

**Proposed Syllabus**  
**and**  
**Scheme of Examination for**  
  
**(OPEN ELECTIVE SUBJECTS)**

Under  
**Choice Based Credit System**

## Study and Evaluation Scheme

### MANAGEMENT

| Sl. no.      | Course Code | Subject Name                                    | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|--------------|-------------|---|---------|---|---|------------|-------------------|----------|-------|
|              |             |   | L       | T | P |            | Internal          | External | Total |
| 1.           | TMU001      | Business Ethics and Values                      | 4       | - | - | 4          | 40                | 60       | 100   |
| 2.           | TMU002      | Personality Development & Communications Skills | 4       | - | - | 4          | 40                | 60       | 100   |
| 3.           | TMU003      | Personal selling and Salesmanship               | 4       | - | - | 4          | 40                | 60       | 100   |
| 4.           | TMU004      | Finance for Non – Finance Professional          | 4       | - | - | 4          | 40                | 60       | 100   |
| 5            | TMU005      | Entrepreneurship                                | 4       | - | - | 4          | 40                | 60       | 100   |
| 6.           | TMU006      | Negotiation & Conflict Management               | 4       | - | - | 4          | 40                | 60       | 100   |
| <b>TOTAL</b> |             |   |         |   |   |            |                   |          |       |

### LAW

| Sl. no.      | Course Code | Subject Name                          | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|--------------|-------------|---------------------------------------|---------|---|---|------------|-------------------|----------|-------|
|              |             |                                       | L       | T | P |            | Internal          | External | Total |
| 1.           | TMU007      | Media and Law                         | 4       | - | - | 4          | 40                | 60       | 100   |
| 2.           | TMU008      | Minority Laws                         | 4       | - | - | 4          | 40                | 60       | 100   |
| 3.           | TMU009      | Law and Justice in a Globalized World | 4       | - | - | 4          | 40                | 60       | 100   |
| 4.           | TMU010      | Law and Medicine                      | 4       | - | - | 4          | 40                | 60       | 100   |
| 5            | TMU011      | Energy Laws                           | 4       | - | - | 4          | 40                | 60       | 100   |
| <b>TOTAL</b> |             |                                       | -       | - |   |            |                   |          |       |

**CCSIT**

| Sl. no.      | Course Code | Subject Name  | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|--------------|-------------|---|---------|---|---|------------|-------------------|----------|-------|
|              |             |   | L       | T | P |            | Internal          | External | Total |
| 1.           | TMU012      | Concepts of IoT (Internet of Things)                  | 4       | - | - | 4          | 40                | 60       | 100   |
| 2.           | TMU013      | Concepts of Green Technology                          | 4       | - | - | 4          | 40                | 60       | 100   |
| 3.           | TMU014      | Information Security and Cyber Laws                   | 4       | - | - | 4          | 40                | 60       | 100   |
| 4.           | TMU015      | Social Implications of Information Technology         | 4       | - | - | 4          | 40                | 60       | 100   |
| 5            | TMU016      | Ethical Hacking                                       | 4       | - | - | 4          | 40                | 60       | 100   |
| 6            | TMU017      | Fundamental of Computer's and MS—Office               | 4       | - | - | 4          | 40                | 60       | 100   |
| 7            | TMU018      | Information Security Fundamental                      | 4       | - | - | 4          | 40                | 60       | 100   |
| 8            | TMU019      | IT Governance, Risk & Information Security Management | 4       | - | - | 4          | 40                | 60       | 100   |
| 9            | TMU020      | Scientific Computing                                  | 4       | - | - | 4          | 40                | 60       | 100   |
| 10           | TMU021      | Ethical Hacking Fundamental                           | 4       | - | - | 4          | 40                | 60       | 100   |
| 11           | TMU022      | Mobile Device and Network Architecture                | 4       | - | - | 4          | 40                | 60       | 100   |
| 12           | TMU023      | Computer Forensics and Investigation                  | 4       | - | - | 4          | 40                | 60       | 100   |
| 13           | TMU024      | Cyber Law & Information Security                      | 4       | - | - | 4          | 40                | 60       | 100   |
| 14           | TMU025      | Fundamentals of animation and Design                  | 4       | - | - | 4          | 40                | 60       | 100   |
| <b>TOTAL</b> |             |   |         |   |   |            |                   |          |       |

**Engineering**

| Sl. no.      | Course Code | Subject Name                           | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|--------------|-------------|--|---------|---|---|------------|-------------------|----------|-------|
|              |             |  | L       | T | P |            | Internal          | External | Total |
| 1.           | TMU026      | Non-conventional energy resources      | 4       | - | - | 4          | 40                | 60       | 100   |
| 2.           | TMU027      | Environment and ecology                | 4       | - | - | 4          | 40                | 60       | 100   |
| 3.           | TMU028      | Entrepreneurship development programme | 4       | - | - | 4          | 40                | 60       | 100   |
| 4.           | TMU029      | Human values                           | 4       | - | - | 4          | 40                | 60       | 100   |
| 5.           | TMU030      | Solar energy                           | 4       | - | - | 4          | 40                | 60       | 100   |
| 6.           | TMU031      | Human resource management              | 4       | - | - | 4          | 40                | 60       | 100   |
| <b>TOTAL</b> |             |  |         |   |   |            |                   |          |       |

**Paramedical**

| Sl. no.      | Course Code | Subject Name  | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|--------------|-------------|---|---------|---|---|------------|-------------------|----------|-------|
|              |             |   | L       | T | P |            | Internal          | External | Total |
| 1            | TMU032      | Radiation Safety Training Information   | 4       | - | - | 4          | 40                | 60       | 100   |
| 2            | TMU033      | Effects of Radiation-An Introduction to Radiation & Radioactivity used in Diagnostic Radiology. | 4       | - | - | 4          | 40                | 60       | 100   |
| 3            | TMU034      | Basic Principles & Safety of diagnostic ultrasound in obstetrics and gynaecology                | 4       | - | - | 4          | 40                | 60       | 100   |
| 4            | TMU035      | MRI Safety and Precautions.   | 4       | - | - | 4          | 40                | 60       | 100   |
| 5            | TMU036      | Community & Eye care  | 4       | - | - | 4          | 40                | 60       | 100   |
| 6            | TMU037      | Application of Instruments in Optometry   | 4       | - | - | 4          | 40                | 60       | 100   |
| 7            | TMU038      | Cataract: Major Cause of Blindness  | 4       | - | - | 4          | 40                | 60       | 100   |
| 8            | TMU039      | Dispensing optics-Integrated part of Optometry  | 4       | - | - | 4          | 40                | 60       | 100   |
| 9            | TMU040      | General Introduction about Forensic Science, Evidences & their Importance.                      | 4       | - | - | 4          | 40                | 60       | 100   |
| 10           | TMU041      | Forensic Science and its scope and Application in Indian Criminal Justice System.               | 4       | - | - | 4          | 40                | 60       | 100   |
| 11           | TMU042      | Type of Crime & their Acts  | 4       | - | - | 4          | 40                | 60       | 100   |
| 12           | TMU043      | Introduction of Criminal Justice system and Legal Aspects                                       | 4       | - | - | 4          | 40                | 60       | 100   |
| 13           | TMU044      | Lab Management  | 4       | - | - | 4          | 40                | 60       | 100   |
| 14           | TMU045      | Bio-Medical Waste Management  | 4       | - | - | 4          | 40                | 60       | 100   |
| <b>TOTAL</b> |             |   |         |   |   |            |                   |          |       |

### Pharmacy

| S.No | Course Code | Subject                     | Periods |   |   | Credits | Evaluation Scheme |          |       |
|------|-------------|-----------------------------|---------|---|---|---------|-------------------|----------|-------|
|      |             |                             | L       | T | P |         | Internal          | External | Total |
| 1.   | TMU046      | Basic Human Physiology      | 1       | - | - | 1       | 40                | 60       | 100   |
| 2.   | TMU047      | Basic Drug Formulations     | 1       | - | - | 1       | 40                | 60       | 100   |
| 3.   | TMU048      | Basic Medicinal Compounds   | 1       | - | - | 1       | 40                | 60       | 100   |
| 4.   | TMU049      | Introductory Biochemistry   | 1       | - | - | 1       | 40                | 60       | 100   |
| 5.   | TMU050      | Human Diseases & Treatments | 1       | - | - | 1       | 40                | 60       | 100   |
| 6.   | TMU051      | Traditional Herbal Remedies | 1       | - | - | 1       | 40                | 60       | 100   |

### Physical Education

| Sl. no. | Course Code | Subject Name  | Periods   |   |   | Credit (s) | Evaluation Scheme |          |       |     |
|---------|-------------|---|-----------|---|---|------------|-------------------|----------|-------|-----|
|         |             |   | L         | T | P |            | Internal          | External | Total |     |
| 1.      | TMU052      | Olympic Movement  | (Any One) | 4 | - | -          | 4                 | 40       | 60    | 100 |
| 2.      | TMU053      | Officiating and Coaching  |           | 4 | - | -          | 4                 | 40       | 60    | 100 |
| 3.      | TMU056      | Contemporary issues in physical education, fitness and wellness |           | 4 | - | -          | 4                 | 40       | 60    | 100 |
| 4.      | TMU080      | Sports Nutrition and weight Management                          |           | - | - | 4          | 2                 | 50       | 50    | 100 |
| 5.      | TMU084      | Badminton-I   |           | - | - | 4          | 2                 | 50       | 50    | 100 |
| 6.      | TMU093      | Cricket-I   |           | - | - | 4          | 2                 | 50       | 50    | 100 |
| 7.      | TMU100      | Sports Management   |           | - | - | 4          | 2                 | 50       | 50    | 100 |

### Education

| Sl. no.      | Course Code | Subject Name             | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|--------------|-------------|--------------------------|---------|---|---|------------|-------------------|----------|-------|
|              |             |                          | L       | T | P |            | Internal          | External | Total |
| 1.           | TMU057      | Childhood & growing up.  | 4       | - | - | 4          | 40                | 60       | 100   |
| 2.           | TMU058      | Value Education.         | 4       | - |   | 4          | 40                | 60       | 100   |
| 3.           | TMU059      | Guidance & Counselling.  | 4       | - |   | 4          | 40                | 60       | 100   |
| 4.           | TMU060      | Methodology of Teaching. | 4       | - | - | 4          | 40                | 60       | 100   |
| <b>TOTAL</b> |             |                          |         |   |   |            |                   |          |       |

### Fine Arts

| Sl. no. | Offer In | Subject                      | Periods |   |   | Credits | Evaluation Scheme |          |       |
|---------|----------|------------------------------|---------|---|---|---------|-------------------|----------|-------|
|         |          |                              | L       | T | P |         | Internal          | External | Total |
| 1.      | TMU061   | Drawing I (Sketching)        | -       | - | 6 | 3       | 50                | 50       | 100   |
| 3.      | TMU063   | Portrait I                   | -       | - | 6 | 3       | 50                | 50       | 100   |
| 5       | TMU065   | Photography & Reproduction I | -       | - | 6 | 3       | 50                | 50       | 100   |
| 7.      | TMU067   | Poster Design I              | -       | - | 6 | 3       | 50                | 50       | 100   |

### Nursing

| Sl. no. | Course Code | Subject Name                                       | Periods |   |   | Credit (s) | Evaluation Scheme |          |       |
|---------|-------------|--|---------|---|---|------------|-------------------|----------|-------|
|         |             |  | L       | T | P |            | Internal          | External | Total |
| 1.      | TMU069      | Research Methodology                               | 3       | 0 | 2 | 4          | 50                | 50       | 100   |
| 2.      | TMU070      | Infection Control and Bio Medical Waste Management | 3       | 0 | 0 | 3          | 50                | 50       | 100   |

|                               |   |  |
|-------------------------------|---|--|
| <b>Course Code:</b><br>TMU001 | <b>Skill/Knowledge Enhancement Course</b><br><b>Business Ethics and Values</b>  | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>            | The objective of this paper is to help students to acquire conceptual knowledge of the Business values and Ethics and to impart skills for various kinds of business transactions.  |  |
| <b>Learning Outcomes:</b>     | <b>At the end of this course students should be able to:</b> <ol style="list-style-type: none"> <li>1. Learn about different types of values and Indian value system.</li> <li>2. Explain the values possessed by Indian managers.</li> <li>3. Learn about the teachings from Indian scriptures and its application in Management.</li> <li>4. Define Ethics and ethical theories.</li> <li>5. Learn about Ethical and unethical practices in India.</li> <li>6. Learn about impact of Ethics in business.</li> <li>7. Define and learn about corporate social responsibilities.</li> <li>8. Learn about corporate governance.</li> </ol> |  |
| <b>Unit-1:</b>                | <b>Values:</b><br>Values:- Introduction, sources of value system, Types of values, Significance of values, Indian value system, values of Indian manager, Teaching from Indian scriptures like Mahabharata, bhagwadgita, Ramayana , Quran and its applications in management,   | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>                | <b>Business Ethics:</b><br>Definition of Ethics, nature of ethics, types of ethics, Ethics and morality, Need and significance of business Ethics, code of conduct and Ethics for manager.  | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>                | <b>Ethical Dilemas:</b><br>Ethical Dilemmas- sources and their resolutions. Ethical decision making, Work ethics, Ethical and unethical practices in India.   | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>                | <b>Impact of Ethics:</b><br>Ethical issues related with marketing, Human resource management, Finance, Intellectual property rights. Environmental ethics.  | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>                | <b>Corporate social Responsibilities and corporate governance:</b><br>Corporate social responsibility- Definition, scope, steps to attain CSR, Advantages, relations of CSR and consumer protection. Examples of CSR. Corporate governance- Introduction, Issues, Benefits, principles, corporate governance code- need, importance.  | <b>8 Hours</b>                                       |
| <b>Text Books:</b>            | Bhatia S.K., Business Ethics and managerial values, Deep and Deep publications Pvt. Ltd, New Delhi, 2016.<br>R. K Sharma, puneetagoel, Corporate governance, values and ethics, kalyani publication, New Delhi, 2016.   |  |
| <b>Reference Books:</b>       | Velasquez, Business Ethics – Concepts and Cases Prentice Hall, 6th Ed, New Delhi, 2016.<br>Mathur U.C., Corporate Governance & Business Ethics, McMillan, New Delhi, 2016.<br>Govindarajan M., professional ethics and Human values, PHI learning pvt ltd, New Delhi, 2<br>Hartman Laura P & Abha Chatterjee, Business Ethics, Tata McGraw Hill, New Delhi, 2016  |  |

