DEULA Specialist training
"Made in Germany"

Foreword

As the economically most powerful member of the EU, Germany with its companies stands for innovation, advanced technology, high productivity, technological advantage and the internationally respected seal of quality "Made in Germany", i.e. an above-average quality of products and services.

- Highly qualified German specialists set international standards.
- High standards of teaching and training ensure a large range of excellent skilled workers.
- Cutting edge research and close collaboration of science, research and industry make Germany one of the most important innovation centers in the world.
- Germany is the most important European technology supplier.

But the fourth largest political economy of the world, are not only the "global players", but also many global market leaders from the middle class, the core of the industry-driven German economy. They all build on good economic conditions and on the excellent qualifications of workers. The excellent specialist training options of the DEULA Nienburg provide an important component in the context of specialist training for companies.

The DEULA Nienburg is a modern training and education center with a total of 50 employees and 70,000 training days per year. The six-acre site of the DEULA Nienburg includes in addition to the open land areas also 9,000 m² teaching halls, 29 well-equipped classrooms, three conference rooms and a training hotel with 240 beds and a full range of catering services.

Due to the continuous development of innovative and need-based vocational training opportunities, DEULA Nienburg provides companies the opportunity to train their specialists to secure jobs and further enhance competitiveness on the market.

Advanced training directory

Certified welder according to DVS guidelines of the German association for welding and related processes

Welders are deployed in various fields of mechanical engineering, vehicle and pipeline construction and the development of industrial products.

Gas welding (autogenous)

Basic module

- Occupational safety, accident prevention
- Welding gases, welding equipment
- Work techniques
- Welding consumables, risk of error in the base material
- Subject-related practical training on pipes and sheets, as well as project work

Test module

Intensive preparation for the theory and practical test to obtain a gas welders test certificate (311)

Target group:	Employees of metal working and processing
Duration:	1 week - 3 months
Degree:	Welders test certificate in accordance with DIN EN 287-1 or DIN EN ISO 9606-1

Manual metal arc welding (electrode hand welding)

Basic module

- Occupational safety, accident prevention
- Welding equipment, accessories
- Work techniques, the risk of error in the base material
- Welding consumables
- Subject-related practical training on pipes and sheets, as well as project work

Test module

Intensive preparation for the theory and practical test to obtain a e-manual welders test certificate (111)

Target group:	Employees of metal working and processing
Duration:	1 week - 3 months
Degree:	Welders test certificate in accordance with DIN EN 287-1 or DIN EN ISO 9606-1

Certified welder according to DVS guidelines of the German association for welding and related processes

Gas metal arc welding (GMAW)

Basic module

- Occupational safety, accident prevention
- Welding equipment, accessories
- Burner control, setting on the MSG device
- Avoidance of weld seam faults and equipment malfunctions
- Subject-related practical training on sheets and pipes as well as project work

Test module

Intensive preparation for the theory and practical test to obtain a GMAW welders test certificate (135) steel, chrome nickel steel or GMAW (136) with flux-cored wire

Target group: Employees of metal working and processing
Duration: 1 week - 3 months
Degree: Welders test certificate in accordance with DIN EN 287-1 or DIN EN ISO 9606-1

Tungsten inert gas welding (TIG)

Basic module

- Occupational safety, accident prevention
- TIG welding device, principle of TIG welding
- Welding rods, welding power sources
- Avoidance of weld seam faults and equipment malfunctions
- Subject-related practical training on sheets and pipes as well as project work

Test module

Intensive preparation for the theory and skill test to obtain a TIG welders test certificate (141) steel, chrome nickel-steel or aluminum

Target group: Employees of metal working and processing
Duration: 1 week - 3 months
Degree: Welders test certificate in accordance with DIN EN 287-1 or DIN EN ISO 9606-1

Advanced training control and automation technology

With the increased mechanization and automation in trade and industry, it is necessary that the commercial and technical workers are informed about problems of control technology and can handle them. This advanced training is designed for employees who need the knowledge from the fields of mechanics, electrical engineering, control and information technology, as they are used in the company for the assembly, maintenance and repair of equipment, machinery and production systems.

