand the flora of local community
• Commercial potential of the newly identified species

### MODULE I:

Medicinal Plants – Importance and Scope. Cultivation of medicinal plants – Processing and utilization. Chemical nature of crude drugs - Extraction, Preparation and preservation of crude drugs.

### MODULE II:

Traditional herbal teas. Herbs for woman, Babies and children. Concepts of Herbal garden– Home, School Herbal gardens.

### MODULE III:

Classification and Estimation of primary metabolites- Carbohydrates, fatty acids, aminoacids and Proteins. Secondary Metabolites - Classification , General characters, Chemical nature, Extraction and Estimation methods for Glycosides, Tannins, Volatile oils, Resinous substances, Terpenoids – Phenolic compounds and Alkaloids.

### MODULE IV:

Antioxidants - Role of antioxidants - Estimation of antioxidants – Ascorbic acid, α – Tocopherol.

### MODULE V :

Post-harvest technology in medicinal plants: scope and importance. Importance of herbal marketing -Future prospects and constraints of the herbal drug industry - Regulatory status of herbal medicine in India.

**References:**

1. Faroogi, A.A. and B. S. Sreeramu, 2004. Cultivation of medicinal and aromatic crops. Revised edition, Universities Press (India) Private Limited, Hyderabad
2. WHO, 2002. Quality control methods for medicinal plant materials, World Health Organization, Geneva, A.I.T.B.S., Publishers and Distributors, New Delhi.
3. Harbone, J.B. 1998. Phytochemical Methods; A guide to modern techniques of plant analysis. 3rdEdn., Springer (India) Private Limited , New Delhi.
4. Halliwall, B. and J.M.Gutteridge. 1985. Free radicals in Biology and medicine. Oxford university press.

## 23. German Language

**Course Objective:**
1.To introduce an additional foreign language
2.To make the students aware of the manners of Germans
3.To make the students aware about the cultural and social understanding

**Course Outcome**
• German language certified candidate has plenty of options to choose from in terms of his/her career. One can choose from areas like Tourism, Foreign services translation, teaching, embassy level work and literary works.

### MODULE I:

Introduction to German alphabets, phonetics and pronunciation, Introducing themselves and others using simple sentences and answer to some basic personal questions

### MODULE II:

Understanding and responding to everyday queries like instruction, questions, short telephone messages, requests etc., if spoken slowly and clearly, Ability to fill basic information on forms while registering for courses / classes. Ask and giving directions using simple prepositions

### MODULE III:

Understand simple expressions and phrases on topics that are directly related to the person in question and his/her habits, life, routine, likes/dislikes, Ability to speak clearly and concisely about situations that involves direct or indirect exchange of information on simple topics

### MODULE IV:

Ability to describe about people, work, immediate environment, education and other topics related to personal needs in a concise manner, Understanding of matters that are familiar and are encountered regularly like instances at school, work, at public places, places of leisure etc., when spoken clearly in a standard way

**Grammar:** Detailed overview of articles, adjectives with/without articles, Prepositions – dative & accusative, Introduction to perfect tense and future, pronominal verbs

**Reference Books**
"The Everything Learning German Book: Speak, Write and Understand Basic German in No Time"
-by Ed Swick
"Living German"
-by Ed Swick
"German Made Simple: Learn to Speak and Understand German Quickly and Easily"
-by Eugene Jackson and Adolph
"Hammers German Grammar and Usage"
-(Fifth Edition) by Professor Martin Durrell

## 24.Korean Language

**Course Objective:**
1.To introduce an additional foreign language
2.To make the students aware of the manners of koreans
3.To make the students aware about the cultural and social understanding

**Course Outcome**
• Korean language certified candidate has plenty of options to choose from in terms of his/her career. One can choose from areas like Tourism, Foreign services translation, teaching, embassy level work and literary works.

### MODULE I:

Oral Expression: proper pronunciation and intonation of Korean sounds to enable them to comprehend and speak simple sentences in Korean language. Some of the things that the students are taught are greetings; self-introduction; identifying things; time of the day; calendar; counting using Korean numerical classifiers; describing things; making comparisons; talking of daily activities; kinship terms used for address and reference; seasons; giving and receiving; shopping; making requests; talking of one's likes and dislikes etc.

### MODULE II:

Basic Structure: introduction to Korean grammar to the students. It includes basic sentence pattern, use of particles, sentence ending, adjective and verb conjugation. This enables them to form simple sentences, to understand and adapt expressions of daily use, and basic vocabulary.

### MODULE III:

Comprehension: writing and comprehension ability of the students. They are made to read simple stories and passages in Korean, comprehend and answer questions based on the text. The writing exercises involve writing the answers and also composing paragraphs on varied simple topics

### MODULE IV:

Grammar: Grammar Exercises based on daily expressions or simple conversations & short stories. Students are made to learn proper endings, honorific forms with formal and informal endings with examples using nouns, pronouns, verbs, particles, prefix, suffix and honorifics

### MODULE V :

Composition: Composition skills and training in expressions unique to the language is the objective of the course. Therefore a lot of emphasis is laid on practicing to write short compositions and essays.

**Reference Books**
·"Living **Language Korean**, Complete Edition"
·"Read and Speak **Korean** for Beginners"
·"Let's Speak **Korean**"
·"**Korean** Made Easy for Beginners"
·"Integrated **Korean**: Beginning 1"

## MODULE II:

Introduction to Film Form: Next, we will move from film production to film form. In this section of the course, we will learn the elements of film language, focusing mostly on the four most important elements: mise-en-scene, cinematography, montage, and sound. Some important questions are: What is the language in which cinema speaks? How do films create meaning? How does form reflect content? How can we read films more effectively? How does cinema create and use metaphors and symbolism?

## MODULE III:

Screenwriting as Art: Next, we will turn our attention to the process of developing and writing our own original screenplays and prepare them for submission to the Heinztelmann writing competition. We will spend two to three weeks coming up with ideas, figuring out characters and arcs, writing drafts, and revising. At the end of the unit, I will choose between four and six of the class's screen plays to "green light" for production

## MODULE IV:

Hitchcock: Form and Theory: In our third unit, we will transit from a general study of Film Form to something much more specific. Alfred Hitchcock is, arguably, the most revered formal master and innovator in the history of cinema, and his film Vertigo (1958) stands at the top of his canon.

## MODULE V :

Film (as) History: Finally, in this unit, we will concentrate chronologically on the most prominent moments in film history, highlighting formal innovations or aesthetic movements. We will examine, in turn: Early Cinema, German Expressionism, Italian Neorealism, French New Wave, European Art Cinema, New Hollywood, and Postmodernist Film.

**Reference Books:**
-Bordwell, David and Thompson, Kristin, Film Art: an Introduction, 7th ed. New York: McGraw-Hill Co., 2004.
 -Kawin, Bruce, How Movies Work. Berkeley and Los Angeles: University of California Press, 1992.
-Cook, David A., A History of Narrative Film, 4th ed. New York: W.W. Norton & Co., 2004

## 28. Anchoring and TV Journalism

**Course Objective**
1.To understand the basics of TV journalism
2.To imbibe the concepts of anchoring
3.To understand the functioning of TV channels

**Course Outcome**
1.Students will be able to anchor shows
2.Students will be able to implement the techniques of voice grooming and styling

## MODULE I:

Introduction
Anchoring Basics, tips and techniques

## MODULE II:

Building a foundation
Functioning of a TV news channel, Types and formats of news stories

## MODULE III:

What to expect in a studio
Tips and techniques, microphones, EP, studio lights

## MODULE IV:

• Voice Grooming and anchor styling
• Understanding your voice, tips and techniques for voice grooming, TV dress code for men and women,
• what to wear, make up

## MODULE V :

Getting ready for the interview
Ace your interview/screen test, how to better your anchoring skills, The who's who of TV anchoring share their secret mantras

**Reference Books**
SOUND REPORTING
1.BY JONATHAN KERN
EDWARD R. MURROW AND THE BIRTH OF BROADCAST JOURNALISM
2.BY BOB EDWARDS
THE NEW JOURNALISM
3.BY ROBERT S. BOYNTON

## 29. Cyber Security

**Course Objective**
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 I:

**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 II:

## 25. Tally and Accounting

**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 I:

**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 II:

**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 III:

**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 IV:

**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 V :

**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

## 26. Women in Literature and Culture

**Course Objective**
• It introduces students to literature and to literary expressions by men/women writers.
• Focus throughout will be on writings on/by women

**Course Outcome:**
• The students will understand various feminist movements
• It will give an insight to the thought process of a woman

### MODULE I:

Approaches to literature, Defining literature. Women and literary history. Women and production, circulation and consumption of literature Feminist critique/gynocritique.

### MODULE II:

Androgyny Mahadevi Varma : Links in the Chain, Krishna Sobti : Hum Hashmat, Ishmat Chugtai: Lihaf Kamal Das: Hijra

### MODULE III:

Questioning Stereotypes Muddupalani 'Radhika Santvanamu' Bhishma Sahani : Madhavi (Hindi) Rabindranath Tagore's 'Stri Patra'

### MODULE IV:

Women as victim Urvashi Butalia: The Other Side of Silence Manjula Padmanabhan: Lights Out (English) Mahasweta Devi: Draupadi

### MODULE V :

Recasting women: Post colonial scene, Women as political leaders Women as agencies of new enlightenment: Issues related to environment, education, democracy and justice.

**Reference Books**
1. Omvedt, Gail.1990. Violence against Women: New Movements and New theories in India, New Delhi: Kali For women.
2. Brownmiller, S. (1993) Against Our Will: Men, Women, and Rape. New York: Random House.
3. Datar, Chhaya, ed. The Struggle against violence. Calcutta: Stree, 1993
4.Kishwar, Mandu and Ruth Vanita. In search of answers: Indian women's voices from Manushi. London: Zed, 198

## 27. Film Making

**Course Objectives**
1. To understand the nature and process of film production.
2. To learn how to read and analyze film as you would a novel, a poem or a short story
3. To familiarize ourselves with certain theoretical ideas presented by major film theorists.
4. To learn how to develop, write and revise workable screenplays

**Course Outcomes**
1.The students acquire the skills of film production
2.The students are acquainted with major theories of film

### MODULE I:

What is Cinema: What is Cinema? Why do we watch films? What are the technical processes that go into the production of films? How do films get made? Who are the people who make films? Who are the people who watch films? Why do people watch films? Why do people make films?

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

## MODULE III:

**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 IV:

**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 V :

**Security Management Practices-** Overview of Security Management, Information Classification Process, Security Policy, Risk Management, Security Procedures and Guidelines, Business Continuity 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.

## 30. Career Counselling and Guidance

**Course Objectives:**
• Identify and reflect on their career and lifestyle preferences
• Learn what they can offer the world of work and what it can offer them
• Think broadly about career options and patterns of work
• Actively pursue career ideas
• Learn about actions they can take to start a career and to enter the job market after obtaining their master degree

**Course Outcomes:**
• Students should able to Identify and reflect their career and lifestyle preferences
• Students Learn what they can offer the world of work and what it can offer them
• Students and Think broadly about career options and patterns of work
• Students Learn about actions they can take to start a career and to enter the job market after obtaining their degree

## MODULE I:

**Guidance and Counselling**

Guidance: Definition, Objectives, and principles; Areas of Guidance: Education, vocation, Avocation, social, Health, moral and personal. Counselling: Definition, Objectives, goals, scope, need, characteristics, Principles and functions; Difference between guidance and counselling.