|                                       |   |  |
|---------------------------------------|---|--|
| <p><b>Course Code:</b><br/>TMU002</p> | <p style="text-align: center;"><b>Skill/Knowledge Enhancement Course</b></p> <p style="text-align: center;"><b>Personality Development &amp; Communications</b></p> <p style="text-align: center;"><b>Skills</b></p>  | <p><b>L-4</b><br/><b>T-0</b><br/><b>P-0</b><br/><b>C-4</b></p> |
| <p><b>Objectives:</b></p>             | <p>The objective of the course is bring about personality development with regard to the different behavioural dimensions that have far reaching significance in the direction of Organizational effectiveness. The course is aimed at the promotion of the strategies for the Personality development of the participants. The rationale behind this endeavour is the recognition of the multifaceted influence of the personality of the employees upon Organizational effectiveness.</p>   |  |
| <p><b>Learning Outcomes:</b></p>      | <p><b>At the end of this course students should be able to:</b></p> <ol style="list-style-type: none"> <li>1. To develop an orientation towards business etiquettes and the proper etiquette practices for different business scenarios</li> <li>2. To learn the etiquette requirements for meetings, entertaining, telephone, and Internet business interaction scenarios.</li> <li>3. To minimize nervousness while in social situations.</li> </ol>  |  |
| <p><b>Unit-1:</b></p>                 | <p><b>Personality:</b><br/>Physical Appearance; Body Language; Voice; Communication Style; Content of Communication; Enriched Communication Through Sensory Specific Language.<br/><b>Business Style and Professional Image:</b><br/>Dress Codes, Guidelines for Appropriate Business Attire - Differentiate among the dressy casual, semiformal, formal and black tie dress code, Grooming for Success, Multi-cultural Dressing.</p>   | <p><b>8 Hours</b></p>  |
| <p><b>Unit-2:</b></p>                 | <p><b>Impression Management:</b><br/>Impression Formation, Tactics, The Self presentational Motive, The Compass Qualities; First and Lasting Impressions; Magic Pills; Toxic Traits , The Social Context: Norms and Roles , The Target's Values, Actions; The Environment; Success; Changing from the Outside-in ,Current Social Image , Instrumental Complementarily , The Private Self Worrying about Impressions. Creating Rapport, Powerful Persuasion Strategies.</p>  | <p><b>8 Hours</b></p>  |
| <p><b>Unit-3:</b></p>                 | <p><b>Assertiveness Training:</b><br/>Concept of Assertiveness, Components of Assertive behavior, Rational-emotive Assertiveness Training, Handling Fear, Handling Anger, Handling Depression, Assertive Behaviour Skills, How to Handle Putdowns, Assertiveness on the Job, Assertiveness in Interpersonal Relations, Assertiveness in Everyday Commercial Situations, Assertiveness And Others.<br/><b>Interpersonal Relations :</b> Introduction to Interpersonal Relations, Analysis Relations of different ego states, Analysis of Transactions, Analysis of Strokes, Analysis of Life Position.</p> | <p><b>8 Hours</b></p>  |
| <p><b>Unit-4:</b></p>                 | <p><b>Business Etiquette:</b><br/>The ABC's of Etiquette, Developing a Culture of Excellence, The Principles of Exceptional Work Behaviour, The Role of Good Manners in Business, Enduring Words.<br/><b>Making Introductions and Greeting People:</b><br/>Greeting Components, The Protocol of Shaking Hands, Introductions, Introductory Scenarios, Addressing Individuals<br/><b>Meeting and Board Room Protocol:</b><br/>Guidelines for Planning a Meeting, Before the Meeting, On the Day of the Meeting,</p>  | <p><b>8 Hours</b></p>  |



|                                |   |                |
|--------------------------------|---|----------------|
|                                | <p>Guidelines for Attending a Meeting - For the Chairperson, For Attendees, For Presenters</p> <p><b>Multi-cultural Etiquette:</b><br/>Examples of Cultural Insensitivity, Cultural Differences and their Effects on Business Etiquette.</p>  |                |
| <b>Unit-5:</b>                 | <p><b>Stress Management:</b><br/>Introduction to Stress, Causes of Stress, Impact Management Stress, Managing Stress.</p> <p><b>Conflict Management:</b><br/>Introduction to Conflict, Causes of Conflict, Management Managing Conflict.</p> <p><b>Time Management:</b><br/>Time as a Resource, Identify Important Time Management Wasters, Individual Time Management Styles, Techniques for better Time Management.</p> | <b>8 Hours</b> |
| <b><u>Text Books:</u></b>      | <p>Business Etiquette in Brief by Ann Marie Sabath, Adams Media Corporation, South Asian Edition, New Delhi, 2016.</p> <p>Basic Managerial Skills for All by E. H. McGrath, S. J., PHI, New Delhi, 2016.</p> <p>Personality Development and Soft Skill, Mitra, Barun, Oxford University Press, New Delhi, 2016.</p>   |                |
| <b><u>Reference Books:</u></b> | <p>Business Etiquette by David Robinson, Kogan Page, New Delhi, 2016.</p> <p>Develop your Assertiveness by Sue Bishop, Kogan Page, New Delhi, 2016.</p>   |                |

|                                       |  |  |
|---------------------------------------|--|--|
| <p><b>Course Code:</b><br/>TMU003</p> | <p style="text-align: center;"><b>Skill/Knowledge Enhancement Course</b></p> <p style="text-align: center;"><b>Personal selling and Salesmanship</b></p>   | <p><b>L-4</b><br/><b>T-0</b><br/><b>P-0</b><br/><b>C-4</b></p> |
| <p><b>Objectives:</b></p>             | <p>State the meaning of personal selling, explains the essential elements of personal selling, describe the importance of personal selling, and identify the qualities of a successful Salesman.</p>   |  |
| <p><b>Learning Outcomes:</b></p>      | <p><b>At the end of this course students should be able to:</b></p> <ol style="list-style-type: none"> <li>1. To outline the areas in which sales executives make decisions</li> <li>2. To emphasize the role of sales executives as planners of sales operations and a Key figure in implementing marketing strategies.</li> <li>3. To give hands on inputs on the selling process.</li> <li>4. Understand the meaning of the term ‘Personal Selling’,</li> <li>5. Evaluate critically the component personal selling,</li> <li>6. Comprehend the need for personal selling in a customers’ driven society,</li> <li>7. Describe the relationship between sales management, personal selling and salesmanship,</li> <li>8. Identify different types of selling jobs,</li> <li>9. Appreciate different functions of salesmen.</li> </ol> |  |
| <p><b>Unit-1:</b></p>                 | <p><b>Introduction to Personal Selling &amp; Salesmanship:</b><br/>Defining Personal selling and Salesmanship, Selling as a profession, Objectives and importance of personal selling, Essentials of Personal Selling, Traditional &amp; Modern Selling Approach, Ethics in Selling, Role of Selling in Marketing, Types of selling, Qualities of Winning Sales Professionals-Physical, Mental, Social and Character Traits.<br/><b>Introduction to Theories of Selling:</b><br/>AIDA, Right set of circumstances theory of selling, Buying Formula theory of selling, Behavioural Equation theory.</p>  | <p><b>8 Hours</b></p>  |
| <p><b>Unit-2:</b></p>                 | <p><b>Personal Selling Process-I:</b><br/>Prospecting- objectives, sources and methods, Lead Generation, Getting appointment, Sales Responsibilities and Preparation; Pre approach-step toward sales planning-elements of sales call planning; Customer need discovery &amp; Analysis; Approach- sales presentation/ demonstration- selection of appropriate presentation method, essentials of presentation, sales presentation mix- persuasive communication, visual presentation and dramatization, Use of questions- Direct questions, nondirective questions, rephrasing, redirect questions.</p>   | <p><b>8 Hours</b></p>  |
| <p><b>Unit-3:</b></p>                 | <p><b>Personal Selling Process–II:</b><br/>Handling objection- hidden, stalling, no need, money objection, etc., objection handling TMUhniques, Closing the sale- reading buying signals, closing TMUhniques- the alternative choice, assumptive, the compliment, the summary, the continuous, the minor point, the tea account, the standing room and the probability; Follow up after sales- Discuss service requirements, handling complaints, Key Account Management.</p>  | <p><b>8 Hours</b></p>  |
| <p><b>Unit-4:</b></p>                 | <p><b>Personal Selling Skills:</b><br/>Negotiation, Communication, Listening Skills, Presentation and Demonstration, , Body Language- Space, Moments, Eye Contacts &amp; Postures, Follow up Calls, Writing Effective Sales Letters and emails, Positive Mental Attitude, Goal Setting, Effective Dressing, Managing Yourself and Time, Cold Call Mechanism.</p>   | <p><b>8 Hours</b></p>  |

|                                |  |                |
|--------------------------------|--|----------------|
|                                |  |                |
| <b>Unit-5:</b>                 | <b>Personal Selling: Applications and Situations:</b><br>Selling of services- financial, IT and telecommunication, advertising, education (Coaching and institutions); Selling of industrial products- raw material, capital goods, supplies; Selling of consumer goods- convenience, shopping and specialty goods; International selling; Selling in rural markets; Selling high and low involvement products; Selling to new and existing customers/ Market; Selling to end users, intermediaries, government departments and agencies; Selling individual and groups. | <b>8 Hours</b> |
| <b><u>Text Books:</u></b>      | Fundamentals of Selling by Charles M. Futrell, Tata McGraw Hill 10th Edition, New Delhi, 2016.<br>A B C' s of Selling by Charles M. Futrell, AITBS, New Delhi, 2016.<br>World Class Selling by Roy Chitwood, JAICO Publishing House, New Delhi, 2016.  |                |
| <b><u>Reference Books:</u></b> | Successful Selling Solutions by Julian Clay, Viva Books Value Added Selling by Tom Reilly, TMGH, New Delhi, 2016.<br>Achieving Sales Excellence by Howard Stevens, Viva Books Pvt. Ltd., New Delhi, 2016.<br>Power Sales Presentation by Stephan Schiffman, Adams Media Corporations, New Delhi, 2016.<br>Sales Essentials by Stephan Schiffman, Avon Massachusset, New Delhi, 2016.   |                |

|                                      |  |  |
|--------------------------------------|--|--|
| <b>Course Code:</b><br><b>TMU004</b> | <b>Skill/Knowledge Enhancement Course</b><br><b>Finance for Non – Finance Professional</b>   | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>                   | This programme aims to meet the requirements of operating managers who would like to be well versed with the introductory nuances of finance in different functional areas.  |  |
| <b>Learning Outcomes:</b>            | Deciphering financial jargon and developing the ability to see the business implications of numbers is a key outcome of this programme, which aims to: <ol style="list-style-type: none"> <li>1. Enhance participants role as decision-makers and understand the implications of finance on corporate activities</li> <li>2. Help them understand and analyse financial statements</li> <li>3. Put them in a better position to discuss the relevant financial issues with finance managers in their organisation</li> <li>4. Help them understand the impact of various decisions on the company's performance</li> </ol> |  |
| <b>Unit-1:</b>                       | <b>Basics of financial accounting and understanding financial statements:</b><br>Accounting Process, Double Entry System, Debit Credit Rule, Journal, Ledger, Trial Balance, P& L Accounts, Balance Sheet (Vertical and Horizontal), Depreciation; Meaning, Methods (Straight Line and Written Down Value).  | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>                       | Ratio Analysis: Meaning, Importance and Types (Liquidity Ratio, Solvency and Turnover Ratio) Understanding Cash - Flow Statements (As per AS-3), Net Profit v/s Net Cash Flow.   | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>                       | <b>Working capital management</b><br>Kinds of working capital, Operating cycle and components of working capital, Working capital management and decision making.  | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>                       | <b>Cost information for decision making and budgeting</b><br>Cost concepts including discussion on marginal costing, Some important definitions, Make or buy, Shut down or continue, Sell or process further, Domestic versus export sales <b>Budgets;</b> Need and type of budgets, Alternative approaches for budgeting, Commonly used budgets, Budgetary control process, Limitations of budgets Case study and illustrations   | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>                       | <b>Evaluation of investment projects</b><br>Capital budgeting meaning, Approach to capital budgeting, Techniques of capital budgeting, Practical application of Net present value and Internal rate of return, Features of capital budgeting decisions, Case study and illustrations   | <b>8 Hours</b>                                       |
| <b>Text Books:</b>                   |  |  |
| <b>Reference Books:</b>              |  |  |

