



மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்

**MANONMANIAM SUNDARANAR UNIVERSITY**

**SYLLABUS FOR DIPLOMA IN FIRE AND SAFETY MANAGEMENT  
PROGRAM OFFERED THROUGH DIRECTORATE OF VOCATIONAL  
EDUCATION (COMMUNITY COLLEGES AND VOCATIONAL SKILL DEVELOPMENT  
CENTRES) FROM 2019 - 2020**



கல்விசார் நிலைக்குழுக் கூட்டம்

**MEETING OF THE STANDING COMMITTEE ON  
ACADEMIC AFFAIRS HELD ON WEDNESDAY  
THE 22<sup>nd</sup> JANUARY 2020**

**DIPLOMA IN FIRE AND SAFETY MANAGEMENT**

தீயணைப்பு மற்றும் பாதுகாப்பு நிர்வாகம் பட்டயம்

**SCHEME OF EXAMINATION**

Subject Code	Title of the Course	Credit	Hours	Passing Minimum
<b>Semester I</b>				
C19FS11/E19FS01	Safety Management	6	90	40/100
C19FS12/E19FS02	Basics of Fire fighting and Control	6	90	40/100
C19FS13/E19FS03	First Aid	6	90	40/100
C19CE10/E19CE10	Communicative English	6	90	40/100
C19FSP1/E19FSP1	Practical I- Fire Fighting Equipments - Operations and Repairing	4	120	40/100
<b>Semester II</b>				
C19FS21/E19FS04	Management and Risk Assessment	6	90	40/100
C19FS22/E19FS05	Chemical and Oil Industries Safety Management	6	90	40/100
C19LS23/E19LS05	Life Skill	6	90	40/100
C19FSP2/E19FSP2	Practical II-Fire Fighting Drills - Solids and Liquids	4	120	40/100
C19FSPW/E19FSPW	Project / Internship	10	150	40/100

**Eligibility for admission:** Pass in 10<sup>th</sup>Std examination conducted by the Govt. of Tamil Nadu Board of Secondary Education, Government of Tamil Nadu or any other equivalent examination.

**Examination:** Passing Minimum for each Course is 40%. Classification will be done on the basis percentage marks of the total marks obtained in all the Courses and as given below:

40% but less than 50%	-	Third class
50% but less than 60%	-	Second class
60% and above	-	First class

**Theory Paper**

Internal Marks-25

External Marks-75

## Syllabus

### **SEMESTER I**

Course – I	:	Safety Management
Course – II	:	Basics of Fire fighting and Control
Course – III	:	First Aid
Course – IV	:	Communicative English
Course – V	:	Practical I-Fire Fighting Equipments - Operations and Repairing

### **SEMESTER II**

Course – VI	:	Management and Risk Assessment
Course – VII	:	Chemical and Oil Industries Safety Management
Course – VIII	:	Life Skill
Course – IX	:	Practical II-Fire Fighting Drills - Solids and Liquids
Course – X	:	Project / Internship

**\*(Semester Pattern for Community College only)**

### **PROGRAM OBJECTIVE**

1. To prevent the occurrence of the fire through the control of fire hazards
2. To maintain of the building safety systems and facilities, establish procedures.
3. To reduce the risk of damage caused by fire and the environment.

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**SEMESTER I**  
**COURSE - I**  
**(C19FS11/E19FS01)SAFETY MANAGEMENT**

**OBJECTIVE:**

- To find out Safety Management System.
- To identify Training Objectives and Methods.
- To know the Rules and regulation of safety department.

**Unit I**

**18 Hrs**

Key elements of a safety Management, Policy & commitment, Planning, Implementation and Operation, Measuring Performance, Auditing and reviewing performance Initial Safety Management System Review, Safety Management System - Developing a workplace Safety and Health Policy.

**Unit II**

**18 Hrs**

Safety and Health Management System records: Operational Control – Workplace Precautions, Safety and Health training and Competence Training for Safety and Health.

**Unit III**

**18 Hrs**

Identify Training Needs – Organizational Needs, job-related Needs, Individual Needs : Identify Training Objectives and Methods, Deliver Training , Evaluation and feedback, specialist Advice and Services – access to Specialist advice and services, relationships within the Organization , relationships Outside the organization , external specialist safety and safety support.

