# Curriculum For Associate Degree Program

# In

# Fire and Rescue Techniques

**The Curriculum of Associate Degree in "Fire & Rescue Techniques" Consists of (72 Credit Hours) as follows:**

| SERIAL NO. | REQUIREMENTS | CREDIT HOURS |
|---|---|---|
| First | University Requirements | 12 |
| Second | Engineering Program Requirements | 17 |
| Third | Specialization Requirements | 43 |
| **Total** | | 72 |

**The Curriculum of Associate Degree In**
**Fire & Rescue Techniques Specialization**

**First: University requirements (12 credit hours) as follows:**

| Course No. | Course Title | Credit Hours | Weekly Contact Hours | | Prerequisite |
|---|---|---|---|---|---|
| | | | Theoretical | Practical | |
| 22001101 | Arabic Language | 3 | 3 | – | |
| 22002101 | English Language | 3 | 3 | – | |
| 21901100 | Islamic Culture | 3 | 3 | – | |
| 21702101 | Computer Skills | 3 | 1 | 4 | |
| **Total** | | 12 | 10 | 4 | |

**Second**: **Engineering Program requirements (17 credit hours) as follows**:

| Course No. | Course Title | Credit Hours | Weekly Contact Hours | | Prerequisite |
|---|---|---|---|---|---|
| | | | Theoretical | Practical | |
| 20201111 | Engineering Workshops | 1 | – | 3 | – |
| 20204111 | AutoCAD | 2 | – | 6 | – |
| 20506111 | Occupational Safety | 2 | 2 | – | – |
| 21301111 | General Mathematics | 3 | 2 | 2 | – |
| 21302111 | General Physics | 3 | 2 | 2 | – |
| 21302112 | General Physics Laboratory | 1 | – | 3 | – |
| 21702111 | Communication Skills and Technical Writing | 3 | 2 | 2 | 22002101 |
| 20201121 | Engineering Materials | 2 | 2 | – | – |
| **Total** | | 17 | 10 | 18 | |

**Third: - Specialization requirements (43) credit hours as follows:-**

| Course No. | Course Title | Credit Hours | Weekly Contact Hours | | Prerequisite |
|---|---|---|---|---|---|
| | | | Theoretical | Practical | |
| 20313110 | Fire fighting and rescue terminology | 3 | 3 | — | |
| 20313120 | Basic emergency medical care | 3 | 2 | - | |
| 20313130 | Introduction to Fire and rescue | 3 | 3 | — | |
| 20313140 | Safety principles | 3 | 3 | — | |
| 20313150 | Self contained Breathing apparatus | 4 | 2 | 6 | 20313130** 20313140** |
| 20313231 | Fire Behavior | 3 | 3 | — | 20313130** |
| 20313233 | Fire and Rescue techniques (1) | 3 | 1 | 6 | 20313150** |
| 20313234 | Fire and Rescue techniques (2) | 3 | 1 | 6 | 20313150** 20313233** |
| 20313241 | Fire prevention and protection | 3 | 3 | — | |
| 20313242 | Fire inspection & investigation | 3 | 2 | 3 | 20313241** |
| 20313251 | Command ,control and communications | 3 | 3 | — | |
| 20313235 | Search and Rescue Techniques | 3 | 1 | 6 | 20313231** |
| 20313236 | Special incidents | 3 | 3 | — | |
| | Field training* | 3 | — | — | 20312237 |
| | Total | 43 | 31 | 30 | |

* Equivalent to 280 training hours
** Co- Request

# Study plan

| First year | | | | | |
|---|---|---|---|---|---|
| Second semester | | | First semester | | |
| Credit hours | Course title | Course No. | Credit hours | Course title | Course No. |
| 3 | Arabic Language | 22001101 | 3 | English Language | 22002101 |
| 3 | Communication Skills and Technical Writing | 21702111 | 3 | Computer Skills | 21702101 |
| 3 | safety principles | 20313140 | 3 | General Mathematics | 21301111 |
| 3 | Islamic Culture | 21901100 | 3 | General Physics | 21302111 |
| 3 | Basic emergency medical care | 20313120 | 1 | General Physics Lab. | 21302112 |
| 3 | Introduction to fire and rescue | 20313130 | 3 | Fire Fighting and rescue Terminology | 20313110 |
| | | | 2 | Engineering Materials | 20201121 |
| 18 | | Total | 18 | | Total |

