TRAINING OBJECTIVES:

The prime objective of this course of Safety Inspector is to develop and enhance the skill level of the incumbent in this trade of construction industry.
Semi-skilled and skilled worker produced by this training would help to reduce unemployment and poverty in the society. This curriculum is designed to train the Intermediate / Graduation pass persons who are facing a lot of shortage of Safety Inspectors in the field of construction industry.

This training programme will provide opportunity to those who want to equip themselves with such knowledge and skills which will be helpful for their employment after completing this training of 03 months and would enable them to start their own business with professional approach.

Further, this Curriculum is developed by considering the requirements of local and international market and need of the trade enabling the graduates to meet the job market to reduce the shortage of Semi Skilled and Skilled workers in the area.

CURRICULUM SALIENTS:

Entry Level	Intermediate
Total Duration of Course	3-Months (12 Weeks)
Total Training Hours	534 hrs
Training Methodology	80 % Practical 20 % Theory
Instructional Media	English

SKILL PROFICIENCY DETAILS

On successful completion of this course, the trainee should be able to:-

1. Give reminders before start critical job.
2. Conduct fire drill.
3. Conduct safety audit.
4. Conduct Tool Box Talk.
5. Supervision of safe work practice.
6. Conduct inspection and color coding.
7. Prepare rigging studies.
8. Prepare scaffolding registered.
9. Describe safety signs.
10. Describe and demonstrate PPE's.
11. Describe and demonstrate Breathing Apparatus.
12. Conduct housekeeping.
13. Conduct basic fire fighting.
14. Prepare job risk assessment report.
15. Conduct strict discipline on construction site.
16. Reporting and investigation of accident at construction site.
17. Conduct HSE emergency response.
18. Prepare hazards assessment.
19. Describe crane hazards.
20. Describe different types of fire extinguisher and uses.

KNOWLEDGE PROFICIENCY DETAILS

On successful completion of this course, the trainee should be able to:-

1. Identify all types of hazards.
2. Capable in preparing proper preventive measures to eliminate the hazards.
3. Capable of conducting HSE training.
4. Explain rigging equipments.
5. Explain safety audits.
6. Capable in accepting working permit.
7. Explain different classes of fire.
8. Explain different types of fire extinguishers and use.
9. Describe the importance of HSE.
10. Explain fall protection equipments.
11. Explain breathing apparatus and uses.
12. Capable to inspection of scaffold.
13. Explain the importance of fire drill.
14. Explain First Aid.
15. Explain safety precautions on all different types of activities.
16. Explain the responsibilities of fire watchers in confined space entries.
17. Explain health hazards.
18. Explain safety inspector job descriptions.
19. Explain PPE’s and uses.
20. Describe all types of permit to work.
21. Explain hand tools and power tools safety precautions.
22. Explain hazard assessment.
23. Explain safety inspector responsibilities.
24. Explain unsafe act and unsafe condition at construction site.
25. Conduct injury and incident investigation.

CURRICULUM DELIVERY STRUCTURE

	Curriculum Delivery	Revision	Tests
Week	01 - 04	01 Days	Last working day of the first month
Week	05 - 08	02 Days	Last working day of the second month
Week	09 -12	02 Days	Final test on Last working day of the third month

SCHEME OF STUDIES

Safety Inspector
(3 Months Course)

Sr. No	Main Topics	Theory Hrs.	Practical Hrs.	Total Hrs.
1.	HSE objectives on project site	4	-	4
2.	Safety Inspector job description and main points to clarify the objective	4	6	10
3.	Safe work practice	4	7	11
4.	Personal protective equipment and uses	2	7	9
5.	Toolbox talk	2	7	9
6.	Types of work permit	2	6	8
7.	General principles of permit to work systems	2	-	2
8.	Responsibilities of permit receivers	4	-	4
9.	Responsibilities of permit issuer	4	-	4
10.	Housekeeping and slip, trip and fall hazards	4	7	11
11.	Safe work practice of hand tools and power tools	4	7	11
12.	Scaffolding	4	7	11
13.	Hazards on scaffolding	3	6	9
14	Scaffolding safety procedures	3	6	9
15	Fall protection systems and application	4	7	11
16	Machine guarding	2	7	9
17	Introduction to project construction site, check up of machinery and equipment, hazard identification, reporting and mitigation	4	7	11
18	Hazard assessment	4	6	10
19	Health hazard	2	6	8
20	Unsafe act on construction site	4	6	10
21	Unsafe condition on construction site	4	6	10
22	Safety of work at height	4	6	10
23	Excavations and underground services	4	6	10
24	Safety signs	2	6	8
25	Incident, injury, investigation and remedial measures	4	7	11

