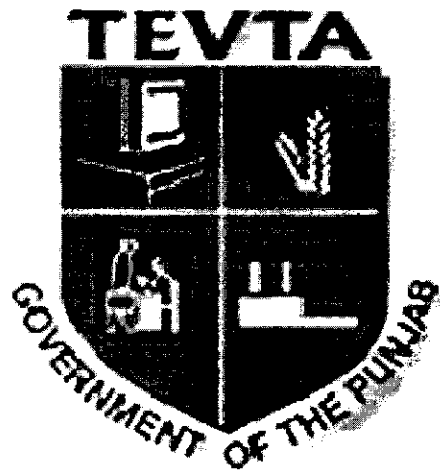


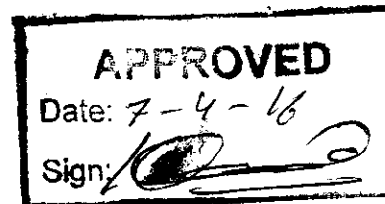
GOVERNMENT OF THE PUNJAB
TECHNICAL EDUCATION & VOCATIONAL
TRAINING AUTHORITY



CURRICULUM FOR

SAFETY INSPECTOR

(3 – Month Course)
Revised April 2016



CURRICULUM SECTION
ACADEMICS DEPARTMENT
96-H, GULBERG-II, LAHORE
Ph # 042-99263055-59, 99263064
gm.acad@tevta.gop.pk, manager.cur@tevta.gop.pk

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.

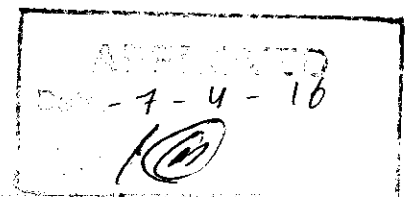
Semi-skilled and skilled worker produced by this training would help to reduce unemployment and poverty in the society. This curriculum is designed to train the Intermediate / Graduation pass persons who are facing a lot of shortage of Safety Inspectors in the field of construction industry.

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 passouts to meet the job market to reduce the shortage of Semi Skilled and Skilled workers in the area.

CURRICULUM SALIENTS

Entry Level	Intermediate / Graduate
Total Duration of Course	3-Months (12 Weeks)
Total Training Hours	400 Contact Hours
Training Methodology	80 % Practical 20 % Theory
Instructional Media	English



SKILL PROFICIENCY DETAILS

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

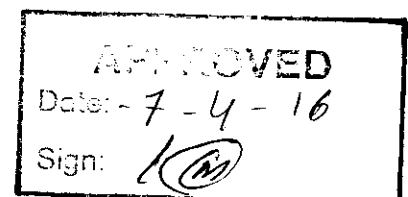
1. Give reminders before start critical job.
2. Conduct fire drill.
3. Conduct safety audit.
4. Conduct Tool Box Talk.
5. Supervision of safe work practice.
6. Conduct inspection and color coding.
7. Prepare rigging studies.
8. Prepare scaffolding registered.
9. Describe safety signs.
10. Describe and demonstrate PPE's.
11. Describe and demonstrate Breathing Apparatus.
12. Conduct housekeeping.
13. Conduct basic firefighting.
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.

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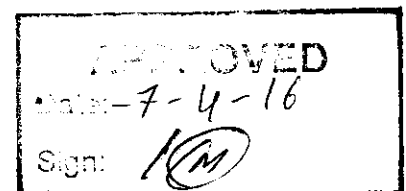
KNOWLEDGE PROFICIENCY DETAILS

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 of 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.



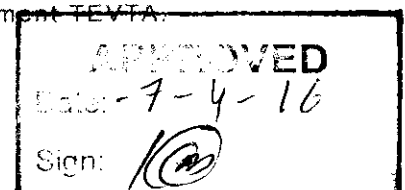
SCHEME OF STUDIES
Safety Inspector
(3 Months Course)

S.No	Main Topics	Theory Hours	Practical Hours	Total Hours
1.	Management of Health and Safety	6	4	10
2.	Principles of control	16	42	58
3.	Scaffolding hazards and control	4	33	37
4.	Project Construction site hazards and control	14	65	79
5.	Rigging hazards and control	4	12	16
6.	Crane hazards and control	4	12	16
7.	Chemical and biological health hazard and control	6	24	30
8.	Welding hazards and control	2	22	24
9.	Fire Prevention and fire fighting hazards and control	12	58	70
10.	I.T Fundamentals	4	16	20
11.	Functional English	15	25	40
Total		87	313	400