## MODULE II:

**Stages of Counselling**

The Six stages of Counseling Process Relationship building (Micro skills in counseling), Assessment & diagnosis, Formulation of counseling goals, Intervention & Problem solving, Termination & Follow up Overview, Ethics and Confidentiality. Principles of guidance, Self development, Universal, individual differences, continuous process and other principles

## MODULE III:

**Skills in Counseling**

Skills in Counseling: Macro skills: Communication, Training, Human Assessment/ Diagnostic, Meta-Communication, Paralinguistic, Non-Verbal Communication and Rapport, Questioning, Observational Skills, Basic Listening Sequence, Interpretation and Reframing

## MODULE IV:

**History Taking & Mental State Examination**

History taking, Identifying data, Chief complaint, History of present illness, past illness, Family history, Personal history–prenatal & perinatal, early childhood (birth through age), Middle childhood, Late childhood, Adulthood, Sexual history, Fantasies & dreams, Values

## MODULE V :

**Interviewing of Patients**

Insight & Symptom-oriented Interviewing, The Four Components, The Multiphasic Approach, Disorder Specific Interviewing, and Common Interview Techniques

**Reference Books:**
Gibson L Robert & Mitchell H Marianne - (6th edition) -(2003) –Introduction to counseling and guidance – Pearson Education , Inc.
Frank S Freeman -(1971) – Theory and Practice of Psychological Testing-Oxford & IBH Publishing Co. New Delhi. Edited by Rocio Fernandez - Ballesteros- (2003) Encyclopedia of Psychological Assessment –New Delhi: Sage Publications.
Herr E. L and Cramer S. H - (III Edition) - (1988) – Career Guidance And Counseling through the life span, Systematic Approaches - Scott, Freeman and Co, London.

# LIST OF VALUE ADDED COURSES

| | | | |
|---|---|---|---|
| 1. | Autocad | KUVAAU | 2014-15 |
| 2. | C++ Programming | KUVACPRG | 2014-15 |
| 3. | Communication Skills | KUVACO | 2014-15 |
| 4. | Dynamics And Control | KUVADY | 2014-15 |
| 5. | Internet Of Things-I | KUVAIOTH | 2014-15 |
| 6. | Materials Science | KUVAMSC | 2014-15 |
| 7. | Matlab For Mechanical Engineers | KUVAMLBME | 2014-15 |
| 8. | Pedagogy Of English | KUVAPENG | 2014-15 |
| 9. | Personnel Management | KUVAPMGT | 2014-15 |
| 10. | Professional Ethics | KUVAPRE | 2014-15 |
| 11. | Self Management | KUVASMGT | 2014-15 |
| 12. | Android App Development | KUVAAAD | 2014-15 |
| 13. | Apitude & Soft Skills | KUVAASS | 2014-15 |
| 14. | Artificial Intelligency | KUVAAI | 2014-15 |
| 15. | Basics Of Robotics | KUVABR | 2014-15 |
| 16. | C Language: Placement Preparation & Programming | KUVACL | 2014-15 |
| 17. | Circuit Design Using Ltspice | KUVACD | 2014-15 |
| 18. | Data Structure Using C | KUVADSUC | 2014-15 |
| 19. | Discover Creativity For Engineer | KUVADCE | 2014-15 |
| 20. | E-Commerce | KUVAEC | 2014-15 |
| 21. | Energy Audit And Management | KUVAEAM | 2014-15 |
| 22. | Energy Conservation, Management And Audit | KUVAECMA | 2014-15 |
| 23. | Engineering Thermodynamics\ | KUVAET | 2014-15 |
| 24. | Entrepreneurship & Innovation | KUVAEI | 2014-15 |
| 25. | Internet Fundamental | KUVAIF | 2014-15 |
| 26. | Interpersonal Skills | KUVAIS | 2014-15 |
| 27. | Law For Engineering | KUVALE | 2014-15 |
| 28. | Life Skill For Engineer | KUVALSE | 2014-15 |
| 29. | Linux System Programming | KUVALSP | 2014-15 |
| 30. | Matlab For Engineers | KUVAMLE | 2014-15 |
| 31. | Mix Design Of Normal Grade Of Concrete | KUVANGC | 2014-15 |
| 32. | Pedagogy Of Hindi | KUVAPH | 2014-15 |
| 33. | Personality Development | KUVAPD | 2014-15 |
| 34. | Programming With Python | KUVAPP | 2014-15 |
| 35. | Yoga And Meditation | KUVAYM | 2014-15 |
| 36. | Presentation Skills | KUVAPTS | 2015-16 |
| 37. | Programming Skills In C++ | KUVAPS | 2015-16 |
| 38. | Project Management | KUVAPM | 2015-16 |
| 39. | 2-D Drawing & Drafting Using Cadd Tool | KUVADD | 2015-16 |
| 40. | Aerospace Vehicles | KUVAAV | 2015-16 |
| 41. | Aptitude Skill | KUVAAS | 2015-16 |
| 42. | Bank Po | KUVABPO | 2015-16 |
| 43. | Basic Concepts Of Mathematics | KUVABCM | 2015-16 |
| 44. | Building Information Modeling | KUBIM | 2015-16 |
| 45. | Ethanobotany | KUVAEB | 2015-16 |
| 46. | Floriculture And Landscaping | KUVAFL | 2015-16 |
| 47. | Industrial Pollution Control | KUVAIPC | 2015-16 |
| 48. | Introducing Digital Humanities | KUVAIDH | 2015-16 |
| 49. | Lasers And Their Application | KUVALA | 2015-16 |
| 50. | Machine Learning | KUVAML | 2015-16 |
| 51. | Management Information System-I | KUVAMIS | 2015-16 |
| 52. | Material Testing & Measurement | KUVMM | 2015-16 |
| 53. | Nano Technology For Engineering Application | KUVANTEA | 2015-16 |
| 54. | Nanobiotechnology | KUVANB | 2015-16 |
| 55. | Natural Health (Nutrition) | KUVANH | 2015-16 |
| 56. | NET | KUVANET | 2015-16 |
| 57. | Nuclear Medicine | KUVANM | 2015-16 |
| 58. | Nuclear Power Generators | KUVANPG | 2015-16 |
| 59. | Optimization Techniques | KUVAOT | 2015-16 |
| 60. | Pre-Engineered & Prefabricated Structures | KUVAPEPS | 2015-16 |

| No. | Course | Code | Year |
|---|---|---|---|
| 61. | Production Line | KUVAPL | 2015-16 |
| 62. | Quality Control & Analysis | KUVAQCA | 2015-16 |
| 63. | Quantum Mechanics | KUVAQM | 2015-16 |
| 64. | Renewable Energy Resource | KUVARER | 2015-16 |
| 65. | Renewable Energy Sources | KUVARES | 2015-16 |
| 66. | Robotics | KUVAR | 2015-16 |
| 67. | Scientific Writing | KUVASW | 2015-16 |
| 68. | Scientific Writing Using Latex | KUVASWL | 2015-16 |
| 69. | Soil Exploration And Ground Improvement Techniques | KUVASE | 2015-16 |
| 70. | Special Theory Of Relativity | KUVASTR | 2015-16 |
| 71. | SSC | KUVASSC | 2015-16 |
| 72. | Stadd Pro V8I | KUVASP | 2015-16 |
| 73. | Structural Analysis And Design Using Staad | KUVASAD | 2015-16 |
| 74. | Understanding The Power Of Self | KUVAUPS | 2015-16 |
| 75. | Waste Water Treatments | KUVAWWT | 2015-16 |
| 76. | Web Designing | KUVAWD | 2015-16 |
| 77. | Webtechnology | KUVAWT | 2015-16 |
| 78. | Entrepreneurial Skills | KUVAENS | 2015-16 |
| 79. | Internet Of Things-II | KUVAIOT | 2015-16 |
| 80. | Multimedia Systems | KUVAMS | 2015-16 |
| 81. | Soft Skills | KUVASFTS | 2015-16 |
| 82. | Statistical Methods | KUVASTTM | 2015-16 |
| 83. | Makeup Artistry | KUVAMUA | 2015-16 |
| 84. | Matlab | KUVAMLB | 2016-17 |
| 85. | Civil Services | KUVACE | 2016-17 |
| 86. | Computer Proficiency | KUVACP | 2016-17 |
| 87. | Tattoo Design | KUVATTD | 2016-17 |
| 88. | Life Style & Accessory Design | KUVALAD | 2016-17 |
| 89. | Android Development | KUVAAD | 2016-17 |
| 90. | Constructional Project Management | KUVACPM | 2016-17 |
| 91. | Cyber Laws & Security | KUVACLS | 2016-17 |
| 92. | Dtp | KUVADTP | 2016-17 |
| 93. | E Banking & Commerce | KUVAEBC | 2016-17 |
| 94. | Fashion Journalism | KUVAFJ | 2016-17 |
| 95. | Fashion Stylist | KUVAFS | 2016-17 |
| 96. | Guidance And Counselling | KUVAGC | 2016-17 |
| 97. | High Rise Buildings | KUVAHRB | 2016-17 |
| 98. | Highway Infrastructure Engineering | KUVAHIE | 2016-17 |
| 99. | Industrial Environment | KUVAIE | 2016-17 |
| 100. | Industrial Marketing Skills | KUVAIMS | 2016-17 |
| 101. | Intoduction To Herbal Drugs And Elementary Pharmacognosy | KUVAHDE | 2016-17 |
| 102. | Ipr And Cyber Laws | KUVAICL | 2016-17 |
| 103. | Law On Environment And Wild Life Protection | KUVALEWLP | 2016-17 |
| 104. | Management Of Entrepreneurship | KUVAME | 2016-17 |
| 105. | Network Management & Security | KUVANMS | 2016-17 |
| 106. | Office Automation | KUVAOA | 2016-17 |
| 107. | Pavement Material Characterization | KUVAPMC | 2016-17 |
| 108. | Petrochemical Technology | KUVAPT | 2016-17 |
| 109. | Php | KUVAPHP | 2016-17 |
| 110. | Portfolio | KUVAP | 2016-17 |
| 111. | Programming Skills Usingc++ | KUVAPSU | 2016-17 |
| 112. | Project Management Techniques | KUVAPMT | 2016-17 |
| 113. | Road Safety | KUVARS | 2016-17 |
| 114. | Software Architecture | KUVASA | 2016-17 |
| 115. | Traffic Engineering-I | KUVATE | 2016-17 |
| 116. | Urban Transportation Planning. | KUVAUTP | 2016-17 |
| 117. | Webpreneurship | KUVAWP | 2016-17 |
| 118. | Paramedical Science | KUVAPSC | 2016-17 |
| 119. | CGPSC | KUVACGPSC | 2016-17 |
| 120. | Chemistry For Healthcare | KUVACFH | 2016-17 |