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| <p><b>Course Code:</b><br/><b>TMU005</b></p> | <p style="text-align: center;"><b>Skill/Knowledge Enhancement Course</b><br/><b>MBA</b><br/><b>Entrepreneurship</b></p>   | <p><b>L-4</b><br/><b>T-0</b><br/><b>P-0</b><br/><b>C-4</b></p> |
| <p><b>Objectives:</b></p>                    | <p>To develop knowledge and appreciation Entrepreneurship and Small Business Management through the study of new ventures, and management of small firms.</p>   |  |
| <p><b>Learning Outcomes:</b></p>             | <p><b>At the end of this course students should be able to:</b></p> <ol style="list-style-type: none"> <li>1. Ability to recognize a business opportunity that fits the individual student</li> <li>2. Demonstrate the ability to provide a self-analysis in the context of an entrepreneurial career</li> <li>3. Demonstrate the ability to find an attractive market that can be reached economically</li> <li>4. Demonstrate the understanding of how to launch the individual's entrepreneurial career</li> <li>5. A knowledge framework which encompasses diverse perspectives and disciplines within management to understand the complexity of managing an organization in a changing business environment.</li> <li>6. Describe the various approaches to management, their contributions, as well as their limitations.</li> <li>7. Understand the nature and importance of ethics in managing and ways to Institutionalize ethics and raise ethical standards.</li> <li>8. Understand the differences between decisions made under conditions of Uncertainty and certainty, and risk.</li> <li>9. Identify the basic patterns of traditional departmentation and their Advantages and disadvantages.</li> <li>10. Recognize the importance of obtaining balance in the centralization and decentralization of authority.</li> <li>11. Distinguish between manager development, managerial training and organization development.</li> </ol> |  |
| <p><b>Unit-1:</b></p>                        | <p><b>Concepts of Entrepreneurship Development:</b><br/>Evolution of the concept of Entrepreneur, Entrepreneur Vs. Intrapreneur, Entrepreneur Vs. Entrepreneurship, Entrepreneur Vs. Manager, Attributes and Characteristics of a successful Entrepreneur, Role of Entrepreneur in Indian economy and developing economies with reference to Self-Employment Development, Entrepreneurial Culture</p>   | <p><b>8 Hours</b></p>  |
| <p><b>Unit-2:</b></p>                        | <p><b>Creating Entrepreneurial Venture:</b><br/>Business Planning Process, Environmental Analysis - Search and Scanning, Identifying problems and opportunities, Defining Business Idea, Basic Government Procedures to be complied with.</p>   | <p><b>8 Hours</b></p>  |
| <p><b>Unit-3:</b></p>                        | <p><b>Project Management:</b><br/>TMUhnical, Financial, Marketing, Personnel and Management Feasibility, Estimating and Financing funds requirement - Schemes offered by various commercial banks and financial institutions like IDBI, ICICI, SIDBI, SFCs, Venture Capital Funding</p>   | <p><b>8 Hours</b></p>  |

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| <b>Unit-4:</b>                 | <b>Entrepreneur Development Programmes (EDP'S):</b><br>Types, 7S Model, History of entrepreneurship development in India, Current Status of Entrepreneurship development in India. Role of Woman entrepreneur   | <b>8 Hours</b> |
| <b>Unit-5:</b>                 | <b>Entrepreneurship Development and Government</b><br>1. Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units - Fiscal and Tax concessions available<br>2. Role of following agencies in the Entrepreneurship Development - District Industries Centers (DIC), Small Industries Service Institute (SISI), Entrepreneurship Development Institute of India (EDII), National Institute of Entrepreneurship & Small Business Development (NIESBUD), National Entrepreneurship Development Board (NEDB) | <b>8 Hours</b> |
| <b><u>Text Books:</u></b>      | Entrepreneurship: New Venture Creation - David H. Holt<br>Entrepreneurship - Hisrich Peters<br>The Culture of Entrepreneurship - Brigitte Berger<br>Project Management - K. Nagarajan<br>Dynamics of Entrepreneurship Development - Vasant Desai<br>Entrepreneurship Development - Dr.P.C.Shejwalkar  |                |
| <b><u>Reference Books:</u></b> | Thought Leaders -ShrinivasPandit<br>Entrepreneurship, 3rd Ed. - Steven Brandt<br>Business Gurus Speak - S.N.Chary<br>The Entrepreneurial Connection - Gurmit Narula<br><br>* <b>Latest editions of all the suggested books are recommended.</b>   |                |

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| <p><b>Course Code:</b><br/>TMU006</p> | <p style="text-align: center;"><b>Skill/Knowledge Enhancement Course</b></p> <p style="text-align: center;"><b>Negotiation &amp; Conflict Management</b></p>   | <p style="text-align: center;"><b>L-6</b><br/><b>T-0</b><br/><b>P-0</b><br/><b>C-6</b></p> |
| <p><b>Objectives:</b></p>             | <p>The objective of this subject to make students aware about the dynamics of collective bargaining &amp; emerging issues of negotiation &amp; counseling to impart required skills in negotiating with unions &amp; other associations to resolve conflicts.</p>  |  |
| <p><b>Learning Outcomes:</b></p>      | <p><b>At the end of this course students should be able :</b></p> <ol style="list-style-type: none"> <li>1. To understand the main concept of negotiation &amp; why it important to maintain the peaceful environment at work place.</li> <li>2. To get familiar with the concept of bargaining &amp; its types through which managers can solve their industrial disputes</li> <li>3. To have greater insight of how negotiation takes place &amp; what the preparations are required for successful negotiation process.</li> <li>4. To understand the importance of communication, ethics at the time of bargaining or negotiating with the opposite party.</li> <li>5. To the importance of CBA &amp; MOU &amp; how these agreements are prepared &amp; why they are important to prepare.</li> <li>6. To get proper understanding about how to close negotiation or bargaining process with proper declaration of settlement along with the effective use of third party intervene in negotiation process.</li> <li>7. To understand the concept of BATNA, how it is applicable for reaching the settlement as a result of effective negotiation proceedings with practical case study examples.</li> <li>8. To understand the concept of conflict &amp; how they takes place within the organization</li> <li>9. To know about what are the consequences of conflict &amp; what are the major reasons behind the conflict.</li> <li>10. To get the clear idea about the strategies or tactics or different ways that can be used for solving the conflicts at individual level &amp; at industrial level for smooth functioning of organization</li> <li>11. To understand the concept of counseling as one of the approach for solving conflicts &amp; issues.</li> </ol> |  |
| <p><b>Unit-1:</b></p>                 | <p><b>Introduction:</b><br/>Meaning, Nature, importance history of collective bargaining &amp; negotiation. Strategy of distributive bargaining, strategy of integrative negotiation. strategy &amp; planning for negotiation, essential conditions for collective bargaining, functions of collective bargaining.</p> <p><b>Case Study:</b><br/>MarutiManesar Plant Case Study.</p>   | <p style="text-align: center;"><b>8 Hours</b></p>  |
| <p><b>Unit-2:</b></p>                 | <p><b>Negotiation sub processes &amp; persuasion:</b><br/>Negotiation process, levels of negotiation, preparations for negotiations, ethics in negotiation, essential communication TMUhniques in negotiations, role of negotiator, Negotiation as persuasion, negotiation challenges in future.</p>   | <p style="text-align: center;"><b>8 Hours</b></p>  |
| <p><b>Unit-3:</b></p>                 | <p><b>Negotiation skills &amp; Practices:</b><br/>Fundamental Structure of Negotiation, BATNA. Negotiation skills, presentation of demand &amp; tactics used, closing of negotiation &amp; drafting the agreement (MOU), break down of negotiation: causes &amp; consequences. Third party Intervention, mutual trust &amp; understanding in negotiation, impact of cross cultural differences.</p>  | <p style="text-align: center;"><b>8 Hours</b></p>  |

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|                                | <b>Case Study:</b><br>Role of Negotiation at Bokaro steel Plant  |                |
| <b>Unit-4:</b>                 | <b>Introduction to conflict:</b><br>Meaning, definition, features. Causes of conflicts, types of conflicts: Industrial conflicts & disputes (strikes & lock outs). Settlement of conflicts & prevention of conflicts.    | <b>8 Hours</b> |
| <b>Unit-5:</b>                 | <b>Counseling:</b><br>Meaning & emergence of counseling, counseling process, role of counselor, model of counseling, approaches of counseling, modern trend in counseling.   | <b>8 Hours</b> |
| <b><u>Text Books:</u></b>      | P.Subba Rao, Essentials of HRM & IR, Himalaya Publication House<br>Lewicki, Saunders & Berry- Negotiation (TMH)<br>Rao.SN, counseling & Guidance (TMH)   |                |
| <b><u>Reference Books:</u></b> | Aswathappa, Human Resource management, Tata McGraw- Hill<br>Dessler, Human Resource Management, Prentice – Hall<br>T.N Chhabra, Human Resource Management<br>Pareek Udai, Understanding Organizational Behavior (Oxford) |                |



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| <b>Course Code:</b><br>TMU007            | <b>Media and Law</b>  | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>                       | This paper deals with the interaction between law and mass media. This paper examines the major laws, regulations and court decisions affecting the media. It aims to familiarise the theoretical debates on media, law and ethics in the Indian context. It also attempts to evolve an understanding of the complexities of ethical and legal media practice.  |  |
| <b>Learning Outcomes:</b>                | <b>At the end of this course students should be able to:</b><br>1. Understand the importance of fourth pillar of democracy<br>2. Understand the constitutional and other statutory regulation related to this freedom<br>3. Know the provisions of IT Act 2000 regulating social media<br>4. Know various agencies regulating this freedom<br>5. Understand the value of this freedom   |  |
| <b>Unit-1:</b>                           | <b>Introduction</b><br>Evolution of Media, Types of media: (i) Print (ii) Electronic, E-Media – Free Flow of Information beyond boundaries and barriers, Difference between Visual and non- Visual Media - impact on People   | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>                           | <b>Freedom of Speech and Expression</b><br>Article 19 (1) (a), An introduction to Freedom of expression, Evolution of Freedom of Press, Restrictions under Constitution: (i) Article 19 (2) (ii) Government Power to legislate - Article 246 read with the Seventh Schedule (iii) Power to impose Tax -licensing and licence fee, Advertisement & Ethics: Misleading Advertisement vis-à-vis Consumers rights   | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>                           | <b>Social media</b><br>Evolution, impact on society, clashes & conflicts through social media, use & misuse of this freedom & regulation of social media through IT regulation.   | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>                           | <b>Law of defamation and obscenity</b><br>Defamation: (i) Libel (ii) Slander, Obscenity & Sedition  | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>                           | <b>Development of laws relating to Mass Media vis a vis International regime</b><br>Censorship of films, Censorship under Constitution, Censorship under the Cinematograph Act. & Pre-censorship of films Select Bibliography   | <b>8 Hours</b>                                       |
| <b>Leading Cases for Detailed Study:</b> | Indian News Papers Case<br>Case of Hamdard Dawakhan & TATA press ltd<br>K A Abbas vs UOI  |  |
| <b>Text Books:</b>                       | 1. M.P. Jain, Constitutional Law of India (1994) Wadawa, Nagpur, 2015<br>2. Rajeev Dhavan, "On the Law of the Press in India" 26 J.I.L.I. 288 (1984).<br>3. Rajeev Dhavan, "Legitimizing Government Rhetoric: Reflections on Some Aspects of the Second Press Commission" 26 J.I.L.I. 391 (1984).   |  |
| <b>Reference Books:</b>                  | 1. H.M. Seervai, Constitutional Law of India 2002 Vol. 1 Universal 21<br>2. John B. Howard, "The Social Accountability of Public Enterprises" in Law and Community Controls in New Development Strategies (International Center for law in Development 1980)<br>3. Bruce Michael Boys, "Film Censorship in India: A Reasonable Restriction on Freedom of Speech and Expression" 14 J.I.L.I. 501 (1972).<br>4. Soli Sorabjee, Law of Press Censorship in India (1976). |  |

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|  | 5. Justice E.S. Venkaramiah, Freedom of Press: Some Recent Trends (1984). 9. D.D. Basu, The Law of Press of India (1980) |  |
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**\* Latest editions of all the suggested books are recommended.**

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| <b>Course Code:</b><br>TMU008  | <b>Minority Laws</b>  | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>   | To make the students aware of the importance of rights of minorities, to familiarize them with the constitutional provisions related to minorities  |  |
| <b>Learning Outcomes:</b>  | <b>At the end of this course students should be able to:</b><br><br>To acquaint them with the rights of minority educational institutions.<br>To make exposition of the subject matter in detail with the help of legislative, judicial and other materials.<br>This will be imparted through theoretical and philosophical debates advanced by various scholars and the institutional mechanism that need to be accelerated to achieve the objectives of minority justice. |  |
| <b>Unit-1:</b>   | <b>Minorities In Indian Society:</b><br>Concept of Minorities, Linguistic Minorities, Religious Minorities & Secularism   | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>   | <b>International Norms For Protection Of Minorities:</b><br>Human Rights of Minorities, Minority Rights under the International Covenant on Civil and Political Rights, Non-discrimination provisions of the United Nations Charter 1945 & Declaration on Rights of Minorities  | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>   | <b>Minority Rights:</b><br>Right to religion, Linguistic rights, Right to culture and traditions, National Commission for Minority  | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>   | <b>Rights of Minority Educational Institutions:</b><br>Educational rights of Minorities, Right to administer Minority educational institution, Aided and Unaided Minority Educational Institutions and Governmental Controls, National Commission for Minority Educational Institutions   | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>   | <b>International Law and the Rights of the Minorities:</b><br>UDHR, ICCPR, ICESR & Other Relevant Provision Of Public International Law Regarding Rights Of The Minorities  | <b>8 Hours</b>                                       |
| <b>Text Books:</b>   | 1. M.P.Jain, Indian Constitutional Law, Lexis Nexis, 2014<br>2. D.D.Basu, Commentary on the Constitution of India, Lexis Nexis, 2015  |  |
| <b>Reference Books:</b>  | 1. Brodmann, C. and others, eds., Peoples and Minorities in International Law<br>2. Phillips, A. and A. Rosas, eds., The UN Minority Rights Declaration<br>3. Reddy, Jagmohan, Minorities and the Constitution<br>4. Sheth, D.L. and Gurpreet Mahajan, ed., Minority Identities and the Nation State<br>5. Thornberry, Patrick, International Law and the Rights of the Minorities  |  |
| <b>* Latest editions of all the suggested books are recommended.</b> |   |  |