26	Waste segregation and disposal at construction site	2	6	8
27	Precaution during sand blasting and painting	4	7	11
28	Common causes of injuries and accidents at construction site	4	6	10
29	Rigging	6	7	13
30	Rigging equipments	6	7	13
31	Safety precautions during radiography	4	7	11
32	Lifting principles of mobile crane	4	6	10
33	Crane hand signals	5	6	11
34	Crane hazards	4	6	10
35	Crane safety operation	6	7	13
36	Electrical safety and electrocution / short circuiting	6	7	13
37	Reporting of emergency during emergency response	4	6	10
38	Responsibilities of watchers on confined space entries	4	6	10
39	Legal compliance and HSE relevant requirements of act and regulations	3	6	9
40	Safety precautions during pressure testing	4	6	10
41	Compressed air safety	1	2	3
42	Strict discipline at construction site	2	-	2
43	Handling of hazardous substances	4	6	10
44	Requirements during working at night	4	6	10
45	Incident reporting & investigation at construction site	2	6	8
46	HSE emergency response	1	6	7
47	Work site safety	2	6	8
48	Welding protective clothing and tools	2	5	7
49	Welding safety procedures	2	6	8
50	Hazards in welding	2	6	8
51	Welding safety precaution	2	6	8
52	Safety precaution on welding & burning activities	2	6	8
53	Basic fire fighting	2	6	8

54	Types of fire extinguishers use and color coding	2	6	8
55	Search and rescue	2	6	8
56	Safety guidelines	4	6	10
57	Breathing apparatus safety precaution	3	6	9
58	Action in the event of fire	2	6	8
59	Fire safety tips	4	6	10
60	Definitions	4	-	4
Total		**199**	**335**	**534**

Detail of Course Contents

Safety Inspector
(3-Months Course)

Sr. No	Main Topics	Theory Hrs.	Practical Hrs.	Total Hrs.
1.	HSE objectives on project site 1. Zero injury and Zero Accident. 2. To implement company and client HSE Policy. 3. Target is “Zero LTI”. (Lost time injury) 4. HSE awareness and motivation. 5. HSE training. 6. Competent work force. 7. Address HSE concern. 8. Every member of work force is to be protected from injury and illness. 9. No damage to the plant equipment. 10. No harm to project Environment. 11. Motivate good safety & environment performance. 12. Monitor and improve HSE performance.	4	-	4
2.	Safety Inspector job description and main points to clarify the objective 1. Participation in sessions of Basic Safety orientation and the sessions of Tool Box Talk. 2. Pre-Job site visits at site to assess the hazards and device the preventive measures to eliminate the risks. 3. Participation in the work permit acceptor course and arrange to conduct the training for site Supervisors to qualify the same course before the site activities.	4	6	10

	4. To maintain a constant channel of communication with counterpart representing the customer to meet the target of Zero injury and Zero accident through the project execution. 5. Constant monitoring of field jobs and device for the compliance of preventive measures to eliminate the unsafe conditions, unsafe working and unsafe acts in the prescribed area of commitment at the project site. 6. Awareness and participation in HSE incentive scheme offered for the field staff. 7. Participation in risk assessment studies along with the compliance of preventive measures recommended for risk oriented jobs. 8. Fully conversant with the importance of rigging studies during heavy lifting operation. 9. Maintain a constant channel of communication among the senior and the junior levels of field management for the safe execution of jobs at the site. 10. Participate in providing the required inputs for the generation of HSE news bulletin on daily basis. 11. Cable of conducting the safety audits and must incorporate the feedback for improving the level awareness of project work force. 12. To prevent Injuries, Illness and to investigate them for elimination of causes. 13. Safety Audits must be conducted with the participation of HSE Inspector. 14. All unsafe acts and unsafe conditions must be corrected promptly before starting the work at site. 15. Responsible for eliminating hazards.			
3.	Safe work practice	4	7	11

	1) Work at height 2) Scaffolding erection and use 3) Pressure testing 4) Hydro testing 5) Sand Blasting and painting 6) Crane operation and (Rigging and Lifting) 7) Hot work in match area of oil and gas project. 8) Shifting of Radioactive and other hazardous materials. 9) Role of MSDS for safe handling materials. 10) House keeping 11) Hand and Power Tools safety uses.			
4.	Personal protective equipment and uses 1) Hard Helmet with Chin strip 2) Coverall 3) Safety Shoes 4) Safety Glasses / Goggles 5) Working Gloves 6) Full Body Harness with Lanyard and Shock Absorber 7) Noise Protection 8) Face Shield 9) Life 10) Sand Blasting Hood 12) Dust Mask	2	7	9
5.	Toolbox talk 1. Clear understanding about the job. 2. Telling the hazard of the job. 3. Face to face good impact. 4. Local easy understanding language for better understanding.	2	7	9
6.	Types of work permit	2	6	8