Basic module: Pneumatic, hydraulic and electrical engineering (4 weeks)

- Pneumatic fundamentals
  - Pneumatic circuit symbols and components, reading of schematics
  - Construction of common pneumatic circuits
  - Knowledge of pneumatic controls and motion sequences
  - Maintenance, repair and troubleshooting
- Fundamentals of hydraulic
  - Knowledge of hydraulic components, circuit symbol and basic circuits
  - Construction of basic hydraulic circuits
  - Maintenance, repair and troubleshooting
- Fundamentals of electrical engineering and electropneumatics
  - Knowledge and skills in the field of electrical engineering, protective measures and regulations
  - Practical construction of basic electronic circuits and measurement exercises
  - Knowledge of essential components and basic circuits of the electropneumatics
  - Maintenance, repair and troubleshooting

Advanced module: Electropneumatics and programmable logic control (PLC) technology (4 weeks)

- Continuation electropneumatics
  - Combination of electric control part and pneumatic power element
  - Structure and function of electrical switching devices and electropneumatic valves
  - Logical basic functions as well as timer and counter functions
  - Symbolic representation of devices according to the standard
  - Maintenance, repair and troubleshooting
- Fundamentals of PLC technology
  - Distinction between contactor control and PLC
  - Construction and operation of a PLC
  - Signal states and signal exchange in the PLC
  - Basic functions and programming languages
  - Dealing with the programming language STEP7
  - Memory types of the PLC
  - Introduction to number systems
  - Programming practice through practical exercises
  - Mechatronic project work

Target group: Employees who within the company are engaged in the assembly, maintenance and repair of systems, machinery and production systems

Duration: 4-8 weeks

Degree: DEULA certificate

Programmable logic control (PLC) specialist
with Chamber of Industry and Commerce (IHK) certificate

Many companies that use modern control and automation systems are working today with programmable logic controllers. With this advanced training, employees receive the necessary practical know-how to professionally use this technology in the company.

Fundamentals control technology (2 weeks)

- Fundamentals of electrical engineering, hydraulics and pneumatics
- Construction of simple circuits
- Construction of pneumatic and hydraulic systems
- Work planning, troubleshooting and repair
- Metrology and quality assurance

PLC elementary level (3 weeks)

- Fundamentals of PLC
- Structure and programming of PLC: structured and linear control
- Documentation, data maintenance and data backup
- Safety measures
- Trouble shooting
- Testing

PLC advanced level (4 weeks)

- PLC systems
- Hardware planning
- Software planning
- Commissioning and maintenance
- Testing

PLC user level (3 weeks)

- Project work
- Planning of systems
- Practice of planning
- Structured programming
- PLC deployment in the company
- User documentation, project presentation
- Test for IHK specialist

Target group:	Specialists from the electrical or metal sector
Duration:	2-12 weeks
Degree:	IHK certificate "specialist for control technology"

Advanced training according to "electrician for specified activities in accordance with trade association regulation BGV A3"“

This advanced training is designed for specialists of an industrial-technical occupation without electrical training, who are used in the manufacture, maintenance or field service and who in addition to their specialized training, shall take care of the electrics of their assigned production systems or factory equipment.

Specialist theory

- Fundamentals of electrical engineering
- Dangers and effects of electric current on human beings, animals and objects
- Protective measures against direct contact and indirect contact
- Testing of the safety measures
- Measures to prevent accidents when working on electrical equipment
- Fundamentals of "first aid"
- Responsibility
- Company specific, electrical requirements
- Conducting of the theory test

Specialist practice

- Electrical safety testing after repair of electronic devices
- Subject-related practical training: Switch circuit, AC circuit, impulse switch, time element, measurement of hand-held devices according to DIN VDE 0701 + 0702, repair of hand held devices according to DIN VDE 0701 + 0702 (spare parts such as cables), repair extension cable 230 V and 400 V.
- Conducting of the practical test

Target group: Specialists industrial-technical occupation
Duration: 2 weeks
Degree: DEULA certificate

Computer-aided design with AutoCAD

It shows the fundamentals of this technique, the possibilities and requirements for use of CAD systems and conveys the functioning and operation of such a system.

Basic module (1 week)

- CAD fundamentals
- Operation and structure of a CAD program (dialog boxes, display control, coordinate input)
- CAD drawing commands (line, circle, arc, text…)
- CAD editing commands (delete, copy, rotate, slide…)
- Auxiliary functions
- Drawing structure with layer technology
- Dimensioning and dimension styles
- Drawing output to a plotter or printer

Advanced module (1 week)

- Advanced dimensioning
- Captions
- Paper/model space
- Command abbreviations
- Working with blocks and attributes (automatic block lettering)
- Extracting attributes
- External drawing insertions

User module (1 week)

- Dynamic Blocks
- Working with transparencies
- Working with script files
- Creating your own line types
- Customizing of user interface
- AutoCAD 3D features
- Presentation Autolisp programming

Special module: Wood technology/carpenters (1 week)

- Boolean operations
  - Combination of solids, differentiating solids and patternmaking on solids
  - Constructing a work piece/construction project based on a template
  - Creating a paper template
  - Application presentation for interior design, shop, object and furniture construction

Target group: Knowledge of technical drawing and basic knowledge of windows are desirable
Duration: 1-4 weeks
Degree: DEULA certificate

Computerized Numerical Control (CNC) specialist
in the field of metal or wood
with Chamber of Industry and Commerce (IHK) certificate

The CNC specialist has knowledge in the operational task area of the CNC manufacturing and serves as a link between the manufacturing level and the upper management level.