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| <b>Course Code:</b><br>TMU009  | <b>Law and Justice in a Globalized World</b>  | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>   | The main objective of the course is to enable students to understand and seek solutions to pressing problems in the domain of global justice.   |  |
| <b>Learning Outcomes:</b>  | <p><b>At the end of this course students should be able to:</b></p> <ol style="list-style-type: none"> <li>To expected to have become familiar with the multiple dimensions of the theoretical literature</li> <li>Be able to critically evaluate the liberal, republican, and discursive democratic attempts to make sense of, and to ameliorate, prevailing instances of injustice in the world.</li> <li>This will be imparted through theoretical and philosophical debates advanced by various scholars and the institutional mechanism that need to be accelerated to achieve the objectives of global justice.</li> </ol>                  |  |
| <b>Unit-1:</b>   | <p><b>Introduction:</b></p> Meaning and significance of Globalization, concept of Global Justice, Global Justice and Right to Development   | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>   | <p><b>Theoretical Propositions of Global Justice</b></p> Realism, Particularism, Nationalism, Cosmopolitanism   | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>   | <p><b>Historical and Central Challenges to Global Justice:</b></p> Global Poverty- Role of International Mechanism, Armed Conflict, Nationalist practices, Crimes against Humanity, Environment and Health, Oppressive Policies- Threat of Terrorism, Global Politics   | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>   | <p><b>Role and Reformation of Global Institutions:</b></p> States, sovereignty and Transnational Law, Economic and Trade Institutions-MNC's, Structural reforms of United Nations-Security Council, International Judicial Institutions   | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>   | <p><b>Models to Achieve Global Justice:</b></p> Social Contract and Social Justice, Sarvodaya Model of Justice, Multi Culturalism and Cosmopolitanism, Significance of Human Rights Education, Global Justice and Global Rule of Law  | <b>8 Hours</b>                                       |
| <b>Text Books:</b>   | <ol style="list-style-type: none"> <li>Amartya Sen The Idea of Justice 2009</li> <li>R Pierik : Cosmopolitanism Global Justice and International Law Cambridge 2005</li> <li>Anthony J. Langlois: Is global justice a irate? European Journal of International Relations March 2011</li> </ol>  |  |
| <b>Reference Books:</b>  | <ol style="list-style-type: none"> <li>Springer: Encyclopedia of Global Justice 2012</li> <li>Brian Barry, Culture and Equality. Cambridge: Polity, 2001</li> <li>Duncan Bell (ed.) Ethics and World Politics. Oxford 2010.</li> <li>Allen Buchanan. Justice, Legitimacy, and Self-determination: Moral Foundations for International Law. Oxford 2004.</li> <li>Simon Caney, Justice Beyond Borders. Oxford:, 2005</li> <li>Nicole Hassoun. 2008a. "World Poverty and Individual Freedom." American Philosophical Quarterly. Vol. 45, No. 2: 191-198.</li> <li>Thomas Pogge, World Poverty and Human Rights. Cambridge: Polity, 2002.</li> </ol> |  |
| <b>* Latest editions of all the suggested books are recommended.</b> |   |  |

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| <b>Course Code:</b><br>TMU010 | <b>Law and Medicine</b>  | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>            | General background, Inter-relationship between law and medicine, issues involved need for legal control, constitutional perspectives, right of life, fundamental right, right to health, right to emergency medical care, directive principles-health of workers, public assistance in sickness and disability, Raising the level of nutrition and public health, power to make Law.   |  |
| <b>Learning Outcomes:</b>     | <p><b>At the end of this course students should be able to:</b></p> <ol style="list-style-type: none"> <li>1. To acquaint them with the rights of minority educational institutions.</li> <li>2. To make exposition of the subject matter in detail with the help of legislative, judicial and other materials.</li> <li>3. This will be imparted through theoretical and philosophical debates advanced by various scholars and the institutional mechanism that need to be accelerated to achieve the objectives of minority justice.</li> </ol> |  |
| <b>Unit-1:</b>                | <p><b>Regulation of medical and paramedical profession:</b><br/>Regulatory authorities, disciplinary control, Doctors and Paramedical professionals, controls on institutions.<br/>Hospitals: Testing Laboratories, Institutions for research and experiments.<br/>Regulation on manufacture, storage and sale of medicine-Production, transport and storage, sale advertisement.</p>  | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>                | <p><b>Liability for professional negligence:</b><br/>Tort, standard of care, problems of evidence, contractual liability, criminal liability, Liability of doctors and hospitals under Consumer Protection Act.</p>  | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>                | <p><b>International Norms:</b><br/>Council of Europe Convention on Human Rights and Bio-medicine-1999.<br/>Health care, Professional Standard, consent, Privacy and right to information, non-discrimination Genetic<br/>Tests, Organ Transplantation, Scientific Research.</p>  | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>                | <p><b>Science and Technology:</b><br/>Transplantation or Organ: Test-Tube Babies, Artificial insemination, Genetic engineering, Population control laws, Poverty and society: Family planning, Legality of coercive method &amp; surrogacy<br/>Sterilization of unfit-Social reforms, Medical Wastes-Control on handling and disposal of Biomedical waste.</p>   | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>                | <p><b>Experiments on Human being:</b><br/>The Concept: Kinds, subject of experimentation; control, The unborn-Has the unborn Constitutional or other legal rights? Causing miscarriage and injustice to the unborn-liability.<br/>Amniocentesis; Medical termination of pregnancy.</p>   | <b>8 Hours</b>                                       |
| <b>Text Books:</b>            | <ol style="list-style-type: none"> <li>1. R.K.Bag, Law of Medical Negligence &amp; Compensation, Eastern Law House, 2015</li> <li>2. R.K.Nayak (Ed.) Indian Law Institute, Global Health Law, 2015</li> <li>3. Malcolm Khan &amp; Michelle Robson, Medical Negligence, Cavendish Publishing Limited, London, 2014</li> <li>4. Anoop K Kaushal, Medical Negligence &amp; Legal Remedies with Special Reference to CPA, Universal, 2013</li> </ol>   |  |

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| <b>Reference Books:</b>                                       | <ol style="list-style-type: none"> <li>1. Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, December 2014.</li> <li>2. Evans, K.G., A Medico-Legal Handbook for Physicians in Canada, 6th ed., 2005.</li> <li>3. Evans, K.G., Consent: A Guide for Canadian Physicians, 4th ed., 2006.</li> <li>4. Hébert, P.C., Doing Right: A Practical Guide to Ethics for Medical Trainees and Physicians, 3rd ed., Toronto, ON: Oxford University Press, 2014.</li> <li>5. Shah, C.P., Public Health and Preventive Medicine in Canada, 5th ed., University of Toronto Press, 2003.</li> </ol> |  |
| * Latest editions of all the suggested books are recommended. |  |  |

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| <b>Course Code:</b><br>TMU011  | <b>Energy Laws</b>   | <b>L-4</b><br><b>T-0</b><br><b>P-0</b><br><b>C-4</b> |
| <b>Objectives:</b>   | The main objective of the course is to enable students to understand various issues related to energy laws not only in India but at International Level.   |  |
| <b>Learning Outcomes:</b>  | <p><b>At the end of this course students should be able to:</b></p> <ol style="list-style-type: none"> <li>1. Have become familiar with the multiple dimensions of the laws related to Energy</li> <li>2. Understand working of PSUs engaged in production and distribution of Energy and powers</li> <li>3. Understand various issues related to atomic energy</li> <li>4. Know the key features of electricity act 2003</li> </ol> |  |
| <b>Unit-1:</b>   | <p><b>Introduction:</b></p> <p>Energy law: India &amp; International regime, International agreements related to supply and investment in energy (Indian reference), major international disputes related to energy and their settlement mechanism at International Level</p>  | <b>8 Hours</b>                                       |
| <b>Unit-2:</b>   | <p><b>Energy Policies in India:</b></p> <p>Five years plan, Action plan on climate change, Role and responsibilities of various ministries (Coal, Petroleum &amp; Natural Gas, Power, environment &amp; forest &amp; department of Atomic energy)</p>  | <b>8 Hours</b>                                       |
| <b>Unit-3:</b>   | <p><b>Electricity Law in India:</b></p> <p>Electricity Act 2003: Licensing, Transmission and Distribution of electricity<br/>Electricity Authority and Appellate authority (Composition, Powers and functions)<br/>Offences and penalties</p>  | <b>8 Hours</b>                                       |
| <b>Unit-4:</b>   | <p><b>Coal, Oil &amp; Gas Energy:</b></p> <p>Licensing, distribution and control, an overview of Indian Mines Act 1952 and Energy conservation Act 2001</p>  | <b>8 Hours</b>                                       |
| <b>Unit-5:</b>   | <p><b>Atomic Energy Regulation:</b></p> <p>Atomic Energy Act 1962, US-India Civil Nuclear Agreement 2008, The Civil Liability for Nuclear Damage Act 2010, Atomic energy &amp; public sentiments</p>   | <b>8 Hours</b>                                       |
| <b>Text Books:</b>   | <ol style="list-style-type: none"> <li>1. Nawneet Vibhaw, Energy Law And Policy In India, Lexis Nexis, 2014</li> <li>2. Understanding Energy Challenges in India of OECD/IEA 2012</li> <li>3. Universal Bare Acts, New Delhi.</li> </ol>   |  |
| <b>Reference Books:</b>  | <ol style="list-style-type: none"> <li>1. Karen Makuch (Editor), Ricardo Pereira (Editor), Environmental and Energy Law, Wiley-Blackwell 2012</li> <li>2. Terence Daintith, Finders Keepers? : How the Law of Capture Shaped the World Oil Industry, Taylor &amp; Francis Inc, 2010</li> </ol>   |  |
| <b>* Latest editions of all the suggested books are recommended.</b> |  |  |

# Concepts of IoT (Internet of Things)

Course Code: TMU012

L-3, T-2, P-0, C-4

## Objective

The course aims to introduce students to the concepts underlying the Internet of Things (IoT) through a series of lectures on the various topics that are important to understand the state-of-the-art as well as the trends for IoT. In order to pass the course, the students should be able to:

## Content

**Unit 1:** Introduction to Internet in general and Internet of Things: Introduction to Internet: layers, protocols, packets, services; Local Area Networks, MAC level, link protocols such as: point-to-point protocols, Ethernet, WiFi 802.11, cellular Internet access, and Machine-to-Machine (M2M).

**Unit 2: IoT Technology Fundamentals:** IoT definitions: overview, applications, potential & challenges, and Architecture; Devices and gateways, Local and wide area networking; Data management, Business processes in IoT, Everything as a Service(XaaS), IoT Analytics, Knowledge Management.

**Unit 3: IoT-An Architectural Overview–** Building an Architecture, Main design principles and needed capabilities, An IoT Architecture outline, standards considerations. IoT examples: Case studies, e.g. sensor body-area-network and control of a smart home.

**Unit 4: IoT Architecture-State of the Art –** Introduction, State of the art, **Architecture Reference Model-** Introduction, Reference Model and Architecture, IoT reference Model; IoT Reference Architecture: Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views.

**Unit 5: Real-World Design Constraints-** Introduction, Technical Design constraints, Data representation and visualization, Interaction and remote control. Uses of IoT in Industrial Automation, Commercial Building Automation, Wireless communication, etc.

## Textbook:

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle, **“From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence”**, 1<sup>st</sup> Edition, Academic Press, 2014.

## Reference Books:

1. Vijay Madisetti and ArshdeepBahga, **“Internet of Things (A Hands-on-Approach)”**, 1<sup>st</sup> Edition, VPT, 2014.
2. Francis daCosta, **“Rethinking the Internet of Things: A Scalable Approach to Connecting Everything”**, 1<sup>st</sup> Edition, Apress Publications, 2013



# Concepts of Green Technology

**Course Code: TMU013**

**L-3, T-2, P-0, C-4**

**Course Objective:**

The course aims to introduce the students to *Technology* that is considered environmentally friendly based on its production process or supply chain.

**Unit-I**

Introduction of Green Protocols: Need, Goal and Limitation of Green Technology, Principles of Green Technology with their explanations and examples. Sustainable development, atom economy, reduction of toxicity. **(Lecture 10)**

**Unit-II**

Relate Safety to Wind, Hydroelectricity, Fuel Cell, Solar and Biomass Technologies, Introduction to Wind Technology, Understand the Science of Wind Technology, Produce electrical energy via a wind-driven generator. Explore control mechanisms of wind-generated electricity. **(Lecture 10)**

**Unit-III**

Introduction to Hydroelectric & Fuel Cell Technologies, Understand the science of Hydroelectric & Fuel Cell Technologies, produce electrical energy through a hydroelectric system and through a fuel cell system. Explore control mechanisms of hydroelectricity and fuel cells; Build a hydrogen powered Car-Fuel cell X7. **(Lecture 10)**

**Unit-IV**

Introduction to Solar Technology, Understand the Science of Solar Technology, Understand basic electronics, understand how solar energy is collected and stored. **(Lecture 10)**

**Unit-V**

Introduction to Biomass Technology, Understand the science of Biomass and Biofuel Technologies, Understand how Biomass is produced. **(Lecture 10)**

**Textbook:**

1. Soli J. Arceivala, "Green Technologies", McGraw Hill Education; First edition, 2014.
2. S.K.Garg, "Environmental Studies and Green Technologies", Khanna Publication, First Edition, 2012.
3. V. Sivasubramanian, "Environmental Sustainability Using Green Technology", CRC Press, First Edition, 2016.