	1. Hot Work Permit 2. Height Work Permit 3. Cold Work Permit 4. Hydro Test Permit 5. Excavation Work Permit 6. Confined Space Entry Permit 7. Radiography Permit 8. Erection Work Permit			
7.	General principles of permit to work systems 1. Site visits by issuer and acceptor and sometimes HSE Inspector before start the job. 2. Work Permit must have a valid date and signature. 3. Copies must be delivered to all concerned. 4. Revalidation of work permit is mandatory. 5. Site visit for housekeeping before start the job. 6. PPE must be observed with prior to the nature of job executed.	2	-	2
8.	Responsibilities of permit receivers 1. Initiating and completing all applicable sections of the Permit to Work. 2. Supervising the work prescribe in the Permit to Work to ensure it is conducted in the most efficient and safe manner. 3. Notifying the Issuer of work progress and completion, and ensuring that the site is returned to a safe and operational state. 4. Taking adequate care to preserve the permit in good condition. 5. Providing and arranging all necessary resources related with performing the work, including standby-man for confined space entry. 6. Revalidation of work permits if required.	4	-	4

9.	Responsibilities of permit issuer 1. Reviewing, endorsing and issuing the permit to work. For all work permit application, site visit is mandatory to enable hazard evaluation and specification of safeguards to avoid accidents. 2. Completing the relevant sections of the Permit to Work. 3. Ensuring the participants in the Permit to Work carefully plan and conduct work in accordance with the permit's requirements. 4. Initial gas test before issuing the permit if required. 5. Providing shift revalidation and conducting gas testing (as required) to ensure that work is safe to proceed. 6. Signing off permits that required work has been completed. 7. Participating in joint annual auditing of Permit to Work files.	4	-	4
10.	Housekeeping and slip, trip and fall hazards 1) Access clear 2) Passage ways 3) Daily trash removal 4) Job Completion / Shift end 5) Material storage 6) Hose / Cable Management 7) Housekeeping Inspections 8) Removal of waste Oil, Rags other Flammable Mat after each Shift / day.	4	7	11
11.	Safe work practice of hand tools and power tools 1. Properly Maintained & Inspected. 2. Correct type, Size & Weight 3. Properly Insolated & None Conducting materials for Electrical Work. 4. Screw Driver of Correct size	4	7	11

	of tip. 5. Don't Hammer with Screw Driver, Pipe Wrench etc. 6. Don't Carry Tools in Pockets. 7. Use specifically required PPE's during use. 8. Picks & Shovels should not be Blunt, Turned, Spilt or Jagged. 9. Handles of Tools should be Standard free from Cracks & Splinters. 10. Jacks positioned under the center of the load & placed on a solid support. 11. Jacks should be operated slowly. 12. Stored in Clean & Dry place. 13. Don't leave the Tools lying around the job site to avoid damage. 14. "Emergency Switch" of all Portable Power Tools must be Functional. 15. Max Speed Limit clearly marked on Grinders. 16. Ensure the Grinding disk of grinding machine is free from any defect before mounting.			
12.	Scaffolding An elevated temporary work platform.	4	7	11
13.	Hazards on scaffolding 1. Falls from elevation 2. Struck by falling tools / debris. 3. Electrocution – from overhead power lines. 4. Scaffold collapse – caused by instability or overloading. 5. Bad planking giving way.	3	6	9
14	Scaffolding safety procedures 1. Only trained and experienced Scaffolders will erect / alter / dismantling Scaffold. 2 Supervisor to ensure that a valid Permit to Work is available before start of the job	3	6	9

	applicable. 3. Supervisor to ensure that Toolbox Talk is conducted before start the job. 4. Safe activity pre-checklist sheet to be filled in daily basis before start of job. 5. Un-authorized personnel to keep away. 6. Helmet with chain strap to be used. 7. Scaffolders to secure their toe board to prevent falling object hazard. 8. Area barricaded and sign posted. 9. No simultaneous operations. 10. Scaffold Materials not obstructing access. 11. Approved container and bucket for lifting loose material i.e. clamps. 12. Trained supervisor and foreman will supervise. 13. Approved full body harness to be worn and anchored properly. 14. During erection and on incomplete scaffolding, Red Tag to be displayed. 15. After the completion of erection job, Supervisor will install the Green Tag along with signatures followed by valid date.			
15	Fall protection systems and application 1. Use Personal Fall Arrest System instead of guardrails on some Scaffolds. 2. Use Personal Fall Arrest System and guardrails on suspension Scaffolds. 3. Use Personal Fall Arrest System on erectors and dismantlers where feasible. 4. Always wear hardhats with chain strap. 5. Barricade area below scaffold to forbid entry into that area. 6. Use panel or screens if materials are stacked higher than the toe board. 7. Build a canopy or erect a net below the scaffold that will contain or deflect falling objects.	4	7	11
16	Machine guarding	2	7	9