CNC technology elementary level (3 weeks)

- Introduction to IT
- Basic knowledge and skills in the field of system-specific programming
- Basic knowledge in the use of CNC machines
- Testing

CNC technology advanced level (operation and programming) (4 weeks)

- Entry into the different programming systems: CNC turning, WOP programming, Heidenhain control
- Fundamentals CAD (operation for CAM)
- Testing

CNC technology user level in the field of metalworking (in-depth programming) (5 weeks)

- CNC turning
- Heidenhain control ITNC 530: Complex programming, program optimization and special functions, programming with SL Cycles
- Subject-related practical training

Test for IHK specialist for CNC metal technology

OR

CNC technology user level in the field of wood (in-depth programming) (5 weeks)

- Optimization of CNC programs
- Setting up and operating of CNC machines
- Programming with parameters/variables
- CAD/CAM
- Project work
- Test for IHK specialist for CNC wood technology

Target group:	Specialists from the metal or wood sector
Duration:	3-12 weeks
Degree:	IHK certificate "specialist for CNC metal technology" or "specialist for CNC wood technology"

Safety standards in the operation of wood processing machines

This course teaches how to deal with modern wood processing machinery with particular emphasis to the trade association safety standards for accident prevention. Part of this training is to provide advice on the efficient use of tools and the use of the newest safety engineering.

Basic module: Operating wood processing machines (1 week)
Safe operation of wood processing machines: Sawing machines, planing machines, hand-held overhead router, spring groove router, drilling machine, grinding machines with particular emphasis to the trade association regulations

Advanced module: Wood processing machinery with emphasis on bench router machines (1 week)
Continuation of the practice work with sawing machines, planing machines and grinding machines with emphasis on practical applications of bench router machines

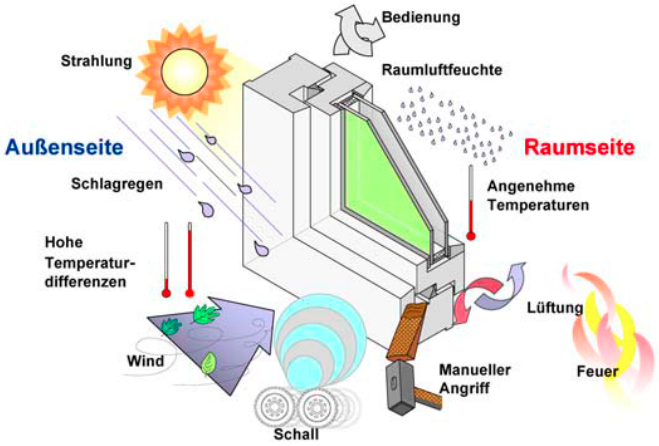
User module: Project-based work (1 week)
Implementation of project-related woodwork

Target group: Employees from the wood sector
Duration: 1-3 weeks
Degree: DEULA certificate

Current state of the art in terms of window and door construction

High demands with regard to requirements, thermal protection, burglar inhibition, sound insulation and statics are placed on modern window and door construction. This course provides the current state of the art concerning this matter.

- Planning and design errors in windows and doors
- Frame materials
- Constructions
- Types of openings
- Glass
- Metal mount
- Burglar inhibition
- Installation/Mounting
- Damages/construction defect



Target group: Specialists from the wood se
Duration: 1 week
Degree: DEULA certificate

Advanced training renewable energy - solar

The fast growing trend to build facilities for the generation of energy from solar radiation justifies the call for proven specialists in this field. The advanced training is aimed at companies that sell and install solar and photovoltaic systems.

Module: Fundamentals of electrical engineering (1 week)

- Fundamentals of electrical engineering and electronics
- Fundamentals of measuring, control and regulation technology
- Danger prevention
- Protective measures against hazardous body currents

Module: Fundamentals of plumbing and heating engineering (1 week)

- Material
- Connection and assembly techniques, in particular for pipes and components
- Fittings and measurement equipment
- Protection of drinking water

Module: Photovoltaic and solar thermal energy (1 week)

- Photovoltaic
  - Principles and guidelines
  - Solar cells
  - Photovoltaic systems and superstructures
  - Installation and maintenance (maintenance, troubleshooting, acceptance report)
  - Customer advisory service and marketing
- Solar thermal energy
  - Fundamentals of heat engineering
  - Solar collectors (structure, function, collector types, efficiencies rates, quality criteria)
  - System components (heat storage, solar circuit, auxiliary heating)
  - System configurations (interconnection of collectors, heating of drinking water, solar heating)
  - System concepts and design

Target group:	Employees from companies that sell and install solar power and photovoltaic systems
Duration:	1-3 weeks
Degree:	DEULA certificate