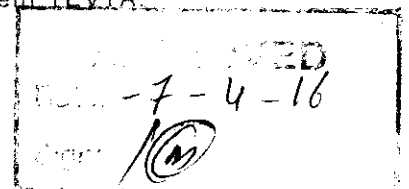
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Detail of Course Contents
Safety Inspector
(3-Months Course)


S. No.	Topics	Theory Hours	Practical Hours
1.	Management of Health and Safety 1.1 Introduction 1.2 Foundation in Health and safety 1.3 Importance for setting policy for health and safety 1.4 Legal and organizational health and safety roles and responsibilities 1.5 Concept of safety culture 1.6 Factors affecting safety culture 1.7 Factors affecting safety related behavior 1.8 Improving health and safety culture 1.9 Work place inspection 1.10 Risk assessment 1.11 Jobs description of safety Inspector	6	4
2.	Principles of control 2.1 General principles of controlling hazards and reducing risks 2.2 Safe work practice 2.2.1 Work at height 2.2.2 Scaffolding erection and use 2.2.3 Pressure testing 2.2.4 Hydro testing 2.2.5 Sand Blasting and painting 2.2.6 Crane operation and (Rigging and Lifting) 2.2.7 Hot work in match area of oil and gas project. 2.2.8 Shifting of Radioactive and other hazardous	16	42




	<p>materials.</p> <p>2.2.9 Role of MSDS for safe handling materials.</p> <p>2.2.10 House keeping</p> <p>2.2.11 Hand and Power Tools safety uses.</p> <p>2.3 Personal protective equipment and uses</p> <p>2.4 Toolbox talk</p> <p>2.5 Types of work permit</p> <p>2.6 General principles of permit to work systems</p> <p>2.7 Hot Work Permit</p> <p>2.8 Height Work Permit</p> <p>2.9 Cold Work Permit</p> <p>2.10 Hydro Test Permit</p> <p>2.11 Excavation Work Permit</p> <p>2.12 Confined Space Entry Permit</p> <p>2.13 Radiography Permit</p> <p>2.14 Erection Work Permit</p> <p>2.15 Responsibilities of permit receivers</p> <p>2.16 Responsibilities of permit issuer</p> <p>2.17 Safe work practice of hand tools and power tools</p> <p>2.18 Electrical hazards and control</p> <p>2.18.1 Hazards and risk associated with electricity at work</p> <p>2.18.2 Control measures</p>		
3.	<p>Scaffolding hazards and control</p> <p>3.1 An introduction to scaffolding</p> <p>3.2 Hazards on scaffolding</p> <p>3.3 Scaffolding safety procedures</p> <p>3.4 Fall protection systems and application</p> <p>3.5 Machine guarding</p>	4	33



<p>4.</p>	<p>Project construction site, hazard and control</p> <p>4.1 Introduction</p> <p>4.2 Hazard assessment</p> <p>4.3 Health hazard(noise, Vibration, Heat, Stress, Violation)</p> <p>4.4 Unsafe act on construction site</p> <p>4.5 Unsafe condition on construction site</p> <p>4.6 Safety of work at height</p> <p>4.7 Excavations and underground services</p> <p>4.8 Safety Signs</p> <p>4.9 Incident, injury, investigation and remedial measures</p> <p>4.10 Waste segregation and disposal at construction site</p> <p>4.11 Precaution during sand blasting and painting</p> <p>4.12 Common causes of injuries and accidents at work side</p> <p>4.13 Strict discipline at work side</p> <p>4.14 Requirements during working at night</p> <p>4.15 Incident reporting and investigation at site</p> <p>4.16 HSE emergency response</p>	<p>14</p>	<p>65</p>
<p>5.</p>	<p>Rigging hazards and control</p> <p>5.1 Rigging Process</p> <p>5.2 Rigging Equipments</p> <p>5.2.1 Steel Wire Rope</p> <p>5.2.2 Wire rope slings</p> <p>5.2.3 Chain slings</p> <p>5.2.4 Fiber Webbing Sling</p> <p>5.2.5 Attachment Hooks</p> <p>5.2.6 Shackles</p> <p>5.2.7 Chain pulley blocks</p>	<p>4</p>	<p>12</p>