| Summer semester | | |
|---|---|---|
| Credit hours | Course title | Course No. |
| 1 | Engineering Workshops | 20201111 |
| 3 | Fire Behavior | 20313231 |
| 3 | Command ,Control and Communications | 20313251 |
| 7 | | Total |

| Second year | | | | | |
|---|---|---|---|---|---|
| Forth semester | | | Third semester | | |
| Credit hours | Course title | Course No. | Credit hours | Course title | Course No. |
| 3 | Fire inspection & investigation | 20313242 | 2 | Occupational Safety | 20506111 |
| 3 | Fire and Rescue techniques 2 | 20313234 | 4 | Self contained Breathing apparatus | 20313150 |
| 3 | Search and Rescue Techniques | 20313235 | 3 | Fire and Rescue techniques (1) | 20313233 |
| 3 | Special incidents | 20313236 | 3 | Fire prevention and protection | 20313241 |
| 3 | Field training | 20312237 | 2 | AutoCAD | 20204111 |
| 15 | | Total | 14 | | Total |

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313110** |
| **Course Title** | **Firefighting and rescue terminology** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

This course is designed to develop a working knowledge of the language of firefighting and rescue to let students acquire word meanings.
Knowledge of firefighting and rescue terms enhances the students' ability to communicate and practice his/her work successfully on the purpose of providing fire fighting and rescue services.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. The general firefighting and rescue terminology.
2. The meanings of firefighting and rescue tools.
3. The terms that he/she should use while dealing with accidents.
4. Using firefighting and rescue terminology which is considered a global language between firefighters and rescue teams all over the world.
5. Words of command used in giving and acquiring commands in drills, fire grounds and where applicable.
6. Terms which he/she would be taught in the following specialized courses.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | General firefighting | | |
| 2. | Extinguishers | | |
| 3. | Hose | | |
| 4. | Breathing apparatus | | |
| 5. | Ladders | | |
| 6. | Building construction | | |

| | | | |
|---|---|---|---|
| 7. | Pumps and primers | | |
| 8. | Fire protection | | |
| 9. | Salvage | | |
| 10. | Hazardous materials | | |
| 11. | Hydraulics | | |
| 12. | Practical firefighting | | |
| 13. | Safety on the drill ground/fire ground commands | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Home work** | | **10** | |
| **Theoretical** | **Final** | **50** | |

## Teaching Methodology:

1. Lectures.

## Text Books & References:

1. VOCABULARY, Language support, THE FIRE SAFETY ENGINEERING COLLEGE.
2. IFSTA Dictionary.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313120** |
| **Course Title** | **Basic emergency medical care** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **2** |
| **Practical Hours** | **3** |

## Brief Course Description:

This course is designed to provide the student with the minimum basic emergency medical care performance capabilities, such as, infection control, CPR, bleeding control, and shock management, etc…. Needed for fire and rescue man at work.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. First aid (A, B, C) priorities.
2. Principles of infection control and universal blood and body fluid precautions as prescribed for public safety workers.
3. Use of personal protective equipment used for protection from infection.
4. Single-rescuer CPR, two-rescuer CPR, and management of an obstructed airway.
5. The three types and characteristics of external bleeding and demonstrate techniques for controlling external bleeding.
6. Characteristics of thermal burn and demonstrate procedures for handling thermal burns according to recognized procedures.
7. Symptoms and demonstrate emergency medical care of traumatic shock.
8. Symptoms and demonstrate emergency medical care for ingested poisons, drug overdoses and inhaled gases.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Basic Pre-hospital Emergency Medical Care | | |
| 2. | Infection Control | | |
| 3. | Emotional Stress | | |
| 4. | Scene Safety | | |

| | | | |
|---|---|---|---|
| 5. | Basic Life Support - CPR | | |
| 6. | Bleeding Control | | |
| 7. | Shock | | |
| 8. | Burns | | |
| 9. | Poisonings | | |
| 10. | Drug Abuse/Overdose | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Practical** | **Med-term** | **10** | |
| **Practical** | **Final** | **15** | |
| **Theoretical** | **Final** | **35** | |

## Teaching Methodology:

1. Lectures.
2. Laboratory.

## Text Books & References:

1. Zieres, b., (2001). Firefighter 1&2, (5th Ed.) Missouri division of fire safety,USA.
2. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313130** |
| **Course Title** | **Introduction to fire and rescue** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

It is necessary for the students to have the basic knowledge on various fires and rescue topics to gain the proper scientific background and to make him/her familiar with the later advanced courses.

