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GREEN4OHS

Empowering occupational health and safety for sustainable development in the Western Balkans

GREEN OHSafety

Dr. Nedim Čelebić

DR. NEDIM ČELEBIĆ, UNIVERSITY SSST, FACULTY OF ECONOMICS AND BUSINESS

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Why this module matters

Global context and relevance

c2.8 million workers die yearly from occupational accidents or diseases (ILO, 2023)

OHS linked to social justice, productivity, and climate resilience

Global supply chains need aligned safety and sustainability standards

Demand for professionals with interdisciplinary understanding is growing

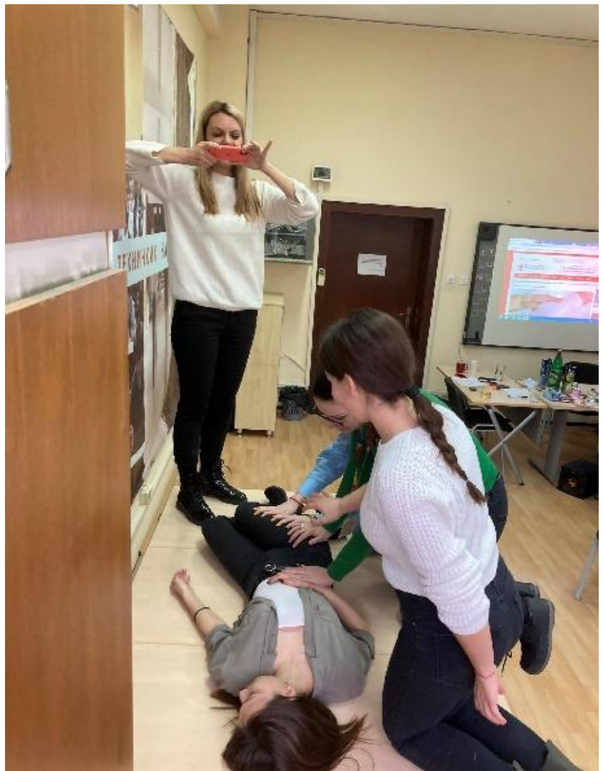
Core pillars of the module

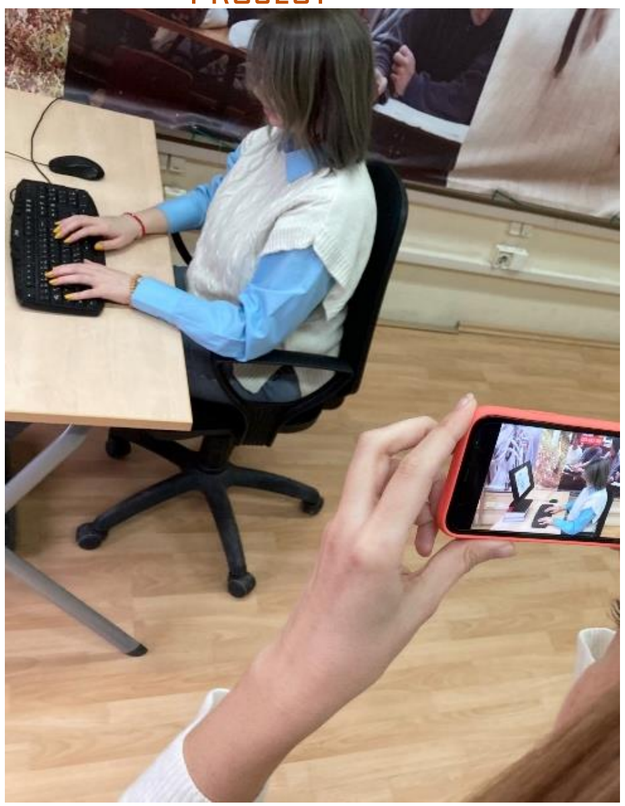
Learning methods

DOHASS

DOHASS ERASMUS+ PROJECT

@ERASMUS_DOHASS





Jean Monnet

ENROL

EU regulations in the field of environmental protection – Agenda 2030, Circular economy, Sustainable development, Green economy, Circular economy