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|---|---|---|---|
| 121. | Computer Aided Designing Of Microwave Circuits & Components | KUVACAD | 2016-17 |
| 122. | Photography | KUVAPG | 2016-17 |
| 123. | Autocad | KUVAAC | 2017-18 |
| 124. | Mural Art | KUVAMA | 2017-18 |
| 125. | Revit Architecture | KUVARA | 2017-18 |
| 126. | Ergonomics And Work Study | KUVAEWS | 2017-18 |
| 127. | Food Chemistry | KUVAFC | 2017-18 |
| 128. | Food Technology | KUVAFT | 2017-18 |
| 129. | Fundamentals Of Automobile Engineering | KUVAFAE | 2017-18 |
| 130. | GST | KUVAGST | 2017-18 |
| 131. | Human Values | KUVAHV | 2017-18 |
| 132. | Industrial Automation | KUVA IA | 2017-18 |
| 133. | Industrial Catalysis | KUVAIC | 2017-18 |
| 134. | Life Skill Development And Mentoring-4 | KUVALSDM | 2017-18 |
| 135. | Linux Server Administration | KUVALSA | 2017-18 |
| 136. | Matlab For Electronics Engineers | KUVAMLEE | 2017-18 |
| 137. | Measurements& Material Science  Lab | KUVAMMSL | 2017-18 |
| 138. | Mushroom Cultivation | KUVAMC | 2017-18 |
| 139. | Nano Technology | KUVANT | 2017-18 |
| 140. | Organic Farming | KUVAOF | 2017-18 |
| 141. | Soft Skills - Ii | KUVASS | 2017-18 |
| 142. | Training & Development | KUVATD | 2017-18 |
| 143. | Anatomy-Ii | KUVAAT | 2017-18 |
| 144. | Bigdata | KUVABD | 2017-18 |
| 145. | Bio Chemistry | KUVABC | 2017-18 |
| 146. | Computer System Security | KUVACSS | 2017-18 |
| 147. | Elements Of Animation & Graphic Design | KUVAEAGD | 2017-18 |
| 148. | Enterprise Resource Planning(Oe) | KUVAERP | 2017-18 |
| 149. | Environmental Engineering | KUVAEE | 2017-18 |
| 150. | Ethical Hacking | KUVAEH | 2017-18 |
| 151. | Foundation Course In Wireless & Mobile Communication | KUVAWMC | 2017-18 |
| 152. | German Language | KUVAGL | 2017-18 |
| 153. | Highway Project Formulation | KUVAHPF | 2017-18 |
| 154. | Impact Of Medicinal Plants On Society | KUVAIMP | 2017-18 |
| 155. | Korean Language | KUVAKL | 2017-18 |
| 156. | Labour Law-I | KUVALL | 2017-18 |
| 157. | Law Of Contract And Consumer Protection | KUVALCCP | 2017-18 |
| 158. | Network Operating System | KUVANOS | 2017-18 |
| 159. | Network Programming | KUVA NP | 2017-18 |
| 160. | Pavement Construction | KUVAPC | 2017-18 |
| 161. | Professional Communication Skills-Ii | KUVAPCS | 2017-18 |
| 162. | Secured Network Protocol | KUVASNP | 2017-18 |
| 163. | Security Threats | KUVAST | 2017-18 |
| 164. | Speaking And Writing English Effectively | KUVASWE | 2017-18 |
| 165. | Verbal Ability-Ii | KUVAVA | 2017-18 |
| 166. | Cyber Security | KUVACS | 2018-19 |
| 167. | Digital Communication | KUVADC | 2018-19 |
| 168. | Electric Safety | KUVAES | 2018-19 |
| 169. | Strategic Management | KUVASM | 2018-19 |
| 170. | Advancement In Industrial Engineering | KUVAAIE | 2018-19 |
| 171. | Anchoring And Tv Journalism | KUVAAJ | 2018-19 |
| 172. | Apptitude - Ii | KUVAA | 2018-19 |
| 173. | Arts & Aesthetics | KUVAAA | 2018-19 |
| 174. | Basic Biochemistry | KUVABBC | 2018-19 |
| 175. | Basic Immunology | KUVABI | 2018-19 |
| 176. | Career Counseling And Guidance | KUVACCG | 2018-19 |
| 177. | Disaster  Management | KUVADM | 2018-19 |
| 178. | Electrical Engineering Materials | KUVAEEM | 2018-19 |
| 179. | Engineering Material & Metallurgy | KUVAEMM | 2018-19 |
| 180. | Engineering Materials | KUVAEM | 2018-19 |

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| 181. | Film Making | KUVAFM | 2018-19 |
| 182. | German | KUVAG | 2018-19 |
| 183. | Health Laws | KUVAHL | 2018-19 |
| 184. | Hospitality Accounting-I | KUVAHA | 2018-19 |
| 185. | Industrial Safety In Industries | KUVAISI | 2018-19 |
| 186. | Information Security And Risk Management | KUVAISRM | 2018-19 |
| 187. | Internet Basics And Fundamentals | KUVAIBF | 2018-19 |
| 188. | Law On Human Rights | KUVALHR | 2018-19 |
| 189. | Mechanical Measurement | KUVAMM | 2018-19 |
| 190. | Microbiology I | KUVAMB | 2018-19 |
| 191. | Pedagogy Of Physical Education | KUVAPPE | 2018-19 |
| 192. | Quality Control | KUVAQC | 2018-19 |
| 193. | Tally And Accounting | KUVATA | 2018-19 |
| 194. | Testing And Commissioning Of Electrical Equipments | KUVATCEE | 2018-19 |
| 195. | Women In Literature And Culture | KUVAWLC | 2018-19 |

# SAMPLE OF SOME COURSES

## DEPARTMENT OF BIOTECHNOLOGY

### Course Objectives:

• The influence of dimensionality of the object at nanoscale on their properties;
• size and shape controlled synthesis of nanomaterials and their future applications in industry.
• To foundational knowledge of the Nanoscience and related fields.
• To make the students acquire an understanding the Nanoscience and Applications
• To help them understand in broad outline of Nanoscience and Nanotechnology.

### Course outcomes:

Explain the effects of quantum confinement on the electronic structure and corresponding physical and chemical properties of materials at nanoscale.

Choose appropriate synthesis technique to synthesize quantum nanostructures of desired size, shape and surface properties.

Correlate properties of nanostructures with their size, shape and surface characteristics.

Appreciate enhanced sensitivity of nanomaterial based sensors and their novel applications in industry.

Learn about the background on Nanoscience. Understand the synthesis of nanomaterials and their application and the impact of nanomaterials on environment

Apply their learned knowledge to develop Nanomaterial's

### MODULE I:

**Introduction to Nanobiotechnology and application**. Functional Principles of Nanobiotechnology- Information-Driven Nanoassembly- Energetic- Chemical Transformation- Regulation- Traffic Across Membranes- Biomolecular Sensing- Self-Replication- Machine-Phase Nanobiotechnology.

### MODULE II:

**Synthesis Methods**: Top-down and bottom-up approach, cluster beam evaporation, ion beam deposition, chemical bath deposition with capping techniques, mechanical milling, chemical methods and self-assembly.

**Protein and Peptide based Nanostructures**- S-layers-Chemistry and structure, Assembly, recrystalisation, diagnosis.

### MODULE III:

**Properties of Nanomaterials:** Size and shape dependence of optical, electronic, photonic, mechanical, magnetic and catalytic properties. Nanomaterials and their applications: Nanoparticles, Nanocoatings and Nanocomposites, Nanotubes, Fullerenes, Thin film chemical sensors, gas sensors, biosensors.

## MODULE IV:

**Quantum Size Effect**: Electron confinement in infinitely deep square well, Confinement in one dimensional well, Idea of quantum well structure, Formation of quantum well, Quantum dots and quantum wires.

**Self assembling nanostructures**- Self-Assembled Artificial Transmembrane Ion Channels-types, Methods,

## MODULE V:

**DNA based Nanostructures**- DNA-protein nanostructures-Methods- Self assembled DNA nanotubes—Nucleic acid Nanoparticles, DNA as a Biomolecular template-DNA branching-Metallization- Properties.

**Applications of Nano-Materials in Biosystems:** Proteins - Lipids - RNA and DNA Protein Targeting - Small Molecule /Nanomaterial - Protein Interactions Nanomaterial-Cell interactions-Manifestations of Surface Modification.

### Reference:

1. Bimerg, D., Grundmann, M., and Ledentsov, N.N., Quantum Dot Heterostructures, John Wiley (1999).

2. Poole,C.P., Owens,F.J., Introduction to NanotechnologyJohn Wiley &Sons (2003)

3. Jain, K.P., Physics of Semiconductor Nanostructures, Narosa (1997).

4. Fendler, J.H., Nano particles and Nano-structured Films, John Wiley &Sons (1998).

5. Timp, G., Nanotechnology, Springer-Verlag (1999).

6. Claudio Nicolini, Nanobiotechnology & Nanobiosciences Pan Stanford Publishing Pte. Ltd, 2009.

7. Robert A. Freitas Jr. Nanomedicine, Volume I:Basic Capabilities, Landes Bioscience,1999.n Interactions Nanomaterial-Cell interactions-Manifestations of Surface Modification.

## ORGANIC FARMING

### Course Objectives:

• Increase genetic diversity.
• Promote more usage of natural pesticides.
• Ensure the right soil **cultivation** at the right time.
• Keep and build good soil structure and fertility.
• Control pests, diseases and weeds.

### Course outcomes:

• Complete a Farm Business Plan, describing the marketing, operations and financials for a farm business that fits your skills, interests and farmsite. Alternate final project options include:
  ◘ Grant proposal
  ◘ Independent project approved by the OFTP instructor
• Understand what it takes to start and successfully operate a farm or educational garden projecternate final project options include:
• Use information from the course and other sources to make farm management decisions

## MODULE I:

Introduction: Farming, organic farming, concept and development of organic farming. Principles of organic farming & Need for organic farming, Agencies and institutions related to organic agriculture

## MODULE II:

Scope and Present state of organic farming; national and international status Requirements for organic farming, Farm components for an organic farm Water management , Green manuring, Composting- principles, stages, types and factors, Composting methods, Earth moon Vermicomposting

## MODULE III:

Types of organic farming, Biodynamic farming, Benefits of organic farming.
Bulky organic manures, Concentrated organic manures, Organic, Preparations, Organic amendments and sludges, biogas.

## MODULE IV:

Conventional farming v/s organic farming , Bio-fertilizers-methods of application, advantages and disadvantages

Unit.6 Standards for organic inputs- fertilizers, Bio-fertilizers-types,Pheromones.

## MODULE V:

Plant protection- cultural, Plant protection - mechanical . Plant protection- botanical pesticides I,Plant protection- botanical pesticides II,Plant protection- botanical pesticides III. Plant protection- biopesticide, Plant protection- biocontrol agents, Plant protection- biocontrol agents . Weed management . National and international monny, Standards for organic inputs- plant protection .