## Course Objectives:

Upon completion of this course the student will be able to know:
1. Fire and rescue science.
2. The types of fire materials, products, and environments.
3. Fire Classification and Risks.
4. Fire extinguishing ways and materials
5. Suppression and water supply.
6. An Introduction on fire prevention and protection
7. Emergency evacuation ways, plans and rescue procedures.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Fire and rescue science | | |
| 2. | Fire materials , products , and environments | | |
| 3. | Fire Classification and Risks | | |
| 4. | Fire extinguishing materials | | |
| 5. | Fire Suppression and water supply | | |
| 6. | Introduction to fire prevention and protection | | |
| 7. | Emergency Evacuation and rescue procedures | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| Theoretical | First | 20 | |
| Theoretical | Second | 20 | |
| Home work | | 10 | |
| Theoretical | Final | 50 | |

## Teaching Methodology:

1. Theoretical.

## Text Books & References:

1. NFPA FIRE PROTECTION HANDBOOK, SEVENTEENTH EDITION.
2. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313140** |
| **Course Title** | **safety principals** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

This course is designed to provide the student with the basic safety laws, instructions and procedures in both work place and accident scene and be familiar with personal protective equipment and clothes.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. Personnel responsibilities involving safety.
2. The major dangers and health hazards associated with fire and rescue works.
3. Laws, regulations, and standards relating to personnel health and safety.
4. The elements of a risk management plan and how personnel should deal with personal health issues.
5. The purposes of personnel assistance and wellness programs.
6. The causes and effects of critical incident stress.
7. The safety precautions needed when working with breathing apparatus.
8. The safety hazards encountered in fire stations and accidents scenes specially when dealing with tools and equipment in addition to safety precautions necessary when training.
9. The features of personal protective clothing and the procedures to take care of them.
10. Wearing personal protective clothing within one minute.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Dangers ,hazards and risks in fire and rescue services | | |
| 2. | Fire and rescue Service Safety Standards | | |

| | | | |
|---|---|---|---|
| 3. | Fire and rescue Service Safety and Health Program | | |
| 4. | Safety on breathing Apparatus | | |
| 5. | Fire Station Safety | | |
| 6. | Safety in Training | | |
| 7. | Safety at accidents scene | | |
| 8. | Personal Protective Equipment | | |
| 9. | Personal Protective Clothing | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Home work** | | **10** | |
| **Theoretical** | **Final** | **50** | |

## Teaching Methodology:

1. Lectures.

## Text Books & References:

1. Zieres, b., (2001). Firefighter 1&2, (5th Ed.) Missouri division of fire safety, USA.
2. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313150** |
| **Course Title** | **Self contained Breathing apparatus (SCBA)** |
| **Credit Hours** | **4** |
| **Theoretical Hours** | **2** |
| **Practical Hours** | **6** |

## Brief Course Description:

This course is designed to demonstrate the proper tests, maintenance and use of SCBA as part of the personal protective envelope, while wearing full-protective clothing, and to achieve a practical test accuracy of 100% according to safety standards.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. Respiratory hazards and their impact on the human body.
2. SCBA parts and terminology.
3. The physical requirements of the wearer, the limitations of the SCBA, and the safety features of all types of SCBA.
4. Donning SCBA within one minute.
5. Identify the procedures for cleaning and sanitizing SCBA using approved manufacturer's procedures.
6. The procedures for daily inspection and maintenance of SCBA.
7. Procedures for exchanging air cylinders.
8. The use of SCBA for use in restricted passages.
9. Emergency procedures while wearing SCBA including use of emergency bypass and breathing from the regulator.
10. Techniques for conserving the use of air under work conditions.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Introduction | | |
| 2. | Conditions Requiring Respiratory Protection | | |
| 3. | Effects of Toxic Gases and Toxic Environments. | | |
| 4. | Legal Requirements for SCBA Use. | | |
| 5. | Limitations of SCBA | | |
| 6. | Types of SCBA | | |
| 7. | Wearing and using SCBA | | |
| 8. | SCBA Operations and Emergency Procedures | | |
| 9. | Inspection and Maintenance of SCBA | | |
| 10. | SCBA techniques | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Practical** | **activities** | **10** | |
| **practical** | **Final** | **50** | |

