



ERASMUS+

Grant Agreement: 2015 - 3226 / 001 - 001

Key Action 2 Cooperation for innovation and the exchange of good practices

Sector Skills Alliances

PROJECT NUMBER 562573-EPP-1-2015-1-SI-EPPKA2-SSA

PROJECT TITLE: Eco- Innovation Skills for European Designers - ECOSIGN

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¹ http://www.erasmusplus.si/wp-content/uploads/2017/05/II.10-ECVET-Memorandum-of-Understanding_2017.docx

1. Objectives of the Memorandum of Understanding

The Memorandum of Understanding² (MoU) forms the framework for cooperation between the competent institutions. It aims to establish mutual trust between the partners. In this Memorandum of Understanding partner organisations mutually accept their respective criteria and procedures for quality assurance, assessment, validation and recognition of knowledge, skills and competence for the purpose of transferring credit.

VET Providers, partners in ECOSIGN project, will prepare the necessary documentation according to the procedures existing in each country for the introduction of the new occupation of industrial ecodesigner in the occupational classification system, according to the legislation and methodology specific to each partner. The basic general knowledge, competences and skills are the ones listed in the ESCO for Industrial Designer occupation and, in addition, for Industrial Ecodesigner the specific competencies, skills and general knowledge are the ones required by other EU policies related to:

- o Life cycle analysis (ISO 14040 series and ISO 14044 series).
- o Environmental management (ISO 14000 series, especially ISO 14062, 14020)
- o EU regulations and internal rules in the design process;
- o Recycling and recovery calculation - ISO 22628;
- o Using materials that have a low impact on the environment;
- o Minimizing the use of materials producing hazardous waste and using closed loops when possible;
- o Reduction of weight and / or volume of materials;
- o Reduction of greenhouse gas emissions;
- o Reduction of energy consumption and recycling of packaging;
- o Design the product so that its use is considered after the end of its life cycle (reuse, renovation, upgrading, recycling).

During and after the development of learning outcomes of the ECOSIGN project for the new occupation of ECODESIGNER INDUSTRIAL, in the Food packaging, Textile / Clothing, Electronic / Electric, qualifications, learning units and learning objects will be developed based on a common curriculum.

For each qualification (specialization) existing in the field of industrial design (food packaging, electrical and electronic, textiles and clothing) it is necessary to apply the course modules dedicated to the application of the competencies, abilities and knowledge, of the basic field, in the respective qualification.

The delivery of ECODESIGN INDUSTRIAL occupational training modules in the Food packaging, Textile / Clothing, Electronic / Electric, specializations, will be based on ensuring that the use of ECVET or equivalent national qualifications will be used for the sustainable development of the project.

Further development of the e-learning platform that includes basic knowledge for employees related to Ecodesign and Sustainable Production in the Food packaging, Textile / Clothing, Electronic / Electric sectors, including knowledge about Quality and Environment

²For more information and guidance on the establishment of a MoU please refer to the ECVET User's Guide: 'Using ECVET for geographical mobility (2012) - Part II of the ECVET Users' Guide - Revised version – including key points for quality assurance' – available at: http://www.ecvet-projects.eu/Documents/ECVET_Mobility_Web.pdf

Management Systems, ecodesign certification and strategies, environmental analysis, and its implementation in Food packaging, Textile / Clothing, Electronic / Electric sectors.

NOTES:

Qualifications for the Industrial Designer occupation, the food packaging, textiles, electronics, and other qualifications of this occupation will be promoted according to the needs of each partner country.

VET authorities is not obliged to sign this Memorandum

2. Organisations signing the Memorandum of Understanding

Organisation 1

Country	Slovenia
Name of organisation	Razvojni center orodjarstva Slovenije TECOS -TECOS
Address	Kidričeva ulica 25, Celje, 3000
Telephone/fax	+386 3 490 09 20/+386 3 426 46 11
E-mail	info@tecos.si
Website	www.tecos.si
Contact person	Name dr. Ales Hancic
	Position Managing Director
Telephone/fax	+386 41 391 155/+386 3 426 46 11
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Organisation 2