## PARAMEDICAL SCIENCE

### Course Objectives:

• Perform all the diagnostic techniques
• Use discretely the essential laboratory services
• Manage all types of clinical diagnostic methods
• Demonstrate skills in handling the modern equipments in medical imaging
• Develop leadership qualities to function effectively as a leader in the laboratory environment
• Render services to the laboratory set up and to communicate effectively with the doctors and the hospital management.

• To develop skill and competency in data processing, reporting and maintenance of records & Laboratory investigations.

## Course outcomes:

- Students will be able to define and explain major concepts in the biological sciences.
- They are able to correctly use biological instrumentation and proper laboratory techniques.
- Students will be able to communicate biological knowledge in oral and written form
- Students will be able to recognize the relationship between structure and function at all levels: molecular, cellular, and organismal.

## MODULE I:

**Community health care:** Definition of Health, Determinants of Health, Health Indicators of India, Health Team Concept. a. National Health Policy b. National Health Programmers (Briefly Objectives and Scope) c. Population of India and Family welfare programme in India.

## MODULE II:

Introduction Human body as a whole: Definition of anatomy and its divisions, Terms of location, Glands-classification, describe serous & mucous glands with examples, Basic tissues classification with examples. Cell Definition, Structure and function of Cytoplasmic Organelles, Reproduction Meosis, Mitosis. Microscopic technique. ELISA, RIA, Widal test, Bone – Classification, Diffusion, Osmosis

## MODULE III:

Red blood cells- Erythropoiesis, stages of differentiation function, count physiological Variation. Haemoglobin -Structure, function, concentration physiological variation. Blood Volume – Normal value, determination of blood volume and regulation of blood volume body fluid- pH, normal value, regulation and variation. Quality control: Accuracy, Precision, Specificity, Sensitivity. Limits of error allowable in laboratory, Percentage error, Normal values and Interpretations, pH Regulation, Disturbance in acid Base Balance,

## MODULE IV:

Introduction to Laboratory Apparatus Pipettes- different types (Graduated, volumetric, Pasteur, Automatic etc.), Calibration of glass pipettes, Burettes, Beakers, Petri dishes, depression plates. Flasks - different types) Water bath: Use, care and maintenance, Oven & Incubators: Use, care and maintenance. Water Distillation plant and water deionizers. Use, care and maintenance, Refrigerators, cold box, deep freezers – use, care and maintenance.

## MODULE V:

Bascic: Introduction of computer, types, uses, MS Office, Internet, DOS, Operating system, E-MAIL- Concepts, POP and WEB based E-mail, merits, address, Basics of Sending & Receiving, E-mail Protocols, Mailing List, Free E-mail services. Html – Concepts of Hypertext, Versions of HTML, Elements of HTML syntax, Head & Body Sections, Building HTML documents, Inserting texts, Images, Hyperlinks, Backgrounds and Color Controls

## Reference:

1.William Davis, Understanding Human Anatomy and Physiology, McGraw Hill
2.Chaurasia, A Text Book of Anatomy
3.Ranganathan, T.S., A Text Book of Human Anatomy
4.Fattana, Human Anatomy, (Description and Applied), Saunder's & C P Prism Publishers, Bangalore
5.Ester. M. Grishcimer, Physiology & Anatomy with Practical Considerations, J.P. Lippin Cott. Philadelphia
6.Guyton, Arthur, Text Book of Physiology, Prism Publishers
7.Chatterjee, C C, Human Physiology, Medical Allied Agency
8.A.K Jain, Human Physiology
9.Varley, Clinical Chemistry
10. Teitz, Clinical Chemistry
11.Kaplan, Clinical Chemistry
12.Ramakrishna S, Prasanna KG, Rajna, Text Book of Medical Biochemistry, Orient Longman
13.Vasudevan DM & Sreekumari S, Text Book of Biochemistry for Medical Students.
14.Das, Debajyothi, Biochemistry, Academic, Publishers, Calcutta.
15.Chatterjee, A Text book of Medical Biochemistry 8. U. Satyanarayan, Medical Biochemistry.
16.Sanders, D.H., Computers Today, McGraw Hill.
17.Trainer, T.N., Computers, McGraw Hill.
18.William Davis, Understanding Human Anatomy and Physiology, McGraw Hill
19.Chaursia's, Practical of Human Anatomy

## QUALITY CONTROL

### Course Objectives:

- Quality objectives are goals for the value of products, services and processes. It is a basic quality management process to establish a set of quality objectives. Unlike a quality policy, that is set at the top level of an organization,
- quality objectives can be specific to a department, team, process
- To understand the concept of Quality
- To understand the Implication of Quality on Business
- To Implement Quality Implementation Programs
- To have exposure to challenges in Quality Improvement Programs

### Course outcomes:

- To realize the importance of significance of quality
- Manage quality improvement teams
- Identify requirements of quality improvement programs

## MODULE I:

Introduction - Quality, Total Quality Management, Quality Cost, Leadership.
Significance of quantitative analysis in quality control, Different techniques of analysis, Preliminaries and definitions, Significant figures, Rules for retaining significant digits, Types of errors.

## MODULE II:

TQM Principles- Customer Satisfaction, Employee Involvement, Continuous Process Improvement, Supplier Partnership, Performance Measures.

## MODULE III:

Statistical Process Control (SPC)- Seven tools of Quality, Statistical Fundamentals, Six Sigma.
Impurity Profiling. TQM Tools- Benchmarking, Quality Function Deployment (QFD), Taguchi's Quality Engineering, Total Productive Maintenance (TPM).

## MODULE IV:

Chromatography technique, HPLC, TLC, Paper, coloumn, liquid and gas chromatography, uses, application.

## MODULE V:

Thermal Analysis: Theory, instrumentation & applications of Thermo-gravimetric analysis, differential thermal analysis, differential scanning calorimeter. Quality System- ISO 9000, ISO 14000

### Reference:

1. Dale, B. (2015). Total quality management. John Wiley & Sons, Ltd. 1. Mitra, A. (2016).
2. Fundamentals of quality control and improvement. John Wiley & Sons.

# SCIENTIFIC WRITING

### Course Objectives:

- This course aims to demystify the writing process and teach the fundamentals of effective scientific writing.
- Instruction will focus primarily on the process of writing and publishing scientific manuscripts but grant writing will also be addressed.
- The course will be presented in two segments: Part (1) teaches students how to write effectively, concisely, and clearly and part (2) takes them through the preparation of an actual scientific manuscript or grant.

### Course outcomes:

**By the end of the Scientific Writing course, students will be able to:**

- Structure a piece of scientific writing effectively
- Write more critically and identify the difference between description and analysis
- Understand some of the common features of scientific style

- Avoid plagiarism and be able to paraphrase scientific ideas
- Write a scientific report according to typical conventions, and know when to consult departmental guidelines.

## MODULE I:

Lecture: What makes good writing?  Are there "good writers" and "bad writers"?
Words, word choice, the basic elements of sentences and sentence structure.

## MODULE II:

**The News Article**
Dissecting the news article, News-writing is the art of maximizing information and minimizing words; it's the barest-bones form of writing. The fundamentals of good writing can be learned by dissecting news articles.

## MODULE III:

**Writing Basics I**
Punctuation and Parallelism.  Tricks for clarity, brevity, and finesse. Peer interviews and write-up mini-profiles

## MODULE IV:

**Writing Basics II**
Paragraphs, logic, and organization.  Organizational strategies. paragraph re-writing exercise. Article for a "Letter to the Editor" piece.

**Writing Basics III**
Good Writing Applied: The Scientific Manuscript ,Putting it all together, group rewrites

## MODULE V:

**Methods and Results Sections,** Discuss a variety of journal articles that present data in different ways. Wrap-up scientific manuscripts plus Overview of grant writing.
**The Abstract**, Introduction, and Discussion: Getting to the main point and summarizing effectively.  How to conduct literature reviews. Writing an effective discussion.
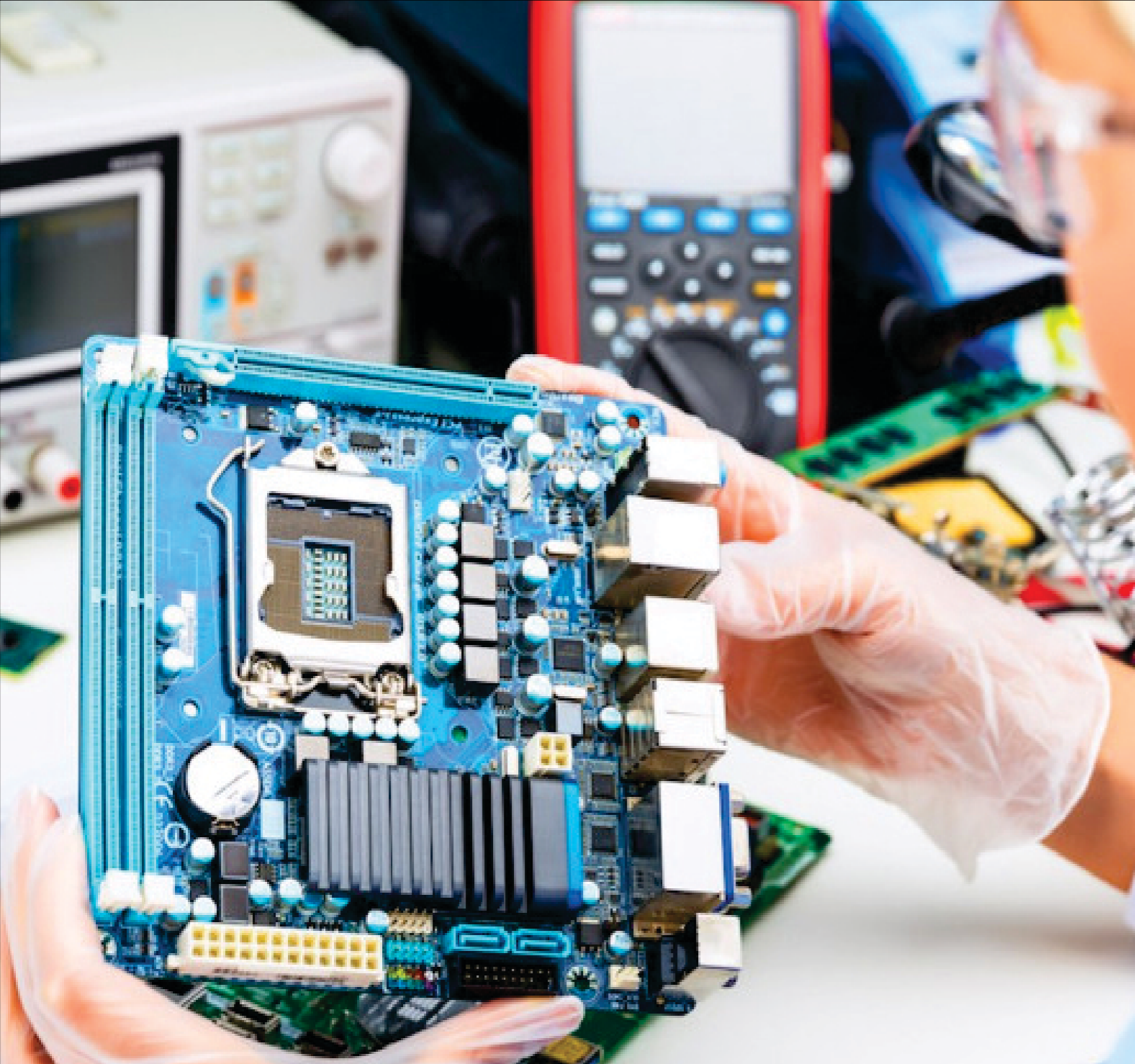
## Course Objectives:

**To impart knowledge on the following Topics**
• Awareness about renewable Energy Sources and technologies.
• Adequate inputs on a variety of issues in harnessing renewable Energy.
• The students are expected to identify the new methodologies / technologies for effective utilization of renewable energy sources.

