



Lifelong
Learning
Programme



SERIO – METHODOLOGY FORM

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

FOREWORD

This document includes relevant information and data which are needed to develop SERIO application. This is mainly internal document, useful for project's partner but it might be helpful for the external users as well.

The main part of the documentation consists of guidelines concerning training character, scope of material, IT background, different approaches to learning, example of exercise, etc.

This material is base for the SERIO application development. All the content of the application will refer to the methodology plan.

SERIO DESCRIPTION

Aims:

- creating mobile application/software - Health and Safety learning kit,
- creating suitable methodology adjusted to mobile application,
- increasing awareness on safe behavior on the building sites
- developing skills regarding acting in the safe way on the site
- increasing Health and Safety on construction sites through improvement in communication between workers,
- increasing labor force mobility in European Union.

Details:

- developing mobile application on smartphones, tablets, laptops consisting of: interactive training materials, short movies presenting various situations on building sites, written and spoken dialogs, listening, interactive exercises etc.
- due to using more pictures, movies, interactive exercises and avoiding wordy character materials will gain transnational character,
- this application is mainly directed to people working on construction sites,
- application might become a supportive tool during obligatory Health and Safety courses.

Target group:

- construction schools students and graduates
- construction workers
- construction engineers
- SME's owners
- Health and safety trainers

Project schedule:

WP1 Project management – PZPB Poland

WP2 Project dissemination and evaluation – CIOB United Kingdom

WP3 Preparation of suitable methodology adjusted to the application – CIAPE Italy/PZPB Poland/WUT Poland

WP4 Preparation of Module 1 Construction site marking and personnel safety equipment - PZPB Poland

Warning signs, hazard prevention signs, personal and collective protection equipment, materials storage, waste storage etc.

WP5 Preparation of **Module 2 Injuries and accidents on construction site** – CIAPE Italy
Good and bad examples/practices.

WP6 Preparation of **Module 3 First aid and environmental protection** – ERBIL Turkey
First aid, prevention measures, sustainability and environmental protection, environment protection during carrying out of works.

WP7 Preparation of **Module 4 Health and safety culture, safety quality control methods** – MPS Aquitaine France

Health and Safety regulations in Europe (only main regulations), procedures and instructions, sanction to be imposed in case of failure to observe the safety rules, labour risks and hazards evaluation on the site, construction site protection, choosing safe and ecological materials, transport, equipment, work quality control, raising awareness on Health and Safety.

WP8 Preparation of mobile application – WUT Poland

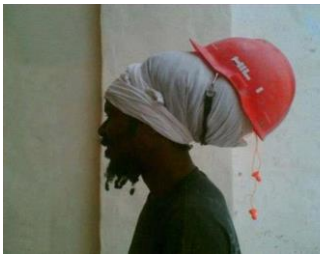
WP9 Test courses – PZPB Poland/WUT Poland/CIAPE Italy/MPS France



SERIO methodology:



- SERIO application will be designed on Level 2 EQF
- scope of training material will consist of four modules divided into 15 lessons per each module
- audiovisual materials will be applied
- non formal course character
- by means of SERIO students will be given an “safe” opportunity to think over their behavior; thinking and decision process which might occur in the real world
- useful short guidelines referring to H&S



TRAINING CONTENT DESCRIPTION


Module 1 Construction site marking and personnel safety equipment	Module 2 Injuries and accidents on construction site	Module 3 First aid and environmental protection	Module 4 Health and safety culture, safety quality control methods
Lesson 1 Site layout <ul style="list-style-type: none"> - Site layout – general information - How to read site layout plan - Barricades, fencing, and hoarding - Proper signage and lighting in suitable places when passers-by or entry by public is likely - Footpaths kept clean and free from debris - Site access controlled 	Lesson 1 Falling of people (from a different level - at the same level) <ul style="list-style-type: none"> - Bad example - Good practice 	Lesson 1 Safety Management and Organisation <ul style="list-style-type: none"> - Safety policies - Safety organization - Safety officer, manager - Supervisors - Workers - Safety Committees - Safety Representatives - Agencies 	Lesson 1 Each worker is responsible of his own safety and that of other persons affected by his acts. In accordance with training and instructions. Falls Fall of objects Explosions Fires Noise LO Able to identify his risks and what he may generate for others. Directive 89/391/EEC
Lesson 2 Safety signs <ul style="list-style-type: none"> ➤ Safety signs – red color - Red Prohibitive (Must not do) - No Smoking, No unauthorized entry, Do not touch, No 	Lesson 2 Falling of objects (due to collapse - when handled) <ul style="list-style-type: none"> - Bad example - Good practice 	Lesson 2 Personal protective equipment <ul style="list-style-type: none"> - Why do we need PPE? - Head Protection - Foot Protection - Hand and skin protection - Eye Protection - Respiratory protection - Correct choice of respirator - Safety harness 	Lesson 2 Proper use of machinery, apparatus, tools, substances, transport.... Do not modify use of machines, products, tools Use the right tool to achieve a task