Country	Slovenia
Name of organisation	University of Maribor UM- Faculty of Electrical Engineering and Computer Science FERI
Address	UM: Slomškov trg 15,2000 Maribor FERI: Koroška cesta 46, 2000 Maribor
Telephone/fax	+386 (2) 22 07 143
E-mail	andrej.sarjas@um.si
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Contact person	Name Andrej Sarjaš
	Position: Assistant Professor
Telephone/fax	+386 (2) 22 07 143
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Organisation 3	
Country	Slovenia
Name of organisation	CENTER REPUBLIKE SLOVENIJE ZA POKLICNO IZOBRAZEVANJE - CPI
Address	Kajuhova ulica 32, Ljubljana, 1000
Telephone/fax	01 5864 200 / 01 5422 045
E-mail	info@cpi.si
Website	www.cpi.si
Contact person	Urška Marentič
	Deputy Director
Telephone/fax	01 5864 249
E-mail	urska.marentic@cpi.si
Organisation 4	
Country	Spain
Name of organisation	ASOCIACION EMPRESARIAL DE INVESTIGACION CENTRO TECNOLOGICO NAC - CTC
Address	Calle de la Concordia, Murcia, 30500
Telephone/fax	00 34 968 389011 / 00 34 968 613401
E-mail	ctnc@ctnc.es
Website	www.ctnc.es
Contact person	Name Angel Martinez
	Position Technology Transfer Director
Telephone/fax	00 34 968 389011 / 00 34 968 613401
E-mail	angel@ctnc.es

Organisation 5	
Country	Spain
Name of organisation	ASOCIACION EMPRESARIAL DE INVESTIGACION CENTRO TECNOLÓGICO DEL MUEBLE Y LA MADERA DE LA REGIÓN DE MURCIA – CETEM
Address	Calle perales, s/n, Yecla, 30510
Telephone/fax	+34 968 752 040
E-mail	Fj.melero@cetem.es
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Contact person	Name Francisco José Melero Muñoz
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Organisation 6	
Country	Spain
Name of organisation	SERVICIO DE EMPLEO Y FORMACIÓN (CNFPO – SEF)
Address	Avda. Infante D. Juan Manuel, 14, Murcia, 30011
Telephone/fax	968142070
E-mail	Juana.madrid@carm.es
Website	www.sefcarm.es
Contact person	Name Juan Antonio Madrid
	Position Manager of Centro de Formación ocupacional de Cartagena
Telephone/fax	968142070
E-mail	Juana.madrid@carm.es

Organisation 7	
Country	Italy
Name of organisation	TEXCLUBTEC
Address	Viale Sarca 223, Milano, 20126
Telephone/fax	
E-mail	
Website	
Contact person	Name
	Position
Telephone/fax	
E-mail	
Organisation 8	
Country	Italy
Name of organisation	CENTRO TESSILE COTONIERO E ABBIGLIAMENTO SPA - CENTROCOT
Address	Piazza Sant'Anna 2, Busto Arsizio, 21052
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	Multisectoral Research & Innovation Manager
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Organisation 9	
Country	Italy
Name of organisation	AICQ SICEV SRL
Address	Via Cornalia, Milano, 20124
Telephone/fax	
E-mail	
Website	
Contact person	Name
	Position
Telephone/fax	
E-mail	
Organisation 10	
Country	Romania
Name of organisation	INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU BIORESURSE - IBA
Address	STR DINU VINTILA NR 6 SECTOR 2, 021102, Bucharest
Telephone/fax	+40 021 2109128
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	Position: Chief of Compartment
Telephone/fax	0741003561
E-mail	claudia.mosoiu@bioresurse.ro

Organisation 11	
Country	Romania
Name of organisation	ASOCIATIA AUDITORILOR SI EVALUATORILOR DE MEDIU DIN INDUSTRIE ECOEVALIND - ECOEVALIND
Address	32 Petru Maior, 1 Sector, Bucharest, 011264
Telephone/fax	
E-mail	ecoevalind@gmail.com
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	Position: President
Telephone/fax	0722204112
E-mail	bebebucataru@gmail.com
Organisation 12	
Country	Romania
Name of organisation	COMITETUL SECTORIAL PT FOMARE PROFESIONALA IN DOMENIUL PROTECȚIA MEDIULUI - CSFPM
Address	32 Petru Maior, 1 Sector, Bucharest, 011264
Telephone/fax	+40 0317303790
E-mail	secretariat.csfpm@gmail.com
Website	www.csfpm.ro
Contact person	Name: Elena Laslu
	Position: President
Telephone/fax	0722670943
E-mail	lasluelena@gmail.com