EU regulations in the field of OHS – EU Strategic Framework on Health and Safety at Work 2021-2027, European Pillar of Social Rights, The European Union's Policy in the Occupational Safety and Health Sector

EU regulations in the field of labor relations – EU Recommendation on the employment relationship in Europe, International and European Labor Law

@ENROL_JEANMONNET

Challenges and opportunities for implementation of regulations on environment, occupational health and safety and labor relations based on the best European practices

Why Occupational Safety Matters for Sustainable Development?

Occupational Safety and Health (OSH) is more than protection. It is a precondition for sustainable growth and social stability.

Safe workplaces reduce poverty, enhance productivity, and protect community well-being.

Directly supports SDG 3 – Good Health & Well-being, SDG 8 – Decent Work & Economic Growth, and SDG 13 – Climate Action.

SDG	OSH relevance	Example actions
SDG 3 – Good Health & Well-Being	Prevention of injuries, diseases, and stress	Workplace health promotion and psychosocial support
SDG 8 – Decent Work & Economic Growth	Safe and fair work conditions	ISO 45001 implementation, preventive culture
SDG 13 – Climate Action	Adaptation of workplaces to climate change	Managing heat stress, introducing green technologies

Understanding OHS in the European and global context

European Pillar of Social Rights (EPSR)

- Proclaimed in Gothenburg, 17 Nov 2017 by the European Parliament, Council, Commission.
- Contains **20 principles structured around three chapters**:
  - Equal opportunities & labour market access
  - Fair working conditions
  - Social protection & inclusion

The three pillar chapters

- ***Equal Opportunities and Labour Market Access:*** **education, gender equality, active employment support**
- ***Fair Working Conditions:*** **secure employment, work–life balance, safe/adapted work environment**
- ***Social Protection and Inclusion:*** **healthcare, unemployment benefits, disability inclusion**

Action plan and key 2030 targets

- **Action Plan operationalizes EPSR principles via concrete legislative proposals and funding.**
- **2030 headline targets:**

✓≥ 78% employment rate (age 20–64)

✓≥ 60% adults in training annually

✓−15 million fewer people at risk of poverty or social exclusion

EU Green Deal and OHS Implications

What is the European Green Deal?

Launched December 2019, aims for EU climate neutrality by 2050, 55% GHG reduction by 2030.

Covers circular economy, biodiversity, farming, sustainable industry, energy, mobility.

Occupational Health and Safety in Green Jobs Content

–EU-OSHA highlights emerging OHS risks:

✓new technologies,

✓renewable energy installations,

✓recycling, etc.

–Green jobs involve … new work environments

Green jobs are employment positions focused on environmental sustainability, encompassing roles in renewable energy, waste management, and conservation.

Accidents in Green Sector

In the green jobs sector, 30% of workers have encountered various injuries, from minor to severe, while on duty.

Safety Compliance

A significant 55% of green job companies are compliant with the safety regulations intended to protect employees.

Incident Reports

About 15% of workers in green jobs have reported workplace incidents linked to safety hazards and poor conditions.

Social and OHS implications of the Green Deal

- World Bank: need to reskill low-skilled workers, bolster social protection and health services for a just transition
- EU policy promotes green skills via Pact for Skills and education and training initiatives.

Emerging OSH Risks in the Green Economy

New risk profiles in green sectors:

- **Electrical and chemical risks in renewable energy and recycling;**
- **Exposure to nanomaterials and bio-waste;**
- **Psychosocial risks from digitalization and job transitions;**
- **Need for new competences, training, and adaptive prevention systems.**

OSH within ESG and the European Green Deal

Emerging OSH Risks in the Green Economy

–OSH is part of the Social (S) dimension of ESG.

–Key indicators:

✓*Lost Time Injury Frequency Rate (LTIFR)*

✓*Absenteeism and turnover rates*

✓*Well-being and inclusion programs*

–Linked to CSRD Directive and ESRS S1 – Own Workforce.