<p>vehicles, etc.</p> <ul style="list-style-type: none"> ➤ Safety signs – blue colour <ul style="list-style-type: none"> - Blue Mandatory (Must do) - Wear hard hat, Wear eye protection, Wear hearing protection, Sound horn, etc. ➤ Safety signs – yellow colour <ul style="list-style-type: none"> - Yellow Caution (Hazard warning) - Fragile roof, High voltage, Asbestos, Fork lift trucks, Low headroom, etc. ➤ Safety signs – green colour <ul style="list-style-type: none"> - Green Safe Condition (The Safe Way) - First aid, Escape route, Assembly Point, Eye wash, Emergency phone, etc. 			<p>LO Able to understand instructions of use Able to ask for more instructions if necessary</p> <p>Directive 89/391/EEC</p>
<p>Lesson 3 Administration and social buildings</p> <ul style="list-style-type: none"> - Different kinds and placement of temporary buildings on the site (site office building, warehouses, welfare and sanitary facilities, social buildings) 	<p>Lesson 3 Collision and impact (against stationary objects - moving objects)</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 3 Welfare Facilities</p> <ul style="list-style-type: none"> - Why welfare facilities? - Sanitary facilities - Washing facilities - Facilities for supplying food and drink, and eating meals <ul style="list-style-type: none"> o The meal area o Drinking water - Facilities for changing, storing and drying clothes - Rest breaks <ul style="list-style-type: none"> o Frequency of rest breaks - Child-care facilities <ul style="list-style-type: none"> o Basic provisions o Watch the children's movements - First Aid <ul style="list-style-type: none"> o Emergency action o Equipment and training o Moving an injured person o Investigation - Fire Precautions 	<p>Lesson 3</p> <p>Use correctly Personal Protective Equipment in any case, and return it to proper place</p> <p>Helmet, Vest, Shoes, Gloves, Glasses, hearing protections</p>  <p>LO Able to respect rules any time Directive 89/391/EEC</p>



<p>Lesson 4 Site traffic</p> <ul style="list-style-type: none"> - Plan emergency routes and exits, traffic routes, danger areas, loading bays, ramps, etc. - Traffic control procedures in place 	<p>Lesson 4 Damages caused by living beings</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 4 The working environment</p> <ul style="list-style-type: none"> - Chemical substances <ul style="list-style-type: none"> o Chemicals and their risks o Entry into the body o Preventive measures o Highly flammable chemicals - Hazardous substances <ul style="list-style-type: none"> o Cement o Asbestos o Lead - AIDS <ul style="list-style-type: none"> o Precautions o First Aid - Noise and Vibration <ul style="list-style-type: none"> o Noise control o Hearing protection o Vibration - Lighting - Exposure to heat and cold <ul style="list-style-type: none"> o Hot weather o How to keep cool o Cold weather o How to keep warm - 	<p>Lesson 4</p> <p>Refrain from disconnecting, changing or removing safety devices .</p>  <p>Brakes, Protections Safety systems</p> <p>LO Able to adapt his way of working to deal with safety devices.</p> <p>Directive 89/391/EEC</p>
<p>Lesson 5 Store and loading zone</p> <ul style="list-style-type: none"> - Places of storage different materials (waste management) - Construction materials handling and storage on the site - Choosing warehouses depend on kind of storage materials 	<p>Lesson 5 Explosions, Fire (breakout factors, propagation, firefighting resources, evacuation)</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 5 Field layout for Sustainable Construction</p> <ul style="list-style-type: none"> - Specific procurement strategies <ul style="list-style-type: none"> o to ensure sustainable construction requirements - Site/Environment, <ul style="list-style-type: none"> o Methods to reduce the environmental impact of construction on the project site o and surrounding environment. - Material selection, <ul style="list-style-type: none"> o Identification of environmentally friendly building materials as well as harmful and toxic materials that should be avoided. - 	<p>Lesson 5</p> <p>Immediately inform manager if any work situation CAN represent a serious risk</p>  <p>LO Able to anticipate risks at low level Able to explain risk to manager Able to communicate clearly</p> <p>Directive 89/391/EEC</p>
<p>Lesson 6 Works at heights</p> <ul style="list-style-type: none"> - Scaffolding - Mobile platforms, cherry pickers - Ladders and steps - PPE 	<p>Lesson 6 Exposure to chemical, biological agents, noxious, toxic, caustic and/or corrosive substances</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 6 Savings and Reusage at Construction Sites</p> <ul style="list-style-type: none"> - Waste Prevention, <ul style="list-style-type: none"> o Methods to reduce and eliminate waste at construction sites - Recycling, <ul style="list-style-type: none"> o Identification of materials to recycle at each phase of construction and support recycling effort 	<p>Lesson 6</p> <p>Reduce noise exposition for yourself, other workers and other outside the site.</p> <p>Stop machine when necessary Install shields when possible Use the right machine with less noise Work in a place where it generate less noise for others when possible</p> <p>Use personal noise protection and suggest others to use them</p>



