

# Report IO3

**Erasmus + KA2 – Strategic Partnerships**

**2017-1-CY01-KA202-026782**

**DEVELOPMENT OF A V.E.T. TRAINING  
PROGRAM TO UPGRADE THE SKILLS  
ON HEALTH AND SAFETY RISKS FOR  
OFFSHORE CONSTRUCTION WORKERS**

**<https://shield-project.es>**

## **IO3. THE SHIELD CURRICULUM**

This report contains the developed curriculum of the SHIELD occupation profile and represents one of the project key outputs. The SHIELD occupation profile is elaborated and structured according to ECVET guidelines. The profile describes the key activities (learning units) and for each activity skills and knowledge needed. A set of ECVET points are allocated to each unit in order to allow its recognition and transfer in other existing official qualifications and comparison with similar profiles in different countries.

The specific content of the curriculum is defined after the completion of IO1 (SHIELD - Training needs & Competences Survey) and IO2 (SHIELD Common Profile).

The curriculum consists of two integrated blocks:

- Introduction and Human Factor: Basics on Offshore Construction Health&Safety (Occupational H&S), Behavioural Safety, Leadership & Safety Culture, Workforce Engagement;
- Process implementation: H&S Management Systems, Risk Assessment, Assessment Standards, Health Surveillance.

The SHIELD Curriculum contain two parts:

- Part 1 – Supervisor Offshore;
- Part 2 – Supervisor On shore.

# **SHIELD IO3 – PART 1 – SUPERVISOR OFFSHORE**

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
HAZARDOUS ENVIRONMENT AWARENESS	Major hazards that could occur in oil and gas operations		2.5	2.5	5	0.5
	Daily hazards associated with living and working in oil and gas operations					
WORKING SAFELY	The legislative framework surrounding oil and gas operations	How to complete a Safety Observation Card in an appropriate style	5	10	15	1.5
	Significant safety practices that have arisen with common regulations					
	The significance of a Safety Case and personal access to the document					
	The role of safety committees, safety meetings and safety representatives in oil and gas operations					
	Toolbox Talks – what they include and where and when they should be held					
	The function of a Safety Observation System and how to carry out an intervention					
	Understanding how personal actions might influence safety					
RISK ASSESSMENT PROCESS	The difference between hazard, risk and controls	How to prepare a risk assessment using a risk matrix	4	16	20	2.0
	The steps of a risk assessment and the use of a risk matrix					
	Applying controls to bring the risk down to ALARP					
	The need for continuous risk assessment					

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
PERMIT TO WORK	Objectives of a PTW system and how permits are generated	Completion of the key elements of PTW documentation	4	16	20	2.0
	Using a PTW and how to re-instate the permits after breaks					
	Personal responsibility in the PTW system					
PERSONAL RESPONSIBILITY IN MAINTAINING ASSET INTEGRITY	The concept of asset integrity		2	8	10	1.0
	Why some items and systems are safety critical					
	Employer responsibility for asset integrity					
	Personal responsibilities for asset integrity					
MANUAL HANDLING TECHNIQUES	The source of manual handling hazards in oil and gas operations and the types of injuries that might be sustained	The elements of a good individual lift, a team lift with appropriate communications and correct loading/unloading methods for using a trolley	3	7	10	1.0
	Factors contributing to manual handling incidents					
	The importance of ergonomic design and the best methods for manually lifting objects					
	Team operations and communication methods					
	How mechanical aids reduce manual handling incidents					

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
CONTROLLING THE USE OF HAZARDOUS SUBSTANCES	Regulations and guidelines dealing with chemical hazards in oil and gas operations		5	15	20	2.0
	The sources of chemical hazards in oil and gas operations					
	How personnel come into contact with hazardous substances					
	Sensitisation and the difficulties of monitoring its effect					
	Hazard symbols and common examples in oil and gas operations					
	Employers' duties under regulations for hazardous substances					
	Employees' duties with regulations for hazardous substances					
	Reading labels on chemicals and using MSDS					
	Monitoring workers' exposure					
	PPE specific to chemical applications					
WORKING AT HEIGHT	What is meant by working at height and factors to consider before commencing work		2.5	7.5	10	1.0
	WAH hazards and how they can be controlled					
	Basic use of ladders, scaffolding and MEWPS					
	Signing for and being responsible for tools aloft					