	1. Guard belts 2. Gears 3. Shafts 4. Pulleys 5. Sprockets 6. Spindles 7. Flywheels 8. Chains			
17	Introduction to project construction site, check up of machinery and equipment, hazard identification, reporting and mitigation. 1. Must check the equipment Safety devices for normal operation; like leaks, light and alarm. 2. Listen for unusual sounds & vibrations. 3. Smell for unusual odor. 4. Feel for unusual temperatures. 5. Ask what if & how questions when you talk with the people you observe. 6. All safety devices and indication must be in workable order.	4	7	11
18	Hazard assessment 1) Assist the worker if they are likely to be exposed the hazard while in the confined space. 2) Specify the type of frequency of inspections and test necessary to determine the likely hood of a worker exposure to any of the identified hazards. 3) Perform the inspections and test identified. 4) Specify the safety and personal protective equipment required to perform the work.	4	6	10
19	Health hazard	2	6	8

	1. Hazardous Materials 2. Asphyxiation 3. Radiological 4. Lightning 5. Burns 6. Noise 7. Microbiological 8. Hygiene / Cleanliness 9. Health			
20	Unsafe act on construction site 1) Improper use of PPE 2) Improper placement 3) Improper position for task 4) Horseplay 5) Failure of warning system. 6) Operating at improper speed 7) Removing safety devices 8) Using of defective equipment 9) Operating equipment without authority. 10) Servicing equipment in operation. 11) Improper loading. 12) Improper lifting. 13) Using improper equipment. 14) Using defective safety devices. 15) Making safety devices inoperable. 16) Failure to secure.	4	6	10
21	Unsafe condition on construction site 1) Inadequate guards or barriers 2) Congestion for restricted action 3) Inadequate warning system 4) Fire and explosion hazards 5) Poor housekeeping 6) Hazardous environment conditions 7) Noise exposures 8) Inadequate or excessive illumination 9) Inadequate ventilation 10) Defective tools, equipment or materials	4	6	10

	11) Inadequate or improper protective equipment			
22	Safety of work at height 1. Scaffolding 2. Ladders 3. Fragile Roofs 4. Use full body harness when working above 2.0 meters in height and it is to be hooked properly during the job activity at height.	4	6	10
23	Excavations and underground services 1. Area barricaded before excavation. 2. Working machinery minimum 5 meters away from ditch during job activity. 3. Identify Underground Electrics & Utilities through site drawings. 4. Hand excavations where “Live” services are present 5. Banks man to Control Trucks etc removing soil. 6. Soil minimum 1 meter away from Excavation Edge 7. Shoring must be done for excavation more than one meter.	4	6	10
24	Safety signs 1. Mandatory Safety Signs 2. Prohibition Safety Signs 3. Warning Safety Signs 4. Vehicle Safety Signs 5. General Safety Signs	2	6	8
25	Incident, injury, investigation and remedial measures 1.) Survey the scene and find out the real causes of the injury and proceed for the completion of report. 2.) Rescue - Immediate action	4	7	11

	3.) Normal Breathing associated hazards and corrective measures. 4.) Bone fracture and remedial measures. 5.) Burns 6.) Chemical Burn 7.) Electrical Shock 8.) Fainting 9.) Heat Exhaustion 10.) Heat Stroke 11.) Bleeding 12.) Shock 13.) Heart Attack			
26	Waste segregation and disposal at construction site 1. Municipal type waste 2. Non-Hazardous Industrial waste 3. Inert waste 4. Hazardous waste	2	6	8
27	Precaution during sand blasting and painting 1. Area Barricaded and sign posted 2. Operator to use Air supplied Hood 3. Only approved blasting media to be used 4. Air filter to be changed accordingly to recommended frequency	4	7	11
28	Common causes of injuries and accidents at construction site 1. Improper use of tools 2. Poor Housekeeping 3. Improper storage of material 4. Access not clear 5. Area not barricaded	4	6	10

29	Rigging – the process of movement of load by Crane and lifting equipments. A source of power so that it can be lifted and lifting moved safely and predictably as required.	6	7	13
30	Rigging equipments 1. Steel Wire Rope 2. Wire rope slings 3. Chain slings 4. Fiber Webbing Sling 5. Attachment Hooks 6. Shackles 7. Chain pulley blocks 8. Chain lever hoist 9. Puller 10. Rope snatch and pulley blocks 11. Traveling girder trolley 12. Winches	6	7	13
31	Safety precautions during radiography 1. Valid Permit to Work. 2. Transportation, Storage & Use of Radiation Sources as per Procedure. 3. Advance Information. 4. Area Clearly Marked, Barricaded and Restricted. 5. Only Authorized Workers Engaged. 6. Under Radiation Supervision. 7. Dose Rate not to exceed to 7.5 msv. (Millimeter devised voltage).	4	7	11
32	Lifting principles of mobile crane 1. Center of Gravity 2. Leverage 3. Stability 4. Structural Stability	4	6	10
33	Crane hand signals 1. Jib up	5	6	11