–Supports transparency and accountability in corporate sustainability.

ESG criteria are now part of credit and investment risk assessments.

Financial institutions favor companies with strong OSH and sustainability records.

EU programs supporting this transition: InvestEU, European Investment Bank (EIB), European Social Fund +.

Global OHS Frameworks

ILO and WHO Perspectives

- ILO Convention 155 (1981): Occupational Safety and Health.
- ILO Convention 187 (2006): Promotional Framework for OSH.
- WHO Global Plan of Action on Workers' Health (2022–2030).
- EU-OSHA acts as a regional bridge between global standards and EU implementation.

EU Directives on Workplace Safety

Framework Directive on Workplace Safety

- **Framework Directive 89/391 sets minimum OHS standards across EU.**
- ***Key employer duties:***

✓**risk assessment,**

✓**preventive policy,**

✓**worker training.**

Directive	Focus	Real-world Example
89/654/EEC	Minimum workplace requirements	Ventilation, lighting, fire exits, hygiene facilities. For instance, ensuring emergency exits are marked and unobstructed.
89/656/EEC	Personal Protective Equipment (PPE)	PPE must fit the worker and be appropriate for the task—e.g., flame-resistant gloves for welders, ear protection in noisy environments.
90/269/EEC	Manual handling of loads	Requires risk assessment for lifting tasks—especially important in warehouses, logistics, and healthcare. Promotes mechanical aids like lifting hoists.
92/58/EEC	Safety and health signage	Mandatory signs (warning, prohibition, emergency exit) must follow EU standard pictograms—e.g., no smoking zones, eye wash stations.
2009/104/EC	Use of work equipment	Machines and tools must be safe to use, regularly inspected, and maintained—e.g., guards on cutting machinery, electrical checks.
2000/54/EC	Protection from biological agents	Vital in healthcare, waste management, and food production—includes labelling, containment, and vaccination of workers.
2004/37/EC	Carcinogens and mutagens	Employers must substitute dangerous substances where possible, ensure containment, and monitor worker exposure—relevant in chemical and textile industries.

Examples

Manufacturing Sector

- Directive Applied: 2009/104/EC – Use of Work Equipment
- Scenario: A metalworking factory upgrades its cutting machines and introduces automatic guards and two-hand controls to prevent finger injuries. All equipment undergoes regular maintenance and operator training is documented.
- Result: Sharp reduction in hand injuries, higher machine uptime, and improved worker confidence in safety protocols.
- Also applied:

✓ 89/656/EEC (PPE): Noise-cancelling headsets and fitted respirators for welders.

✓ 90/269/EEC (Manual Handling): Lifting tables introduced to reduce back strain in parts assembly.

Healthcare Sector

- Directive Applied: 2000/54/EC – Biological Agents
- Scenario: A hospital revises its infection control strategy in line with the directive. It installs closed-system drug transfer devices in oncology units, enforces safe disposal of sharp instruments, and vaccinates employees exposed to hepatitis.
- Result: Decrease in needle-stick injuries and hospital-acquired infections, alongside better regulatory audit outcomes.
- Also applied:

✓ 89/654/EEC (Workplace Requirements): Proper ventilation in isolation wards and ergonomic design in nursing stations.

✓ 90/269/EEC (Manual Handling): Use of patient hoists and sliding sheets to prevent musculoskeletal injuries among nurses.

Construction Sector

- Directive Applied: 92/58/EEC – Safety and Health Signage
- Scenario: A construction firm launches a new housing project. Before starting, it installs standardized signage for fall hazards, PPE zones, and fire assembly points. Signs are language-neutral (pictogram-based) to accommodate migrant workers.
- Result: Improved hazard awareness, fewer near-miss incidents, and higher compliance during inspections.
- Also applied:

✓2004/37/EC (Carcinogens and Mutagens): Substitution of bitumen products with less hazardous alternatives.

