Annexure

(Attached with requisition no. 65.11.6503)

Technical Specification of Electric Arc welding practice kit with bilingual Multimedia Software & scope of supply

Scope of Supply:

The training equipment consists of -

1. **Electric Arc Welding Machine as detailed below -**

Leading Technical Parameters:
POWER SUPPLY – 415V (+/-10%), Three Phase, 50 Hz
Welding current range - **80 – 400A.**
Type of air cooling- Natural cooling
Steeples type of regulation
1. Power Supply – 415V (+/-10%), Three Phase, 50 Hz.
2. Primary current at rated output 415V, 63A.
3. Welding Current at 60% cycle duty - 400A
4. Open Circuit Voltage- 80V
5. Welding Current Range **80 – 450A**
6. Types of air cooling – Natural cooling
7. Steeples Type of Regulation
8. Welding Electrode Size – 2.5 to 5.0 mm

2. **Bilingual Multimedia Software as detailed below-**

e- Learning Software for Electric Arc Welding Practice Kit

Bilingual Multimedia Software: The features of the Multimedia Software should be provided:
a. An exhaustive content on the subject to be delivered. It has to be user friendly with an attractive GUI (Graphics User Interface).
b. Literature with suitable diagrams, animation, audio and video clips taken of equipment used in the Indian Railways.
c. The entire package should be divided into module and units
d. At the end of each module there must be evaluation test incorporated.
e. Evaluation tests should be of various types like:
i) Fill in the Blanks Single Choice Question / Multi choice questions / True or False
ii) Suitable feedback should be automated and informed to the user.
f. Glossary consisting of technical nomenclature used in the software.
g. Single button switch over between Hindi and English
h. Data sheets if applicable
i. Capable of communication with a server based student management system through SCORM / AICC / IEEE communication standards.
j. Capable of independent operation through compact disc.
k. Book Marks for the user to add bookmarks for important pages in the software.

Bilingual Multimedia Software (English + Hindi) should consist of the following:

1. **Introduction to Electric Arc Welding**
Introduction to GMAW, Gas Metal Arc Welding Equipment,
selection of Gas and Electrodes, Welding application.

2. **Electric Arc Welding Fundamentals**

Welding Power Source, Shielded Metal Arc Welding, Gas Metal Arc Welding, Flux Cored Arc Welding, Submerged Arc Welding, Gas Tungsten Arc Welding.

3. **Parts of a Electric Arc Welding Kit**
Introduction to Manual Metal Arc Welding, Sizes of Electrode in metric and inch gauge systems, Manual Metal Arc Welding Electrode, Coding of electrodes.

4. **Operation of Arc Welding**
Setting up of Arc Welding Plant, Striking and Maintaining of Arc and Laying Short Length Beads, Straight Line Beading On M.S. Plat in Flat Position, Laying of Weaved Beads on M.S. Plate in Flat Position, Filet Weld in open corner joint on M.S. Plate in Flat Position, Filet Weld in Tee Joint on Mild Steel Plate (10mm) In Flat Position, Filet Weld in Lap Joint on Mild Steel Plate (10mm) in Flat Position, Butt Weld in open Square Butt Joint on M.S. Sheet (3.15mm) In Flat Position, Butt Weld In Single 'V' Butt Joint on Mild Steel Plate (10mm) in Flat Position, Straight Line Beading on M.S. Plate 10mm in Horizontal Position, Filet Weld in Tee Joint on M.S. Plate (10mm) in Horizontal Position.

5. **Safety Aspects in Electric Arc Welding**
Oxy-acetylene welding safety,
Welding safety when working with gases,
Welding safety at electrical powered equipments.

6. **Welding Inspection**
Inspection Of Weld (NDT) – Visual Inspection, Methods of Non- Destructive Test, Destructive Test.

7. **Welding Faults**
Distortion and its Control, the Common Welding Faults.

3. <u>Standard Accessories as detailed below</u>-

1. Suitable welding Copper cable fitted with connecting plug-10 meter.
2. Return Copper cable with connecting plug and earthling cord -10 meters.
3. 3-core rubber/PVC covered mains copper cable -3 meters.
4. Electrode holder 400 Amps fully insulted to I.S 2641/64.
5. One Set of Welding Gauges
6. Samples of different types of welding joints.