



IPS ACADEMY- INSTITUTE OF ENGINEERING & SCIENCE, INDORE

(An Autonomous Institute)

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

Scheme of Examination as per AICTE Flexible Curricula

VII Semester Bachelor of Technology (B.Tech.)

[Fire Technology & Safety Engineering]

S. No.	Subject Code	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
			Theory			Practical			L	T	P	
			End Sem	Mid Sem. Exam.	Quiz/ Assignment	End Sem	Term work Lab Work & Sessional					
1	PCC -FT701	Fire Fighting Installation	70	20	10	60	40	200	2	1	2	4
2	PCC-FT702	Electrical Fire Safety	70	20	10	60	40	200	2	1	2	4
3	PCC-FT703	Fire Fighting Drills	-	-	-	60	40	100	-	-	2	1
4	PEC- FT701	Professional Elective IV	70	20	10	-	-	100	3	-	-	3
5	POEC-FT701	Open Elective	70	20	10	-	-	100	3	-	-	3
6	PROJ - FT701	Project Phase-I	-	-	-	60	40	100	-	-	12	6
7	PROJ - FT702	GD/Seminar	-	-	-	-	100	100	-	-	2	1
		Total	280	80	40	240	260	900	12	1	18	22
Total Academic Engagement and Credits									31			22

Professional Elective Courses (PEC)-IV	Suggestive Professional Open Electives Courses from Mechanical Engineering
PEC- FT701 (A) Hazardous Material Management	POEC- FT701 (A) Principles of Management & Managerial Economics
PEC- FT701 (B) Process Safety & Risk Assessment	POEC- FT701 (B) Operation Research
	POEC- FT701 (C) Entrepreneurship
	POEC- FT701 (D) Intellectual Property Rights

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PCC-FT701	Fire Fighting Installation	2L:1T:2P (05 hrs)	04 Credits
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Course Objective:

1. To describe and design the water based hydrant system in different types of occupancies.
2. To explain the relevant code of practice and design the automatic sprinkler system for a given Occupancy.
3. To learn about the foam based fire fighting systems at different applicable fire desirous sites.
4. To solve the problem of fire loss due to water and foam by applying clean extinguishing agent at precious locations.
5. To learn about the special dry chemical and their systems applicable to highly reactive metals.

Course Content:

Module 1 (08 Hrs)

WATER BASED FIRE PROTECTION: Fire water demand calculation, water storage tank capacity, water storage tank equipment and accessories, relationship of air pressure and volume in tanks, calculating fire flow rates by Insurance service office method (ISO), Iowa state university method (ISU), fire flow duration, factors affecting water requirement. Hydrant System- Definition and basic components, Pressure and discharge requirement, spacing between hydrant post, pipe material and size.

Module 2 (08 Hrs)

AUTOMATIC SPRINKLER SYSTEM: Fundamental of performance- Fire suppression Analogy, Design Consideration, Response time Index, Thermal sensitivity and temperature rating. Sprinkler System layout- Sprinkler system zoning, tree system, looped system, gridded system, placement of mains and branch lines, Sprinkler system spacing, maximum area permitted for protection, spacing between branch lines and sprinklers. Hydraulic calculation and back flow protection. Sprinkler system type- wet pipe system, dry pipe system, pre-action system and deluge system.

Module 3 (08 Hrs)

FOAM BASED FIRE PROTECTION: System types –Fixed, Semi fixed and mobile foam systems. Fixed cone roof, external floating roof and internal floating roof protection with foam-water sprinkler system. Diked and non diked area protection. Medium and high expansion foam systems, mobile foam apparatus and their application, Foam Fire Fighting at fixed sites- Size of fire, type of fuel, depth of fuel and application rate. Storage tank fire tactics for cone roof, floating roof and horizontal tanks.