	2. Jib down 3. Travel to me 4. Travel from me 5. Hoist 6. Lower 7. Slew right 8. Slew left 9. Travel in direction indicated 10. Lower slowly 11. Extend Jib 12. Retract Jib 13. Stop 14. Emergency Stop 15. Operation Start 16. Operation cease 17. Slew in direction indicated			
34	Crane hazards 1. Improper load rating 2. Excessive speed 3. No hands signal 4. Inadequate inspection and maintenance 5. Unguarded parts 6. Unguarded swing radius 7. Working to close to power lines 8. Improper exhaust system 9. Shattered windows 10. No steps / guardrail & walkway protection during the job. 11. No boom angle indicator 12. Proper use of outriggers	4	6	10
35	Crane safety operation 1. No entry Crane without third party certification and site inspection as per requirement.	6	7	13

	2. Certification of Operator with Valid Operating License. 3. Load Chart displayed inside Operator's Cabin. 4. Heavy Lifting under supervision of Rigging Superintendent. 5. No entry of Cranes in Restricted Area. 6. A Fire Extinguisher available with each Crane. 7. PTW (Permit to Work) to work near Power Lines. 8. Clear Fingers & Toes during Tensioning the Sling & Landing Loads. 9. Banks man during crane movement. 10. One person to Signal the Crane Operator is mandatory. 11. No personal movement under Hanging Load. 12. Usage of Tagline to guide the Load. 13. Load to be handled very smoothly. 14. Loads are not to Drag or Pull sideways 17. Slings & Lifting Gear must be used as with Working Load Marked. 18. Wire rope slings & Flat Belt slings are commonly used for load lifting. 19. Never exceed Safe Working Load. 20. Proper Inspection and Color Coding must be ensured before use. 21. Store away from extreme of Heat, Cold, Dampness and mechanical damage. 22. The Hooks being used shall either be fitted with a safety catch or be of the design that the slings cannot be displaced from installed position. 23. Visual Inspection of Hooks for Cracks or Spreading. 24. Shackles of proper size for connections of slings being used. 25. Correct pins to be used for each Shackle. 26. Never use Rebar, M.S. Bolt etc. as replacement for Shackle pins. 27. Protect Lifting Gears from Sharp Edges & corners.			

36	Electrical safety and electrocution / short circuiting 1. Don't overload against electric circuits 2. Use proper Earthlings with distribution boards and equipments. 3. All cables, joints Insulated 4. Use proper plug for sockets to avoid of loose connections. 5. Use proper size of cable 6. Don't Temper with Electric Appliances 7. Be aware of Main Switch Board 8. Switch off Electrical Machines before leaving your Office / work Site 9. Call Electrician for Electricity related jobs 10. Get Permit to Work where required 11. Use Circuit Breakers with appropriate capacity. 12. No cable in passage ways 13. High Voltage sign posted. 14. Don't use damage cable. 15. Use proper tools for repair and maintenance.	6	7	13
37	Reporting of emergency during emergency response 1. Inform the control office / Emergency No. / Nearest office immediately. 2. Give the complete information about yourself and incident on prescribed format. 3. Location of accident. 4. Nature of accident.	4	6	10
38	Responsibilities of watchers on confined space entries 1. Working inside Storage Tank 2. Working inside pipe line 3. Deep Excavation 4. Working inside the Chemical Reactor 5. Stay outside the entrance till last man comes out. 6. Maintain the log sheet to ensure the safe exit of everybody from	4	6	10

	confined space. 7. Maintain contact with workers during job execution. 8. Always in contact of the live circuit with control room to meet any emergency at site. 9. Place No Entry sign on the entrance when last man comes out from vessels.			
39	Legal compliance and HSE relevant requirements of act and regulations 1. Cleanliness 2. Sweeping of floor daily 3. White washing at least once in every four months 4. Cleaning record keeping 5. Fresh air supply 6. Dust and fumes 7. Effective measure to prevent its (accumulation – *collect*) and inhalation. 8. Every stationery internal combustion engine will have an exhaust conducted into open air. 9. Over crowding 10. Proper lighting artificial or natural or both. 11. Provision of emergency lighting of special points in work rooms and passages. 12. Provision of suitable points for clean drinking water. 13. Provision of clean and sufficient number of latrines and urinals. 14. Every part of cranes and other lifting equipment shall be of good construction sound materials and adequate strength and properly maintained. 15. To provide limit switches to prevent overrunning. 16. Maximum safe working load should be marked on every hoist or lift. 17. Provision of gates with on interlocking system to every hoist or lift used for carrying persons.	3	6	9