## Teaching Methodology:

1. Lectures.
2. SCBA Smoke room.
3. Drills.

## Text Books & References:

1. Wutz , Thomas J. , (2004) ,the firefighter's handbook essentials of firefighting and emergency response, 3rd Ed, Thomson Delmar Learning, USA.
2. Zieres, b., (2001). Firefighter 1&2, (5th Ed.), Missouri division of fire safety, USA.
3. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313231** |
| **Course Title** | **Fire Behavior** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

This course explores fundamentals of fire behavior and its effects on buildings according to building types, structures and construction elements.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. The nature, components and properties of fire.
2. Categorize Types of Buildings.
3. Building construction elements.
4. Interior finishes.
5. Collapse hazards at structure fires.
6. Fire effects on building contracture materials.
7. Related Codes and legislations.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Fire behavior | | |
| 2. | Types of Buildings | | |
| 3. | Building construction elements | | |
| 4. | Interior finishes | | |
| 5. | Collapse hazard at structure fires | | |
| 6. | Fire effects on building contracture materials | | |
| 7. | Codes and legislations | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| Theoretical | First | 20 | |
| Theoretical | Second | 20 | |
| Home work | | 10 | |
| Theoretical | Final | 50 | |

## Teaching Methodology:

1. Theoretical.

## Text Books & References

1. Quintiere, James G.; Principles of Fire Behavior; Delmar Publishers; Fire Edition, 1998; ISBN 0-8273-7732-0.
2. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.
3. S .K SHARMA. S CHAND AND company LTD.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313233** |
| **Course Title** | **Fire and Rescue techniques (1)** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **1** |
| **Practical Hours** | **6** |

## Brief Course Description:

It is necessary for the student to gain theoretical and practical basic skills of various fire fighting and rescue equipment and machinery in terms of its working, use and maintenance. It is necessary for the students to experience operating these equipment.

## Course Objectives:

Upon completion of this course the student will be able to know:
1. Various fire and rescue equipment.
2. Fire and rescue equipment for proper event.
3. Various uses for a particular fire and rescue equipment.
4. Various operations for particular equipment.
5. Faults in fire and rescue equipment.
6. Methods of maintenance of equipment.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Firefighting Hoses | | |
| 2. | Hydrant and landing valves | | |
| 3. | Fire extinguishers | | |
| 4. | Fire and rescue ladders | | |
| 5. | Four men drill | | |
| 6. | Standard tests of ladders | | |
| 7. | Fire truck components | | |
| 8. | Foam and perform foam making | | |
| 9. | Small Gears in fire and Rescue operations | | |
| 10. | Ropes , Knots and rescue descending | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| Theoretical | First | 20 | |
| Theoretical | Second | 20 | |
| activities | | 10 | |
| practical | Final | 50 | |

## Teaching Methodology:

1. Lectures.
2. Practical.

## Text Books & References:

1. NFSC Fire Fighting Drill Manual.
2. NFSC Practical Fire Safety And Ground Command Tips.
3. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313234** |
| **Course Title** | **Fire and Rescue techniques (2)** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **1** |
| **Practical Hours** | **6** |

## Brief Course Description:

It is necessary for the student to gain theoretical and practical basic skills of various fire fighting and rescue equipment and machinery in terms of its working, use and maintenance. It is necessary for the students to experience operating these equipment.

## Course Objectives:

Upon completion of this course the student will be able to know:
1. Rescue vehicles components.
2. Smoke phenomena and forcible entry.
3. Rescue procedures.
4. Salvage.
5. Rescue carries.
6. Combined Fire and rescue drills.
7. Combined fire and rescue scenarios on fire ground.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Rescue vehicles components | | |
| 2. | Smoke phenomena and forcible entry | | |
| 3. | Ventilation | | |
| 4. | Rescue procedures | | |
| 5. | Salvage | | |
| 6. | Rescue carries | | |
| 7. | Combined Fire and rescue drills | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| Theoretical | First | 20 | |
| Theoretical | Second | 20 | |
| activities | | 10 | |
| practical | Final | 50 | |