Module 4 (08 Hrs)

GAS BASED FIRE PROTECTION: Halogenated Agents and System- Chemical mechanism, chemical composition, Classification and Properties, Toxic and irritant effect, application systems, flooding system, design consideration- NFPA-12A and NFPA-12B, Halon Replacement agents and systems- Extinguishing Mechanism, Halocarbon agents and Inert Gas agents Ozone depletion, Clean agent system design, Agent quantity and discharge time. Carbon Dioxide Application System- Concentration for extinguishment, life safety consideration NFPA-12, methods of application total flooding, local application, hand hose lines, stand pipe systems and mobile supply, components of carbon dioxide system- Carbon dioxide storage, piping system, valves and operating devices, discharge nozzles, system controls, control panels, alarms. Quantity and venting requirements for different system, use and limitation of systems.

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Module 5

(08 Hrs)

DRY CHEMICAL BASED FIRE PROTECTION SYSTEM: Method of application, system design NFPA-17, storage of chemical and expellant, system actuation and distribution system. Quantity and application rate of dry chemical. Inspection, testing and maintenance procedures for chemical systems. Listed agents for metal fires MET-L-X powder, Na-X powder, other combustible metal extinguishing agent, non proprietary combustible metal extinguishing agents.

Course Outcome:

At the end of this course student will be able to:

1. Describe and design water based fire protection system for a given occupancy.
2. Design and estimates the sprinkler system for a given occupancy.
3. Explain and evaluate the foam based fire protection systems for class-B liquid fires.
4. Justify the use of gaseous based fire protection inside the precious locations.
5. Plan chemical powder based fire fighting systems and able to estimate the cost of the system.

List of Text/Reference Books:

1. Fred Stowell, Principles of Foam Fire Fighting International Fire Service Training Association.
2. Robert M Gagnon, Designer's Guide to Automatic Sprinkler Systems, NFPA-2005.
3. Operation of Fire Protection System NFPA Special Edition.
4. Tariff Advisory committee, Fire Protection Manual- Hydrant System.
5. Tariff Advisory committee, Manual for Water Spray System.
6. Fire Service Manual, Fire Service Technology Equipment and media Fire Fighting Foam Technical Volume-1.
7. Arthur E. Cote, P.E., Fire Protection Handbook, Section-10 and 11, National Fire Protection Association.

List of Experiment:

1. To draw the suction and delivery arrangement of main, standby and jockey pump for a given sample of pump house and calculate the fire water demand.
2. To summarize the Sprinkler system components and draw the sprinkler installation for a given sample of an occupancy.
3. To recognize the major components of hydrant system and draw the hydrant system installation for a given sample of an occupancy.
4. To plan the foam based fire protection system and design for medium and high expansion foam system inside a given sample of flammable liquid tank.'
5. To analyze and evaluate the inert gas fire protection system drawing for a given sample of an occupancy.
6. To draw the major components of dry chemical based fire protection system in a given sample of hazardous location.
7. To draw and analyze the components of water spray system in a given sample of LPG bullet storage facility.
8. To draw and describe the components water mist/emulsify system for a given sample of transformer model.

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PCC-FT702	Electrical Fire Safety	2L:1T:2P (05 hrs)	04 Credits
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Course Objective:

1. To learn about electrical hazards and electrical safety.
2. To learn about fire hazards and safety measures in generation systems.
3. To learn about fire hazards and safety measures in Transmission systems.
4. To learn about fire hazards and safety measures in distribution systems and transformers.
5. To learn about electrical safety equipments and its use in preventing fire hazards

Course Content:

Module 1

(08 Hrs)

INTRODUCTION TO ELECTRICAL FIRE: Electrical hazards and electrical safety, Protection Against Direct Contact, Insulation of Live Parts, Additional Protection by Residual Current Devices, Protection Against Indirect Contact, Protection by Automatic Disconnection of Supply, Protection Without Automatic Disconnection of Supply, Non-electrical causes, nature of electrical injuries, Types of injury, Electric shock, Body resistance, The limits of safety, Effect of frequency, Fractures and torn Muscles, Burns and side effects, Protection against electrical Injuries, electrical current effect in the human body.