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	5.2.8 Chain lever hoist 5.2.9 Puller 5.2.10 Rope snatch and pulley blocks 5.2.11 Traveling girder trolley 5.2.12 Winches		
6.	Crane Hazards and control 6.1 Lifting Principle of mobile crane 6.2 Center of gravity 6.3 Leverage 6.4 Stability 6.5 Structural stability 6.6 Crane hand signals 6.7 Crane Hazards 6.7.1 Improper Load 6.7.2 Speed 6.7.3 Hand signal 6.7.4 Inadequate inspection and maintenance 6.7.5 Unguarded part and radius 6.7.6 Improper exhaust system 6.7.7 Shattered window and boom angle 6.7.8 Crane safety Operation	4	12
7.	Chemical and biological health hazard and control 7.1 Forms and classification of hazardous substances 7.2 Risk associated with hazardous substances 7.3 Acute and chronic health effects 7.4 Control measures 7.5 Waste disposal and control of pollution	6	24
8.	Welding hazards and control 8.1 Welding Protective clothing and tools	2	22

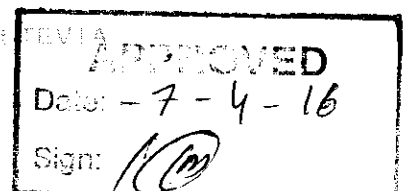
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	8.2 Welding safety procedures 8.3 Hazards in welding 8.4 Safety precaution in welding and burning activities		
9	Fire prevention and fire fighting hazards 9.1 Basic fire fighting 9.2 Types of fire extinguisher use and color coding 9.3 Search and rescue 9.4 Safety guidelines 9.5 Breathing apparatus safety measures 9.6 Action in fire event 9.7 Fire safety tips	12	58
Total		68	272

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LIST OF PRACTICALS

1. Practical for the safety awareness & Escape
2. Practical for the preparation of safety inspection check list
3. Practical for the Safe Erection and dismantling of basic scaffolds
4. Practicals for the fire drill.
5. Practicals for the safety audit.
6. Practical for the basic machine safety
7. Practicals for the Conduction Tool Box Talk.
8. To perform the House keeping of the given site.
9. Practical to Conduct inspection and color coding.
10. Practical's for the making and identify the safety signs.
11. Identify and the proper use of the relevant PPE's.
12. To demonstrate Breathing Apparatus.
13. Practical for the Lifting Operation
14. Practical for the work at height
15. Practical for the heart saver first aid
16. Practical for the Hazard analysis at work
17. Practical's for the basic fire fighting.
18. Prepare job risk assessment report.
19. Practicals for the strict discipline on construction site.
20. Practicals for the Reporting and investigation of accident at construction site.
21. Perform the HSE emergency response.
22. Prepare hazards assessment.
23. Identify and report the crane hazards.
24. Practical's for the use and refilling of the different types of fire extinguisher



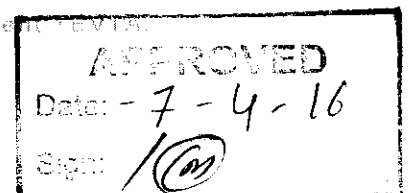
DETAIL OF COURSE CONTENTS**I.T Fundamentals**

S. No	Detail of Topics	Theory Hours	Practical Hours
1	Introduction to Computers 1.1 What is a computer- Definition, functions and general features? 1.2 What is Hardware – 1.2.1 Computer parts and units 1.2.1.1 Input Unit - Keyboard, Mouse etc. 1.2.1.2 Central Processing Unit 1.2.1.3 Output Unit 1.3 What is Software – 1.3.1 Electronic Parts of a Pc it is 1.3.1.1 Software and Its types 1.3.1.2 System Software, Application Software 1.4 Working with windows Operating System 1.4.1 How does windows desktops work? 1.5 What are the Icons, Shortcuts and other graphic, 1.5.1 How to see computer contents on different drives etc	1	4
2	Typing and Word processing (MS Word) 2.1 Proper way of typing correct and speedy - getting familiar with the keys 2.2 Where to type in computer? How to save a file? How to get it back? Where to find your saved work? 2.3 How to get it printed?	2	6
3	Emailing and Internet Surfing 3.1 How to go to Internet, what is required for an internet connection etc. 3.2 How to use email? How to search on web? Etc 3.3 How to make new email account, login and logout an email account etc.?	1	6
Total		04	16

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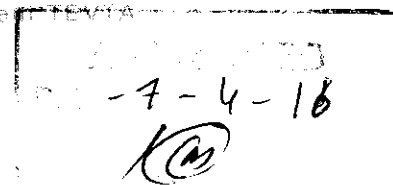
LIST OF PRACTICALS
I.T Fundamentals