		<ul style="list-style-type: none"> - Energy, <ul style="list-style-type: none"> o Methods to ensure and improve the building's energy performance, reduce energy consumed during construction and identification of opportunities to use renewable energy sources. - Building and Material Reuse, <ul style="list-style-type: none"> o Identification of reusable materials and methods to facilitate the future reuse of a facility, systems, equipment, products and materials. 	<p>LO Able to identify alternative solutions when possible Able to discuss with manager clearly Directive 89/391/EEC</p>
<p>Lesson 7 Roof works</p> <ul style="list-style-type: none"> - Debris protection - Safety nets - Barriers - Safety rope and harnesses 	<p>Lesson 7 Exposure to noise</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 7 First Aid Regulations in the countries and case studies</p> <ul style="list-style-type: none"> - France - Italy - Poland - Turkey - UK 	<p>Lesson 7 Reduce exposition to vibrations Change tool when possible Investigate other ways to do when possible Use personal protections</p>  <p>LO Able to imagine alternative solutions Able to exchange clearly with manager Directive 89/391/EEC</p>
<p>Lesson 8 Ground works</p> <ul style="list-style-type: none"> - Trench protection (pedestrian fencing) - Deep excavation protection (trench boxes) - Confined spaces (PPE) - Right hand rule 	<p>Lesson 8 Exposure to vibrations</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 8 First Aid</p> <ul style="list-style-type: none"> - What is First Aid? - Why is First Aid important? - Benefits of First Aid - What the Law says? - Occupational Health and Safety Act in Europe - What is a first aid station and how does it differ from a first aid room? - How many first aid stations do we need and where should they be located? - Whats should a first aid box contain? - How many first aid attendants do we need? - First Aid Training for Workers 	<p>Lesson 8 Limit exposition to asbestos and dusts for yourself, other workers and outside. Preparation of work, place, tools Install protections when possible Use personal protections devices Glasses, Mask</p>  <p>LO Able to identify risks Adapt way of working (place, tools, process, time....For yourself and others Able to explain to managers Directive 89/391/EEC</p>

<p>Lesson 9 Concrete and steel works</p> <ul style="list-style-type: none"> - Formworks - Reinforcement - Concrete pouring (vibrating and smoothing) 	<p>Lesson 9 Projection of fragments or particles</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 9 First Aid in General Practice</p> <ul style="list-style-type: none"> - Severe bleeding <ul style="list-style-type: none"> o Objects embedded in a wound - Nosebleeds <ul style="list-style-type: none"> o If the person is haemodynamically stable o Determine whether there is an underlying cause - Burns and scalds - Seizures <ul style="list-style-type: none"> o For a tonic-clonic seizure - Vasovagal syncope <ul style="list-style-type: none"> o First Aid Procedure - Avulsed tooth <ul style="list-style-type: none"> o For an avulsed permanent tooth - Fractures - Sprains and strains <ul style="list-style-type: none"> o Assessment of the injury o First Aid - Rehabilitation 	<p>Lesson 9 Limit exposition to physical agents</p> <p>Be informed how to use systems or tools in a safer way</p> <p>Respect those ways of use in any situation</p> <p>Use personal protections</p>  <p>LO Able to ask or find information Able to imagine safer way of working Able to explain and discuss with manager Directive 2002/44/EC</p>
<p>Lesson 10 Utilities in general</p> <ul style="list-style-type: none"> - Electricity (110 V yellow sockets, and 240 V blue sockets) - Water points - Housekeeping 	<p>Lesson 10 Lighting</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 10 Sustainability and Environmental Protection</p> <ul style="list-style-type: none"> - Objectives of the Environment Management Plan - Preparation of the Environment Management Plan - Environmental factors <ul style="list-style-type: none"> o Waste management <ul style="list-style-type: none"> ▪ Solid/liquid waste ▪ Special waste (medical, radioactive, chemical) o Contaminated land <ul style="list-style-type: none"> ▪ Land ▪ Surface water ▪ Ground water o Hazardous materials management <ul style="list-style-type: none"> ▪ Scheduled wastes ▪ Resource storage ▪ Pest control ▪ Household chemicals ▪ Compressed/liquid gas o Noise management <ul style="list-style-type: none"> ▪ Noise/Vibration o Water Management 	<p>Lesson 10 Hygiène rules</p> <p>Look for local hygiene rules Read, understand and apply hygiene rules Ask more informations when needed</p>  <p>Directive 2002/44/EC</p>