40	Safety precautions during pressure testing 1. Proper barricading 2. Warning signs must be posted. 3. Follow the Pressure Test Procedure 4. Draining of test fluid safely 5. Filling from lowest point	4	6	10
41	Compressed air safety 1. Take care of breathing objective is to open the airway and thus restores the breathing by mouth to mouth resuscitation. 2. Place in comfortable position. 3. Check air pressure, leakage from connections and functioning of low pressure alarm by qualified person	1	2	3
42	Strict discipline at construction site 1. Horseplay 2. Practical jokes 3. Stealing 4. Fighting 5. Disciplinary action 6. Gambling 7. Use of drugs and alcohol is strictly prohibited at project sites.	2	-	2
43	Handling of hazardous substances 1. There are flammable, toxic, corrosive & irritant in nature. 2. On site after approval of the costumer. 3. Copy of MSDS must be studied for compliance before handling. 4. Storage as per MSDS and approval of costumer. 5. Keep minimum stock. 6. Securely locked or fence off. 7. Warning & No smoking notices at storage. 8. Fire fighting facility ready at nearby stores.	4	6	10

	9. Secure in appropriate containers. 10. Clearly identify. 11. Replace containers Lid immediately if required. 12. Empty containers disposal as per procedure. 13. Keep separate from normal waste. 14. Never discharge at ground and on to water drains.			
44	Requirements during working at night 1. Emphasis to plan to eliminate the need for night working. 2. Adequate lighting for work. 3. All exits, pathways, muster point clearly illuminated. 4. Adequate ventilation for work. 5. Lighting in confined spaces as per specs adequate barricading. 6. No work under shadow.	4	6	10
45	Incident reporting & investigation at construction site 1. Fatal 2. Lost time injury 3. Restricted work injury 4. Medical treatment injury 5. First Aid injury 6. Near-miss 7. Immediate reporting 8. Root causes identification 9. Incident analysis 10. Recommendations	2	6	8
46	HSE emergency response 1. Follow the alarm system and video indications 2. Stop the work at once 3. Switch off the equipment 4. Vacate the work place 5. Muster at the muster point	1	6	7

	6. Roll call or head count and call for rescue if required. 7. Stay at assembly point till all clear signals are received.			
47	Work site safety 1. Hazard awareness 2. Pre-job meeting / Tall Box Talks 3. Supervisory responsibilities 4. Emergency procedure 5. Equipment Installation, Lockout and Tagging 6. Gas Testing Equipment.	2	6	8
48	Welding protective clothing and tools Clothing / Tools 1. Welding Helmet 1. Measuring Tape 2. Leather gloves 2. Flash Light 3. Safety goggles 3. Chipping hammer 4. Leather Jacket 4. Notched file 5. Safety Shoes 5. Wire brush	2	5	7
49	Welding safety procedures 1. Make sure your arc welding equipment is installed properly and grounded and is in good working condition. 2. Always wear protective clothing suitable for the welding to be done. 3. Always wear proper eye protection, when welding, grinding or cutting. 4. Keep your work area clean and free of hazards. Make sure that no flammable, volatile or explosive materials are in or near the work area. 5. Do not weld in a confined space without extra special precautions. 6. Do not weld on a container that has held combustible without taking extra special precaution.	2	6	8

	7. Do not weld on sealed containers or compartments without providing vents and taking special precautions. 8. Use mechanical exhaust at the point of welding when welding lead, cadmium, chromium, manganese, brass, bronze, zinc or galvanized steel. 9. When it is necessary to weld in a damp or wet area, wear rubber boots and stand on a dry insulated platform. 10. If it is necessary to splice lengths of welding cable together, make sure all electrical connections are tight and insulated. Do not use cables with frayed, cracked or bare spots in the insulation. 11. When the electrode holder is not in use, hang it on brackets provided. Never let it touch a compressed gas cylinder. 12. Dispose of electrode stubs in a proper container since stubs on the floor is a safety hazard. 13. Shield others from the light rays produced by your welding arc. 14. Do not weld near degreasing operations. 15. When working above ground makes sure that scaffold, ladder or work surface is solid. 16. When welding in high places without railings, use safety belt or lifeline.			
50	Hazards in welding 1. Electric shock 2. Arc radiation 3. Air contamination 4. Fire and explosion 5. Weld cleaning and other hazards	2	6	8
52	Safety precaution on welding & burning activities 1. Permits for Welding and Cutting Jobs. 2. Personnel trained.	2	6	8

	3. Away from combustibles materials. 4. Fire extinguishers. 5. Fire Watchers. 6. Flammable Liquids Storage Separate. 7. Self-closing Nozzles for Fuelling. 8. Never Fuelling with Running Engine. 9. No Smoking during Refueling. 10. Scaffold Boards Swept & Fee of Flammable Materials. 11. Battery Recharging in ventilated separate areas with no smoking Signs & Fire Extinguisher. 12. Fuel Storage at Designated Area. 13. Fire Equipment at prominent Locations.			
53	Basic fire fighting To give personnel a basic knowledge of: 1) Combustion and the hazards 2) Portable Fire equipment 3) Life Saving Equipment 4) Survival Techniques and procedures to follow	2	6	8
54	Types of fire extinguishers use and color coding Types Classes of Fire Color Code _____ _____ _____ ___ 1. Water Type A Red Wood, Paper, Textile, etc. (Do not use on Electrical or Flammable Liquids and Fires) _____ _____ _____	2	6	8