3. The qualification(s) covered by this Memorandum of Understanding

Qualification 1	
Country	Slovenia, Spain, Italy, Romania
Title of qualification	Ecodesigner in food packaging
EQF level (if appropriate)	5
NQF level (if appropriate)	5
Unit(s) of learning outcomes for the mobility phases (refer to enclosure in the annex, if applicable)	Annex 1 Basic module Food packaging module
Enclosures in annex - please tick as appropriate	<input type="checkbox"/> Europass Certificate Supplement <input checked="" type="checkbox"/> The learning outcomes associated with the qualification <input checked="" type="checkbox"/> Description of the unit(s) of learning outcomes for the mobility
Qualification 2	
Country	Slovenia, Spain, Italy, Romania
Title of qualification	Ecodesigner in Textile / Clothing
EQF level (if appropriate)	5
NQF level (if appropriate)	5
Unit(s) of learning outcomes for the mobility phases (refer to enclosure in the annex, if applicable)	Annex 2 Basic module Textile /Clothing module
Enclosures in annex - please tick as	<input type="checkbox"/> Europass Certificate Supplement

appropriate	<input checked="" type="checkbox"/> The learning outcomes associated with the qualification <input checked="" type="checkbox"/> Description of the unit(s) of learning outcomes for the mobility
Qualification 3	
Country	Slovenia, Spain, Italy, Romania
Title of qualification	Ecodesigner in Electronic / Electric
EQF level (if appropriate)	5
NQF level (if appropriate)	5
Unit(s) of learning outcomes for the mobility phases (refer to enclosure in the annex, if applicable)	Annex 3 Basic module Electronic /Electric
Enclosures in annex - please tick as appropriate	<input type="checkbox"/> Europass Certificate Supplement <input checked="" type="checkbox"/> The learning outcomes associated with the qualification <input checked="" type="checkbox"/> Description of the unit(s) of learning outcomes for the mobility

4. Further development of the e-learning platform

Further development of the e-learning platform that includes basic knowledge for employees related to Ecodesign and Sustainable Production in the Food packaging, Textile / Clothing, Electronic / Electric sectors, including knowledge about Quality and Environment Management Systems, ecodesign certification and strategies, environmental analysis, and its implementation in sectors indicated above.

The knowledge-based society provides more and more opportunities for “new combination”. Innovation circles are accelerating and the resulting effects regarding the skills needed are also accelerating. If our analysis, as pointed out in the above chapter, is correct, that we witness a trend towards the harmonized implementation of these changes, there is good reason to reflect on the consequences for the vocational training.

In this respect, it is a precondition to provide opportunities and structures for the stakeholders involved.

The signatories of this document believe that the recognized European Social Dialogue for the sectors indicated above, industries could provide the anchorage ground for such a structure. However, we need specific means to establish a stable structure of communication. The social partner organizations will provide these means.

Given that the national stakeholders recognize and apply the concept of a European

Qualification, the concept shall be promoted as a concept for the whole sectors.
The European Social partner organizations for the Food packaging, Textile / Clothing, Electronic / Electric industries will agree on the final Qualification of employees related to Ecodesign and Sustainable Production in the sectors indicated above, including knowledge about Quality and Environment Management Systems, ecodesign certification and strategies, environmental analysis, and its implementation in these sectors.
The signatories will use the European Qualification of employees related to Ecodesign and Sustainable Production in the sectors indicated above to improve the mutual recognition of existing national qualifications
At the European level, it is intended to establish the platform for European Qualifications not only temporarily but as a stable structure under the responsibility of the recognized European social partner organizations.
Additionally, the concept shall also be promoted towards other sectors of economic activity.

5. Assessment, documentation, validation and recognition

By signing this Memorandum of Understanding we confirm that we have discussed the procedures for assessment, documentation, validation and recognition and agree on how it is done.