**Reference Books:**

1. [David Dornfeld](#), "Green Manufacturing: Fundamentals and Applications (Green Energy and Technology)", Springer, 2012.
2. Francis daCosta, "Green Technologies: Concepts, Methodologies, Tools and Applications: 3 (Premier Reference Source)", IGI Global; 1<sup>st</sup> edition, 2011.

# INFORMATION SECURITY AND CYBER LAWS

Course Code:TMU014

L-3, T-2, P-0, C-4

**Objective:** The objective of this subject is to make the individual aware of cybercrimes and acquire a critical understanding of cyber laws in order to prevent their information systems from cybercrimes and to give the learners in depth knowledge of Information security Act and frame work for data security. It helps to develop the understanding of relationship between commerce and cyberspace.

## Course Contents

### Unit-I

History of Information Systems and its Importance, basics, Changing Nature of Information Systems, Need of Distributed Information Systems, Role of Internet and Web Services, Information System Threats and attacks, Classification of Threats and Assessing Damages

**Security in Mobile and Wireless Computing:** Security Challenges in Mobile Devices, authentication Service Security, Security Implication for organizations, Laptops Security Concepts in Internet and World Wide Web: Brief review of Internet Protocols-TCP/IP. Functions of various networking components- routers, bridges, switches, hub, and gateway.

(Lecture 08)

### Unit-II

Basic Principles of Information Security, Confidentiality, Integrity Availability and other terms in Information Security, Information Classification and their Roles. Security Threats to E Commerce, Virtual Organization, and Business Transactions on Web, E Governance and EDI, Concepts in Electronics payment systems, E Cash, Credit/Debit Cards.

(Lecture 08)

### Unit-III

**Physical Security:** Needs, Disaster and Controls, Basic Tenets of Physical Security and Physical Entry Controls. Access Control- Biometrics, Factors in Biometrics Systems, Benefits, and Criteria for selection of Biometrics, Design Issues in Biometric Systems, Interoperability Issues, Economic and Social Aspects, Legal Challenges. Framework for Information Security, ISO 27001, Security Metrics, Information Security V/s Privacy.

(Lecture 08)

### Unit-IV

Model of Cryptographic Systems, Issues in Documents Security, System of Keys, Public Key Cryptography, Digital Signature, Requirement of Digital Signature System, Finger Prints, Firewalls, Design and Implementation Issues, Policies, Network Security: Basic Concepts, Dimensions, Perimeter for Network Protection, Network Attacks, Need of Intrusion Monitoring and Detection, Intrusion Detection. Virtual Private Networks: Need, Use of Tunnelling with VPN, Authentication Mechanisms, Types of VPNs and their Usage, Security Concerns in VPN.

(Lecture 08)

### Unit-V

**Laws, Investigation and Ethics:** Cyber Crime, Information Security and Law, Types & overview of Cyber Crimes, Cyber Law Issues in E-Business Management, Overview of Indian IT Act, Ethical Issues in Intellectual property rights, Copy Right, Patents, Data privacy and protection, Domain Name, Software piracy, Plagiarism, Ethical hacking.

(Lecture 08)

### Text Books:

1. Godbole, "Information Systems Security", Willey
2. Merkov, Breithaupt, "Information Security", Pearson Education

### Reference Books:

1. Yadav, "Foundations of Information Technology", New Age, Delhi
2. Schou, Shoemaker, "Information Assurance for the Enterprise", Tata McGraw Hill
3. Sood, "Cyber Laws Simplified", McGraw Hill
4. Furnell, "Computer Insecurity", Springer
5. IT Act 2000

\*Latest editions of all the suggested books are recommended.

## Social Implications of Information Technology

**Course Code: TMU015**

**L-3, T-2, P-0, C-4**

### Course Contents

The aim of this course will help students to learn about the social implications of Information Technology. The paper identifies trends in information Technology that have had a significant social impact and identifies their social impact.

#### Unit-1

Importance of social dimensions of science and Technology, global perspectives of Technology on society, legal implications of advances in IT. **(Lecture 08)**

#### Unit-II

How do social and Technical choices reshape access to people, services and Technologies. Influencing factors such as geography of access, the Architecture of networks, the power of receivers and senders and control over the content. **(Lecture 08)**

#### Unit-III

Social and economic role of eminent social scientists and IT professionals, Information Technology and the reach of boundaries of business and management, Redesigning of work place. **(Lecture 08)**

#### Unit-IV

The intelligence household, IT in learning and education using digital devices, social and ethical implication, Privacy and surveillance in everyday life , impact of IT on culture. **(Lecture 08)**

#### Unit-IV

Government challenges of Technological, cybercrime laws **(Lecture 08)**

#### Text Books:

1. Dutton, W.H., "*Society on the line: Information politics in digital age*", Oxford University Press.
2. "*Social, Ethical and Policy Implications of Information and Technology*", by Linda L. Brennan, Victoria Johnson
3. Castells M., "*The Internet Galaxy*", Oxford University Press

#### Reference Books:

1. Teich, A.H., "*Technology and the future*", Newyork s1. Martinpress.
2. <http://www.alteich.com>
3. <http://www.students.ou.edu.C/Kara.C.chiodo-1/orwell.html>

# Ethical Hacking

Course Code: TMU016

L-3, T-2, P-0, C-4

## Objective:

The main purpose of this course is to make students aware about hacking. The general meaning of hacking is in negative sense. But ethical hacking will let students know how we can prevent ourselves from ill aspects of hacking after the study of this course.

## UNIT -1

Introduction, Networking & Basics, Foot Printing, Google Hacking, Scanning, Windows Hacking, Linux Hacking, Trojans & Backdoors, Virus & Worms, Proxy & Packet Filtering, Denial of Service, Sniffer, Social Engineering. **(Lecture 08)**

## UNIT -II

Introduction to Computer Systems and Networks , information systems and networks (including wireless networks) and their role in industry business and society, System and Network Vulnerability and Threats to Security , various types of attack and the various types of attackers in the context of the vulnerabilities associated with computer and information systems and networks Physical Security, Steganography, Cryptography, Wireless Hacking, Firewall & Honeypots, IDS & IPS, Vulnerability, Penetration Testing, Session Hijacking, Hacking Web Servers, SQL Injection, Cross Site Scripting, Exploit Writing, Buffer Overflow, Reverse Engineering, Email Hacking, Incident Handling & Response, Bluetooth Hacking, Mobile Phones Hacking

**(Lecture 08)**

## UNIT -III

An introduction to basic ethical hacking tools and usage of these tools in a professional environment in a form of project **(Lecture 08)**

## UNIT -IV

An introduction to the particular legal, professional and ethical issues likely to face the domain of ethical hacking. ethical responsibilities, professional integrity and making appropriate use of the tools and TMUhniques associated with ethical hacking. **(Lecture 08)**

## Text Books

1. Hands-On Ethical Hacking and Network Defense – By Michael T. Simpson, Kent Backman, James Corley
2. Official Certified Ethical Hacker Review Guide – By Steven DeFino, Barry Kaufman, Nick Valenteen.

## Reference Books

1. The Basics of Hacking and Penetration Testing: Ethical Hacking and Penetration Testing Made Easy (Syngress Basics Series) [Paperback
2. Hands-On Ethical Hacking and Network Defense [Print Replica] [Kindle Edition]

# FUNDAMENTAL OF COMPUTER'S AND MS-OFFICE

**Course Code: TMU017**

**L-4, T-2, P-0, C-5**

**Objective:** To give the basic knowledge of Computer hardware and application software to the students. Students able to learn how computers work and how they can be used to make your work more efficient. Also learning the basic utilization of the MS Office software package.

## **Course Contents**

### **Unit-I**

**Computer Basics:** Introduction and definition of computer, Computer Generations, Characteristics of Computer, Advantages and Limitations of computer, Classification of computers, Functional components of a computer system (Input, CPU, Storage and Output Unit), Types of memory (Primary and Secondary), **Computer Hardware:** Input Devices- Mouse, Bar Code Reader, Keyboard, Scanner, Joystick, Output Devices-VDU, Printer, Plotters, Types of Computer Software.

**(Lecture 08)**

### **Unit-II**

**Computer Languages:** Introduction to languages, Compiler, Interpreter and Assembler, High Level Language to Machine Language Conversion , Evolution of programming language, Classification of Programming Languages, Features of a good Programming Language, Example of High Level Languages, Characteristics of a good language.

**Number system:** Binary number system, Octal & Hexa-decimal number system.

**(Lecture 08)**

### **Unit-III**

Algorithm, flowcharts: flowcharts symbols, sample flowcharts.

**MS-DOS:** Operating System, Basic Concepts of Operating System, Introduction of MS-DOS, Internal Commands-VOL, VER, DATE, TIME, CLS, DIR, CD, MD, PROMPT, TYPE, COPY, COPY CON , External Commands-MOVE, MORE, FIND, ATTRIB, TREE, DELTREE, EDIT, FORMAT

**MS-WORD:** Starting MS WORD, Creating and formatting a document, Changing fonts and point size, Table Creation and operations, Autocorrect, Auto text, spell Check, Word Art, Creating Shapes and Charts, Inserting objects, Page setup and margins, Page Preview, Printing a document, Macros, Mail Merge.

**(Lecture 08)**

### **Unit-IV**

**MS-EXCEL:** Starting Excel, Work sheet, cell inserting Data into Rows/ Columns, Alignment, Text wrapping , Sorting data, Auto Sum, Use of functions, Cell Referencing form, Generating graphs, Worksheet data and charts with WORD, Creating Hyperlink to a WORD document, Page setup and margins, Print Preview, Printing Worksheets.

**MS-ACCESS:** Maintaining Database by creating Tables, Queries, Reports and Forms.

**(Lecture 08)**

### **Unit-V**

**MS-POWERPOINT:** Starting MS-Power Point,, Creating a presentation using auto content Wizard, Blank Presentation, creating, saving and printing a presentation, Adding a slide to presentation, Navigating through a presentation, slide sorter, slide show, editing slides, Using Clipart, Word art gallery, Adding Transition and Animation effects, setting timings for slide show, preparing note pages, preparing audience handouts, printing presentation documents

**Introduction of Internet:** History of internet, Web Browsers, Searching and Surfing, Creating an E-Mail account, sending and receiving E-Mails.

**(Lecture 08)**

**Text Books:**

1. Sinha P.K., Computer Fundamentals, BPB Publishing.
2. O’Leary Timothy, O’Leary Linda , Microsoft Office ,TMH Publication
3. KanitkarYashwant, Let Us C, BPB Publishing.

**Reference Books:**

1. Leon A. & Leon M., Introductions to Computers, Vikas Publication.
2. Norton Peter, Introductions to Computers, TMH Publication.
3. Price Michael, Office in Easy Steps ,TMH Publication.

**\*Latest editions of all the suggested books are recommended.**

# INFORMATION SECURITY FUNDAMENTAL

Course Code: TMU018

L-3, T-2, P-0, C-4

**Objective:** Upon successful completion of the course, students will have the ability to accomplish the following competencies accurately and efficiently:

- Describe legal and public relations implications of security and privacy issues
- Define and implement an information security strategy and Architecture
- Plan and respond to intruders in an information system
- Identify and prioritize information assets

## Course Contents

### Unit - I

**Introduction to Information Security :** Definition of Information Security, Evolution of Information Security; Basics Principles of Information Security; Critical Concepts of Information Security; Components of the Information System; Balancing Information Security and Access; Implementing IT Security, The system Development Life cycle, Security professional in the organization.

(Lecture 08)

### Unit - II

**The Need for IT Security :** Business Needs-ProTMUting the functionality, Enabling the safe operations, ProTMUting the data, safe guarding the Technology assets; Threats-compromises to Intellectual property, deliberate software attacks, Espionage and trespass, sabotage and vandalism; Attacks-Malicious Codes, Back Doors, Denial of Service and Distributed Denial of Service, Spoofing, sniffing, Spam, Social Engineering.

(Lecture 08)

### Unit - III

**Risk Management :** Definition of risk management, risk identification, and risk control, Identifying and Accessing Risk, Assessing risk based on probability of occurrence and likely impact, the fundamental aspects of documenting risk via the process of risk assessment, the various risk mitigation strategy options, the categories that can be used to classify controls.

(Lecture 08)

### Unit - IV

**Network Infrastructure Security and Connectivity :** Understanding Infrastructure Security- Device Based Security, Media-Based Security, Monitoring and Diagnosing; Monitoring Network- Firewall, Intrusion DeTMUtion System, Intrusion Prevention system; OS and Network Hardening, Application Hardening; Physical and Network Security- Policies, Standards and Guidelines.

(Lecture 08)

### Unit - V

**Web and E-mail Security :** Web Servers and Browsers, HTTP, Cookies, Caching, Plug-in, ActiveX, Java, JavaScript, Secure Socket Layer (SSL), Secure Electronic Transaction (SET). E-mail Risks, Spam, E-mail Protocols, Simple Mail Transfer Protocol (SMTP), Post office Protocol (POP), Internet Access Message protocol (ICMP). Secured Mail: Pretty Good Privacy (PGP), *S/MIME* (Secure/Multipurpose Internet Mail Extensions).

(Lecture 08)

### **Text Books**

1. William Stallings "Cryptography and network security, principles and practices", Pearson
2. Gollmann, Dieter, "Computer Security", John Wiley & Sons Ltd.

### **References**

1. Information Security Risk Analysis - Thomas R. Peltier, Third Edition, Pub: Auerbach,
2. Operating System Concepts, 8<sup>th</sup> Edition by Abraham Silberschatz, Peter B. Galvin, Greg Gagne, Pub: John Wiley & sons, Inc.,
3. Information security: Principles and Practice - Mark Stamp, 2<sup>nd</sup> Edition, Pub: John Wiley & Sons, Inc.,

**\*Latest editions of all the suggested books are recommended.**



# IT GOVERNANCE, RISK & INFORMATION SECURITY MANAGEMENT

**Course Code: TMU019**

**L-4, T-2, P-0, C-5**

**Objective:**

- To study governance through IT Technology.
- To study different facilities provided by government through electronic media.
- To study increase internal efficiency and service levels to constituents.