Module 2

(08 Hrs)

FIRE HAZARDS IN GENERATION SYSTEMS: Generation: - Different types of Generating Stations, Thermal, Hydro electric, their equipments, Nuclear power station, Nuclear fission, Radioactivity, Reactor designs, Safety philosophy, Periodical electrical safety reviews, Safety concept and design, electrical underlying standards, Partial safety concept, Fire resistance, Possible Faults and fire outage, Protection and safety measures.

Module 3

(08 Hrs)

FIRE HAZARDS IN TRANSMISSION SYSTEMS: Transmission: - Transmission lines, types of transmission lines, their equipments, Main components of over head lines, Conductor materials, Line supports, insulators, Types of insulators, Ground wires, Possible Faults and fire outage, Protection and safety measures.

Module 4

(08 Hrs)

FIRE HAZARDS IN DISTRIBUTION SYSTEM AND TRANSFORMERS: Distribution system and their equipments, Substation and their equipments, Possible Faults and fire hazards, their protection and safety measures. Transformer: Their types, Working Principal, Applications, Possible faults and fire hazards, Protection and Safety measures.

Module 5

(08 Hrs)

ELECTRICAL SAFETY EQUIPMENTS: Fuses and its types and construction, Requirement of relays, Primary & backup protection, Types of relay protection, Over current, Over Voltage relays, Circuit Breaker, Arc Voltage, Arc Interruption, Classification of Circuit Breakers, Oil, SF₆, Vacuum Circuit Breakers, Earthing- Their method and applications, Insulators – Their types and applications, fire detection system, smoke detector, Photo electric smoke detector, Air sampling type smoke detectors.

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Course Outcome:

At the end of this course student will be able to:

1. Describe electrical hazards and electrical safety.
2. Understand fire hazards and safety measures in generation systems.
3. Describe fire hazards and safety measures in Transmission systems.
4. Explain fire hazards and safety measures in distribution systems and transformers.
5. Describe and explain electrical safety equipments and its use in preventing fire hazards.

List of Text/Reference Books:

1. W Fordham Cooper, Electrical Safety Engineering.
2. B. Ravindran and M Chander, Power System protection and Switchgear, New Age International.
3. J. Cadick, Electrical Safety Handbook, McGraw-Hill.
4. B. Ram, Power System Protection & Switchgear, McGraw Hill

List of Experiment:

1. Study of electrical hazards and various measures for electrical safety.
2. Identification and study of various faults and fire outages in generation system.
3. Study of various protective equipments used in substations and their safety measures.
4. Identification and study of possible faults and fire hazards in transformers and its protection equipments.
5. Study of various types of relays for protection.
6. Analysis and study of different circuit breakers for protection.
7. Study of house wiring and various protection equipments.
8. Study of different earthing methods and various safety measures.

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PCC-FT703	Fire Fighting Drills	0L:0T:02 (02 hrs)	01 Credits
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Course Objectives:

To understand and command aim, principle and instruction method of squad drill and fire fighting drills.

Course Content:

1. Introduction
2. Aim of Drill
3. Basic Principles
4. Squad Drills
5. Appliance Drills
 - Hose drill
 - Hydrant drill
 - Pump drill
 - CFT drill
 - Ladder drill
 - Ambulance drill
6. Miscellaneous Drills
 - Knots
 - Rescue Techniques
7. Emergency Evacuation Drills
8. Fitness Training
 - Yoga
 - Meditation
 - Physical training
9. Emergency Communications

Course Outcome:

At the end of this course student will be able to:

1. Conduct and command squad drill of fire fighting crew in an organization.
2. Trained fire fighting crew in different squad drills and fire fighting drills.

List of Text/Reference Books:

1. AFS – Drill Manual
2. Drill manual for Fire Services of India by Govt. of India.
3. Fire Fighters Skill drill manual by NFPA.

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PEC- FT701 (A)	Hazardous Material Management	3L:0T:0P (03 hrs)	03 Credits
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Course Objective:

To learn fundamentals of various hazardous materials exposure with their source and dispersion models, chemical risk analysis, storage and handling consideration..