		<ul style="list-style-type: none"> ▪ Surface water quality ▪ Ground water quality ○ Wastewater management <ul style="list-style-type: none"> ▪ Wastewater reuse ○ Air management <ul style="list-style-type: none"> ▪ Air ▪ Particulates/ Dust ○ Odour 	
<p>Lesson 11 Welding and soldering</p> <ul style="list-style-type: none"> - PPE - Fuel and gas use and storage - Lead safety 	<p>Lesson 11 Entrapment (by or between objects - due to overturning of machines or vehicles)</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 11 Prevention of Nosocomial Invasive Aspergillosis During Construction/Renovation Activities</p> <ul style="list-style-type: none"> - Introduction - Construction-Associated Nosocomial Invasive Aspergillosis - At-Risk Patients and Risk Factors - Preventive Measures to Control Invasive Aspergillosis <ul style="list-style-type: none"> ○ Construction and ventilation measures <ul style="list-style-type: none"> ▪ Measures to reduce dust emission from construction area ▪ Measures to physically protect at-risk patients ○ Infection control measures <ul style="list-style-type: none"> ▪ Education ▪ Dust containment ▪ Cleaning ▪ Traffic ○ Chemoprophylaxis and the prevention of invasive aspergillosis ○ Protective measures for at-risk patients <ul style="list-style-type: none"> ▪ Environmental measures ▪ Chemoprophylaxis ○ Diagnosis and Surveillance <ul style="list-style-type: none"> ▪ Diagnostic strategies for invasive aspergillosis ▪ Environmental sampling for Aspergillus 	<p>Lesson 11 What to do when accident occurs</p> <p>Keep calm Ensure safety in the zone Safety position for the injured Warn others and manager</p>  <p>LO Know the procedure Able to apply it Prevent sur-accident Give first help Warn relevant persons Able to explain clearly What, Who, Where, How....</p> <p>Directive 2002/44/EC</p>

		<ul style="list-style-type: none"> spp. ○ Organisation duties and Responsibilities <ul style="list-style-type: none"> ▪ Introduction ▪ Hospital Managers ▪ Liaison and Communication ▪ Technical Services Staff ▪ Infection Control Team ▪ Medical and Nursing Staff ▪ Preparation of Briefs ▪ Construction/ Renovation activities in close proximity to the hospital 	
Lesson 12 Maintenance and check of equipment before work <ul style="list-style-type: none"> - Keep clean all tools and machines, return to storage area - Report faults - Lift trucks and dump trucks 	Lesson 12 Movement and handling of loads <ul style="list-style-type: none"> - Bad example - Good practice 	Lesson 12 Scaffolding <ul style="list-style-type: none"> - Hazards - Independent tied scaffolds - Ties - Working platforms and gangways - Guard-rails and toe boards - Single pole or putlog scaffolds - Tower scaffolds - Causes of accidents - Height limitations - Structure - The working platform - Movement - Trestle scaffolds - Suspended scaffolds - Access to the scaffold - Suspension ropes - The platform 	Lesson 12 <p>Do not eat, drink, smoke when there is risk of contamination for you or others</p>  <p>LO Able to respect rules strictly</p>
Lesson 13 Use of personal protective equipment <ul style="list-style-type: none"> - Head protection - Eye and face protection - Foot protection - Hand protection - Other useful safety materials and solutions 	Lesson 13 Overexertion, incorrect postures, repetitive movements, high physical efforts <ul style="list-style-type: none"> - Bad example - Good practice 	Lesson 13 Excavations <ul style="list-style-type: none"> - General <ul style="list-style-type: none"> ○ Hazards ○ Causes of Accidents ○ Safety precautions to prevent the collapse of excavations and falls ○ Inspection ○ Adjoining buildings ○ Edges ○ Vehicles ○ Access ○ Lighting - Buried or underground services - Electrical cables - Other services 	Lesson 13 <p>Know your limits for transportation</p> <p>Load reasonable weights Use legs instead of arms Use individual protections Know and respect general regulation Know and respect personal regulations</p>