**Course Contents**

**Unit – I**

**IT Governance :**Introduction & Concepts, Role of Governance in Information Security, Best Practices for IT Governance. Role of IT Strategy Committee, Standard IT Balanced Scorecard. Val-IT framework of ISACA. **(Lecture 08)**

**Unit - II**

**ICT Infrastructure & Service:** National level, State level, District level.

**National e-governance projects:** Advertisement Automation System for DAVP, e-Courts Project, Electronic Post (ePost), e-Panchayat Mission Mode Project. **(Lecture 08)**

**Unit – III**

**Information Systems Strategy :**Role of Strategic Planning for IT, Role of Steering committee, Policies and Procedures. **(Lecture 08)**

**Unit - IV**

**Risk Management Program :** Develop a Risk Management Program. Risk Management Process, Risk Analysis methods. Risk-IT Framework of ISACA. **(Lecture 08)**

**Unit - V**

**Information Security Management :** Introduction, Performance Optimization, IT Security roles & responsibilities, Segregation of Duties, Description of COBIT and other Frameworks. **(Lecture 08)**

**Text Books:**

1. IT Governance – Peter Weill and Jeanne Ross, Pub: Harvard Business Review Press

**Reference Books:**

1. Managing Risk and Information Security – Malcolm Harkins, Pub: Apress;
2. Information Security Risk Analysis – Thomas R.Peltier

**\*Latest editions of all the suggested books are recommended.**

# SCIENTIFIC COMPUTING

**Course Code: TMU020**

**L-4, T-2, P-0, C-5**

**Objective:** Course Objective is to have investigation of the flexibility and power of project-oriented computational analysis. This course is a survey of numerical solution techniques for ordinary and partial differential equations. This course is a graduate breadth course to give students exposure to the algorithms and implementations often used in scientific computing.

## Course Contents

### Unit - I

**Number System:** Binary, Octal, Hexadecimal and Decimal, Floating Point Numbers. Binary Arithmetic: Basic Rules of Binary Addition, Subtraction, multiplication and division. Floating point format, Finite precision, round-off, machine epsilon, Error propagation and catastrophic cancellation  
**(Lecture 08)**

### Unit-II

**Numerical linear algebra:** Gaussian elimination, LU decomposition, Band-diagonal system of equations, Iterative methods, Eigen Systems

**Numerical integration:** Newton-Cotes Method, Romberg Method, Gaussian Quadrature, Monte Carlo Methods  
**(Lecture 08)**

### Unit - III

**Root finding:** Bisection, Regula-Falsi, Newton-Raphson and extension to multi-dimension  
**Optimization:** Search by section, Newton's method, steepest descent, Conjugate gradient, Simulated annealing  
**(Lecture 08)**

### Unit - IV

**Numerical differentiation:** Finite difference, Spectral differentiation

**Initial value Ordinary Differential Equations:** Forward and backward Euler, Predictor corrector and Runge-Kutta schemes, Stiff ODE's  
**(Lecture 08)**

### Unit - V

**Boundary value problems:** Shooting method, Finite-difference method

**Partial differential equations:** Hyperbolic and parabolic equations, Elliptic equations  
**(Lecture 08)**

## Text Books:

1. W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery. *Numerical Recipes in C: The Art of Scientific Computing*. Cambridge University Press.
2. W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery. *Numerical Recipes in Fortran: The Art of Scientific Computing, volume 1-2*. Cambridge University Press.
3. J. Stoer and R. Bulirsch. *Introduction to Numerical Analysis*. Springer Verlag,

## Reference Books:

4. *MATLAB documentation*. Online reference. <http://www.mathworks.com/>.
5. D. J. Hingham and P. J. Hingham. *MATLAB guide*. Society of Industrial and Applied Mathematics
6. C. F. van Loan. *Introduction to Scientific Computing: A Matrix-Vector Approach using MATLAB*. Prentice Hall

**\*Latest editions of all the suggested books are recommended.**

# ETHICAL HACKING FUNDAMENTAL

Course Code: TMU021

L-4, T-2, P-0, C-5

## Objective:

- To understand how intruders escalate privileges.
- To understand Intrusion DeTMUtion, Policy Creation, Social Engineering, Buffer Overflows and different types of Attacks and their proTMUtion mechanisms
- To learn about ethical laws and tests.

## Course Contents

### Unit - I

**Introduction to Ethical Hacking :**Hacking Methodology, Process of Malicious Hacking, Foot printing and Scanning: Foot printing, Scanning. Enumeration: Enumeration. System Hacking and Trojans: System Hacking, Trojans and Black Box Vs White Box TMUhniques. **(Lecture 08)**

### Unit – II

**Hacking Methodology :**Denial of Service, Sniffers, Session Hijacking and Hacking Web Servers: Session Hijacking, Hacking Web Servers. Web Application Vulnerabilities and Web TMUhniques Based Password Cracking: Web Application Vulnerabilities, Web Based Password Cracking TMUhniques **(Lecture 08)**

### Unit - III

**Web and Network Hacking :** SQL Injection, Hacking Wireless Networking, Viruses, Worms and Physical Security: Viruses and Worms, Physical Security. Linux Hacking: Linux Hacking. Evading IDS and Firewalls: Evading IDS and Firewalls. **(Lecture 08)**

### Unit - IV

**Report writing &Mitigation :**Introduction to Report Writing & Mitigation, requirements for low level reporting & high level reporting of Penetration testing results, Demonstration of vulnerabilities and Mitigation of issues identified including tracking. **(Lecture 08)**

### Unit – V

**Ethical Hacking Laws and Tests :** An introduction to the particular legal, professional and ethical issues likely to face the domain of ethical hacking, ethical responsibilities, professional integrity and making appropriate use of the tools and TMUhniques associated with ethical hacking – Social Engineering, Host Reconnaissance. **(Lecture 08)**

## Text Books:

1. Michael T. Simpson, Kent Backman, James E. “Corley, **Hands-On Ethical Hacking and NetworkDefense**”, Second Edition, CENGAGE Learning

## Reference Books:

1. Steven DeFino, Barry Kaufman, Nick Valenteen, “**Official Certified Ethical Hacker Review Guide**”,CENGAGE Learning
2. Patrick Engebretson, “**The Basics of Hacking and Penetration Testing: Ethical Hacking and Penetration Testing Made Easy**”, Syngress Basics Series – Elsevier
3. Whitaker & Newman, “ **Penetration Testing and Network Defense**” , Cisco Press, Indianapolis

**\*Latest editions of all the suggested books are recommended.**

# MOBILE DEVICE AND NETWORK ARCHITECTURE

Course Code: TMU022

L-4, T-2, P-0, C-5

## Objective:

- To introduce the principles of Network Design
- To understand the process of Network Deployments
- To gain basic insight of Network Operations and Maintenance

## Course Contents

### Unit - I

**Communication Principles:** Wireless Communication Principles, Radio Communication, Analog and Digital Communication, Benefits of Digital Signals, Computer Network, OSI Model, Mobile Network OSI layer functions, Mobile Network Protocol Layers. Introduction to Basic Telephony, POTS (Plain Old Telephone Service), Telephony Networks, PSTN (Public Switched Telephone Network), Telephone Network Hierarchy, Telecommunication Networks, Fixed Networks, Mobile Networks.

(Lecture 08)

### Unit - II

**Mobile Cellular Networks :** Cellular Network Concepts, Cells and Base Stations, Frequency and Interface in Cells, Access Channels, Mobile Network Architecture, Mobile Network, Mobile Network Subsystems, Mobile Station, Base Station Subsystems, Network Switching Subsystems, Mobile Network Protocol Stacks, Core Networks, PLMN (Public Land Mobile Network), Mobile Network Fundamentals, Mobile Network Features, Mobility, Registration, Handoff, Roaming, Mobile Network Fundamentals (SMS), SMS (Short Message Service), SMS Network Architecture, SMS Network Elements, SMS Protocols, SMS Applications & Short Codes.

(Lecture 08)

### Unit - III

**GSM and CDMA Networks:** GSM History, GSM RF Channels, 2G Network Architecture, GSM Protocol Stack, GPRS Standards, CS and PS Domains, GPRS Architecture, GPRS Network Architecture, GPRS Protocols, CDMA Evolution, 2G CDMAOne, CDMA 2G Standards, 3GPP2 Network Architecture, Mobile IP, UMTS Spectrum, UMTS Radio Access Network, UMTS Protocol Stacks, SIP Network, UMTS Multiple Access Network Architecture, 4G.

(Lecture 08)

### Unit - IV

**Handset Evolution, Handset Characteristics and Features :** Mobile Phone and Network Evolution, Cellular Networks, Cell Phones, Mobile Phones, Mobile Handset Characteristics, Wireless Cellular, Bluetooth , Display, Keypad, Camera, Mobile Handset Categories, Low end Phones, Feature Phones, Smart phones, Handset Components, Handset Design, Handset Manufacture, Handset Bill of Materials, assembling handsets.

(Lecture 08)

### Unit - V

**Hardware Architecture and Subsystems :** Handset hardware Architecture, Primary Hardware Subsystems, Element inside a Mobile Handset, Hardware Architecture Evolution, Processing Subsystem Architecture, Hardware architectural trends, CPU and Memory, Memory, Internal storage, Hardware evolution, Introduction to the Radio subsystems, Function of the RF Subsystems, Handset Power Requirements, Power Management, Power reduction Techniques, Power Subsystem components, Introduction and Definition to the SIM, Smartcards in general and concept of Mobile Identity , Functions and usage of the SIM , Phones without SIMs.

(Lecture 08)

**Text Books:**

1. Wireless and Mobile Network Architectures by Yi-Bang Lin and Imrich Chlamtac, Wiley-India
2. Mobile Networks Architecture by Andre Perez, Wiley

**Reference Books:**

1. Mobile Computing – Technology, Application & Service Creation by Asoke. K Talukder, Roopa R. Yavagal, Asoke K. Talukder, Tata McGraw-Hill
2. GSM - Architecture, Protocols and Services by Jörg Eberspächer, Hans-Joerg Vögel, Christian Bettstetter, Christian Hartmann John Wiley & Sons

**\* Latest editions of all the suggested books are recommended.**

# COMPUTER FORENSIC AND INVESTIGATION

**Course Code: TMU023**

**L-3, T-2, P-0, C-4**

**Objective:** Forensic science is the application of science to the examination of physical evidence obtained in the investigation of a crime. This course emphasizes the role of forensic science within the criminal justice system. Some of the topics to be covered include the crime scene, collection of physical evidence, fingerprints, firearms, and serology.

## Course Content

### Unit - I

**Computer Forensics :** Introduction to Computer Forensics, Forms of Cyber Crime, First Responder Procedure- Non-TMUhnical staff, TMUhnical Staff, Forensics Expert and Computer Investigation procedure. **(Lecture 10)**

### Unit - II

**Storage Devices & Data Recover Methods :**Storage Devices- Magnetic Medium, Non-magnetic medium and Optical Medium. Working of Storage devices-Platter, Head assembly, spindle motor. Data Acquisition, Data deletion and data recovery method and TMUhniques. **(Lecture 10)**

### Unit - III

**Forensics TMUhniques :**Windows forensic, Linux Forensics, Mobile Forensics, Steganography, Application Password cracking-Brute force, Dictionary attack, Rainbow attack. Email Tacking – Header option of SMTP, POP3, IMAP. **(Lecture 10)**

### Unit - IV

**Cyber Law :**Corporate espionage, Evidence handling procedure, Chain of custody, Main features of Indian IT Act 2008 (Amendment) **(Lecture 10)**

## Text Books:

1. Guide to Computer Forensics and Investigations –B. Nelson, et al, - Cengage

## References Books:

1. Hacking Exposed Computer Forensics – Aaron Philipp, David Cowen, Chris Davis, Pub: McGraw Hill

**\*Latest editions of all the suggested books are recommended.**

# CYBER LAW & INFORMATION SECURITY

Course code: TMU024

| L | T | P | C   |
|---|---|---|-----|
| 3 | 1 | 0 | 3.5 |

**Objective:** The objective of this subject is to make the individual aware of cybercrimes and acquire a critical understanding of cyber laws in order to prevent their information systems from cybercrimes and to give the learners in depth knowledge of Information security.

## Course Contents

### Unit-I

History of Information Systems and its Importance, basics, Changing Nature of Information Systems, Need of Distributed Information Systems, Role of Internet and Web Services, Information System Threats and attacks, Classification of Threats and Assessing Damages Security in Mobile and Wireless Computing: Security Challenges in Mobile Devices, authentication Service Security, Security Implication for organizations, Laptops Security Functions of various networking components- routers, bridges, switches, hub, gateway.

(Lecture 08)

### Unit-II

Basic Principles of Information Security, Confidentiality, Integrity Availability and other terms in Information Security, Information Classification and their Roles. Security Threats to E Commerce, Virtual Organization, and Business Transactions on Web, E Governance and EDI, Concepts in Electronics payment systems, E Cash, Credit/Debit Cards.

(Lecture 08)

### Unit-III

Physical Security: Needs, Disaster and Controls, Basic Tenets of Physical Security and Physical Entry Controls. Access Control- Biometrics, Factors in Biometrics Systems, Benefits, and Criteria for selection of Biometrics, Design Issues in Biometric Systems, Interoperability Issues, Economic and Social Aspects, Legal Challenges.