## Course outcomes:

• Ability to acquire knowledge about solar energy.
• Ability to understand basics about biomass energy.
• Ability to create awareness about renewable Energy Sources and technologies
• Applications of different renewable energy sources.

## MODULE I:

**RENEWABLE ENERGY (RE) SOURCES :-** Environmental consequences of fossil fuel use, Importance of renewable sources of energy, Types of RE sources, Limitations of RE sources, Present Indian and international energy scenario of conventional and RE sources

## MODULE II:

**WIND ENERGY Power in the Wind :-** Types of Wind Energy Systems, Performance, Site Selection, Details of Wind, Safety and Environmental Aspects Types of Wind Power Plants(WPPs)–Components of WPPs-Working of WPPs- Siting of WPPs-Grid integration issues of WPPs.

## MODULE III:

**SOLAR PV AND THERMAL SYSTEMS: -** Solar Radiation, Solar Thermal Power Plant, Central Receiver Power Plants, Solar Ponds.- Thermal Energy storage system with PCM- Solar Photovoltaic systems : Basic Principle of SPV conversion – Types of PV Systems- Types of Solar Cells, Photovoltaic cell concepts: Cell, module, array ,PV Module I-V Characteristics, Efficiency & Quality of the Cell, series and parallel connections, maximum power point tracking, Applications.

## MODULE VI:

**BIOMASS ENERGY:-** Introduction-Bio mass resources –Energy from Bio mass: conversion processes-Biomass Cogeneration-Environmental Benefits. Geothermal Energy: Basics, Direct Use, Geothermal Electricity. Mini/micro hydro power: Classification of hydropower schemes, Classification of water turbine, Turbine theory, Essential components of hydroelectric system.

## MODULE V:

**OTHER ENERGY SOURCES:-** Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems. Wave Energy: Energy from waves, wave power devices. Ocean Thermal Energy Conversion (OTEC) -Hydrogen Production and Storage- Fuel cell : Principle of working- various types - construction and applications. Energy Storage System- Hybrid Energy Systems.

# DEPARTMENT OF
# ELECTRICAL ENGINEERING

**TEXT BOOKS:**

1. Rai. G.D., "Non Conventional Energy Sources", Khanna Publishers, New Delhi, 2011.
2. Joshua Earnest, Tore Wizeliu, 'Wind Power Plants and Project Development', PHI Learning Pvt.Ltd, New Delhi, 2011.
3. D.P.Kothari, K.C Singal, Rakesh Ranjan "Renewable Energy Sources and Emerging Technologies", PHI Learning Pvt.Ltd, New Delhi, 2013.
4. Scott Grinnell, "Renewable Energy & Sustainable Design", CENGAGE Learning, USA, 2016.

**Reference:**

1. A.K.Mukerjee and Nivedita Thakur," Photovoltaic Systems: Analysis and Design", PHI Learning Private Limited, New Delhi, 2011.
2. Sukhatme. S.P., "Solar Energy", Tata McGraw Hill Publishing Company Ltd., New Delhi, 1997.
3. Richard A. Dunlap," Sustainable Energy" Cengage Learning India Private Limited, Delhi, 2015.
4. Chetan Singh Solanki, " Solar Photovoltaics : Fundamentals, Technologies and Applications", PHI Learning Private Limited, New Delhi, 2011
5. Bradley A. Striebig,Adebayo A.Ogundipe and Maria Papadakis," Engineering Applications in Sustainable Design and Development", Cengage Learning India Private Limited, Delhi, 2016.
6. Godfrey Boyle, "Renewable energy", Open University, Oxford University Press in association with the Open University, 2004. 6. Shobh Nath Singh, 'Non-conventional Energy resources' Pearson Education ,2015.

## ROBOTICS
## CODE:KUVABR

**Course Objectives:**

• To introduce the functional elements of Robotics.
• To impart knowledge on the direct and inverse kinematics.
• To introduce the manipulator differential motion and control.
• To educate on various path planning techniques.
• To introduce the dynamics and control of manipulators

**Course outcomes:**

• Ability to understand basic concept of robotics.
• To analyze Instrumentation systems and their applications to various.
• Ability to understand new methodologies / technologies to build a robot
• To know about the dynamics and control in robotics industries.
• Ability to understand application of robot in various filed like medical, space, defence, etc

## MODULE I:

**PRINCIPLES OF ROBOTICS :-** Brief history-Types of Robot–Technology-Robot classifications and specifications Design and controlissues- Various manipulators – Sensors - work cell - Programming languages.

## MODULE II:

**Drive systems and Sensors**:-

Drive system- hydraulic, pneumatic and electric systems, Sensors in robot – Touch sensors, Tactile sensor, Proximity and range sensors, Robotic vision sensor, Force sensor, Light sensors, Pressure sensors.

## MODULE III:

**DIRECT AND INVERSE KINEMATICS:-**
Mathematical representation of Robots - Position and orientation, Homogeneous transformation Various joints- Representation using the Denavit Hattenberg parameters -Degrees of freedom-Direct kinematics- Inverse kinematics- SCARA robots- Solvability – Solution methods-Closed form solution.

## MODULE IV:

**MANIPULATOR DIFFERENTIAL MOTION AND STATICS**:- Linear and angular velocities-Manipulator Jacobian- Prismatic and rotary joints–Inverse -Wrist and arm singularity - Static analysis - Force and moment Balance.

## MODULE V:

**DYNAMICS AND CONTROL**:
Lagrangian mechanics-2D OF Manipulator-Lagrange Euler formulation-Dynamic model – Manipulator control problem-Linear control schemes-PID control scheme-Force control of robotic manipulator.

**TEXT BOOKS:**

1.R.K.Mittal and I.J.Nagrath, Robotics and Control, Tata McGraw Hill, New Delhi,4th Reprint, 2005.
2.JohnJ.Craig ,Introduction to Robotics Mechanics and Control, Third edition, Pearson Education, 2009.
3.Craig. J. J. "Introduction to Robotics- mechanics and control", Addison- Wesley, 1999.
4.M.P.Groover, M.Weiss, R.N. Nageland N. G.Odrej, Industrial Robotics, McGraw-Hill Singapore, 1996.

**Reference:**

1. Ashitava Ghoshal, Robotics-Fundamental Concepts and Analysis', Oxford University Press, Sixth impression, 2010.
2. K. K.Appu Kuttan, Robotics, I K International, 2007.
3. Edwin Wise, Applied Robotics, Cengage Learning, 2003.
4. R.D.Klafter,T.A.Chimielewski and M.Negin, Robotic Engineering–An Integrated Approach, Prentice Hall of India, New Delhi, 1994.
5. B.K.Ghosh, Control in Robotics and Automation: Sensor Based Integration, Allied Publishers,Chennai, 1998.
6. S.Ghoshal, " Embedded Systems & Robotics" – Projects using the 8051 Microcontroller", Cengage Learning, 2009.
7. P.A. Janaki Raman, "Robotics and Image Processing an Introduction", Tata McGraw Hill Publishing company Ltd., 1995.

## ENERGY AUDIT AND MANAGEMENT
## CODE:KUVABR

## MODULE I:

**General Aspects:-** General Philosophy and need of Energy Audit and Management. Definition and

Objective of Energy Management, General Principles of Energy Management, Energy Management Skills, Energy Management Strategy.

## MODULE II:

**Energy Audit:**- Need, Types, Methodology and Approach. Energy Management Approach, Understanding Energy Costs, Bench marking, Energy performance, Matching energy usage to requirements, Maximizing system efficiency, Optimizing the input energy requirements, Fuel and Energy substitution.

## MODULE III:

**Energy Policy Planning and Implementation:-** Key Elements: Force Field Analysis, Energy Policy-Purpose, Perspective, Contents and Formulation. Format and Ratification, Organizing: Location of Energy Manager, Top Management Support, Managerial functions, Role and responsibilities of Energy Manager, Accountability. Motivating – Motivation of employees, Requirements for Energy Action Planning. Barriers.

## MODULE IV:

**Energy Balance & MIS:**- First law of efficiency and Second law of efficiency, Facility as an Energy system, Methods for preparing process flow, Materials and Energy Balance diagram, Identification of losses, Improvements. Energy Balance sheet and Management Information System (MIS) Energy Modeling and Optimization.

## MODULE V:

**Energy Audit Instruments:-** Instruments for Audit and Monitoring Energy and Energy Savings, Types and Accuracy

### Reference:

1. Energy  Management: W.R.Murphy, G.Mckay  (Butterworths).
2. Energy Management Principles: C.B.Smith (Pergamon Press).
3. Efficient Use of Energy : I.G.C.Dryden (Butterworth Scientific)
4. Industrial Energy Conservation : D.A. Reay (Pergammon Press)
5. Energy Management Handbook – W.C. Turner ( John Wiley and Sons, A Wiley Interscience Publication)
6. Industrial Energy Management and Utilization – L.C. Witte, P.S. Schmidt, D.R. Brown (Hemisphere Publication, Washington)
7. Industrial Energy Conservation Manuals, MIT Press, Mass, 1982
8. Energy Conservation guide book Patrick/Patrick/Fardo (Prentice Hall)
9. Handbook on Energy efficiency
10. ASHRAEE Energy Use (4 Volumes)
11. CIBSI Guide –Users Manual (U.K.) 8. CRC Handbook of Energy Efficiency – CRC Press.

# DEPARTMENT OF CHEMISTRY

# INDUSTRIAL CATALYSIS

## Course Objectives:

After completed course the student shall: -be able to explain the importance of catalysis in chemical process and chemical industry today -be able to explain some basic concepts in catalysis, such as: adsorption and desorption, adsorption isotherms, surface area, porosity, dispersion, reactions mechanism, kinetics and zeolites .

## Course outcomes:

able to describe and explain the most common methods for characterization of a catalyst -be able to describe and explain how to derive a reaction expression -be able to describe and explain some of the most important chemical industrial processes with respect to the catalyst used and the reaction condition.

## MODULE I:

Importance of catalysis, Catalysis materials, Catalyst preparation, Catalyst characterization, Adsorption, Desorption, Surface reaction, Diffusion, Rates and kinetics of catalytic reactions, Deactivation; Laboratory work on catalyst preparation and characterization.