Course Content:

Module 1 (08 Hrs)

EXPOSURE AND RESPONSE: General Principle of Chemical exposure and toxic response- Chemical exposure and cancer, chemical exposure and hypersensitivity, toxic response of lungs, liver, kidney, skin chemical exposure and health risk assessment.

Module 2 (08 Hrs)

DISPERSION MODEL: Toxic release and dispersion models-Design basis, Introduction to Source Models, source model, Flashing Liquids, Liquid Pool Evaporation or Boiling, Conservative Analysis, dispersion model, Pasquill- Gifford model, effect of release momentum, Buoyancy, Dense Gas Dispersion, Toxic Effect Criteria, Release Mitigation.

Module 3 (08 Hrs)

CHEMICAL RISK ANALYSIS: Flammability-vapour pressure, limits of flammability, Flash points, auto-ignition temperature. Stability- Experimental methods of determination, classifications of instability risk, quantitative approach. Toxicity- Evaluation parameter, level of toxic risk, problem posed by determination of toxicity risk level, Quantative estimation method.

Module 4 (08 Hrs)

EXPLOSION HAZARDS: Gas and vapor cloud explosion & means of preventing and mitigating in the process industry, Explosion in clouds of liquid droplets in air (spray/mist explosions), Dust Explosion. Stability and sensitivity tests, Classification of materials with explosive potential, Hazard prediction by thermodynamic calculations, Prevention and control of explosions and detonations- diluting a release, purging and inerting, venting, explosion relief, flame arrestors, explosion suppression.

Module 5 (08 Hrs)

STORAGE AND HANDLING: Types of storage-general considerations for storage layouts-atmospheric venting, pressure and temperature relief- relief valve sizing calculations- storage and handling of hazardous chemicals and industrial gases, safe disposal methods, reaction with other chemicals, hazards during transportation- pipe line transport- safety in chemical laboratories. Safety provisions like level and flow indicators- alarms, colour coding for pipe lines and cylinders.

Course Outcome:

At the end of this course student will be able to:

1. Explain chemicals exposure and their response in human body.
2. Describe various source and dispersion models for any hazardous material leakage.
3. Demonstrate chemical risk analysis for a given environment.
4. Analyze impact of explosions in different conditions.
5. Explain storage and handling requirement of different hazardous material.

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List of Text/Reference Books:

1. Chemical process safety, fundamental with application- Daniel A Crawl/ Joseph F Louver
2. Chemical exposure and toxic response- Edited by- Stephen K. Hall, Joana Chakraborty Randall J. Ruch.
3. Chemical Risk analysis- Bernard Martel
4. Explosion hazards in the process industries. - Rolf K. Eckhoff.
5. Chemical process Industries Shreve R.N.
6. Chemical Engineers handbook peoy JHJ & Chitten (Ed)
7. Hazardous materials emergency planning guide-NSC India.
8. Loss prevention in the process Industries F.P. Lees.
9. Technical guidance for hazard analysis - NSC India.
10. Process equipment design - MV Joshi
11. Major hazard control - A practical manual (ILO)
12. Chemical Process safety - Daniel A Crawl, Joseph Flouvar.

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PEC- FT701 (B)	Process Safety & Risk Assessment	3L:0T:0P (03 hrs)	03 Credits
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Course Objective:

To understand the concept of risk assessment in design and operation with evaluation of threat zone observed during consequence modeling.

Course Content:

Module 1 (08 Hrs)

CONCEPT OF RISK: Definition, Accepted & Imposed risk, perception and qualification of risk, ALARP, cost Benefit analysis.

Module 2 (08 Hrs)

BASIC QUANTITATIVE RISK ASSESSMENT (QRA): The logic tree Approach, principles of QRA, fault tree analysis, probability Theory, Combination of Frequencies, Event Tree analysis (ETA)

Module 3 (08 Hrs)

SAFETY IN DESIGN AND OPERATION: Safety in Design safety assurance in design, safety in operation, maintenance, organizing for safety, Accident Investigation and reporting.