Proactive Safety: Prevention through Design (PtD)

- PtD embeds hazard prevention early in design of tools, equipment, workplaces.

- EU encourages PtD principles via standardisation and best practice tools.

Enforcement and EU-OSHA's Role

Member States enforce via labour inspectorates and national laws.

EU-OSHA fosters risk prevention culture with tools (e.g. interactive risk assessment), campaigns, and research.

LET’S HEAR/READ STORIES

Story 1: The forklift that changed everything

- Medium-sized logistics company based in Austria. A worker had been operating a forklift for over a decade without a single incident.
- But one day, during a busy holiday rush, he turned too quickly and the forklift clipped a support beam. He **wasn't hurt**, thankfully but it caused a chain reaction. The racking collapsed.
- Thousands of euros of goods were destroyed. **The facility shut down for three days.**
- The internal investigation showed the issue wasn't just ‘human error.’ Worker had been working 10-hour shifts, the aisles were too narrow, and training hadn’t been updated in five years.
- The company realized they **hadn’t invested in safety because they believed it slowed things down.**
- That incident cost them over **€100,000** in damages, delays, and lost contracts.

Story 2: The needle that changed the system

- Urban hospital, emergency ward, nonstop shift changes, high stress
- 29-year-old nurse, was finishing her second consecutive shift. Exhausted, she rushed through a routine blood draw and accidentally pricked her finger with a contaminated needle.
- **The cost breakdown:**

✓Direct medical care: **€2,500**

✓Overtime for replacement staff: **€4,800**

✓HR and legal time: **€1,200**

✓Total disruption cost: nearly **€9,000**—from a single needle-stick injury.

Story 3: The fall that changed the blueprint

- 42-year-old steel fixer working on a mid-rise residential project outside Warsaw. He had been on this job for years. No one thought twice when he climbed to the third floor to secure rebar near the edge.
- His foot slipped on a damp plank that had warped over time. There was no guardrail. No fall arrest harness. He survived, but with multiple fractures and a traumatic brain injury. He never returned to work.
- **The company faced:**

✓ Immediate work stoppage by inspectors,

✓ Fines from the labor authority: **€15,000,**

✓ Increased insurance premiums,

✓ Legal action from workers's family,

✓ A wave of resignations from workers who no longer felt safe.

✓ In total **€150,000** in direct and indirect costs and a damaged reputation.

LET’S DO Case Study Reconstruction (Individual Task)

Instructions

Choose one case from the presentation:

- 🏭 *Manufacturing*: Forklift accident (Austria)
- 🏥 *Healthcare*: Needle injury (Serbia)
- 👷 *Construction*: Fall from height (Warsaw)

Carefully review the slide and identify the key details:

- What exactly happened?
- Why did it happen? (root causes)
- What measures were or could be implemented?
- What outcomes were achieved or expected?

Complete the table below (1 page maximum)

Phase	What happened?	Root causes	Preventive actions (based on Hierarchy of Controls)	Expected results / impact
Description of incident	Sequence of events	Direct & underlying causes (organizational, human, technical)	Propose actions for elimination, substitution, engineering, administrative, PPE	How the situation would improve (injury reduction, efficiency, cost savings, morale)

Hierarchy of Controls (use as guidance)

Students must apply this structure when proposing preventive measures:

- **Elimination** – Remove the hazard completely (e.g., redesign process).
- **Substitution** – Replace with a safer material, process, or tool.
- **Engineering controls** – Isolate people from the hazard (barriers, alarms, sensors).
- **Administrative controls** – Change the way people work (training, rotation, signage).
- **PPE** – Provide personal protective equipment (helmets, gloves, masks).