S. No.	Name of Practical
1.	Turn On/Off and setting of power supply
2.	Accessing The Desktop
3.	Using of Icons and Shortcuts
4.	Setting / customizing the desktop
5.	Viewing the contents of computer – Directory
6.	Copying, Deleting and Moving Files in a folder
7.	Working with different Applications
8.	Opening MS Word for typing
9.	First lesson of Typing A S D F
10.	Second Lesson of typing J K L ;
11.	Third Lesson U I O P
12.	Fourth Lesson R E W Q
13.	Fifth Lesson N M , .
14.	Sixth Lesson V C X Z
15.	Seventh Lesson All letter using R index Finger
16.	Eighth Lesson All letter using L index Finger
17.	Formatting in MS Word Bold, Italic etc.
18.	Using Internet
19.	Opening Email, making new account
20.	Sending Receiving Emails



SCHEME OF STUDIES
Functional English

S.No	Main Topics	Theory Hours	Practical Hours	Total Hours
1.	Introduction of English Sentence Structure	2	3	5
2.	Use of present indefinite tense	2	3	5
3.	Use of 'is' 'are' 'am' questions and negatives	2	3	5
4.	Ask questions	2	3	5
5.	Express daily routines	2	3	5
6.	Know how to address people	1	2	3
7.	Provide written feedback	1	2	3
8.	Dialogues	1	2	3
9.	Understand vocabulary	1	2	3
10.	Application/C.V.	1	2	3
Total		15	25	40




DETAIL OF COURSE CONTENTS
Functional English

S. No	Detail of Topics	Theory Hours	Practical Hours
1	Introduction of English sentence structure	2	3
2	Use of present indefinite tense with exercises	2	3
3	Use of 'is' 'are' 'am' questions and negatives	2	3
4	4.1 Ask questions 4.1.1 At work place 4.1.2 In the market 4.1.3 In classroom	2	3
5	5.1 Express daily routines 5.1.1 Before going to college 5.1.2 Dealing with colleagues 5.1.3 Going to market	2	3
6	6.1 Know how to address people 6.1.1 In Meetings 6.1.2 In class	1	2
7	7.1 Provide written feedback 7.1.1 After visiting the market 7.1.2 On some official task	1	2
8	8.1 Dialogues 8.1.1 With colleague 8.1.2 Teacher/student 8.1.3 Employer/employee 8.1.4 Booking on railway station	1	2
9	Understand vocabulary	1	2
10	Application / C.V.	1	2
Total		15	25

LIST OF PRACTICALS
Functional English

S. No.	Practical
1.	Group discussion
2.	Interviews
3.	Role play

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LIST OF LABS

Safety Inspector

1- Safety Workshop

I.T Fundamentals

1- Computer Lab

REVISIONS
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LIST OF MACHINERY, EQUIPMENT & TOOLS

For 25 Students

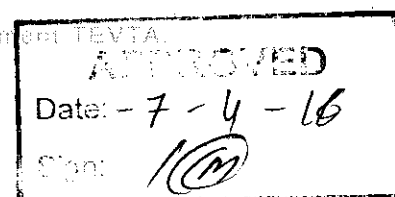
Name of trade	Safety Inspector
Duration	03 Months

S. No.	Description	Quantity
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
8-	Aluminum Ladder	20
9-	Fire Extinguisher DCP & CO2	10

COMPUTER LAB

S. No.	Tools / Equipment	Quantity
1.	Desktop computer (Specifications as per notification issued by MIS Section, TEVTA)	26 (1 for each student & 1 for the teacher)
2.	Printer (Laser)	01
3.	Scanner	01
4.	Internet Connection (At least 1 MB speed)	01
5.	UPS 10 KVA	01
6.	Air Conditioner 1 ½ Ton	02
7.	Multimedia Projector	01

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LIST OF CONSUMABLE MATERIALS
(Safety Inspector)

S. No	Item	Quantity
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.	Overall	80
14.	Safety Shoes	40
15.	Safety Helmet	40
16.	Safety Google	40
17.	Ear Plugs	40
18.	Safety Gloves	40

Functional English

S. No.	Item	Quantity
1.	Stationery	As per requirement
2.	Board Markers	As per requirement

I.T Fundamentals

S. No.	Item	Quantity
1.	Printing Paper	As per requirement
2.	Printer Toner	As per requirement

EMPLOYABILITY OF PASS-OUTS

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 works / sites
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.

MINIMUM 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

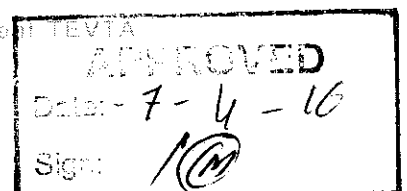
1. Intermediate with Safety courses completed.
2. 10-Years' experience in Construction Industry
3. Ability to use computer.