Module 4 (08 Hrs)

HAZOP: Introduction to HAZOP, conducting a HAZOP study, computerized reporting systems. HAZOP of batch process, Extensions of HAZOP, Failure Mode & Effect Analysis (FMEA): Methodology of FMEA, criticality analysis, corrective action and followup

Module 5 (08 Hrs)

CONSEQUENCE MODELING: Gas dispersion, Toxicity, Explosions and fires, fires. Human Factors:- The role of the operator, control room design, Human Error Assessment Methods, Application of HAZOP to human reliability, data on operator reliability.

Course Outcome:

At the end of this course student will be able to:

1. Know the basic concept of risk.
2. Describe QRA , ETA, FTA and other safety methodologies.
3. Understand safety in design and operation.
4. Understand HAZOP and its application in risk assessment.
5. Evaluate threat zone in consequence modeling.

List of Text/Reference Books:

1. Process safety analysis □ An introduction by Bob Skelton.
2. An introduction to Risk Analysis by Robert E. Megill.
3. Risk Assessments Questions and Answers a practical approach by Pat Perry.
4. Safety sharing the experience - BP Process Safety Series- by www.icheme.org.
5. Fire Safety Risk Assessment- HM Government

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POEC- FT701 (A)	Principles of Management & Managerial Economics	3L:0T:0P (03 hrs)	03 Credits
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Course Objectives:

1. Explain management, organization and the roles of managers & Explain different theories of management.
2. Describe the importance of planning and organization Structure.
3. Discuss the control process and its elements
4. Explain the term Managerial Economics & its importance.
5. Explain productivity & factors that affect productivity.

Course Content:

Module 1 **(08 Hrs)**

INTRODUCTION: Definition, Functions, Process, Scope and Significance of Management. Nature of Management, Managerial Roles, Managerial Skills and Activities, Difference between Management and Administration. Significance of Values and Ethics in Management. Evolution of Management: Thought Approaches of Management Thought, Functions of Management. Different theories of Management.

Module 2 **(08Hrs)**

PLANNING AND ORGANIZING: Nature, Scope, Objective and Significance of Planning, Elements and Steps of Planning, Decision Making Organizing Principles, Span of Control, Line and Staff Relationship, Authority, Delegation and Decentralization. Effective Organizing, Organizational Structures, Formal and Informal Organizations, Staffing

Module 3 **(08 Hrs)**

DIRECTING: Effective Directing, Supervision, Motivation, Different Theories of Motivation, Concept of Leadership- Theories and Styles, Communication Process, Channels and Barriers, Effective Communication. Controlling and Coordinating: Elements of Managerial Control, Control Systems, Management Control Techniques, Effective Control Systems. Coordination Concept, Importance, Principles and Techniques of Coordination, Concept of Managerial Effectiveness.

Module 4 **(08 Hrs)**

MANAGERIAL ECONOMICS: Introduction, Factors Influencing Manager, Micro and Macro-economics, Theory of the Cost, Theory of the Firm, Theory of Production Function.

Module 5 **(06 Hrs)**

PRODUCTIVITY: Input-Output Analysis, Micro-economics Applied to Plants and Industrial Undertakings, Production and Production system, Productivity, Factors affecting Productivity, Increasing Productivity of Resources. Case Studies.

Course Outcome:

At the end of this course student will be able to:

1. Understanding of basic concepts, principles and practices of management
2. Understanding the planning and organizing & organization Structures.
3. Describe importance of Management Control Techniques
4. Understand the term Managerial Economics & its importance.
5. Understand productivity & factors that affect productivity

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List of Text/Reference Books:

1. Chhabra T.N., Principles and Practice of Management. 10th ed Year 2018.
2. Murton- Gulab, Management Today. 3th ed.1998
3. KoontzH. and O'DonnelH., Essential of Management, 8th ed., McGraw-Hill, New Delhi, 2009.
4. Robbins, S. Fundamentals of Management. 5th ed., Pearson Education, Canada, 2008.
5. Prasad L M, Principles and Practices of Management, S. Chand and Sons, New Delhi ,2018
6. Terry & Francklin, Principles of Management, Richard– Erwin.18th Ed. 1982

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POEC- FT701 (B)	Operation Research	3L:0T:0P (03 hrs)	03 Credits
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Course Objectives:

1. To be familiar with all the OR Techniques and optimization methods.
2. To be familiar with various inventory control techniques.
3. To be familiar with waiting line models and Competitive strategy.
4. To clear idea of the decision making and meta-heuristic algorithm.
5. To understand project network analysis.