			 <p>LO Able to understand and apply rules Able to find right information Able to discuss with manager and explain clearly</p> <p>Directive 90/269/EEC</p>
<p>Lesson 14 Lifting operation and manual handling</p> <ul style="list-style-type: none"> - Works with use of tower cranes, diggers and other devices - Lifting operations - Maximum load - Handling rules 	<p>Lesson 14 Electrical contact</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 14 Hazardous processes</p> <ul style="list-style-type: none"> - Roof work <ul style="list-style-type: none"> o Flat roofs o Sloping roofs o Fragile roofs o Crawling boards and roof ladders - Steel erection <ul style="list-style-type: none"> o Design planning o Supervision o Work preparation o Means of access to working areas - Work over water - Demolition <ul style="list-style-type: none"> o Planning and training o The demolition process o Tanks and vessels o Health hazards - Confined spaces <ul style="list-style-type: none"> o Hazards o Safety precautions o Safety and rescue equipment - Piling <ul style="list-style-type: none"> o General precautions o Bored piles 	<p>Lesson 14</p> <p>Dangerous tools or substances must be used in accordance with recommendations.</p> <p>Store dangerous tools and substances in the proper and designated place</p> <p>Do not let them (even for short time without attention)</p>  <p>LO Know the products and tools you use Able to respect rules Warn manager when not possible</p> <p>Directive <u>2001/95/CE</u></p>
<p>Lesson 15 Physical and medical condition</p> <ul style="list-style-type: none"> - Stop work when they are unwell or physically not fit to do the job - Drugs and alcohol - Safety behavior. 	<p>Lesson 15 Stress</p> <ul style="list-style-type: none"> - Bad example - Good practice 	<p>Lesson 15 Categorization of Drugs as Hazardous</p> <ul style="list-style-type: none"> - Characteristics - Hazard Definition on Pharmacology/Toxicology - Hazardous Drugs as Occupational Risks - Occupational Exposure : Human Effects - Work Areas <ul style="list-style-type: none"> o Pharmacy or Other 	<p>Lesson 15</p> <p>Display used products, or materials in right place for elimination</p> <p>Do not throw away, liquids, gas, solvents, or used materials.</p> <p>A special place has been prepared for</p> <p>Inform yourself about procedures</p>

<p>Avoid horseplay or other activities that create a hazard</p> <ul style="list-style-type: none"> - Report any unsafe work practice and any injury or accident to the line supervisor 		<p>Preparing Areas</p> <ul style="list-style-type: none"> o Administration of Drugs to Patients o Disposal of Drugs and Contaminated Materials - Prevention of employee exposure <ul style="list-style-type: none"> o Hazardous Drug Safety and Health Plan o Drug Preparation Precautions o Decontamination o Service and Certification o Personal Protective Equipment o Work Equipment <ul style="list-style-type: none"> ▪ Work Practices ▪ Drug Administration ▪ Caring for Patients Receiving HD's ▪ Waste Disposal ▪ Spills ▪ Storage and Transport 	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Not in The Toilet</p> </div> <div style="text-align: center;">  <p>Not in The Trash</p> </div> </div> <p>LO Able to search for information when not delivered Able to respect instructions Able to exchange with manager clearly and in understandable way</p> <p>Directive <u>2001/95/CE</u></p>
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***Module 3 First aid and environmental protection**

Ref:

- http://www.ilo.org/wcmsp5/groups/public/@ed_protect/@protrav/@safework/documents/instructionalmaterial/wcms_110237.pdf
- http://www.healthandsafetyontario.ca/HSO/media/WSPS/Resources/Downloads/First_Aid_at_Work_final.pdf?ext=.pdf
- <http://www.patient.co.uk/doctor/first-aid-in-general-practice>
- http://www.environment.act.gov.au/__data/assets/pdf_file/0006/153978/EMPGuidelinesMay2013.pdf
- <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Aspergillois/Guidance/File,896,en.pdf>
- <http://www.wbdg.org/ccb/DOD/DOD4/fieldg.pdf>
- https://www.osha.gov/dts/osta/otm/otm_vi/otm_vi_2.html

TECHNICAL BACKGROUND

All materials used to create an application should be referring to real life. No animations, cartoons are acceptable.

All materials used in order to prepare SERIO training should present real situations e.g. pictures depicting accidents, good and bad practices, short movies shot on the sites, materials taken from the public organization of H&S regulations etc.

Some short text passages can be used in the exercises but the main effort should be placed on the developing interactive exercises.



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