	___ 2. Foam Type B Cream Flammable Liquids (Do not use on Electrical Fires) _____ _____ _____ ___ 3. Dry Chemical Powder Type A, B, C, & D Blue Wood, Paper, Textile, etc. Flammable Liquids, Flammable Gases, Electrical Equipments _____ _____ _____ ___ 4. CO2 Type A, B, C & D Black Wood, Paper, Textile, etc. Flammable Liquids, Flammable Gases, Electrical Equipments _____ _____ _____ ___ 5. HMCP Type B, C & D Green Flammable Liquids, Flammable Gases Electrical Equipments (Foam is Dangerous in Confined Space)			
55	Search and rescue Introduction 1. While the entire fire service is dedicated to saving lives and property, search and rescue deals exclusively with life threatening situations.	2	6	8

	2. Fire fighters and Emergency Team must be thoroughly prepared for any potential search and rescue situation they encounter.			
56	Safety guidelines The following is a list of safety guidelines that should be used by search and rescue personnel in any type of search operation within a building: 1. Do not enter a building in which a fire has progressed to the point where viable victims are not likely to be found. 2. Work from a single operational plan. 3. Crew should not be allowed to freelance. 4. Maintain contact with command, which has control over rescue team. 5. Have a rapid intervention team constantly available to help firefighters or team in need of assistance. 6. Use the established personnel accountability system without exception (head count). 7. Wear full Personnel Protective Equipment, including SCBA and Pass device. 8. Work in terms of two or more and stay in constant contact with each other. 9. Rescuers are responsible for themselves and each other. 10. Search systematically to increase efficiency and reduce the possibility of becoming disoriented. 11. Stay low and move cautiously while searching. 12. Stay alert, use all senses. 13. Feel door for excessive heat before opening them.	4	6	10

	14. Maintain contact with wall when visibility is obscured. 15. Having a charged hose line at hand whenever possible when working on the fire floor because it may be used as a guide for egress as well as for firefighting. 16. Report promptly to the BA Control Officer once the search is complete before giving an “ALL CLEAR” search report.			
57	Breathing apparatus safety precaution 1. Never use a cylinder that is less than 80% full. 2. To perform high pressure leak test; close cylinder valve fully – by pulling down and rotating hand wheel. 3. Ensure that pressure reading on gauge does not fall by more than 10 bars in one minute. 4. Fully open cylinder valve. 5. Remove stud from tongue of forehead strap on face piece. 6. Ensure that your hair is swept back and place face into face piece. 7. Pull harness back over head and pull straight back on bottom straps, then top straps. 8. Make sure that they are pulled straight back and not outwards. 9. Check that a satisfactory seal exists on face piece and that low pressure warning system – whistle – operates at correct pressure. 10. Take gauge in left hand, put your right hand behind you and turn cylinder valve on, by pulling down and rotating hand wheel. 11. Start to breathe very slowly to exhaust air from system. 12. Whistle should operate at between 50 and 55 bars. 13. Continue to breathe down to a zero gauge reading, and then hold	2	7	9

	breathes. 14. At this point, if you have a satisfactory seal, face piece will collapse onto your face. 15. Open cylinder valve fully. 16. Inhale and exhale three times, hold your breath and listen for leaks. 17. If none are heard, press centre of rubber cover to check satisfactory supplementary supply - work can now commence. 18. Adopt this procedure to remove apparatus. 19. To removal face piece, pull forward with finger and thumb on each buckle; bottom straps first then upper straps. 20. Press re-set lever towards front cover of lung demand valve. 21. Remove face piece from face, and let it hang on chest. 22. Turn cylinder valve off, by pulling down and rotating hand wheel. 23. Apply pressure to centre of protective cover of lung demand valve, this will exhaust air from system. 24. Switch positive pressure facility off, by pressing re-set lever towards front cover of lung demand valve. 25. Release waist belt by pressing top and bottom clips, using finger and thumb. 26. Fully extend straps - next, release chest strap if fitted. 27. Ensure that shoulder straps are fully extended, by pushing shoulder strap buckles upwards. 28. Lift neck strap of face piece over head, then protecting face piece from damage. 29. Remove apparatus from shoulders and lay it down carefully.			
58	Action in the event of fire	1	7	8