**UNIT - IV**

**18 Hrs**

Stages in plant life and unsafe condition in factories, maintenance & safety, basics safety programming, safety department, Rules and regulation of safety department.

**UNIT - V**

**18 Hrs**

Responsibility of management for safety in plant, safe guarding the public, Responsibility of government, social organization and public authorities. Safety activities of the ILO (International Labour Organization)

**OUTCOME:**

- Understand the Safety and Health Management
- Develop the relationships within the organization.
- Learn the Safety activities of the ILO

**Reference Books:**

1. Industrial Safety Management – LM Deshmukh
2. Safety Management (Industrial Safety)- Ganguly and Changeria
3. Safety Management (Industrial Management)- Ganguly and Changeria
4. Safety Management (Health Safety and and Environment)- Ganguly and Changeria

**COURSE II**  
**(C19FS12/E19FS02)BASICS OF FIRE FIGHTING AND CONTROL**

**OBJECTIVE:**

- To study about construction techniques.
- To know about extinguishing agents.
- To identify the Fire prevention.

**Unit-I:**

**18 Hrs**

History of fires, types of detecting devices and extinguishing agents and systems, construction techniques, and fire investigation.

**Unit-II**

**18 Hrs**

Classification of fire, different fire extinguishing methods, Portable fire extinguishers, Pumps and primers, Foam and foam making equipments. Hose and hose fittings, Water relay systems, types of detecting devices and extinguishing agents.

**Unit-III**

**18 Hrs**

Breathing apparatus, Small gears, Fire protective clothing, Ladders, Ropes and lines, bends & hitches, Fire prevention, Special appliances, Fire fighting codes and standards, Electrical fire hazards, Structures under fire.

**Unit-IV**

**18 Hrs**

Safety of People in the event of Fire, Recognition of possible fire sources and emergency procedures in the event of a fire,

**Unit- V**

**18 Hrs**

Devising procedures in the event of fire, How people perceive and react to fire danger, The measures needed to overcome behavioral problems and to ensure the safe evacuation of people in the event of fire, Assisting disabled people to escape.

**OUTCOME:**

- 1- Learn emergency procedure in the event of a fire.
- 2- Understand how people perceive and react to fire danger.
- 3- Receive the overcome behavioral problems

**Reference Books:**

1. A Hand Book of Fire Technology : R.S. Gupta, Orient Longman Ltd, 1990
2. Electrical Safety, Fire Safety Engg.& Safety Management: S. Rao, H.L. Saluja, Khanna Publishers, 2004

**COURSE III**  
**(C19FS13/E19FS03)FIRST AID**

**OBJECTIVE:**

- To know about Surface Causalities.
- To study the precaution during search and rescue.
- To identify Ropes and Knots.

**Unit I**

**18 Hrs**

Introduction – Search and Rescue – Stages of Rescue – Surface Causalities – Searching slightly damaged buildings- Exploration of likely survival points – selected debris removal – searching methods – Physical search – canine search – Technical search – Hailing search method – Diagrammatic representation of hailing search method – Advantages of hailing search – precaution during search and rescue.

**Unit II**

**18 Hrs**

Ropes and Knots – Ropes – Natural Fibre Rope – Synthetic Fibre Rope - Synthetic Fibre Rope – Nylon Rope – Poly Rope – Braided Synthetic Rope – Knots – Knots at the end of a ropes – knots for joining two Ropes – Knots for making Loops – Hitches.

**Unit III**

**18 Hrs**

Search and rescue methods – water rescue – Emergency rescue – Staircase Drag Method – Firemen crawl method – Search and rescue kit – Action plan for Transport of injured Person – Reporting – Action on the recommendations – Accident / Incident Report Form.

**Unit IV**

**18 Hrs**

Evacuation – Evacuation signal – Participatory Rural Appraisal – Resources – Resource Mapping – Social Mapping – Processes for Resources Mapping – Emergency Evacuation – Emergency situation

**Unit V**

**18 Hrs**

First aid – Principles and practice of first aid – Scope of first aid – The general principal of first aid – Types of Bleeding – shock – Treatment for electric shock, asphyxiation (suffocation) and drowning – Type of shock – Fracture –Burn – Transportation – Resuscitation Chart (CPR) – First Aid Kit – Basics of Backpacking First Aid – Equipment – PPE (Personal Protective Equipment) – Contents of First Aid Box.