## MODULE II:

Introduction, the importance of catalysis in industry and society and basic principles. Physical adsorption and chemisorption on surfaces. Adsorption isotherms. Bonding of reactants to catalyst surfaces. Specific surface areas and porosity..

## MODULE III:

Kinetics for catalytic reactions. Adsorption – kinetics. Catalyst preparation. Structured catalysts and zeolite. Catalyst characterization by SEM, XRD, gas adsorption and other techniques Catalyst deactivation. Acid catalysis and zeolites.

## MODULE IV:

Processing of petroleum and hydrocarbons. Catalytic oxidation. Synthesis gas and associated processes. Steam reforming. The water gas shift reaction. Methanation.

## MODULE V:

Pore size distributionAmmonia production. Nitric acid. Methanol and formaldehyde. Fischer-Tropsch. Catalysis for environmental protection and energy production. Three way catalysts for automobiles.

### Reference books:

1. "Industrial Catalysis: A Practical Approach" by Jens Hagen
2. "Introduction to Catalysis and Industrial Catalytic Processes" by Robert J Farrauto and Lucas Dorazio
3. "Industrial Catalysis and Separations: Innovations for Process Intensification" by K V Raghavan and B M Reddy
4. "Industrial Catalysis: Chemistry And Mechanism" by James D Burrington
5. "Recent Advances in Basic and Applied Aspects of Industrial Catalysis" by T S R Prasada Rao and G Murali Dhar

# NUCLEAR MEDICINE

## Course Objectives:

Prepares students for the Nuclear Medicine Technology Certification Board Examination (NMTCB). Test taking tips and practice exams. Practical application of patient care, human anatomy and physiology, pathology, radiation biology, radiation protection, physics, instrumentation, radiopharmacy, in vivo and in vitro procedures.

## Course outcomes:

Diagnostic and Therapeutic Nuclear Medicine procedures, Positron Emission Tomography. Students will complete a registry review project and a mock registry. Prerequisite: Admission to the Nuclear Medicine Technology program and Diagnostic Medical Imaging .

## MODULE I:

History and evolution of Nuclear Medicine as an imaging modality. Radionuclide identification, radionuclide energies and half-lives, and commonly used radiopharmaceuticals for Diagnostic Nuclear Medicine procedures. Introduction to Diagnostic Nuclear Medicine procedures. Patient handling techniques and nursing and laboratory procedures relating to Nuclear Medicine. Introduction to professional medical ethics, legal issues and patient rights. Quality assurance procedures for the radiation protection of Nuclear Medicine personnel. Prerequisite: Admission to the Nuclear Medicine Technology program or consent of instructor.

## MODULE II:

Principles of atomic structure, nomenclature and radiation. Introduction to radionuclides, physics of radiation (particulate and non-particulate), natural and artificial radiation, calculations of radioactive decay, exponential equations, calculation of radiation dosimetry, half-life equations, radionuclide production, radiopharmaceutical dose determinations, radiation interactions with matter, radiation protection and safety methodology, radiation shielding formulation and counting statistics.

## MODULE III:

Basic aspects in imaging and non-imaging radiation detection instrumentation including: scintillation detectors, planar, SPECT (single photon emission computerized tomography), PET (positron emission tomography), multichannel analyzers, quality assurance testing for Nuclear Medicine instrumentation including G-M detectors, ionization chambers and scintillation detectors.

## MODULE IV:

Topics in radiation biology will include qualitative and quantitative effects on the human body following exposure to various types of ionizing radiation, and the potential harmful effects and the benefits of the medical uses of radiation. Procedures for personnel and environmental monitoring, emergency management, decontamination, and proper methods of receiving, storing and disposing of radioactive materials. Basic concepts of radiation exposure reduction. Concepts of radiation safety for personnel, patients and the environment

## MODULE V:

Applied anatomy and physiology of the central nervous, immune, lymphatic, hematopoietic, exocrine, gastrointestinal systems. Non-imaging tests including Schilling's, Helibacter pylori and blood volume determination. Advanced topics in nuclear cardiology, tumor imaging, neurology, radioimmunoimaging, radioimmunotherapy and miscellaneous procedures. Diagnostic imaging techniques, radiopharmaceutical agents, indications and limitations of nuclear medicine procedures, normal and abnormal pathology, dosimetry. Computer acquisition and processing techniques.

### Reference books:

1. "Nuclear and Radiochemistry (Wse)" by Gerhart Friedlander and Joseph W Kennedy
2. "Nuclear and Radiochemistry: Fundamentals and Applications, 2 Volume Set" by Jens–Volker Kratz and Karl Heinrich Lieser
3. "Assuring a Future U.S.-Based Nuclear and Radiochemistry Expertise" by Committee on Assuring a Future
4. "Nuclear and Radiochemistry (Elsevier Insights)" by Jozsef Konya and Noemi M Nagy
5. "Radiochemistry and Nuclear Chemistry" by Gregory Choppin and Jan-Olov Liljenzin

## CHEMISTRY FOR HEALTHCARE

### Course Objectives:

Students will be provided with a review of anatomy and pathology in Computed Tomography (CT) imaging planes. The characteristic appearance of each anatomical structure as it appears on CT images with pathologic and trauma processes is also covered.

### Course outcomes:

Students are introduced to principles, procedures, and patient care specific to Computed Tomography (CT). Pediatric patient care and routine and emergency procedures are described. CT images are reviewed for quality, positioning, and illustration of anatomy.

### MODULE I:

Students are provided with the physics and instrumentation principles specific to Computed Tomography (CT). CT image processing and display methods as well as patient factors affecting image quality are identified. Prerequisite: Diagnostic Medical Imaging Nuclear Medicine 2500 with a grade of C or better, or equivalent and Diagnostic Medical Imaging .

### MODULE II:

Students will be introduced to necessary principles of radiation safety and quality management specific to Computed Tomography (CT). Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, and health care organizations are described. Prerequisite: Diagnostic Medical Imaging Nuclear Medicine 2500 with a grade of C or better, or equivalent .

### MODULE III:

Basic aspects in imaging and non-imaging radiation detection instrumentation including: scintillation detectors, planar, SPECT (single photon emission computerized tomography), PET (positron emission tomography), multichannel analyzers, quality assurance testing for Nuclear Medicine instrumentation including G-M detectors, ionization chambers and scintillation detectors.

### MODULE IV:

Students will be introduced to necessary principles of radiation safety and quality management specific to Computed Tomography (CT). Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, and health care organizations are described.

### MODULE V:

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences.

### Reference:

1. "Organic Chemistry of Drug Design and Drug Action" by Silverman
2. "Organic Chemistry" by Bruice
3. "Biochemistry" by Voet and Voet
4. "Medicinal Chemistry" by Sriram/Yogeeswar
5. "Medicinal Chemistry" by Ashutosh Kar

## STATISTICAL METHODS

### Course Objectives:

Here the students study the probability and statistical methods in statistics This is a course on the study of applied statistics. Here the students are introduced to survey samples; an important part of statistical data.

### Course outcomes:

Here the study is on the different design experiments in statistical studies This course deals with the proper interpretation of scientific data generated in the biological studies.

### MODULE I:

Statistical Methods Measures of location (or central tendency) and dispersion Probability Theory Random Variable Expectation of random variable and its properties Standard discrete probability distributions.

Standard continuous probability distribution Bivariate and multivariate Distributions Bivariate Transformations Correlation and regression Limit Laws Order Statistics Sampling Distribution Tests of significance.

## MODULE II:

Index Numbers Demand Analysis Utility and Production Functions Mathematical Finance Time Series Statistical Quality Control Sampling Inspection Plans Indian official Statistics Vital Statistics Demography Educational and Psychological Statistics.

## MODULE III:

Sample Surveys Basic sampling methods Stratified random sampling Non sampling errors.

## MODULE IV:

Testing of Hypothesis Basic designs Incomplete Block Designs Factorial experiments Fractional factorial experiments

## MODULE V:

Functions of survival time Type I, Type II and progressive or random censoring with biological examples Competing risk theory Stochastic epidemic models Planning and design of clinical trials.

### Reference book:

1. "Statistical Methods (Combined Volume)" by Das N
2. "Statistical Methods: An Introductory Text" by J Medhi
3. "Statistical Methods" by S P Gupta
4. "Statistical Methods: Concepts, Application and Computation" by Y P Agarwal
5. "Statistical Methods for Engineering and Sciences" by Asad U Khan

# DEPARTMENT OF BOTANY

# MUSHROOM CULTIVATION

**Course Objectives:**

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

## MODULE I:

Mushroom morphology: Different parts of a typical mushroom & variations in mushroom morphology. Key to differentiate Edible from Poisonous mushrooms.

## MODULE II:

Mushroom Classification: Based on occurrence- Epigenous & Hypogenous, Natural Habitats-Humicolous, Lignicolous & Coprophilous, Color of spores- white, yellow ,pink, purple brown & black, Morphology-fruiting layers exposed to air, fruiting layers not exposed to air, plants with predominantly pitted cap, cap saddled shape & saucer shape, Structure and texture of fruit bodies-gilled fungal& pore fungal, Fruit bodies and spores.

## MODULE III:

Biology of Mushrooms: Button, Straw& Oyster- General morphology, distinguishing characteristics, spore germination and life cycle.

## MODULE IV:

Nutrient Profile of Mushroom: Pprotein, aminoacids, calorific values, carbohydrates , fats, vitamins & minerals.

## MODULE V:

Health benefits of Mushroom: Antiviral value, antibacterial effect, antifungal effect, anti-tumour effect, haematological value cardiovascular & renal effect, in therapeutic diets, adolescence, for aged persons & diabetes mellitus.edicinal plants

**Reference book:**

• Cotter, Tradd. Organic Mushroom Farming and Mycoremediation: Simple to Advanced and Experimental Techniques for Indoor and Outdoor Cultivation. Chelsea Green Publishing. 2014.

• Stamets, P., Chilton, J.S. The Mushroom Cultivator: A Practical Guide to Growing Mushrooms at Home. Olympia, Washington. Agarikon Press, 1984.

• Stamets, Paul. *Growing Gourmet and Medicinal Mushrooms*. Ten Speed Press. 3rd edition, 2000.

• Stamets, Paul. *Mycelium Running: How Mushrooms Can Help Save the World*. Ten Speed Press. 2005.

• Krawczyk, Joe, and Kozak, Mary Ellen. *Growing Shiitake Mushrooms in a Continental Climate*. ABC. Printers, Marinette, Wisconsin. Second edition 1993.

• Harris, Bob. Growing Wild Mushrooms: A Complete Guide to Cultivating Edible and Hallucinogenic Mushrooms. Homestead Book Company. Revised edition 1989.

• Harris, Bob. *Growing Shiitake Commercially: A Practical Manual for Production of Japanese Forest Mushrooms*.   Mushroom People; 2 Reprint edition. 1993.