6. Validity of this Memorandum of Understanding

This Memorandum of Understanding is valid until : 09.2021

7. Evaluation and review process

The work of the partnership will be evaluated and reviewed by:

30/09/2021,

ROMANIA, CLAUDIA MOSOIU

SLOVENIA,

SPAIN,

ITALY, ALDO TEMPESTI

8. Signatures

Razvojni center orodjarstva Slovenije TECOS -TECOS / SLOVENIA
Name, role
Place, date

University of Maribor UM- Faculty of Electrical Engineering and Computer Science FERI/ SLOVENIA
Name, role
Place, date

CENTER REPUBLIKE SLOVENIJE ZA POKLICNO IZOBRAZEVANJE - CPI / SLOVENIA
Elido Bandelj, Director
Name, role
Ljubljana,
Place, date

ASOCIACION EMPRESARIAL DE INVESTIGACION CENTRO TECNOLOGICO NAC - CTC / SPAIN
Name, role
Place, date

ASOCIACION EMPRESARIAL DE INVESTIGACION CENTRO TECNOLOGICO DEL MUEBLE Y LA MADERA DE LA REGIÓN DE MURCIA – CETEM / SPAIN

Name, role
Place, date

SERVICIO DE EMPLEO Y FORMACIÓN (CNFPO – SEF) / SPAIN
Name, role
Place, date

TEXCLUBTEC / ITALY
Name, role
Place, date

CENTRO TESSILE COTONIERO E ABBIGLIAMENTO SPA - CENTROCOT / ITALY	
Name, role	
Place, date	

AICQ SICEV SRL / ITALY
Name, role
Place, date

INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU BIORESURSE - IBA / ROMANIA
Name, role
Place, date

ASOCIATIA AUDITORILOR SI EVALUATORILOR DE MEDIU DIN INDUSTRIE ECOEVALIND - EEOEVALIND / ROMANIA
Name, role
Place, date

COMITETUL SECTORIAL PT FOMARE PROFESIONALA IN DOMENIUL PROTEȚIA MEDIULUI - CSFPM / ROMANIA
Name, role
Place, date

9. Annexes³

Annex 1 - Learning architecture: Ecodesigner of Food Packaging Curriculum (total length 103 hours)

Title of the Module		Basic Concepts on Ecodesign			
Title of the Qualifications		Ecodesigner of Food Packaging			
Length		40 hours			
EQF Level	5	Procedures and Criteria for Learning outcomes assessment	Unit assignments and quizzes	ECVET Point Associated	3
No. Unit	Title	Knowledge	Skills	Competences	Resources
Unit 1	Introduction to Ecodesign	The definition of eco design. The benefits of Ecodesign in an economic and social concept.	Eco-Innovation	Identify eco design principles.	Literature of Ecodesign from University, Environmental Associations, competent agencies.
Unit 2	Traditional design versus Ecodesign	The Evolution of Ecodesign.	Stablish the relationship between Ecodesign and Traditional design.	Identify eco design principles in designed product Apply Ecodesign principles during the design stage.	Literature of Design History from Books and news.
Unit 3	EU Legal framework of environment and Ecodesign	Legal issues affecting eco design.	Identify the EU legal framework of Environmental and Ecodesign and Reference normative and	Identify and Implement all legal aspects in terms of environmental and eco design aspects that may	European Legislation . Normative basadate.

³ Cf. Deliverable 2.2 Common Curriculum Proposal Version 04 and Deliverable 5.2 Improvement Proposal Version 01

			standards on Ecodesign (general).	apply to the final product during the design stage.	
Unit 4	Life Cycle Assessment and Costs	Stages, inputs and outputs acting in a Cost and Lifecycle analysis.	To carry out all stages of a CLCA.	Implement the CLCA of any product.	Standards: ISO 14040/44.
Unit 5	Principles/Strategies of Ecodesign	The principles of Ecodesign .	To evaluate the environmental impact of the production and product itself.	Identify Ecodesign principles. Establish improvement measures for reducing the environmental impact of products.	Literature of Ecodesign principles from University, Environmental Associations, competent agencies.
Unit 6	Environmental aspects of an Organisation	Environmental aspects at industry level.	Recognize environmental aspects. Assessment methodologies . Mitigation plans.	Identificatin, assessment and establishment of plans for reducing environmental aspects in industry.	Literature of environmental aspects from University, Environmental Associations, Case studies.
Unit 7	Implementing Ecodesign	-	-	Apply ecodesign principles.	Case studies.
Unit 8	Environmental management	Environmental Management Systems.	Plan Do Check Act Process management Communication. Control and Register of documents. Environmental aspects management. Environmental incidences management.	To implement an environmental management in industry processes. To manage industry processes.	Environmental Management Systems, Standards: ISO 14001, EMAS .
	Ecodesign in	Ecodesign	Plan Do Check	Apply ecodesign	Standards:

Unit 9	the environmental management	Management System.	Act Process management Communication. Control and Register of documents. Environmental aspects management. Environmental incidences management.	principles.	ISO 14006,
Unit 10	Introduction of eco-labelling Communication	The different Ecolabels existing.	To understand different ways to communicate the environmental behavior of a product. To understand different ecolabels types.	Implement communication methodologies for informing about the environmental behavior of a product. To implement all requirements needed for complying with all ecolabel types.	European Ecolabel, Literature of Ecolabel.
Unit 11	Environmental product declaration. Communication.	EPD	To understand the EPD system and the relation to LCA.	Implement EPD system under the frame of a LCA.	Official Bodies for EDP .
Unit 12	Ecodesign practical cases	Know case studies of companies in several sectors.	Technology transfer.	Identify and transfer eco-design principles.	Case studies.
Unit 13	Course final review				Previous units.
Title of the Module		Food Packaging			
Title of the Qualification		Ecodesigner of Food Packaging			
Length		63 hours			
EQF Level	5	Procedures and Criteria for	Unit assignments and quizzes	ECVET Point Associated	3

		Learning outcomes assessment			
No. Unit	Title	Knowledge	Skills	Competences	Resources
Unit 1	Introduction and general approach to food packaging Ecodesign	Food packaging materials.	Accepting briefs from Development Team / Customers.	To know what are the main food types. To understand fitness for purpose requirements (to fulfill a number of functions of packaging design and designing for environment and law).	Regulation EC no.1935/2004 Regulation EC 2023/2006
		Environmental policies, standards, legislation.	Creation of fit for purpose packaging concepts using 2D CAD/ Illustrator/ Corel Draw etc.	To limit the weight and volume of packaging to a minimum. To reduce the content of hazardous substances and materials in the packaging material and its components.	Directive 2004/12/CE Commission Decision 2001/171/CE Commission Decision 2006/340/CE
Unit 2	International and European standards and directives on food packaging Ecodesign	Recyclable materials for food packaging.	Conversion of briefs into 3 dimensional samples for customer reviews / approval.	To design reusable or recoverable packaging. To ensure a high level of protection for human health and the environment.	Commission Decision 2001/171/CE Commission Decision 2006/340/CE Directive 94/62/CE Law 16/2002
		Food packaging technologies .	Timely response to stakeholder briefs. Ability to be collaborative team player, who can do attitude to the team.	To design reusable or recoverable packaging. To ensure a high level of protection for human health and the environment.	Law 16/2002 Law 5/2013
Unit 3	Concepts of food deterioration and preservation	Consumers and clients trends.	Ability to conceptualize innovative ideas	To understand concepts of food deterioration and preservation	Management systems or product certification (ISO 14001, ISO

	methods		and processes.	methods.	9001, ISO 22000, IFS, HACCP, BRC, etc.).
Unit 4	Packaged product quality and shelf life	Attitude for Ecodesign.	Ability to simultaneously organize, and successfully execute multiple project responsibilities.	To understand concepts packaged product quality and shelf life.	Directive 94/62/EC and Romanian Law no. 249/2015
Unit 5	Logistical packaging for food marketing systems		Excellent oral and written communication.	To understand concepts of the logistical packaging.	Regulation EU no.10/2011
Unit 6	Metal cans			To understand concepts of the metal cans.	Directive 2008/60/CE
Unit 7	Glass containers			To understand concepts glass containers.	Directive 95/45/CE
Unit 8	Plastics in food packaging		Ability to possess highly effective communication and interpersonal skills, and the ability to interact within both marketing/sales and operational environments with both clients, and suppliers.	To understand concepts plastics in food packaging.	Directive 2008/84/CE;
Unit 9	Paper and paperboard packaging			To understand concepts paper and paperboard packaging.	
Unit 10	Active and intelligent packaging			To understand concepts of the active packaging design.	
Unit 11	Modified atmosphere packaging			To understand concepts of the modified atmosphere packaging.	
Unit 12	Testing of food packaging			Ability to work effectively in cross-functional groups across the organization and foster teamwork.	To understand the thesting necessity and method.