Course Content:

Module 1

(08 Hrs)

LINEAR SYSTEM AND DISTRIBUTION MODELS: Mathematical formulation of linear systems by LP, solution of LP for two variables, Simplex method, special cases of LP- transportation and assignment model and their graphical solution, Vogels Approximation Method (VAM) or penalty method, cell evaluation degeneracy.

Module 2

(08 Hrs)

INVENTORY MODELS: Necessity of inventory in process and safety stock, problem of excess inventory and cycle time, JIT/ Lean Mfg; basics of inventory models with deterministic demand, Classical EOQ Model, ABC, VED and other analysis based on shelf life, movement, size, MRP technique and calculations, lot sizing in MRP, linking MRP with JIT; evolution of MRP to ERP to SCM and e-business.

Module 3

(06 Hrs)

WAITING LINE MODELS: Introduction, Input process, service mechanism, Queue discipline, single server (M/M/1), average length and average time calculations, optimum service rate; basic multipleserver models (M/M/s), Competitive strategy: concept and terminology, assumptions, pure and mixed strategies, two person zero sum games, saddle point, dominance, graphical, algebraic and LP methods for solving game theory problems..

Module 4

(08 Hrs)

DECISION ANALYSIS: Decision under certainty, risk Probability and uncertainty, Hurwicz criterion AHP assigning weight and consistency test of AHP. Metaheuristics: definition of heuristic and metaheuristic algorithms

Module 5

(08 Hrs)

NETWORK ANALYSIS: Project Planning, Scheduling and Controlling; Project management; Network Techniques and its role in project management, Network logics, Fulkerson's Law, Merits and Demerits of AON Diagrams; Programme Evaluation and Review Technique (PERT), Critical Path Method (CPM), Determination of critical path, Float/Slack.

Course Outcome:

At the end of this course student will be able to:

1. Understand the concept of optimization and its application.
2. Understand the concept of various inventory control techniques used in industries.
3. Understand the concept of Queuing and Game Theory.
4. Understand the idea of the decision making and application of meta-heuristic algorithm
5. Implement project management concepts, tools and techniques in order to achieve project success

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List of Text/Reference Books:

1. Hillier FS and Liberman GJ; Introduction to Operations Research concept and cases; TMH , 8th Ed. 2008.
2. Heera and Gupta, Operation Research, S Chand Pub. reprint with corrections ,2017
3. Sharma JK; Operations Research; Macmillan 3rd Ed. 2006.
4. Heera and Gupta ,Problems in Operations Research Principles and Solutions, S Chand Pub, 4th Ed. 2015.
5. Taha H; Operations research; PHI, 10th Ed.2019.
6. Jain, pandey & shrivastava; Quantitative techniques for management, New Age publishers.2019
7. Srinivasan G; Quantitative Models In Operations and SCM; PHI Learning, 2017
8. Sen RP; Operations Research-Algorithms and Applications; PHI Learning, 2009
9. Bronson R ;Theory and problems of OR; Schaum Series; TMH, 2016.

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POEC- FT701 (C)	Entrepreneurship	3L:0T:0P (03 hrs)	03 Credits
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Course Objective:

1. To develop conceptual understanding of the concept of Entrepreneurship
2. To learn the government's policy .
3. To Learn about types of Enterprises
4. To Learn about E-commerce and its Technological Aspects
5. To Learn about Digital Marketing

Course Content:

Module 1 **(06 Hrs)**

ENTREPRENEURSHIP: Definition, requirements to be an entrepreneur, entrepreneur and intrapreneur, entrepreneur and manager, growth of entrepreneurship in India, women entrepreneurship, rural and urban entrepreneurship.

