COURSE TABLE OF CONTENTS

Checking Fixture Concepts and Applications

OEM: Koenig Original • Duration: 3 Days (24 hrs)

COURSE MODULES & TOPICS

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- Applications in quality assurance
- Fixture types

Module 2: 1 Locating Principle

- Degrees of freedom
- Constraint theory
- Practical examples

Module 3: Datum Systems and GD&T Fundamentals

- Datum reference frames
- Functional datums
- GD&T review

Module 4: Fixture Elements

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- Supports
- Rest pads
- Clamps
- Fool-proofing devices

Module 5: Material Selection and Design Considerations

- Steel fixtures
- Aluminium fixtures
- Composite fixtures
- Cost vs durability

Module 6: Fixture Design Methodology

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Module 7: GD&T Driven Fixture Design

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- Profile verification
- Runout verification
- Functional gauging

Module 8: Inspection and Measurement Technologies

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- Coordinate measuring machines (CMM)
- Laser measurement systems

Module 9: Fixture Calibration and Validation

- Calibration methods
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- Fixture acceptance criteria

Module 10: Measurement System Analysis for Fixtures

- Fixture repeatability
- Fixture reproducibility
- Fixture capability studies

Module 11: Automotive Fixture Applications

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- Welding fixtures
- Checking fixtures

Module 12: Digital Fixture Engineering

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- CATIA concepts
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Module 13: Industry 4.0 Inspection Systems

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- Sensor integration
- Digital measurement systems

Module 14: Troubleshooting and Continuous Improvement

- Root cause analysis
- Fixture wear issues
- Measurement correlation problems

Module 15: Industrial Case Studies

- Automotive body panel fixture
- Engine component fixture
- Supplier quality validation project