Annex 2 - Learning architecture: Ecodesigner of Textile/Clothing Curriculum (total length 103 hours)

Title of the Module		Basic Concepts on Ecodesign			
Title of the Qualifications		Ecodesigner of Textile/Clothing			
Lenght		40 hours			
EQF Level	5	Procedures and Criteria for Learning outcomes assessment	Unit assignments and quizzes	ECVET Point Associated	3
No. Unit	Title	Knowledge	Skills	Competences	Resources
Unit 1	Introduction to Ecodesign	The definition of ecodesign. The benefits of Ecodesign in an economic and social concept.	Eco-Innovation	Identify ecodesign principles.	Literature of Ecodesign from University, Environmental Associations, competent agencies.
Unit 2	Traditional design versus Ecodesign	The Evolution of Ecodesign.	Stablish the relationship between Ecodesign and Traditional design.	Identify ecodesign principles in designed product Apply Ecodesign principles during the design stage.	Literature of Design History from Books and news.
Unit 3	EU Legal framework of environment and Ecodesign	Legal issues affecting ecodesign.	Identify the EU legal framework of Environmental and Ecodesign and Reference normative and standards on Ecodesign (general).	Identify and Implement all legal aspects in terms of environmental and ecodesign aspects that may apply to the final product during the design stage.	European Legislation . Normative basadate.
Unit 4	Life Cycle Assesment and Costs	Stages, inputs and outputs acting in a Cost and Lifecycle	To carry out all stages of a CLCA.	Implement the CLCA of any product.	Standards: ISO 14040/44.

		analysis.			
Unit 5	Principles/Strategies of Ecodesign	The principles of Ecodesign .	To evaluate the environmental impact of the production and product itself.	Identify Ecodesign principles. Establish improvement measures for reducing the environmental impact of products.	Literature of Ecodesign principles from University, Environmental Associations, competent agencies.
Unit 6	Environmental aspects of an Organisation	Environmental aspects at industry level.	Recognize environmental aspects. Assessment methodologies . Mitigation plans.	Identificatin, assessment and establishment of plans for reducing environmental aspects in industry.	Literature of environmental aspects from University, Environmental Associations, Case studies.
Unit 7	Implementing Ecodesign	-	-	Apply ecodesign principles.	Case studies.
Unit 8	Environmental management	Environmental Management Systems.	Plan Do Check Act Process management Communication. Control and Register of documents. Environmental aspects management. Environmental incidences management.	To implement an environmental management in industry processes. To manage industry processes.	Environmental Management Systems, Standards: ISO 14001, EMAS .
Unit 9	Ecodesign in the environmental management	Ecodesign Management System.	Plan Do Check Act Process management Communication	Apply ecodesign principles.	Standards: ISO 14006,

			n. Control and Register of documents. Environmental aspects management. Environmental incidences management.		
Unit 10	Introduction of eco-labelling Communication	The different Ecolabels existing.	To understand different ways to communicate the environmental behavior of a product. To understand different ecolabels types.	Implement communication methodologies for informing about the environmental behavior of a product. To implement all requirements needed for complying with all ecolabel types.	European Ecolabel, Literature of Ecolabel.
Unit 11	Environmental product declaration. Communication.	EPD	To understand the EPD system and the relation to LCA.	Implement EPD system under the frame of a LCA.	Official Bodies for EDP .
Unit 12	Ecodesign practical cases	Know case studies of companies in several sectors.	Technology transfer.	Identify and transfer eco-design principles.	Case studies.
Unit 13	Course final review				Previous units.
Title of the Module		Textile/Clothing			
Title of the Qualification		Ecodesigner of Textile/Clothing			
Length		63 hours			
EQF Level	5	Procedures and Criteria for Learning outcomes assessment	Unit assignments and quizzes	ECVET Point Associated	3
No. Unit	Title	Knowledge	Skills	Competences	Resources
Unit 1	Materials:	To know	Understand and	Impacts	