## Teaching Methodology:

1. Lectures.
2. Practical.

## Text Books & References:

1. NFSC Fire Fighting Drill Manual.
2. NFSC Practical Fire Safety And Ground Command Tips.
3. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313241** |
| **Course Title** | **Fire prevention and protection** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

This course explores fundamentals of active and passive systems and components according to the approved standards, necessary for fire protection and prevention in buildings.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. Occupancy classification.
2. Dead ends.
3. Escape route.
4. Stair ways.
5. Common path.
6. Fire retardants.
7. Supervisory alarm equipment and demonstrate action to take upon receipt of an alarm according to local operating conditions.
8. The various types of detection devices used in fire detection systems.
9. The components of an automatic sprinkler system and their functions.
10. The major sprinkler systems and describe their operation.
11. The actions required for fire department support of an automatic sprinkler System.
12. The components and how to operate Standpipe and hose systems.
13. Types, components and how to operate extinguishing systems.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Occupancy classification | | |
| 2. | Dead ends | | |
| 3. | Exits & Escape route | | |
| 4. | Stair ways | | |
| 5. | Common path | | |
| 6. | Fire resistance structure and isolation | | |
| 7. | Fire retardants | | |
| 8. | Detection Systems | | |
| 9. | Water supplies | | |
| 10. | Fire pumps | | |
| 11. | Standpipe and Hose systems | | |
| 12. | Sprinkler systems | | |
| 13. | Extinguishing agents systems | | |
| 14. | Ventilation and smoke control systems | | |
| 15. | Pressurization systems | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Home work** | | **10** | |
| **Theoretical** | **Final** | **50** | |

## Teaching Methodology:

1. Theoretical.

## Text Books & References

1. HMSO Memorandum of Emergency Fire Brigade Organization (HMSO).
2. NFPA Operation of Small Community Fire Department (NFPA).
3. NFPA Management in Fire Service (NFPA).
4. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313242** |
| **Course Title** | **Fire inspection & Investigation** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **2** |
| **Practical Hours** | **3** |

## Brief Course Description:

This course is designed to teach the student to observe as much as he / she can about the circumstances surrounding the origin and the cause of each fire.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. The responsibilities of the fire fighter in determining the point of origin of a fire and the basic steps to accomplish this task.
2. The reasons for determining the cause of fires.
3. The fire fighter's role and responsibility in the protection of evidence of fire causes.
4. The indicators of a fire's area of origin and fire cause.
5. The procedures for the preservation and protection of fire cause evidence.
6. The methods for scene and evidence protection.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Protecting Fire Scene Evidence | | |
| 2. | Fire Fighter's Responsibilities in Fire Investigation | | |
| 3. | Observations on the Scene | | |
| 4. | Securing the Scene | | |
| 5. | Protection of Evidence | | |
| 6. | Basic Fire Origin and Cause Determination | | |

## Evaluation Strategies:

| Exams | | Percentage | Date |
|---|---|---|---|
| Theoretical | First | 20 | |
| Theoretical | Second | 20 | |
| Practical | Med-term | 10 | |
| Practical | Final | 15 | |
| Theoretical | Final | 35 | |

## Teaching Methodology:

1. Lectures.
2. Laboratory.

## Text Books & References:

1. Zieres, b., (2001). Firefighter 1&2, (5th Ed.) Missouri division of fire safety, USA.
2. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313251** |
| **Course Title** | **Command ,control and communications** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

The student has to learn how to manage station works especially in fire fighting or rescue operations including communications skills and also learn how to keep the force ready for emergencies, therefore its necessary for him/her to know the organizational, command and control aspects.

