

Course instructors

Dr. Ahmad Kharaz

The course will be led by Dr. Ahmad Kharaz, Reader in Intelligent Instrumentation at the University of Derby. Dr. Kharaz has extensive experience over many years of undertaking precision measurements, in a wide variety of contexts. Dr. Kharaz will be supported by other staff from the University and IISE; industrial expertise will be provided by Eley Metrology.

Institute for Innovation and Sustainable Engineering (IISE)

The Institute for Innovation and Sustainable Engineering (IISE) is the University of Derby's latest investment to support advanced manufacturing within the region. It will work with industrial partners to achieve cutting edge solutions to challenges and will focus on innovation, research and development, knowledge transfer and commercialisation activity.



More information about IISE

Supported by:



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Aerospace is a key driving force for new technologies. Many trend-setting innovations were developed in enterprises and research institutions belonging to the aerospace industry. Products must fulfil severe quality requirements and work reliable under extreme conditions. High-qualified employees are the base for success.

The ASA is an institute of Steinbeis University Berlin and provides a variety of specialized courses and professional trainings to allow companies to hone the skills of their employees and continuously build on their capabilities. Working with leading international experts, we provide in-sight into the very latest research and technological advances.

German Aerospace Academy (ASA)

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Steinbeis University Berlin (SHB)

Founded in 1998, Steinbeis University Berlin (SHB) is a state-approved private university that offers students and companies practice-oriented, extra-occupational higher education based on the project competence concept, leading to nationally recognized qualifications. The research carried out by SHB focuses on issues with practical applications. The SHB portfolio of courses ranges from certification courses to degrees and doctoral programs. SHB is an enterprise in the Steinbeis Network, an international service provider in entrepreneurial knowledge and technology transfer.

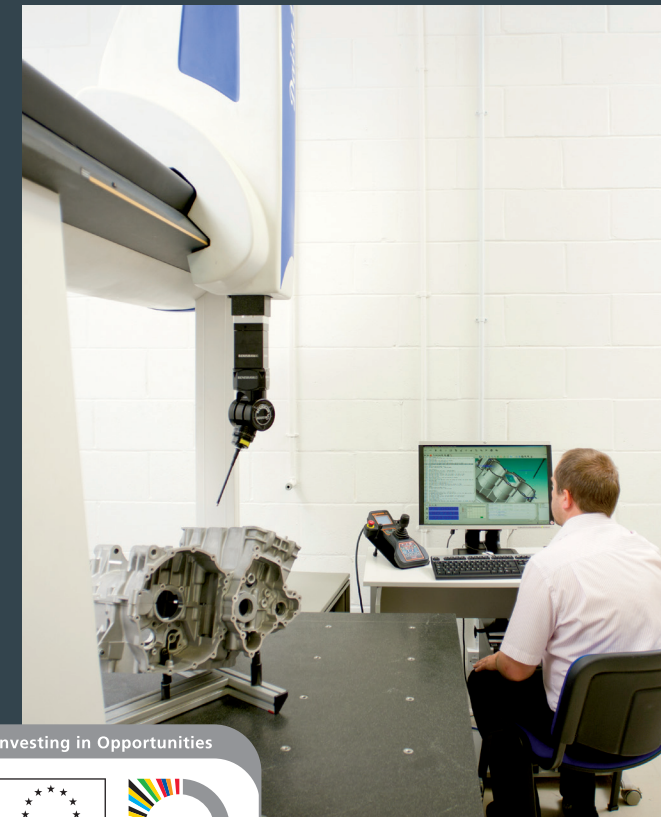
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in cooperation with:



CERTIFICATE COURSE Inspection and Measurement Technology



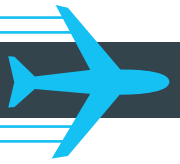
Investing in Opportunities



This project has received
European Regional
Development Funding
through INTERREG IV B.



INTERREG IVB



Target Audience

Managers, engineers and technicians in manufacturing, maintenance, management and deployment roles.

Course objectives

The course aims to bring the participant fully up to date in the latest techniques of measurement and inspection, as applicable to the aerospace industry. It covers not only the techniques of making a wide variety of precision measurements, but also how measurements are evaluated, and the national and international regulatory and assurance framework for measurements that are in place.

Benefits for the participant

- Be able to recognize how precision measurements are acquired, and assess the environmental issues which may compromise a measurement;
- Be able to evaluate measurements, in terms of their accuracy and traceability;
- Be able to apply national and international measurement standards;
- Be able to manage measurement and inspection in a manufacturing environment;
- Be able to develop further expertise in precision measurements.

Benefits for the company

- Have employees who can with confidence make and evaluate precision measurements;
- Have the assurance that company products are manufactured within specified tolerances;
- Have company expertise to improve manufacturing precision;
- Improve company income through a reputation for precision manufacture

Module 1: Principles of Measurement (0.5 day)

- Certification, Traceability and Calibration
- Generalized Approach to Measurement Systems
- Uncertainties, Measurement Errors and Instrument inaccuracies
- Environmental Effects on Measurements

Module 2: Sensors and Signals (0.5 day)

- Sensors Principles
- Signal Conditioning
- Analogue and Digital Systems
- Signal Processing

Module 3: Optics and Ultrasonic Measurement and Inspection Systems (1 day)

- Optics and Optical Components
- Optical fibre Sensors
- Ultrasonic Measurement Systems
- Acoustic Emission

Module 4: Measurement in Manufacturing (1 day)

- Scanning Optical Instruments (1-D, 2-D and 3-D)
- Non-optical Measurement Techniques
- Surface Technology
- Coordinate Measuring Machines
- Condition Monitoring and Maintenance

Module 5: Quality Assurance and Systems (1 day)

- Quality Systems
- Statistical Process Control
- Statistical Process Control and Data Processing
- Advanced Statistical Techniques

Module 6: Mechanical Metrology (1 day)

- Basic Gauging
- The Measurement of Angle
- Form and Deformation Measurement
- Measuring Instruments and Computer-aided Metrology

Knowledge Transfer Project

Following to the course each participant works on a knowledge transfer project in his or her company to apply the theoretical knowledge gained in the seminars. The content of the project shall be an actual task from the daily work of the participant. One of the course instructors is a supervisor for the project. The knowledge transfer project is documented in a short written report and to be sent to the instructors for evaluation.

Course Procedure

The certificate course includes 5 days of seminars, in the training rooms of the University of Derby; the facilities of the Institute for Innovation in Sustainable Engineering (IISE), and Eley Metrology will also be used. A one-hour written test will be administered on day following the last seminar day. Seminars contain lecture, group and single exercises as well as case studies with high practical relevance.

Seminar only

This course is also open to participants who will not go for a certificate. These participants neither have to do the exam nor the transfer project and will get a confirmation of participation in the end.

Certificate

Upon successful completion of the transfer project and passing of the test, participants are awarded a certificate by the Steinbeis University Berlin. In addition, 5 internationally accepted ECTS credit points are awarded. Grading is based on the written test and the knowledge transfer project.

Admission Requirements

Bachelor's degree in engineering, computing or the physical sciences.