	Natural and Man-Made Fibers	<p>differences among textile fibers and substrates in terms of resources consumption and environmental impact.</p> <p>To know main applications and trends.</p>	<p>contextualize the data relating to impact assessments.</p> <p>Evaluate the main applications and trends in the textile sector on sustainability</p> <p>To give information for focused issues and updates in innovation eco-ethical issue.</p>	<p>evaluation: Fibers comparison – Consumption Fibers comparison –</p> <p>Environmental impacts.</p> <p>Applicable technologies.</p> <p>Main data sources by the industry updates (textile Databases).</p>	
Unit 2	Textile processes: spinning, weaving, finishing, cut-make-trim	<p>To know differences among textile processes in terms of energy and resources consumption and environmental impact.</p> <p>To know the Best Available Technologies (and how to get related updates).</p>	<p>Understand and contextualize the data relating to impact assessments.</p> <p>Searching for information about available innovations (using databases).</p>	<p>Impacts evaluation. Processes comparison - Environmental impacts. Applicable technologies. Main recycling technologies. Main data sources by the industry updates (textile Databases). Apply Best Available Technologies (BAT).</p>	BAT
Unit 3	Regulatory requirements, rules on labelling and composition of textile products.	<p>To know main requirements to export textile products.</p> <p>To know the main</p>	<p>Understand the main customers requests.</p> <p>To define and adopt the correct labelling for the</p>	<p>The current legislation: common principles, mandatory and voluntary aspects at both European and</p>	<p>Regulation of the origin of the materials</p> <p>EU Regulation n.1007 / 2011</p>

		<p>requirements for the correct labelling of composition of textile products</p> <p>To know the main rules for the attribution of the Made In</p> <p>To know the main rules for the attribution of preferential origin</p>	<p>composition and care of textiles</p> <p>To give information for focused issues and updates in innovation eco-ethical issue.</p>	<p>international level.</p> <p>Match making between regulatory and environmental specifications with product requirement.</p>	
Unit 4	<p>Mandatory and voluntary requirements in the EU and in the world</p>	<p>To know the European and international legislative system of the textile sector.</p> <p>To know the regulatory constraints about the sustainability for the production cycles for export</p> <p>To know main requirements asked by consumers.</p>	<p>To evaluate the main risk categories</p> <p>To compare standards and requirements of the main product and environmental certifications.</p>	<p>To apply the requirements of the REACH Regulation. Main technical specifications. The current legislation: common principles, mandatory and voluntary aspects at both European and international level. Coordinate regulatory and environmental specifications with product requirement.</p>	<p>REACH Regulation n°1907/2006 Annex XIV SVHC List COM (2001) 274 2004 / 18 / EC Directive CE 66/2010 Regulation</p> <p>Detox Report</p>
Unit 5	<p>Certifications in the Textile Sector</p>	<p>To know the main quality, environmental, safety and health management</p>	<p>Compare the different environmental certification labels.</p>	<p>To apply an harmonized certification system</p> <p>To use a tool for</p>	<p>ISO 9001 ISO 14001 OH 18001 SA 8000 STeP by Oeko-Tex®</p>

		certifications	To evaluate an harmonized certification system	the management of the supply chain as regards environmental sustainability	certification
Unit 6	Life Cycle Assessment in the textile sector.	<p>To understand the main aspects related to LCA applied to textile products.</p> <p>To know main principles to give a better performance.</p> <p>To know and evaluate the standard for own company/realit y.</p>	<p>To evaluate the main aspects related to the LCA.</p> <p>To evaluate the main aspects related to the PEF.</p> <p>To compare the main aspects related to the EPD.</p>	<p>Identify technical and procedural assumptions for improvement of environmental sustainability. Define and evaluate different alternatives of the main fibers in terms of resource consumption. Define and evaluate different alternatives of the production cycles in terms of resource consumption.</p>	<p>EC Recommendation 179/2013</p> <p>ISO 14040:2006</p> <p>ISO/TR 14062:2002</p> <p>ISO 14046</p> <p>ISO 14067</p> <p>ISO 14064</p>
Unit 7	Sustainability certifications in the textile sector	<p>To know the main environmental certifications (both systems and products) in the textile industry .</p> <p>To know and evaluate the standard for own company</p>	<p>To compare standards and requirements of the main product and environmental certifications</p> <p>To evaluate standards about the sustainability to be applied in own company</p>	<p>Compare the different environmental certification labels. Coordinate regulatory and environmental specifications with product requirements. Understand the main customers requests and evaluate what certifications are appropriate.</p>	<p>Oeko-Tex Standard GOTS</p> <p>Standard CE 66/2010</p> <p>Regulation EMAS – EC Regulation 1221/2009</p>