(Lecture 08)

### Unit-IV

Model of Cryptographic Systems, Issues in Documents Security, System of Keys, Public Key Cryptography, Digital Signature, Requirement of Digital Signature System, Finger Prints, Firewalls, Design and Implementation Issues, Policies, Network Security: Basic Concepts, Dimensions, Perimeter for Network Protection, Network Attacks, Need of Intrusion Monitoring and Detection, Intrusion Detection. Virtual Private Networks: Need, Use of Tunnelling with VPN, Authentication Mechanisms, Types of VPNs and their Usage, Security Concerns in VPN.

(Lecture 08)

### Unit-V

Laws, Investigation and Ethics: Cyber Crime, Information Security and Law, Types & overview of Cyber Crimes, Cyber Law Issues in E-Business Management, Overview of Indian IT Act, Ethical Issues in Intellectual property rights, Copy Right, Patents, Data privacy and protection, Domain Name, Software piracy, Plagiarism, Ethical hacking.

(Lecture 08)

### Text Books:

1. Godbole, "Information Systems Security", Willey
2. Merkov, Breithaupt, "Information Security", Pearson Education

### Reference Books:

1. Yadav, "Foundations of Information Technology", New Age, Delhi
2. Schou, Shoemaker, "Information Assurance for the Enterprise", Tata McGraw Hill
3. Sood, "Cyber Laws Simplified", McGraw Hill

# Fundamentals of Animation and Design

Course Code: TMU025

L-3, T-2, P-0, C-4

**Objective-** To introduce the students with Animation and its concepts. To develop an approach for design and message conveying through Animation and other visual medium.

## Unit I

What is animation, History of animation, concept of animation and persistence of vision, Introduction to Experimental animation, Orientation into visual art form, Orientation into performing art form, Relevance of message and medium and their relationship,

(Lecture 08)

## Unit II

The Basics of traditional 2D animation, Introduction to the skill required for the animators, Learning to draw lines, circles, ovals, scribbles, jig jag (random) patterns etc, use of simple shapes. To draw drawings with the help of basic shapes

(Lecture 08)

## Unit III

An introduction on how the drawings is important for animation, Shapes and forms, About 2D and 3D shapes, Life drawing, Caricaturing-fundamentals, Exaggeration, Silhouette.

(Lecture 08)

## Unit IV

An introduction of designing concepts. Elements of good design, rhythm, contrast, placement of element, balance, rule of third, optimal use of media etc. Need for design, Concepts and theories of good designing. Methods of designing – Exploring, redefining, managing and prototype.

(Lecture 08)

## Unit V

Designing for different needs-

Designing for industry, designing for visual art (Graphic, web and Animation),

Designing for a process, designing for manufacturing and designing for product and service.

(Lecture 08)

## Text Books:

1-Experimental animation: an illustrated anthology Robert russett and Cecile Starr.Concept

2-Design: Works from Seven Los Angeles Entertainment Designers.byHarold Belker,Steve Burg,

3-Survival kit for animators -Sir Willium Richards

4-Creative Illustations- Andrew Loomis

**\*Latest editions of all the suggested books are recommended.**



## NON-CONVENTIONAL ENERGY RESOURCES

Course Code: TMU026

L-3, T-2, P-0, C-4

### Unit I: Introduction

Various non-conventional energy resources- Introduction, availability, classification, relative merits and demerits.

### Unit II: Solar Cells

Theory of solar cells. Solar cell materials, solar cell power plant, limitations.

#### Solar Thermal Energy

Solar radiation flat plate collectors and their materials, applications and performance, focusing of collectors and their materials, applications and performance; solar thermal power plants, thermal energy storage for solar heating and cooling, limitations.

### Unit III: Geothermal Energy

Resources of geothermal energy, thermodynamics of geo-thermal energy conversion-electrical conversion, non-electrical conversion, environmental considerations.

#### Magneto-hydrodynamics (MHD)

Principle of working of MHD Power plant, performance and limitations.

### Unit IV: Fuel Cells

Principle of working of various types of fuel cells and their working, performance and limitations.

#### Thermo-electrical and thermionic Conversions

Principle of working, performance and limitations.

#### Wind Energy:

Wind power and its sources, site selection, criterion, momentum theory, classification of rotors, concentrations and augments, wind characteristics. Performance and limitations of energy conversion systems.

### Unit V: Bio-mass

Availability of bio-mass and its conversion theory.

#### Ocean Thermal Energy Conversion (OTMU)

Availability, theory and working principle, performance and limitations.

#### Wave and Tidal Wave

Principle of working, performance and limitations. Waste Recycling Plants

### Books Recommended:

1. AndraGabel, "A Handbook for Engineers and Economists".
2. A. Mani, "Handbook of Solar radiation Data for India".
3. Peter Auer, "Advances in Energy System and Technology". Vol. 1 & II Edited by Academic Press.
4. F.R. the MITTRE, "Wind Machines" by Energy Resources and Environmental Series.
5. Frank Kreith, "Solar Energy Hand Book".
6. N. Chermisinogg and Thomes, C. Regin, "Principles and Application of Solar Energy".
7. N.G. Calvert, "Wind Power Principles".
8. W. Palz., P. Chartier and D.O. Hall, "Energy from Biomass".

## ENVIRONMENT AND ECOLOGY

Course Code: TMU027

L-3, T-2, P-0, C-4

### Unit I: Environment

Environment and its components, pollution of environment by human activity, kinds of pollution.

### Unit II: Water Quality

Measure of water quality, water quality standards, water treatment; waste water transport and treatment, sludge treatment and disposal.

#### Air Quality

Sources and effects of air pollution, major air pollutants, air quality control, treatment of emissions, dispersion of air pollutants.

### Unit III: Solid waste

Collection of refuse, removal and transport, disposal of refuse.

#### Noise Pollution

Effect of noise on human health and its control.

### Unit IV: Ecology

Ecology and Ecosystems, concept of ecological imbalances, physical and climate factors, biotic components, energy and material flows in ecosystems, human influence on ecosystems.

### Unit V: Conservation of Natural Resources

Water resources, mineral resources, agricultural and forestry resources, agriculture soil and need of nutrients, fertilizers and pesticides. Brief introduction about environmental legislation and environmental audit.

### Books Recommended:

1. Vesilind, "Introduction to Environmental Engineering," Thomson Asia Pvt. Ltd. Singapore.

## ENTREPRENEURSHIP DEVELOPMENT PROGRAMME

Course Code: TMU028

L-3, T-2, P-0, C-4

### Unit I: Entrepreneur

Definition. Growth of small scale industries in developing countries and their positions vis-a-vis large Industries; role of small scale industries in the national economy; characteristics and types of small scale Industries; demand based and resources based ancillaries and sub-control type. Government policy for small scale industry; stages in starting a small scale industry.

### Unit II: Project identification

Assessment of viability, formulation, Evaluation, financing, field-study and collection of information, preparation of project report, demand analysis, material balance and output methods, benefit cost analysis, discounted cash flow, and internal rate of return and net present value methods.

### Unit III: Accountancy

Preparation of balance sheets and assessment of economic viability, decision making, expected costs, planning and production control. Quality control, marketing, industrial relations, sales and purchases, advertisement, wages and incentive, inventory control, preparation of financial reports, accounts and stores studies.

### Unit IV: Project Planning and control

The financial functions, cost of capital approach in project planning and control. Economic evaluation, risk analysis, capital expenditures, policies and practices in public enterprises. Profit planning and programming, planning cash flow, capital expenditure and operations, control of financial flows, control and communication.

### Unit V: Laws concerning entrepreneur

Partnership laws, business ownership, sales and income taxes and workman compensation act. Role of various national and state agencies which render assistance to small scale industries.

### Books Recommended:

1. Joseph, L. Massod, "Essential of Management", Prentice Hall of India.

## HUMAN VALUES

Course Code: TMU029

L-3, T-2, P-0, C-4

### Unit I: Introduction

1. Nature of value crisis in the contemporary Indian society and the larger human community.
2. Meaning and nature of values; holistic view of life and its value.
3. Conceptualizing 'good' life and its value dimensions.

### Material and Societal value

1. Role of material values in promoting human well-being.
2. Role of Science and Technology; problems of material development.
3. Socio-political ideologies for promoting material wellbeing
4. Conceptualizing 'good' society and 'social goods'
5. Justice as a societal value.
6. Democracy and rule of law.
7. Values in the Indian Constitution.
8. Gandhian concepts of good society; gram swaraj, sarvodaya, antyodaya

### Unit II: Psychological and Aesthetic Values

1. Humanistic psychology; meaning of 'personhood'
2. Maslow's hierarchy of human need; characteristics of 'self-actualizing' persons.
3. Mental health
4. Psycho-spiritual Indian concepts.
5. Areas and nature of aesthetic experiences.
6. Nature of beauty; aesthetic sensibilities.

### Unit III: Ethical and Spiritual Values

1. Bases for moral judgments: customary morality, religious morality, reflective morality.
2. Some principles of ethics; ethical canons and their significance in modern life.
3. Virtue ethics; personal virtues for the modern times.
4. Ethics of duty and ethics of responsibility.
5. Factors to be considered in making ethical judgments: motives, means and consequences.
6. Spirituality and spiritual values: spiritual wisdom of the Upanishads; Buddha's view.
7. Science, materialism and spirituality.
8. Spirituality in the modern times.

### Unit IV: Human Values

1. Different meaning of human values: foundational human values – freedom, creativity, love and wisdom.
2. Nature of Human freedom; individual freedom, intellectual freedom, freedom of will, spiritual freedom.
3. Creativity: its meaning and nature; different kinds of creativity.
4. Creative problem solving.
5. Creative personality, creative environment.
6. Love as a foundational human value; different kinds of love.
7. Human wisdom; characteristics of a wise person.
8. Concepts & Principles of interdependence.

### Unit V: Work Ethics and Professional Ethics

1. Different attitudes to work.
2. Demands of work-ethics, ethics at work place.
3. 'Good' organization and its values.
4. What is a profession?
5. Professional ethos and code of professional ethics.

6. IEEE Code of professional ethics.
7. Problems in practicing the code.
8. Case studies.

**Books Recommended:**

1. Human Values By: Prof. A.N. Tripathi New Age International.
2. 7 Habits of Highly By: Dr. Stephen R. Covey Effective People Harper Publications.
3. Wisdom Leadership By: Prof. S.K. Chakraborty Wheeler Publication.

## SOLAR ENERGY

Course Code: TMU030

L-3, T-2, P-0, C-4

### Unit I:

Introduction, Energy alternative, Devices for thermal collection and storage, Thermal applications.

Solar radiation: Instruments for measuring solar radiation, solar radiation geometry, Empirical equations for prediction the availability of solar radiation, Solar radiation on tilted surfaces.

### Unit II:

Liquid flat- Plate Collectors: General performance analysis, Transmissivity, absorptivity, product and overall loss coefficient and heat transfer correlations, Collector efficiency factor, Numerical, Analysis of collectors similar to the conventional collector. Testing procedures, Alternatives to the conventional collector, Numerical.

### Unit III:

Solar Air Heaters: Performance analysis of a conventional air heater, other types of air heaters.

Concentrating Collectors: Flat plate collectors with plane reflectors, cylindrical parabolic collector, Compound parabolic dish collector, Central receiver collector, Numerical.

### Unit IV:

Thermal energy storage: Sensible heat storage, Latent heat Storage, Thermochemical storage .Solar distillation: Introduction, working principal of solar distillation, Thermal efficiency of distiller unit, External heat transfer, Top loss coefficient, Bottom and side loss coefficient, Internal heat transfer, Radioactive loss coefficient, connective loss coefficient, Evaporative loss coefficient, Overall heat Evaluation of distillation output, Passive solar stills, Conventional solar still, Basin construction, Thermal analysis of conventional solar still.

### Unit V:

Photovoltaic Systems: Introduction doping Fermi level, P-N junction characteristics, Photovoltaic effect, Photovoltaic material, Module, Cell temperature, Numerical. Economic analysis: Introduction, cost analysis.

### Recommended Books

1. Solar Energy: Thermal Processes, by Duffie John A, and Beckman W.A, John Wiley and Sons.
2. Solar Energy, by S.P Sukhatme, Tata McGraw Hill.
3. Treatise on Solar Energy, by H.P Garg, John Wiley and Sons.

**Unit I**

Scope and Importance of Human Resource management, Historical background of Evolution of HRM and HRD in 20th century, outlining the contemporary role for HRM in organization. Goals of HRM. (Why behavioural approach?)

**Unit II**

Manpower as a resource in job related behaviour and individual motivation in a work setting. Various theories of human motivation, Maslow's hierarchy of needs. Needs for achievement, power and affiliation, other theories, group motivation and conflicts.

**Unit III**

Manpower planning and recruitment, Testing procedures and their limitations. Reservations in jobs, pre - induction training.

**Unit IV**

Wage and salary administration-pay roll and compensation. Job analysis and job specification, other pay plans, employment contracts, special compensation plans for example personnel, effect of Financial rewards on individual's performance. Goal setting and performance evaluation, promotion policy, employee satisfaction, turnover.

**Unit V**

Assessment of training needs, forces promoting investment in HRD, Human resource development through individual and group efforts. Training analyses and training methods guidelines for individual development, job enlargement and job enrichment, job rotation, special assignment, Sponsored courses cost benefit exercise. Importance of unions, industrial petitions and conflict analysis and resolution. Relevant labour laws.