## Course Objectives:

Upon completion of this course the student will be able to know:
1. Leadership skills, laws and Organizational aspects.
2. How to maintain discipline.
3. Command and control skills.
4- Fire communicational procedures according to the approved standards or local conditions.
5- The essential elements of a good incident report.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Fire Service Organization | | |
| 2. | Fire Service Administration and Management | | |
| 3. | Leadership and Discipline | | |
| 4. | Watch Room procedures | | |
| 5. | Control Room Procedures | | |
| 6. | Fire laws | | |
| 7. | Incident Reports | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| Theoretical | First | 20 | |
| Theoretical | Second | 20 | |
| Home work | | 10 | |
| Theoretical | Final | 50 | |

## Teaching Methodology:

1. Theoretical

## Text Books & References

1- HMSO Memorandum of Emergency Fire Brigade Organization (HMSO).
2- NFPA Operation of Small Community Fire Department (NFPA).
3- NFPA Management in Fire Service (NFPA).
4- Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313235** |
| **Course Title** | **Search and Rescue techniques** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **1** |
| **Practical Hours** | **6** |

## Brief Course Description:

The course is designed to provide the student with search and rescue procedures and techniques especially in extracting and rescuing casualties in the incident scene.

## Course Objectives:

Upon completion of this course the student will be able to know:

1. Primary and secondary search procedures for casualties.
2. Using rescue and extrication tools and equipment:
3. Search and rescue operations for casualties in a hostile environment.
4. How to remove injured persons.
5. Extrication operations for casualties of motor vehicle accidents.
6. Search , rescue and safety techniques in the following conditions:
    a. Structural collapses
    b. Trench rescues
    c. Caves and tunnels
    d. Water and ice emergencies
    e. Elevators and escalators
    f. Energized electrical lines
    g. Industrial accidents

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Introduction | | |
| 2. | Rescue and extrication tools and equipment | | |
| 3. | Search and rescue operations | | |
| 4. | Safety Techniques in Search and rescue | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Activities** | | **10** | |
| **Theoretical** | **Final** | **15** | |
| **practical** | **Final** | **35** | |

## Teaching Methodology:

1. Lectures.
2. Practical.

## Text Books & References:

1. Zieres, b., (2001). Firefighter 1&2, (5th Ed.) Missouri division of fire safety,USA.
2. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20313236** |
| **Course Title** | **Special incidents** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **3** |
| **Practical Hours** | **0** |

## Brief Course Description:

Recently new types of industries have come up such as petrochemical, gas stations, hazardous materials, etc. In summer season fires due to dust and dry wood occur. These are special types of fires. There are also incidences of gas/petrol leakage causing fire and accidents. The study of this subject will enable the students to acquire relevant knowledge.

## Course Objectives:

Upon completion of this course the student will be able to know:
1. Various special incidents.
2. Prevention and protection measures.
3. Various fire fighting and rescue equipment.
4. Label nature and behavior of special incidents.
5. The cause of fire in special incidents.
6. Precautions while handling special incidents.
7. Various Hazardous materials and the proper acting ways to deal with.

## Detailed Course Description:

| Unit Number | Unit Name | Unit Content | Time Needed |
|---|---|---|---|
| 1. | Explosives incidents | | |
| 2. | Dust incidents | | |
| 3. | Fuels incidents | | |
| 4. | LPG incidents | | |
| 5. | Petrochemical Plants and Refinery Incidents | | |

| | | | |
|---|---|---|---|
| 6. | Radioactivity incidents | | |
| 7. | Airport incidents | | |
| 8. | Marine incidents | | |
| 9. | Forest and Rural Fires | | |
| 10. | Hazardous materials risks and incidents | | |

## Evaluation Strategies:

| Exams | | Percentage% | Date |
|---|---|---|---|
| **Theoretical** | **First** | **20** | |
| **Theoretical** | **Second** | **20** | |
| **Home work** | | **10** | |
| **Theoretical** | **Final** | **50** | |

## Teaching Methodology:

1. Lectures.

## Text Books & References:

1. NFPA LPG: The hazards and Fire Precautions (NFPA).
2. NFPA Code of Practice for Hazardous Goods (NFPA).
3. HMSO Fireman's hand book of Hazardous Industries (London fire Brigade).
4. NFPA Fire Protection of Storage Buildings (NFPA).
5. Brady, (2008). Essentials of Fire Fighting and Fire Department Operations (5th Ed.) IFSTA, USA.

| Electromechanical Engineering Program | |
|---|---|
| **Specialization** | **Fire & Rescue techniques** |
| **Course Number** | **20312237** |
| **Course Title** | **Field training** |
| **Credit Hours** | **3** |
| **Theoretical Hours** | **0** |
| **Practical Hours** | **280** |

## Brief Course Description:

This course is designed to acquire the student with necessary skills to deal with different types of incidents through (280) practical training hours in fire fighting stations.