🕐 **Expected Time**

- **Approx. 25–30 minutes (analysis + writing).**

Example

Phase	What happened?	Root causes	Preventive actions (Hierarchy of Controls)	Expected results / impact
Incident	A graduate student accidentally spilled concentrated acid while transferring it from a large container to a smaller one, causing skin burns on both hands.	- No fume hood or containment tray used - Improper use of glass pipette instead of pump dispenser - No supervision by lab technician - Outdated safety instructions	**Elimination:** switch to pre-measured acid cartridges to remove manual transfer. **Substitution:** use less corrosive acid where possible. **Engineering controls:** install fume hoods and spill trays at all transfer stations. **Administrative controls:** mandatory supervision during chemical transfers and annual refresher training. **PPE:** acid-resistant gloves, goggles, and lab coat.	- No further chemical burns - Increased compliance with lab protocols - Improved supervision and lab discipline.

LET’S SEE WHAT HAPPEND IN THE REALITY

Story 1: The forklift that changed everything

Company invested in:

- ✓ better forklifts
- ✓ ergonomic warehouse layout,
- ✓ digital scheduling to avoid overwork,
- ✓ updated OHS training every 6 months,
- ✓ and worker feedback systems.

One year later:

- ✓ accidents dropped **by 80%;**
- ✓ **Insurance premiums fell;**
- ✓ Staff **turnover declined;**
- ✓ **Productivity improved** because workers felt safer and more supported.

Story 2: The needle that changed the system

Hospital's leadership changed direction by investing in:

- ✓safety-engineered needles that automatically retract,
- ✓a revised sharps protocol,
- ✓mandatory refresher training,
- ✓created a safe, anonymous system to report near-misses.

One year later:

- ✓, needle-stick injuries **dropped by 70%.**
- ✓Staff reported feeling **safer and more supported.**
- ✓Fewer incidents meant **lower insurance claims and less turnover.**

Story 3: The fall that changed the blueprint

Company leadership changed direction by:

- ✓ upgrading to modular scaffold systems with built-in fall protection,
- ✓ required daily pre-shift safety checks,
- ✓ introduced a “stop work authority” for all workers,
- ✓ appointed a full-time OHS officer on every site.

Within 6 months:

- ✓ lost-time injuries decreased by 60%,
- ✓ project delays shrank,
- ✓ company won a new contract partly due to their updated safety credentials.

LET’S GO THROUGH REAL NUMBERS AND PRACTICES

Manufacturing sector

- In 2022, the manufacturing sector in the EU still recorded the highest share of non-fatal workplace accidents across all sectors: 18.0% of the EU total.
- Across all sectors in 2022, there were approximately 2.97 million non-fatal workplace accidents in the EU, an increase of ~3% compared to 2021.
- EU-OSHA estimates that occupational accidents and work-related diseases cost the European economy about 3.3% of GDP, which for the EU corresponds to roughly €550 billion annually.
- In the context of manufacturing and Industry 4.0, new risks are emerging: human–machine interaction, automation, robotics in production lines are identified as increasing the complexity of risk management in manufacturing environments.

Healthcare sector

- In 2022, the Human health and social work sector accounted for 15.8% of all non-fatal workplace accidents in the EU — one of the highest among all industries.
- Healthcare and social care workers, particularly those aged 55 and above, represented nearly one quarter (≈ 25%) of all injuries in this sector.
- The most common incidents included musculoskeletal disorders, slips and falls, and needlestick or sharps injuries, reflecting fatigue, long shifts, and manual handling risks.
- Emerging risks involve psychosocial strain, staff shortages, and infection exposure, all intensified by post-pandemic workloads.
- Investing in ergonomic design, safe handling training, and mental health support is essential to ensure both patient safety and staff well-being.

Construction sector

- In 2022, about 22.9% of all fatal accidents at work in the EU happened in the construction sector.
- Construction is still classified among the highest-risk sectors in Europe: issues include mobile or changing workplaces (sites), falls, structural collapses, and heat stress from outdoor work.
- While many years saw declining accident rates, recent reports indicate that improvements have stagnated and in some places risk factors are increasing (e.g., age of workforce, subcontracting, climate stress).

More true stories

- https://www.youtube.com/watch?v=BDWGPKrAGr4
- https://www.youtube.com/watch?v=mWQbOQ9lO_8
- https://www.youtube.com/watch?v=5ZCr16DMc30