• Russell, Stephen. *The Essential Guide to Cultivating Mushrooms: Simple and Advanced Techniques for Growing Shiitake, Oyster, Lion's Mane, and Maitake Mushrooms at Home*.  Storey Publishing, 2014.

• Cultivation links on NAMA (North America Mycological Association) website

• Beausejour, Terri Marie. "Getting Started with Mushroom Cultivation" on Mykoweb 1999 (pdf)

# FLORICULTURE AND LANDSCAPING

**Course Objectives:**

1.Understand economic importance of plant and plant product.
2. Know the methods of plant propagation.
3.Understand the fruit & vegetables production technology.
4.Understand the scope & importance of floriculture.
5.Understand the methods of cultivation of different flowering plants.

## MODULE I:

Fundamentals of Floriculture . Method of identifying major types of ornamental plants

## MODULE II:

Common garden operations using different implements. Identification & practice Bio fertilizer. Flowering (Trees, Shrubs, Climbers, Cacti, Succulents House plants etc

## MODULE III:

Handling of soils, purpose of nursery bed, potting media, potting etc. Identification of weeds and their control.

## MODULE IV:

Methods of planting, nutrition, irrigation & plant protection. . Culture of Pot plants.

## MODULE V:

Identification of indoor and bonsai plants. Making of herbaceous and shrubbery borders.

**References:**

- **"**Objective Floriculture and Landscaping" by Desh Raj
- "Floriculture, Landscaping and Turf Management" by Alagarsamy Nithya Devi and Alagarsamy Ramesh Kumar
- "Floriculture and Landscaping-Vol.1" by Naya Udyog and T K Bose
- "Landscaping Irrigation and Floriculture Terminology" by Neeraj Pratap Singh
- "Floriculture and Landscaping at a Glance" by Laxmi Lal Somani

## ETHANOBOTANY

**Course Objectives:**

- Students were enabled to understand the following topics:
- Ethnobotany: meaning, scope and objectives.
- Ethnobotany: diff. methodology used.
- Role of diff. plants in modern medicine.
- Conservation of plant genetic resourses and endangered taxa.
- IPR, Traditional knowledge and how to protect plant ethnic groups.

### MODULE I:

**INTRODUCTION** 1) Ethnobotany: A brief Historic Introduction. The Concept, Scope, and Interdisciplinary Nature. 2) The Pathways and Approaches to the Study of Ethnobotany. 3) The Methods of Ethnobotanical Data Documentation.

### MODULE II:

**PLANTS AND PEOPLE** 1. The Major Ethnic Groups of India. A succinct account of the life styles of three major Ethnic Groups of Telangana and the extent of their dependence on Local forests. 2. The Centers of Ethnobotanical studies in the world. Ethnobotanical research in Telangana. 3. The History of Plant-Human interactions: Paleo- and Archaeo-ethnobotany. Plants in Magico-religious beliefs, Social customs and Taboos.

### MODULE III:

**ETHNIC FOODS AND ETHNOMEDICINE** 1. Ethnomedicine and Ethnoveterinary medicine. Role of Ethnobotany in modern medicine. 2. Ethnomedicinal Plants and important Indian Ethnobotanical Drugs. 3. Ethnic Foods, Vegetables, Beverages and Psychoactive plants.

### MODULE IV:

**ENVIRONMENT** 1. Ethnoagriculture: Podu/Jhum/Shifting cultivation and its impact on the Environment. 2. Role of Ethnobotany in the Conservation of Native Plant Genetic Resources and Biodiversity. 3. Non-timber Forest products (NTFPs) gathered by Gonds, Koyas and Chenchus for their subsistence.

**Suggested Readings:**

1) Anonymous, 1948 – 1964. The Tribes of Andhra Pradesh, TCRTI, Hyderabad.

2) Anonymous, 1966. The Koyas of Andhra Pradesh, TCRTI, Hyderabad.

3) Anonymous, 1978. The Scheduled Tribes of Andhra Pradesh. TCRTI, Hyderabad.

4) Farooq A. Lone, Maqsooda Khan, G.M. Buth 1993. Palaeoethnobotany: Plants and Ancient Man in Kashmir. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.

5) Hemendorf, C.V.F. Tribes of India. Struggle for Survival. University of California Press.

6) Hemendorf. C.V.F. 1943. The Chenchus. MacMillan & Co. London.

7) Rama Rao, N and Henry, A.N. 1996. The Ethnobotany of Eastern Ghats in Andhra Pradesh, India. Botanical Survey of India.

8) S.K. Jain 1993. A Manual of Ethnobotany, Scientific Publishers, Jodhpur.

9) S.K. Jain, 1980. Glimpses of Indian Ethnobotany, Oxford & IBH Publishing Co. New Delhi.
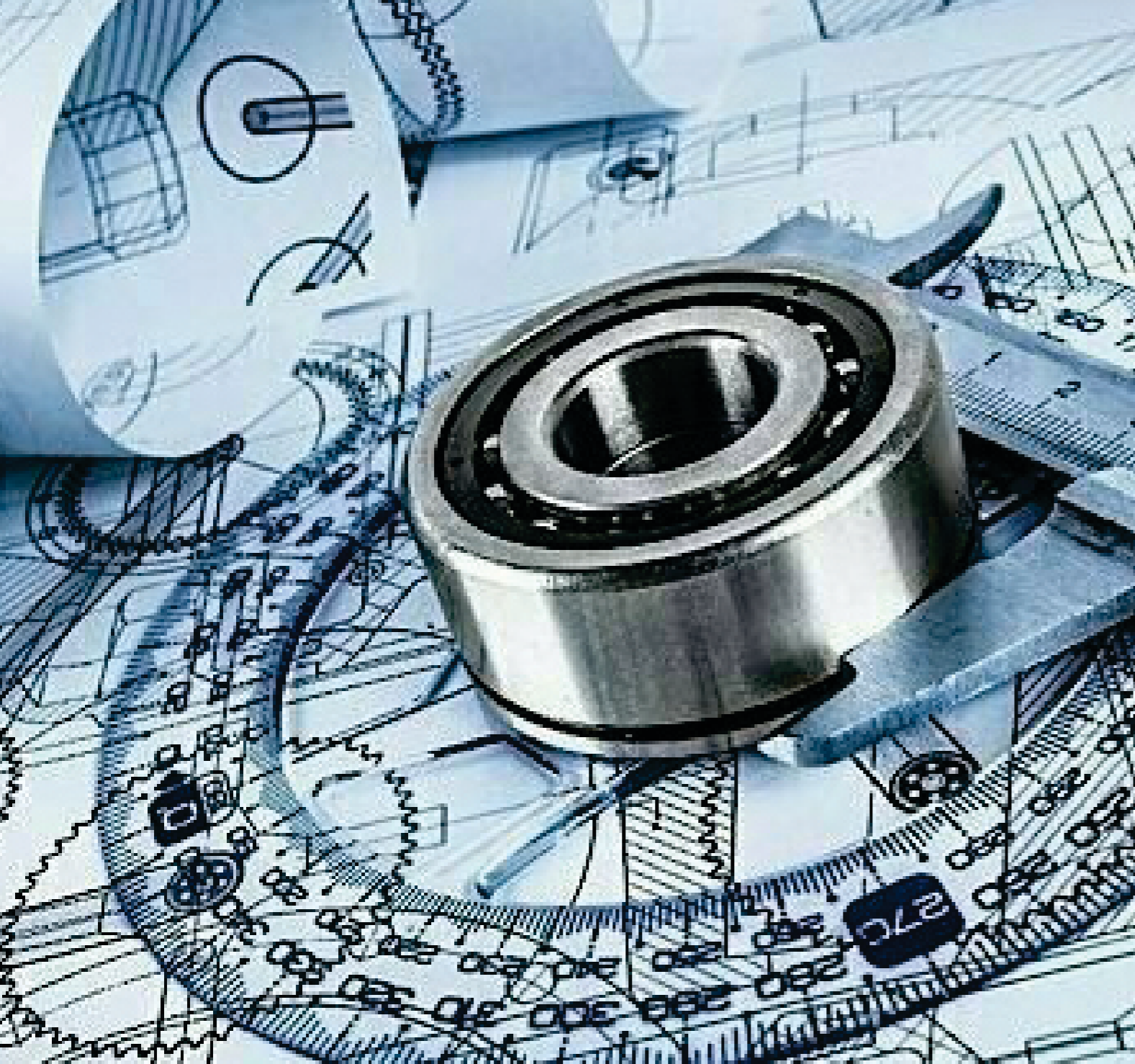
## MATLAB

### Course Objectives:

- This course provides an aggressively gentle introduction to MATLAB and emphasizes on systematic development of algorithms and programs. Course includes:
- Interactive lectures with students doing sample MATLAB problems in real time.
- Iteration, functions, arrays and vectors, strings, recursion, algorithms, object-oriented programming, and MATLAB graphics.
- Problem-based MATLAB assignments are given which require significant time on MATLAB.

### Course outcomes:

After completing this course, student will be able to
- Demonstrate the use of procedural statements--assignments, conditional statements, loops, function calls--and arrays.
- Describe classes, subclasses, properties, inheritance, and overriding used in MATLAB.
- Demonstrate basic sorting and searching algorithms
- Apply basic vector computation.

### MODULE I:

Introduction to Programming and MATLAB Environment Components of a computer, Working with numbers, Machine code, Software hierarchy, MATLAB Windows, On-line help, Input-output, File types, Platform dependence

### MODULE II:

Graph Plots, Procedure and Functions Basic plotting, Programming in MATLAB Using Built-in Functions, Command Line Functions, Inline functions, Generating waveforms, Sound replay, load and save, Arguments and return values

### MODULE III:

Control Statement and Text Manipulation Conditional statements: If, Else, Elseif, Repetition statements: While, For, Writing to a text file, Reading from a text file, Randomising and sorting a list

### MODULE IV:

Graphical User Interface and Applications  Attaching buttons to actions, Getting Input, Setting Output, Application- Linear Algebra, Curve Fitting and Interpolation,

### MODULE V:

A First Program, Expressions, Constants, Variables and assignment statement, Arrays Formatted console input-output, String handling, Creating, Saving, and Executing a Script File and Function File Data Analysis and Statistics Numerical Integration (Quadrature), Ordinary Differential Equations, Nonlinear Algebraic Equations Graphics

### Reference:

- Getting Started with MATLAB by Rudra Pratap , OXFORD University Press, 2002.
- MATLAB Programming by Y. Kirani Singh, PHI Publications, 2007

# DEPARTMENT OF
# MECHANICAL ENGINEERING

# PERSONNEL MANAGEMENT

## Course Objectives:

• Personnel Management is a functional area of General Management; it is management of people at work.
• Personnel Management is concerned with the effective utilization of human resources.
• Personnel Management is concerned with the achievement of common goals as well as integration of individual efforts with the common goals.

## Course outcomes:

• Personnel Management is concerned with helping the people at work to develop their potentialities and capacities to the maximum possible extent, so that they may derive great satisfaction from their job
• Personnel Management is an approach, a point of view, a technique of thinking, and a philosophy of management
• Personnel Management has the central responsibility of organizing human effort and stimulating and releasing individual motivation for successfully achieving individual, organizational and societal goals.