	Introduction As we all understand, there must be certain guidelines or procedures to follow in case you discover a fire. Many calls or incidents happen and cause damage to property, injuries to people and sometimes death because we don't know what our individual responsibility is in the event of fire. 1. Raise the alarm 2. Call the Fire Department 3. Attack the Fire 4. Evacuation			
59	Fire safety tips 1. Notifying fire department quickly and correctly in case of fire or emergency. 2. Practice your planned escape. 3. Stay low and go 4. Keep fire escape clear 5. Matches: keep away from the reach of children. 6. Good smoking habits. 7. Stop, drop and roll. 8. Take care in the kitchen. 9. Keep some space around appliances. 10. Overloaded connections / socket. 11. Install and maintain life saving detectors. 12. Cool water for burns 13. Good housekeeping.	3	7	10
60	Definitions 1. I/C *In-Charge* 2. QA & QC *Quality Assurance & Quality Control* 3. MS *Method Statement* 4. ASME *American Society for Mechanical Engineers* 5. JSA *Job Safety Analysis* 6. API *American Petroleum Institute* 7. HSE *Health Safety Environment* 8. BA *Business Area*	4	-	4

	9. FRM *Form* 10. SWL *Safe Working Load* 11. NDT *Non Destructive Testing* 12. NDE *Non Destructive Examination* 13 OSHA *Occupational Safety & Health Administration* 14. ANSI *American National Standard Institute* 15. ASTM *American Society for Testing Materials* 16. BS *British Standard* 17. CEN *European Committee for Standardization* 18. EN *European Standard*			
	19. NASC *National Access and Scaffolding Confederation* 20. GS *Gulf Standard* 21. QHSE *Quality Health Safety Environment* 22. ASQC *American Society for Quality Control* 23. ISO *International Standard Organization* 24. ISA *International Society of Automation* 25. ACI *American Concrete Institute* 26. SWM *Solid Waste Management* 27. SW *Solid Waste* 28. SOP *Standard Operating Procedure* 29. PVC *Poly Vinyl Chloride* 30. RCC *Reinforce Concrete Cement* 31. CAR *Corrective Action Request* 32. PAR *Preventive Action Request* 33. PQP *Project Quality Plan* 34. IMS *Integrated Management System* 35. WPS *Welding Procedure Specification* 36. EPC *Engineering Procurement Construction* 37. FEDC *Field Engineer & Document Controller* 38. QIP *Quality Inspection Plan* 39. FA *First Aid* 40. MSDS *Material Safety Data Sheet* 41. WPQR *Welding Procedure Qualification Record* 42. AWS *American Welding Society* 43. JRA *Job Risk Assessment*			

	44. TRA *Task Risk Assessment* 45. ETF *Emergency Task Force* 46. SCBA S*elf Contained Breathing Apparatus* 47. CPR *Cardiac Pulmonary Resuscitation* 48. CBS *Central Base Store* 49. PM *Project Manager* 50. CM *Construction Manager*			
Total		**199**	**335**	**534**

LIST OF MACHINERY, EQUIPMENT & TOOLS

For 20 Students

Name of trade	**Safety Inspector**
Duration	**03 Months**

Sr. No.	Description	Qty
1	BREATHING APPARATUS	2
2	SPANNER SET	10
3	NET	5
4	HARNESS	20
5	SAFETY BELT	10
6	HAMMERS	10
7	ADJUSTABLE WRENCH	20

LIST OF MATERIALS FOR PRACTICALS

(For 03 Months Safety Inspector Course)

Sr. No.	Consumable Materials	Qty
1.	Fire Hose 2 ½" x 50ft	4 Nos.
2.	Fire Extinguishers Refills	40 Nos.
3.	Breathing Apparatus refilling	20 Nos.
4.	First Aid Kits	10 Nos.
5.	Metal Markers	40 Nos.
6.	Stationery (Work permit)	1200 Nos,
7.	Tags (3 Colors)	1200 Nos.
8.	Fire Blankets	20 Nos.
9.	Paints Enamel	12 Ltrs
10.	Paint Brush	10 Nos.
11.	Black Permanent Markers	80 Nos.
12.	Sand	20 Cft
13.	Coverall	80
14.	Safety Shoes	40
15.	Safety Helmet	40
16.	Safety Google	40
17.	Ear Plugs	40

EMPLOYABILITY OF PASS-OUTS

After completion the course successfully, the students would be able to join as Safety Inspectors in construction industry and also they would be capable to start their own business. The pass-out of this course may work in the following sectors / areas and positions as skilled professional: -

1. Plant construction (Power houses, Fertilizer plants, Cement plants, and Oil & Gas plants etc.)
2. Civil construction.
3. To start their own business of services.
4. To work in specific field like maintenance / shutdown services.
5. To work as contractor / sub-contractor.

REFERENCE BOOKS

Welding

1. Handbook of Structural Welding by John Lancaster
2. Gas Tungsten Arc Welding Handbook by William H. Minnick
3. Welding – American Welding Society

QUALIFICATION OF TEACHER / INSTRUCTOR

a) Instructor

1. D.A.E / B. Tech. / Foreign Qualified would be preferred
2. 10-Years experience in Construction Industry
3. Computer proficiency.

b) Demonstrator

1. Intermediate with Safety courses completed.
2. 10-Years experience in Construction Industry
3. Ability to use computer.