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
MECHANICAL LIFTING ACTIVITIES	The magnitude of objects to be lifted in oil and gas operations and why lifting hazards need to be controlled		3	7	10	1.0
	Roles of the Competent Lifting person, the Banksman, Slinger and Rigger					
	Personal responsibility such as obeying area restrictions and keeping clear of lifting operations					
FIRST AID	Basic knowledge of first aid.		6	9	15	1.5
	Basic knowledge of hypothermia.					
HELICOPTER SAFETY	Familiarisation with procedures related to helicopter safety in various stages of the flight: <ul style="list-style-type: none"> <li>o Prior to boarding.</li> <li>o During boarding.</li> <li>o During the flight.</li> <li>o When disembarking.</li> </ul>	Use of personal protective equipment (immersion/transit suit, life jacket, etc.).	6	9	15	1.5
	Explanation and demonstration of helicopter transportation suit and aviation life jacket, emergency equipment on board, and emergency exits.	Inflating a life jacket in the water.				
	Preparation for an emergency landing.	Deploying and use of a spray hood.				
	Dry emergency landing.	Use of helicopter life raft.				



Wet emergency landing.	EBS (Emergency Breathing System) familiarization.				
Escape from a helicopter on or under water	<p>Abandoning helicopter in various situations:</p> <ul style="list-style-type: none"> <li>o Floating on the water, carrying out a dry evacuation via the emergency exit to a helicopter life raft.</li> <li>o Upright under water without EBS – escaping through a window opening.</li> <li>o Capsized under water with EBS – escaping through a window opening.</li> <li>o Upright under water with EBS – escaping with operating a push out window.</li> <li>o Capsized under water with EBS - escaping with operating a push out window, inflating a life jacket, deploying spray hood, carrying out in water procedures.</li> </ul>				
Evacuation from the helicopter.	<p>Boarding a helicopter life raft from the water.</p> <p>Being rescued by a helicopter sling.</p>				

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
SURVIVAL AT SEA	Donning of a life jacket.	Mustering	10	10	20	2.0
	Assembling at a muster point.	Conventional and free-fall lifeboat: boarding, fastening.				
	Abandon platform techniques.	Being hoisted with sling and application of rescue techniques.				
	Individual and group survival techniques and rescue techniques.	Donning of a life jacket and immersion/helicopter transit suit.				
	Use of helicopter sling and position during hoisting.	Use of personal protective equipment and life-saving devices.				
Use of various personal descending systems.						
Individual and group survival techniques.						
FIRE PREVENTION AND FIRE FIGHTING	Principles of fire prevention and fire-fighting	Extinguishing a small class A and class B fire with a hand held extinguisher.	4	11	15	1.5
	Fire classifications	Correct use of a fire blanket and a hose reel.				
	Overview of fire causes at an installation.	Escaping from a smoke filled area with the use of an escape mask.				
	Fire and gas detection and alarm systems.					
	Fixed extinguishing systems.					
	Correct use of fire extinguishers.					
	Correct use of hose reel and fire blanket.					
	Use of escape mask and escape from smoke filled areas.					

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
H2S AWARENESS	Knowledge of the properties and hazards of H2S.	Performing the right actions in case of a hydrogen sulphide gas leakage	3	12	15	1.5
	Knowledge of working activities on a H2S location.					
	Knowledge of the necessary layout on an H2S location.					
	Handling, use and restrictions of the specific compulsory personal protective equipment.					
	Handling, use and restrictions of personal detection / alarm equipment.					
	Escape procedures in case of an H2S alarm.					
	First aid in case of H2S victims.					
	Knowledge of H2S rules in the Working Conditions Act (Arbowet).					
HEALTH, SAFETY & ENVIRONMENTAL MANAGEMENT	Learning from incidents		10	35	45	4.5
	Properties & hazards inherent in Oil & Gas					
	Risk management techniques in Oil & Gas Industry	Application of Risk Management Tools				
	Documented evidence for a system being adequately safe					