**OUTCOME:**

- 1- Understand the Action plan for Transport of injured Person
- 2- Learn Emergency Evacuation.
- 3- Receive the First aid

**Reference Books:**

- Manual of first aid to the injured : St. John Ambulance Association.

## **COURSE - IV**

### **(C19CE10/E19CE10)COMMUNICATIVE ENGLISH**

#### **1. Basic Grammar:**

- a. Review of grammar
- b. Remedial study of grammar
- c. Simple sentence
- d. Word passive voice etc.

#### **2. Bubbling Vocabulary:**

- a. Synonyms
- b. Antonyms
- c. One – work Institution

#### **3. Reading and Understanding English**

- a. Comprehension passage
- b. Précis – writing
- c. Developing a story from hints.

#### **4. Writing English**

- a. Writing Business letters.
- b. Paragraph writing
- c. Essay writing
- d. Dialogue writing

#### **5. Speaking English**

- a. Expressions used under different circumstances
- b. Phonetics

- Reference :**
1. V.H.Baskaran – “English Made Easy”
  2. V.H.Baskaran – “English Composition Made Easy”  
(Shakespeare Institute of English Studies, Chennai)
  3. N.Krishnaswamy – “Teaching English Grammar”  
(T.R.Publication, Chennai)
  4. “Life Skill” – P.Ravi, S.Prabakar and T.Tamzil Chelvam,  
M.S.University, Tirunelveli.

**COURSE V**  
**PRACTICAL - I**  
(C19FSP1/E19FSP1)**FIRE FIGHTING EQUIPMENTS - OPERATIONS AND**  
**REPAIRING**

**List of Exercises**

- List of Fire fighting equipments
- Understanding and Identification of the utility of different fire fighting equipments
- Procedure for operating different fire fighting equipments
- Identifying and using the right equipment on different categories of fire
- Mechanism of functioning of the different fire fighting equipments
- Maintenance of different fire fighting equipments
- Repairing the different fire fighting equipments

**SEMESTER II**  
**COURSE VI**  
**(C19FS21/E19FS04)MANAGEMENT AND RISK ASSESSMENT**

**OBJECTIVE:**

- To study the Managerial functions.
- To know about effective organizing.
- To analyze the special motivation techniques.

**Unit –I**

**18 Hrs**

Introduction – Management- Definition – Nature – Scope & Functions – Significance of Management – Technical Skills –Human skill – Conceptual skills – Managerial roles – Interpersonal roles, informational roles, Decisional roles – Managerial functions- Planning – Organizing – Staffing – Leading – Controlling.

**Unit II**

**18 Hrs**

Planning – nature & Purpose of planning – Objectives – Strategies – Policies – Planning premises – Decision making – Organizing – Nature and purpose of organizing – line / staff authority & decentralization – effective organizing – organization culture – staffing – general principles – importance and technique

**Unit – III**

**18 Hrs**

Leading – leadership – defining –element of leadership – leadership behaviour and styles – creativity & Innovation – motivation and motivators – special motivation techniques – communication – communication function in organization – communication process – barriers and breakdowns in communication – effective communication

**Unit IV**

**18 Hrs**

Risk assessment – Risk Assessment method – Hazard – Hazard symbols – Hazard Analysis – Hazard Ranking – Risk Management – Definitions – Functions of Risk Management – Safety Management – Need concept – Terms Related with safety Management – safety officer – supervisor – safety committees- Role of Trade union – Role of Trade union – Role of workers – safety and the law

**Unit V**

**18 Hrs**

Disaster Management – Natural disaster- Cyclone – Tremor – storm – tropical cyclone – flood–Earthquake–landslide and avalanches – Nuclear and radiation accident – bio logical hazards.

**Reference Books:**

- Principles of Mngement – LM Prasad
- Industrial Safety Handbook : William Handley, 2<sup>nd</sup> Edn., McGraw Hill, New York, 1968.
- Principles of Fire Safety Standards for Building Construction, Roytman M. Ya., Amerind Publishing Co. Pvt. Ltd., New Delhi, 1975
- Krishnan N.V. “Safety Management in Industry” Jaico Publishing House, Bombay, 1997.