# TEERTHANKER MAHAVEER COLLEGE OF NURSING

CERTIFICATE COURSE: RESEARCH METHODOLOGY

## COURSE OUTLINE

TIME: 6 MONTHS

GROUP: FACULTY, PG'S OF MEDICINE AND ALLIED HEALTHSCIENCES

Course Code: TMU025

L-3, T-2, P-0, C-4

### Unit I

#### Research process overview:

- Statement of the problem and research objectives
- Concepts and constructs
- Variables assumptions
- Hypotheses formulation and types
- Delimitation

### Unit II

#### Review of related literature

- Need, purpose and sources
- Library, On-line search
- Retrieval of databases

### Unit III

#### Research approaches and Designs

- Historical approaches
- Survey and experimental approaches,
- Qualitative research approaches, ethnography and phenomenology.
- Longitudinal, cross sectional and cohort studies-advantages and disadvantages.
- Experimental designs- Purposes, characteristics, types of design, pre-experimental and quasi and true implemented design, steps of experimental research
- Sampling Methods- size, criteria of Population, TMUhniques of sampling criteria, determination of sample size
- Data collection- Tools and TMUhniques, types, purposes, characteristics and uses.
- Scale/Construction of tools-Selection/Construction of tools, Testing validity and reliability.
- TMUhniques of data collection: TMUhnique, tools used for qualitative research, observation, Focus group discussion, measurement and record analysis and field trips.

### Unit IV

#### Data Analysis

- Descriptive, inferential and advance statistics
- Parametric and Non parametric methods
- Multivariate analysis

### Unit V

#### Communicating research findings

- Research critic
- Project proposal for funding
- Research utilization



# TEERTHANKER MAHAVEER COLLEGE OF NURSING

## ELECTIVE COURSES

### Course: Infection Control and Bio Medical Waste Management

Course Code: TMU070

L-3, T-0, P-0, C-3

#### Objectives:

1. To make the students to understand some basic concepts, Facilities, equipment, and procedures necessary to implement standard and additional (transmission-based) precautions for control of infections.
2. Cleaning, disinfecting and reprocessing of reusable equipment.
3. Waste management.
4. Protection of health care workers from transmissible infections.
5. Infection control practices in special situations

#### Unit I

Hours 5

- Concept, Definition, Aims, objectives of infection control
- Risk of Infection
- Health care associated infections
- Prevalence
- Infection sites
- Factors influencing Health care associated infections
- Route of Health care associated infections
- Chain of infection

#### Unit II

Hours 10

##### Infection control

- Basics of infection control
- Infection control program
- Infection control team
- Infection control Committee
- Nosocomial infection surveillance
- Types of surveillance

#### Unit III

Hours 10

##### Infection control Measures in health care settings

- **Standard precautions**
  - Hand hygiene and types of hand hygiene
  - Personal Protective equipment and types of PPE
  - Prevention of needle sticks/ sharps injuries
  - Cleaning and disinfection of environment and equipment
- **Transmission based precautions**
  - Droplet precautions
  - Contact precautions
  - Air borne
- Handling of contaminated material
- Environmental decontamination

**Unit IV** **Hours 5**

**Introduction:**

- Bio medical waste
- Risk for bio medical waste if not managed properly.
- Environmental Hazards
- Occupational Hazards
- Public Health Hazards
- Advantages of proper management of bio medical waste

**Unit V** **Hours 5**

**Legal Provision:**

- Salient features of bio medical waste (Management and handling) Rules, 1998
- Categories of bio medical waste
- Category wise treatment and disposal methodology
- Segregation, packing, storage and transportation

**Unit VI** **Hours 10**

- Occupational safety and health of health care worker:
- Occupational risk of chemicals- precautions and safety measures
- Disease transmission
- Health care workers safety
- Role of health care providers in bio medical waste management

**Unit VII** **Hours 15**

- Bio medical waste Management:
- Bio medical waste Management in hospitals where Bio medical waste treatment facility is not available.
- Bio medical waste Management in hospitals where Bio medical waste treatment facility is available
- Bio medical waste Management in primary health centers and small scale hospitals in rural area
- Unit wise generation of Bio medical waste and its requirement
- Facilities required for managing the Bio medical waste Management
- Do's and don'ts in Bio medical waste Management

## NON-CONVENTIONAL ENERGY RESOURCES

Course Code: TMU074

L-4, T-0, P-0, C-4

### Unit I: Introduction

Various non-conventional energy resources- Introduction, availability, classification, relative merits and demerits.

### Unit II: Solar Cells

Theory of solar cells. Solar cell materials, solar cell power plant, limitations.

#### Solar Thermal Energy

Solar radiation flat plate collectors and their materials, applications and performance, focusing of collectors and their materials, applications and performance; solar thermal power plants, thermal energy storage for solar heating and cooling, limitations.

### Unit III: Geothermal Energy

Resources of geothermal energy, thermodynamics of geo-thermal energy conversion-electrical conversion, non-electrical conversion, environmental considerations.

#### Magneto-hydrodynamics (MHD)

Principle of working of MHD Power plant, performance and limitations.

### Unit IV: Fuel Cells

Principle of working of various types of fuel cells and their working, performance and limitations.

#### Thermo-electrical and thermionic Conversions

Principle of working, performance and limitations.

#### Wind Energy:

Wind power and its sources, site selection, criterion, momentum theory, classification of rotors, concentrations and augments, wind characteristics. Performance and limitations of energy conversion systems.

### Unit V: Bio-mass

Availability of bio-mass and its conversion theory.

#### Ocean Thermal Energy Conversion (OTEC)

Availability, theory and working principle, performance and limitations.

#### Wave and Tidal Wave

Principle of working, performance and limitations. Waste Recycling Plants

### Books Recommended:

1. AndraGabel, "A Handbook for Engineers and Economists".
2. A. Mani, "Handbook of Solar radiation Data for India".
3. Peter Auer, "Advances in Energy System and Technology". Vol. 1 & II Edited by Academic Press.
4. F.R. the MITTRE, "Wind Machines" by Energy Resources and Environmental Series.
5. Frank Kreith, "Solar Energy Hand Book".
6. N. Chermisinogg and Thomes, C. Regin, "Principles and Application of Solar Energy".
7. N.G. Calvert, "Wind Power Principles".
8. W. Palz., P. Chartier and D.O. Hall, "Energy from Biomass".

**Unit I: Environment**

Environment and its components, pollution of environment by human activity, kinds of pollution.

**Unit II: Water Quality**

Measure of water quality, water quality standards, water treatment; waste water transport and treatment, sludge treatment and disposal.

**Air Quality**

Sources and effects of air pollution, major air pollutants, air quality control, treatment of emissions, dispersion of air pollutants.

**Unit III: Solid waste**

Collection of refuse, removal and transport, disposal of refuse.

**Noise Pollution**

Effect of noise on human health and its control.

**Unit IV: Ecology**

Ecology and Ecosystems, concept of ecological imbalances, physical and climate factors, biotic components, energy and material flows in ecosystems, human influence on ecosystems.

**Unit V: Conservation of Natural Resources**

Water resources, mineral resources, agricultural and forestry resources, agriculture soil and need of nutrients, fertilizers and pesticides. Brief introduction about environmental legislation and environmental audit.

**Books Recommended:**

1. Vesilind, "Introduction to Environmental Engineering," Thomson Asia Pvt. Ltd. Singapore.

## ENTREPRENEURSHIP DEVELOPMENT PROGRAMME

Course Code: TMU076

L-4, T-0, P-0, C-4

### Unit I: Entrepreneur

Definition. Growth of small scale industries in developing countries and their positions vis-a-vis large Industries; role of small scale industries in the national economy; characteristics and types of small scale Industries; demand based and resources based ancillaries and sub-control type. Government policy for small scale industry; stages in starting a small scale industry.

### Unit II: Project identification

Assessment of viability, formulation, Evaluation, financing, field-study and collection of information, preparation of project report, demand analysis, material balance and output methods, benefit cost analysis, discounted cash flow, and internal rate of return and net present value methods.

### Unit III: Accountancy

Preparation of balance sheets and assessment of economic viability, decision making, expected costs, planning and production control. Quality control, marketing, industrial relations, sales and purchases, advertisement, wages and incentive, inventory control, preparation of financial reports, accounts and stores studies.

### Unit IV: Project Planning and control

The financial functions, cost of capital approach in project planning and control. Economic evaluation, risk analysis, capital expenditures, policies and practices in public enterprises. Profit planning and programming, planning cash flow, capital expenditure and operations, control of financial flows, control and communication.

### Unit V: Laws concerning entrepreneur

Partnership laws, business ownership, sales and income taxes and workman compensation act. Role of various national and state agencies which render assistance to small scale industries.

### Books Recommended:

1. Joseph, L. Massod, "Essential of Management", Prentice Hall of India.

**Unit I: Introduction**

1. Nature of value crisis in the contemporary Indian society and the larger human community.
2. Meaning and nature of values; holistic view of life and its value.
3. Conceptualizing 'good' life and its value dimensions.

**Material and Societal value**

1. Role of material values in promoting human well-being.
2. Role of Science and technology; problems of material development.
3. Socio-political ideologies for promoting material wellbeing
4. Conceptualizing 'good' society and 'social goods'
5. Justice as a societal value.
6. Democracy and rule of law.
7. Values in the Indian Constitution.
8. Gandhian concepts of good society; gram swaraj, sarvodaya, antyodaya

**Unit II: Psychological and Aesthetic Values**

1. Humanistic psychology; meaning of 'personhood'
2. Maslow's hierarchy of human need; characteristics of 'self-actualizing' persons.
3. Mental health
4. Psycho-spiritual Indian concepts.
5. Areas and nature of aesthetic experiences.
6. Nature of beauty; aesthetic sensibilities.

**Unit III: Ethical and Spiritual Values**

1. Bases for moral judgments: customary morality, religious morality, reflective morality.
2. Some principles of ethics; ethical canons and their significance in modern life.
3. Virtue ethics; personal virtues for the modern times.
4. Ethics of duty and ethics of responsibility.
5. Factors to be considered in making ethical judgments: motives, means and consequences.
6. Spirituality and spiritual values: spiritual wisdom of the Upanishads; Buddha's view.
7. Science, materialism and spirituality.
8. Spirituality in the modern times.

**Unit IV: Human Values**

1. Different meaning of human values: foundational human values – freedom, creativity, love and wisdom.
2. Nature of Human freedom; individual freedom, intellectual freedom, freedom of will, spiritual freedom.
3. Creativity: its meaning and nature; different kinds of creativity.
4. Creative problem solving.
5. Creative personality, creative environment.
6. Love as a foundational human value; different kinds of love.
7. Human wisdom; characteristics of a wise person.
8. Concepts & Principles of interdependence.

**Unit V: Work Ethics and Professional Ethics**

1. Different attitudes to work.
2. Demands of work-ethics, ethics at work place.
3. 'Good' organization and its values.
4. What is a profession?
5. Professional ethos and code of professional ethics.
6. IEEE Code of professional ethics.
7. Problems in practicing the code.
8. Case studies.

**Books Recommended:**

1. Human Values By: Prof. A.N. Tripathi New Age International.
2. 7 Habits of Highly By: Dr. Stephen R. Covey Effective People Harper Publications.
3. Wisdom Leadership By: Prof. S.K. Chakraborty Wheeler Publication.

**Unit I:**

Introduction, Energy alternative, Devices for thermal collection and storage, Thermal applications. Solar radiation: Instruments for measuring solar radiation, solar radiation geometry, Empirical equations for prediction the availability of solar radiation, Solar radiation on tilted surfaces.

**Unit II:**

Liquid flat- Plate Collectors: General performance analysis, Transmissivity, absorptivity, product and overall loss coefficient and heat transfer correlations, Collector efficiency factor, Numerical, Analysis of collectors similar to the conventional collector. Testing procedures, Alternatives to the conventional collector, Numerical.

**Unit III:**

Solar Air Heaters: Performance analysis of a conventional air heater, other types of air heaters. Concentrating Collectors: Flat plate collectors with plane reflectors, cylindrical parabolic collector, Compound parabolic dish collector, Central receiver collector, Numerical.

**Unit IV:**

Thermal energy storage: Sensible heat storage, Latent heat Storage, Thermochemical storage .Solar distillation: Introduction, working principal of solar distillation, Thermal efficiency of distiller unit, External heat transfer, Top loss coefficient, Bottom and side loss coefficient, Internal heat transfer, Radioactive loss coefficient, connective loss coefficient, Evaporative loss coefficient, Overall heat Evaluation of distillation output, Passive solar stills, Conventional solar still, Basin construction, Thermal analysis of conventional solar still.

**Unit V:**

Photovoltaic Systems: Introduction doping Fermi level, P-N junction characteristics, Photovoltaic effect, Photovoltaic material, Module, Cell temperature, Numerical. Economic analysis: Introduction, cost analysis.

**Recommended Books**

1. Solar Energy: Thermal Processes, by Duffie John A, and Beckman W.A, John Wiley and Sons.
2. Solar Energy, by S.P Sukhatme, Tata McGraw Hill.
3. Treatise on Solar Energy, by H.P Garg, John Wiley and Sons.



**Unit I**

Scope and Importance of Human Resource management, Historical background of Evolution of HRM and HRD in 20th century, outlining the contemporary role for HRM in organization. Goals of HRM. (Why behavioural approach?)

**Unit II**

Manpower as a resource in job related behaviour and individual motivation in a work setting. Various theories of human motivation, Maslow's hierarchy of needs. Needs for achievement, power and affiliation, other theories, group motivation and conflicts.

**Unit III**

Manpower planning and recruitment, Testing procedures and their limitations. Reservations in jobs, pre - induction training.

**Unit IV**

Wage and salary administration-pay roll and compensation. Job analysis and job specification, other pay plans, employment contracts, special compensation plans for example personnel, effect of financial rewards on individual's performance. Goal setting and performance evaluation, promotion policy, employee satisfaction, turnover.

**Unit V**

Assessment of training needs, forces promoting investment in HRD, Human resource development through individual and group efforts. Training analyses and training methods guidelines for individual development, job enlargement and job enrichment, job rotation, special assignment, Sponsored courses cost benefit exercise. Importance of unions, industrial petitions and conflict analysis and resolution. Relevant labour laws.