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
HYDROCARBON PROCESS SAFETY	CONTRACT MANAGEMENT		20	75	95	9.5
	PROCESS SAFETY MANAGEMENT	Management of change controls				
	KEY PRINCIPLES OF SAFE SHIFT HANDOVER					
	PLANT OPERATIONS & MAINTENANCE	Control of ignition sources during maintenance & operations				
	START UP & SHUT DOWN					
	FAILURE MODE	Use of knowledge of failure modes in initial design, process & safe operating procedure				
	SAFETY CRITICAL EQUIPMENT CONTROLS	Emergency shut down equipment & systems				
	SAFE CONTAINMENT OF HYDROCARBONS	Management of simultaneous operations				
	FIRE, HAZARDS, RISKS & CONTROLS	Identification of ignition sources & selection of suitable ignition protected electrical, mechanical & critical control equipment				
	FURNACE & BOILER OPERATIONS					
FIRE PROTECTION & EMERGENCY RESPONSE	FIRE & EXPLOSION IN THE OIL & GAS INDUSTRY	Development of an emergency plan	5	15	20	2.0
	EMERGENCY RESPONSE					
LOGISTICS & TRANSPORT OPERATION	MARINE TRANSPORT		5	15	20	2.0
<b>Total</b>			<b>100</b>	<b>280</b>	<b>380</b>	<b>38.0</b>

# **SHIELD IO3 – PART 2 – SUPERVISOR ON SHORE**

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
HAZARDOUS ENVIRONMENT AWARENESS	Major hazards that could occur in oil and gas operations		2.5	2.5	5	0.5
	Daily hazards associated with living and working in oil and gas operations					
WORKING SAFELY	The legislative framework surrounding oil and gas operations	How to complete a Safety Observation Card in an appropriate style	5	10	15	1.5
	Significant safety practices that have arisen with common regulations					
	The significance of a Safety Case and personal access to the document					
	The role of safety committees, safety meetings and safety representatives in oil and gas operations					
	Toolbox Talks – what they include and where and when they should be held					
	The function of a Safety Observation System and how to carry out an intervention					
	Understanding how personal actions might influence safety					
RISK ASSESSMENT PROCESS	The difference between hazard, risk and controls	How to prepare a risk assessment using a risk matrix	4	16	20	2.0
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	Personal responsibility in the PTW system					
PERSONAL RESPONSIBILITY IN MAINTAINING ASSET INTEGRITY	The concept of asset integrity		2	8	10	1.0
	Why some items and systems are safety critical					
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	Escape procedures in case of an H2S alarm.					
	First aid in case of H2S victims.					
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	FURNACE & BOILER OPERATIONS					
FIRE PROTECTION & EMERGENCY RESPONSE	FIRE & EXPLOSION IN THE OIL & GAS INDUSTRY	Development of an emergency plan	5	15	20	2.0
	EMERGENCY RESPONSE					
LOGISTICS & TRANSPORT OPERATION	MARINE TRANSPORT		5	15	20	2.0

Learning Unit	Learning outcome	Competence/Skill	Number of hours - teaching	Number of hours - self-study	Total number of hours	ECTS
LOGISTICS & TRANSPORT OPERATION	LAND TRANSPORT		5	15	20	2.0
ISPS REQUIREMENTS	CRITICAL ASSET INFRASTRUCTURE – AN OVERVIEW		10	25	35	3.5
	SECURITY OF CRITICAL ASSET INFRASTRUCTURE					
INTERNATIONAL OIL & GAS REGULATIONS – A GLOBAL OVERVIEW	THE INSTITUTIONAL FRAMEWORK		5	10	15	1.5
	IMPORTANCE OF REGULATIONS					
	TECHNICAL REGULATIONS					
	ECONOMIC REGULATIONS					
	ENVIRONMENTAL REGULATIONS					
	HEALTH & SAFETY REGULATIONS					
<b>Total</b>			<b>120</b>	<b>330</b>	<b>450</b>	<b>45.0</b>