## **COURSE VII**

### **(C19FS22/E19FS05)CHEMICAL AND OIL INDUSTRIES SAFETY MANAGEMENT**

#### **OBJECTIVE:**

- To identify Industry Accidents.
- To know about Safety Precautions for transporting hazardous.
- To study the Safety in chemical industry.

#### **Unit I**

**18 Hrs**

Review of Industry Accidents: Major Oil Industry Accidents, Major Chemical Industry Accidents, the Mexico LPG Disaster, Bhopal Disaster, Phillips Disaster.

#### **Unit II**

**18 Hrs**

Classification of chemicals, Safety in chemical industry, Criteria for layout of chemical plants, Instrumentation for safe plant operations. Control, precautions and prevention, specific safety measures for chemical industry.

#### **Unit III**

**18 Hrs**

Safety Precautions for transporting hazardous / toxic / flammable /explosive/ radioactive chemicals by all modes, transfer of chemicals by pipelines within and outside installations, above and under ground

#### **Unit IV**

**18 Hrs**

The fire hazards, risks and controls available for safe containment of oil and hydrocarbons offshore and onshore, Outline the hazards, risks and controls relating to hydrocarbon Process Safety Management (PSM) in the oil industries,

#### **Unit V**

**18 Hrs**

Control measures to minimize the effects of fire and explosion in the oil and gas industries, the principles, procedures and resources for effective emergency response.

#### **OUTCOME:**

- 1- Understand the Safety Management (PSM) in the oil industries.
- 2- Learn the Control measures to minimize explosion.
- 3- Develop the effective emergency response.

#### **Reference Books:**

1. Industrial Safety Handbook : William Handley, 2<sup>nd</sup> Edn., McGraw Hill, New York, 1968.
2. Handbook of Occupational Health and Safety, NSC Chicago, 1982
3. Krishnan N.V. "Safety Management in Industry" Jaico Publishing House, Bombay, 1997.

## **COURSE - VIII**

(C19LS23/E19LS05)**Life Skill**

### I Life Coping or adjustment

- (a) External and internal influence in one's life
- (b) Process of coping or adjustment
- (c) Coping with physical change and sexuality
- (d) Coping with stress, shyness, fear, anger for life and criticism.

### II Attitude

- (a) Attitude
- (b) Self acceptance, self – esteem and self actualization
- (c) Positive thinking

### III Problem Solving

- (a) Goal Setting
- (b) Decision Making
- (c) Time Management and stress Management.

### IV Computers

- (a) Introduction to Computers
- (b) M.S.Office
- (c) Power Point

### V Internet

- (a) Introduction to internet
- (b) E – mail
- (c) Browsing

### **References:**

- 1) Life Skill Programme course I & II by Dr. Xavier Alphona MCRDCE Publications. R.K.Mutt Road, Chennai – 28
- 2) ஆளுமை பண்பு வளர்த்தல் மற்றும் தகவல் தொடர்பு by M.Selvaraj Community College, Palayamkottai
- 3) “Life Skill” –P.Ravi, S.Prabahar & T.Tamil Chelvam, M.S. University, Tirunelveli

**COURSE – IX**  
**PRACTICAL – II**

**(C19FSP2/E19FSP2)FIRE FIGHTING DRILLS – SOLIDS AND LIQUIDS**

**List of Exercises**

- To be conducted under strict supervision of the expert
- Conduct table talk drill initially by explain the pros and cons of each category of fire
- Ask for the suitable fire fighting equipments for the fire to be created and discuss on the operation procedure
- Identify a safe location for conduction Fire drill
- Create different category of fire at different time zone
- Make the participant involve in the process of fire fighting
- Reflect on the performance of the fire fighter
- Document the process and its outcome.

**COURSE X**

**(C19FSPW/E19FSPW)PROJECT/INTERNSHIP**

- The students of this course are required to undertake either a Project Work or Internship training individually on a specific topic during the second semester and submit a report at the end of the semester but before the commencement of the end semester examination.
- The objective of the Project work is to understand the problems faced by the organization and offer specific suggestions to solve those problems.
- The objective of the internship is to understand the day to day activities of the organization in which the internship is undertaken and intensive training should be provided in all the departments of the organization.
- The period of the project work / Internship can be decided by the centres concerned according to the availability of the opportunities available. The choices could be either the student can take up the work on a daily basis in the afternoon or evening throughout the semester or for a period of one month after completion of the classes, before the examinations.