SHIFTVET
Digital Transformation for
Wood and Furniture VET

A1.2 TRAINERS GUIDES

SUMMARIZING

KEY POINTS OF THE THREE TECHNOLOGIES SELECTED

3D PRINTING, 3D SCANNERS AND CNC

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WHAT IS EACH TECHNOLOGY USED FOR?

3D PRINTING

- Rapid prototyping
- Iterative learning
- From digital to physical object

CNC

- Precise manufacturing
- Working with real materials
- Environment close to industrial conditions

3D SCANNING

- Digitalization of real objects
- Basic reverse engineering
- Design and dimensional control support

+ Info

Useful technologies for blending the digital and innovative with the art of craftsmanship

Here you will find the guides in all languages



Library

ShiftVET is more than a training project - it's a replicable model where tradition and innovation go hand in hand. By connecting trainers,...

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BASIC WORKFLOW

3D PRINTING

CAD design

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Laminating

↓

Printing

↓

Post-processing

3D SCANNING

Preparation

↓

Scanning

↓

Mesh cleaning

↓

Export

CNC

CAD design

↓

CAM

↓

Configuration

↓

Machining

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REQUIREMENTS IN THE CLASSROOM



Teacher

- Basic technical knowledge
- Active supervision skills

Resources

- Specific software
- Calibrated equipment
- Planned time

Organization

- Guided work
- Small groups
- Clear rules of use



Level of classroom demand by technology

Aspect	3D Printing	3D Scanning	CNC
Teacher supervision	Medium	Medium	High
Technical setup	Medium	Low	High
Safety requirements	Medium	Low	High
Time planning	Medium	Medium	High

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SAFETY: THE ESSENTIALS

3D SCANNING- Low risk

- Clear space
- Secured cables and tripods
- Correct use of light source

3D PRINTING- Medium risk

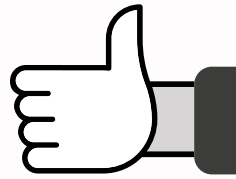
- Adequate ventilation
- Caution with hot surfaces
- Safe handling of filament

CNC- High risk

- Mandatory PPE
- Eye and hearing protection
- Never operate without supervision

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SUSTAINABILITY AND BEST PRACTICES



- Efficient use of materials
- Reuse and waste reduction
- Process optimization
- Digitization to minimize errors
- Culture of responsible maintenance

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SKILLS DEVELOPED BY STUDENTS

Digital and technical skills

Critical thinking

Problem solving

Collaborative work

Applied creativity

Safety and sustainability awareness

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MINI QUIZZ

Which action is essential before starting a 3D printing session?

- Ensure proper ventilation
- Touch the nozzle to check temperature
- Change filament while printing
- Print without supervision

What is the main safety concern during 3D scanning in the classroom?

- Sharp cutting tools
- Excessive noise
- Trip hazards and light source misuse
- High temperatures

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MINI QUIZZ

True or False: Students can operate CNC machines independently once trained.

TRUE

FALSE

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Digital manufacturing in VET enables learning by doing, connecting the classroom with the professional world through safe, sustainable, and technologically relevant processes. The guides developed in the **ShiftVET** Project support teachers in the effective integration of these technologies into vocational training.

FROM DESIGN TO REALITY ⇨ SKILLS THAT ARE MANUFACTURED

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ASLAM

CETEM

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un mediju
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