Functional English

- M.A. (English)

I.T Fundamentals

- DAE CIT/ BCS from HEC recognized university



REFERENCE BOOKS

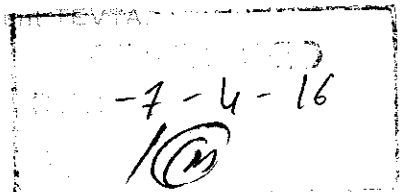
1. Engr. Anwar H. Siddiqui & Engr C. L. Nankani , An Introduction To Occupational Health, Safety And Environment, Iep
2. Paul Hughes, Ed Ferrett' Introduction To Health And Safety At Work, 3rd Edition, Elsevier

Functional English

3. High School English Grammar By Wren & Martin
4. Oxford English Grammar

I.T Fundamentals

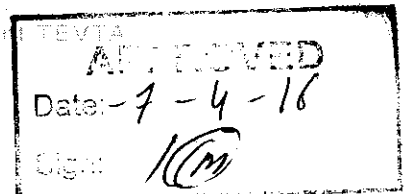
1. Introduction to Computer by Peter Norton
2. 2007 Microsoft® Office System Step by Step by Joyce Cox, Steve Lambert and Curtis Frye
3. Internet and E-mail with Windows 7 by Studio Visual Steps



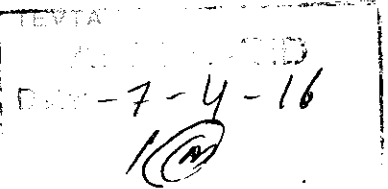
LIST OF TRADE RELATED JARGON

ANSI	American National Standards Institute.
ACOP	Approved Code of Practice
AEL	Approved Equipment List
BA	Business Area
BMS	Burner Management System
BFF	Basic Fire Fighting
BASP	Breathing Apparatus Safety Precaution
CA	Competent Authority
CSO	Crane Safety Operation
CASS	Conformity Assessment of Safety Systems
COMAH	Control of Major Accident Hazards
CCF	Common Cause Failure
CMF	Common Mode Failure
CA	Competent Authority
CMS	Competency Management System
CWF	Competent Work Force
DF	Dangerous failure
EUC	Equipment under control
FS	Functional safety
FSA	Functional safety Assessment
FST	Fire Safety Tips
FSMS	Functional Safety Management System
HT	Hazard Type
HE	Hazardous Event
HOS	Hazards on scaffolding
HS	Hazardous situation
HSE	Health Safety Environment
HSE	Health and Safety Executive
HMI	Human Machine Interface
IPL	Independent Protective Layer

IPF	Instrumented Protective Function
IPS	Instrumented Protective System
JRA	Job Risk Assessment
LDM	Low Demand Mode
LTI	Lost Time Injury
MOC	Management of Change
MAPP	Major Accident Prevention Policy
MTBF	Mean Time Between Failures
MTTR	Mean Time to Repair
NRR	Necessary Risk Reduction
NASC	National Access and Scaffolding Confederation
O&M	Operations & Maintenance
OSHA	Occupational Safety & Health Administration
PFEER	Prevention of Fire & Explosion & Emergency Response
PHR	Process Hazard Review
PFD	Probability of failure on demand
PCS	Process Control System
PPE	Personal Protective Equipment
PST	Process Safety Time
PSM	Process Safety Management
PAR	Preventive Action Request
QRA	Quantified Risk Analysis
QHSE	Quality Health Safety Environment
QR	Quantified Reliability
QD	Quantified Design
RA	Risk Analysis / Assessment
RBSA	Risk Based Safety Analysis
RBSI	Risk Based Inspection
RC	Risk Criteria
RE	Risk Estimation
RG	Risk Graph



RR	Risk Reduction
SCS	Safety Critical system
SCBA	Self Contained Breathing Apparatus
SSP	Scaffolding Safety Procedures
SFRS	Safety Functions Requirements Specification
SIF	Safety Instrumented Function
SICS	Safety Instrumented Control System
SIPF	Safety Instrumented Protection Function
SIS	Safety Instrumented System
SIL	Safety Integrity Level
SIRS	Safety Integrity Requirements Specification
SLCMP	Safety Life Cycle Management Plan
SRS	Safety Related System / Software
SRS	Safety requirements specification
SFAM	Systematic Fault Avoidance Measures
SFTM	Systematic Fault Tolerance Measures
SWM	Solid Waste Management
TRA	Task Risk Assessment



Curriculum Revision Committee

1. **Engr. Mazhar Abbas Naqvi** **Convener**
Principal,
Govt. Staff Training College, Faisalabad

2. **Mr. Amjad Rafique,** **Member**
Sr. Instructor,
GCT Rasul