Module 2 **(06 Hrs)**

ENTREPRENEURIAL MOTIVATION: Motivating factors, motivation theories-Maslow's Need Hierarchy Theory, McClelland's Acquired Need Theory, government's policy actions towards entrepreneurial motivation, entrepreneurship development programmes

Module 3 **(06 Hrs)**

TYPES OF ENTERPRISES AND OWNERSHIP STRUCTURE: Small scale, medium scale and large scale enterprises, role of small enterprises in economic development; proprietorship, partnership, Ltd. companies and co-operatives: their formation, capital structure and source of finance.

Module 4 **(06 Hrs)**

E-COMMERCE AND ITS TECHNOLOGICAL ASPECTS: Overview of developments in Information Technology and Defining E-Commerce: The scope of E commerce, Electronic Market, Electronic Data Interchange, Internet Commerce, Benefits and limitations of E-Commerce, Produce a generic framework for E-Commerce, Architectural framework of Electronic Commerce, Web based E Commerce Architecture.

Module 5 **(06 Hrs)**

INTRODUCTION TO DIGITAL MARKETING: Evolution of Digital Marketing from traditional to modern era, Role of Internet, Search Engine Advertising, Display marketing, Social Media Marketing.

Course Outcomes:

At the completion of this course, students will be able to:

1. Inculcate entrepreneurship skills to students.
2. Aware about industry structure and how to start up a company
3. Aware about **types of Enterprises.**
4. Understand E-commerce practices.
5. Understand and practice Digital Marketing.

List of Text/Reference Books:

1. Koontz & O'Donnel, Essentials of Management, Tata McGraw Hill, New Delhi ,2009
2. Peter F Drucker, The Practice of Management, McGraw Hill, New York ,1960
3. Peter F. Drucker, Innovation and Development, McGraw Hill, New York,2000.
4. Mohanty SK; Fundamental of Entrepreneurship; PHI, 2005.
5. Davis & Olson; Management Information System; TMH, 1985.

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POEC- FT701 (D)	Intellectual Property Rights	3L:0T:0P (03 hrs)	03 Credits
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Course Objective:

1. To be familiar with the concept of intellectual property.
2. To be familiar with Purpose and function of trademarks
3. To be familiar with Fundamental of copy right law
4. To clear idea of the trade Secrete.
5. To be familiar with latest development in the field of intellectual property.

Course Content:

Module 1 (06 Hrs)
INTRODUCTION TO INTELLECTUAL PROPERTY: Introduction, types of intellectual property, international organizations, agencies and treaties, importance of intellectual property rights.

Module 2 (06 Hrs)
TRADE MARKS: Purpose and function of trademarks, acquisition of trade mark rights, protectable matter, selecting, and evaluating trade mark, trade mark registration processes.

Module 3 (06 Hrs)
LAW OF COPYRIGHTS: Fundamental of copy right law, originality of material, rights of reproduction, rights to perform the work publicly, copy right ownership issues, copy right registration, notice of copy right, international copy right law. Law of patents: Foundation of patent law, patent searching process, ownership rights and transfer.

Module 4 (06 Hrs)
TRADE-SECRETS: Trade secrete law, determination of trade secrete status, liability for misappropriations of trade secrets, protection for submission, trade secrete litigation. Unfair competition: Misappropriation right of publicity, false advertising.

Module 5 (06 Hrs)
NEW DEVELOPMENT IN INTELLECTUAL PROPERTY: new developments in trade mark law; copy right law, patent law, intellectual property audits. International overview on intellectual property, international – trade mark law, copy right law, international patent law, and international development in trade secrets law.

Course Outcomes:

At the end of this course student will be able to:

1. Understand the concept of intellectual property.
2. Understand what is trademark and its importance.
3. Understand the law of copyright.
4. Understand how trade secrete help in competitive market
5. Understand the latest trends in intellectual property.

List of Text/Reference Books:

1. Intellectual property right, Deborah. E. Bouchoux, Cengage learning.
2. Intellectual property right – Unleashing the knowledge economy, prabuddha ganguli, Tata McGraw Hill Publishing company ltd.,