### MODULE I:

Introduction to Personnel management, Definitions, Functions of Personnel manager, systems, objectives, role of human relations, qualities of a good personnel manager Leadership, motivation and job satisfaction & morals Definitions difference between leader and a manager different approach of leadership theories of motivation job satisfaction, morale

### MODULE II:

Employee communication control and audit Communication, process of communication directions of communication, steps in control process, personnel audit Procurement of Personnel Man power planning determination of Personnel need recruitment and selection process

### MODULE III:

Performance appraisal factors affecting appraisal criteria for performance appraisal methods etc.Training and development principles of learning responsibility of training and development Policy, Need and objectives of training types and methods of training Evaluation of training and development Organization Development

### MODULE IV:

Job change Resistance to change job change plans career planning promotion, transfer demotions, separations Employee Compensation Primary compensation nominal and real wages, determination of wages factors, incentives

### MODULE V:

Employee Discipline Grievance, Trade unions and Industrial relations Meaning, causes of indiscipline types of discipline, rules, causes of grievances model grievances procedure definitions of trade union, Nature and scope of trade union functions of trade union collective bargaining, Industrial relations Industrial disputes Methods to solve disputes, workers participations in management etc Records and Research Records, Personnel research Human Resource Development Definitions, HRD Methods, HRD Process, HRD outcomes, Operating mode, HRD manager

**Reference:**

• M. Sharma "Personnel & HRM", Himalaya Publishing House 2005
• Bisvvajeet Pattanayak, Human Resource Management, Prentice - Hall India, 2005
• Arun Monappa and Mirza Saiyadin, Human Resource Management, Tata Me Graw Hill Publishing Co. 1985

# ENTREPRENEURSHIP & INNOVATION

## Course Objectives:

The purpose of the course is that the students acquire necessary knowledge and skills required for organizing and carrying out entrepreneurial activities, to develop the ability of analysing and understanding business situations in which entrepreneurs act and to master the knowledge necessary to plan entrepreneurial activities. The objective of the course is, further on, that the students develop the ability of analysing various aspects of entrepreneurship – especially of taking over the risk, and the specificities as well as the pattern of entrepreneurship development and, finally, to contribute to their entrepreneurial and managerial potentials.

## Course outcomes:

• Entrepreneurship and Innovation minors will be able to **sell themselves and their ideas**. Students master oral and visual presentation skills and establish a foundation of confidence in the skills necessary to cause others to act.

• Entrepreneurship and Innovation minors will be able to **find problems worth solving**. Students advance their skills in customer development, customer validation, competitive analysis, and iteration while utilizing design thinking and process tools to evaluate in real-world problems and projects.

• Entrepreneurship and Innovation minors will be able to **mobilize people and resources**. Students identify and secure customers, stakeholders, and team members through networks, primary customer research, and competitive and industry analyses in order to prioritize and pursue an initial target market in real-world projects.

### MODULE I:

Introduction to concept of entrepreneurship Scope of Entrepreneurship, Definitions of Entrepreneurship and entrepreneur, Characteristics of an Entrepreneur, Entrepreneurial Development models and Theories, Entrepreneurs Vs Managers Classification of Entrepreneurs Major types of Entrepreneurship – Techno Entrepreneurship, Women Entrepreneurship, Social Entrepreneurship, Intrapreneurship (Corporate entrepreneurship, Rural Entrepreneurship, Family Business etc. Problems for small scale enterprises and Industrial Sickness Entrepreneurial Tests Entrepreneurial Environment – Political, Legal, Technical, Natural, Economic, Socio – cultural etc. 2 INFORMATION SUPPORT SYSTEM:- Government schemes, NGO, state/central motivation Policy, CED, IDI, EDI, MSME, etc

### MODULE II:

Types of organization, Market Scenario, Customer Attitude, Change in technology, Media information system, product classification, Location Merit De-Merit, Govt. Policy flexibility, environment, Demand supply gap, etc 4 FUNCTIONAL MANAGEMENT AREA IN ENTREPRENEURSHIP: • Marketing Management: Core Concepts Of Marketing, Marketing Mix (4p), Segmentation – Targeting – Positioning, Marketing Research, Marketing Information System, Concept Of International Marketing, Difference Between Domestic Marketing & International Marketing, Buying Behavior Operations Management: Introduction To Operations Management,

## MODULE III:

INNOVATION & MOTIVATION:- Concept of Idea, Motivation Factors, Brain Storming, Incentives, Product innovation, Value potential, R & D importance, customer choice, motivational theory, etc. 6 BUSINESS PLAN:- Project Report, Information related to product, cost elements, product process, plant & machinery, Finance sources, secured/unsecured loan, Logistics aspects, etc

## MODULE IV:

SMALL BUSINESS MANAGEMENT: - Types of organization, policy, resources management, Job specification, job description, recruitment policy, welfare, MIS system, etc. STATUTORY REQUIREMENT: - Statutory laws of state & central Govt. for Registration, ESI, Factory Act 1948, etc.

## MODULE V:

PATENT, COPY RIGHT & TRADE MARK LAWS:- Patent Acts for Design, IC circuit layout, Literacy, Art, copy right, Trade mark, PCT, Patent definition, patentable & non-patentable, merits & de-merits, Patent procedure, Monitoring system, Govt. agencies, patent norms, etc

### Reference:

- Entrepreneurship, 3rd Edition By William D. Bygrave & Andrew Zacharakis
- The Portable MBA in Entrepreneurship, 4th Edition By William D. Bygrave, Andrew Zacharakis
- The Portable MBA in Entrepreneurship Case Studies By William D. Bygrave (Editor), Dan D'Heilly (Editor)

# Energy Conservation, Management and Audit

### Course Objectives:

The objectives of this course are
- Ability to Identify the energy management skills and strategies in the energy management system.
- Ability to understand various energy conservation methods useful in a particular industry.
- Ability to Select appropriate energy conservation method for the critical area identified.
- Ability to prepare a energy audit report.

### Course outcomes:

Course Outcome On completion of the course students will be able to
- Identify the demand supply gap of energy in Indian scenario
- Carry out energy audit of an industry/Organization.
- Draw the energy flow diagram of an industry and identify the energy wasted or a waste stream.
- Select appropriate energy conservation method to reduce the wastage of energy.
- Evaluate the techno economic feasibility of the energy conservation technique adopted.

## MODULE I:

General Aspects of Energy Conservation, Management and Audit Fuels and Combustion Introduction to Fuels, Properties of Fuel oil, Coal and Gas, Storage, handling and reparation of fuels, Principles of Combustion, Combustion of Oil, Coal, and Gas Boilers: Types, Combustion in boilers, Performances evaluation, Analysis of losses, Feed water treatment, Blow down, Energy conservation opportunities, Industrial Case Studies

## MODULE II:

Steam System: Properties of steam, Assessment of steam distribution losses, Steam leakages, Steam Condensate and flash steam recovery system, Identifying opportunities for energy savings, Industrial Case Studies Insulation: Insulation-types and application, Economic thickness of insulation, Heat savings and application criteria Cogeneration: Definition, Need, Application, Advantages, Classification, Saving potentials, Industrial Case Studies

## MODULE III:

Waste Heat Recovery: Classification, Advantages and applications, Commercially viable waste Heat recovery devices, saving potential. PUMPS AND PUMPING SYSTEM Types, Performance evaluation, Efficient system operation, Flow control strategies and energy conservation opportunities Case Studies and Numerical Electrical system: Electricity billing, Electrical load management and maximum demand control, Power factor improvement and its benefit, Selection and location of capacitors, Performance assessment of PF capacitors, Distribution and transformer losses.

## MODULE IV:

Electric motors: Types, Losses in induction motors, Motor efficiency, Factors affecting motor performance, Rewinding and motor replacement issues, Energy saving opportunities with energy efficient motors. Compressed air system: Types of air compressors, Compressor efficiency, Efficient compressor operation, Compressed air system components, Capacity assessment, Leakage test, Factors affecting the performance and efficiency

## MODULE V:

HVAC and Refrigeration System: Vapor compression refrigeration cycle, Refrigerants, Coefficient of performance, Capacity, Factors affecting Refrigeration and Air conditioning system performance and savings opportunities. Vapor absorption refrigeration system: Working principle, Types and comparison with vapor compression system, Saving potential Cooling Tower: Types and performance evaluation, Efficient system operation, Flow control strategies and energy saving opportunities, Assessment of cooling towers Lighting System: Light source, Choice of lighting, Luminance requirements, and Energy conservation avenues

### Reference:

- NPC energy audit manual and reports
- Guide to Energy Management, Cape Hart, Turner and Kennedy
- Cleaner Production – Energy Efficiency Manual for GERIAP, UNEP, Bangkok prepared by National Productivity Council

# INDUSTRIAL AUTOMATION

### Course Objectives:

- The purpose of this course is to provide the student with basic skills useful in identifying the concepts of automated machines and
- describe the terms and phrases associated with industrial automation.
- The student will perform preventative maintenance, identify or solve problems in machines, and other technologies.

•Performance will be satisfactory when student can demonstrate competence in maintaining and troubleshooting technology includes identifying, understanding, and performing routine preventative maintenance and service on technology;

•detecting more serious problems; generating workable solutions to correct deviations; and recognizing when to get additional help.

## Course outcomes:

Provides the student with basic knowledge of the
• industrial automation
• systems design,
• installation,
• modification,
• maintenance
• repair.

## MODULE I:

Explain the General function of Industrial Automation List basic Devices in Automated Systems  Distinguish Different Controllers Employed In Automated Systems Identify Safety in Industrial Automation Demonstrate Proper Lockout-Tag Out Procedures in Industrial Environments

## MODULE II:

Identify Practical Programmable Logic Controller Applications Know the History of the PLC Demonstrate basic PLC Skills Recognize Fundamentals of Programming Including  Programming Coils Contacts Timers and Counters Logical Program Development

## MODULE III:

Categorize Input/Output Modules And Wiring.Identify Input & Output Module differences Demonstrate proper Wiring Techniques  Use Arithmetic and Advanced Instructions in Industrial Automation Including Common Arithmetic Instructions Add, Subtract, Multiply, Divide, and Compare Function Logical Operators, Average, Standard Deviation, Trigonometric Numbering System Conversion Sequencers and Shift Register

## MODULE III:

Identify Types of Industrial Sensors Optical Inductive Capacitive Encoders Ultrasonic Thermocouples Demonstrate proper Wiring Techniques and Practical Applications Explain Robotics Identify Types of Robot Distinguish Uses and Applications of Robot

## MODULE IV:

Identify Types of Industrial Sensors Optical Inductive Capacitive Encoders Ultrasonic Thermocouples Demonstrate proper Wiring Techniques and Practical Applications Explain Robotics Identify Types of Robot Distinguish Uses and Applications of Robot

## Reference:

•Industrial Automation: Hands On By: Frank Lamb
•Industrial Automation and Process Control By: Jon Stenerson
•PLC Programming for Industrial Automation By: Kevin Collins