



Participant Handbook

Sector
Gem & Jewellery

Sub-Sector
Handmade Gold and Gems-set Jewellery, Cast
and diamonds-set jewellery, Silver Smithing

Occupation
Metal Alloying, Metal Alloying and Rolling

Reference ID: G&J/N9104, Version 1.0
NSQF level 4



**Assaying and
Hallmarking of Gold
Jewellery/ Artefacts**

Table of Contents

S.N.	Modules and Units	Page No
1.	Introduction and Orientation of the NOS and Gems and Jewellery Sector (G&J/N9104)	1
	Unit 1.1 - Overview and Industry Relevance	3
	Unit 1.2 - Regulatory Framework and Career Path	10
2.	Test Jewellery/Artefacts of Precious Metal using X-Ray Fluorescence (XRF) Technique (G&J/N9104)	21
	Unit 2.1 - Introduction and Preparation	23
	Unit 2.2 - XRF Machine Operation and Testing	33
	Unit 2.3 - Compliance, Maintenance and Documentation	39
3.	Sample Preparation for Assaying Job (G&J/N9104)	49
	Unit 3.1 - Fundamentals and Guidelines	51
	Unit 3.2 - Practical Applications and Recordkeeping	61
4.	Assay Gold in Gold Bullion, Gold Alloys and Gold Jewellery/ Artefacts (G&J/N9104)	67
	Unit 4.1 - Assaying Methods and Preparation	69
	Unit 4.2 - Fire Assay Procedures and Standards	79
5.	Hallmark Gold Alloys and Jewellery/Artefacts (G&J/N9104)	85
	Unit 5.1 - Hallmarking Guidelines and Documentation	87
	Unit 5.2 - Practical Execution of Hallmarking	95
6.	Validity of Results, Traceability (ILC/PT, Calibration & Preventive maintenance, Uncertainty Calculation) (G&J/N9104)	105
	Unit 6.1 - Quality Assurance and Instrument Validation in Precious Metal Testing	107
7.	Good Lab Practices, Material and Energy Conservation Practices at Workplace (G&J/N9104)	117
	Unit 7.1 - Hygiene, Contact Safety and Risk Awareness	119
8.	Hallmarking Portal & Automation (G&J/N9104)	143
	Unit 8.1 - Platform of Hallmarking and Process Automation	145
9.	Annexure	151