<p>Unit 8</p>	<p>Recycling processes in the textile industry</p>	<p>To know main approaches to circular economy in textile sector.</p> <p>To know different recycling processes applicable to the different stages of textile production;</p> <p>To know the necessary information on the possible use of recycled materials in the design phase To know the main "best practices" for environmental sustainability in the design phase.</p>	<p>To apply the main approaches to alternative methodologies regarding recycling dynamics, use of waste as a resource, product differentiation .</p> <p>To compare the main guidelines about the optimization of the recycling on textile sector</p>	<p>To apply the main guidelines about the optimization of the recycling on textile sector</p>	<p>Circular Economy Package – Closing the Loop</p>
<p>Unit 9</p>	<p>Eco-Design approaches in textile products</p>	<p>Know the different approaches to sustainability in the textile industry</p> <p>To know how to be constantly updated in eco-innovation.</p>	<p>Obtain the main information for the adoption of sustainable practices.</p>	<p>How to evaluate different approaches for better performances</p> <p>Identify eco-design approaches for improvement useful for product development.</p>	<p>Eco-Design approaches in textile products</p>
<p>Unit 10</p>		<p>To know the</p>	<p>Apply the</p>	<p>Obtain the key</p>	

	Sustainable Business Models	<p>main archetypes of sustainable business models</p> <p>Know the main databases for the application of Best Practice on environmental awareness during the design phase</p> <p>To know the Business Model Canvas.</p>	<p>different models of sustainable business to the textile sector</p> <p>Use and consult the main databases for the application of Best Practice on environmental awareness during the design phase.</p>	<p>information on how to adopt recycled materials during the Design approach.</p> <p>Apply a Business Model to your projects</p>	Business Model Canvas tool
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Annex 3 - Learning architecture: Ecodesigner of Electronic / Electric, Curriculum (total length 95 hours)

Title of the Module		Basic Concepts on Ecodesign			
Title of the Qualifications		Ecodesigner of Electronics			
Lenght		40 hours			
EQF Level	5	Procedures and Criteria for Learning outcomes assessment	Unit assignments and quizzes	ECVET Point Associated	3
No. Unit	Title	Knowledge	Skills	Competences	Resources
Unit 1	Introduction to Ecodesign	<p>The definition of ecodesign.</p> <p>The benefits of Ecodesign in an economic and social concept.</p>	Eco-Innovation	Identify ecodesign principles.	Literature of Ecodesign from University, Environmental Associations, competent agencies.
Unit 2	Traditional design versus Ecodesign	The Evolution of Ecodesign.	Stablish the relationship between Ecodesign and Traditional	Identify ecodesign principles in designed product	Literature of Design History from Books and news.

			design.	Apply Ecodesign principles during the design stage.	
Unit 3	EU Legal framework of environment and Ecodesign	Legal issues affecting ecodesign.	Identify the EU legal framework of Environmental and Ecodesign and Reference normative and standards on Ecodesign (general).	Identify and Implement all legal aspects in terms of environmental and ecodesign aspects that may apply to the final product during the design stage.	European Legislation . Normative basadate.
Unit 4	Life Cycle Assesment and Costs	Stages, inputs and outputs acting in a Cost and Lifecycle analysis.	To carry out all stages of a CLCA.	Implement the CLCA of any product.	Standards: ISO 14040/44.
Unit 5	Principles/Strategies of Ecodesign	The principles of Ecodesign .	To evaluate the environmental impact of the production and product itself.	Identify Ecodesign principles. Establish improvement measures for reducing the environmental impact of products.	Literature of Ecodesign principles from University, Environmental Associations, competent agencies.
Unit 6	Environmental aspects of an Organisation	Environmental aspects at industry level.	Recognize environmental aspects. Assessment methodologies . Mitigation plans.	Identificatin, assessment and establishment of plans for reducing environmental aspects in industry.	Literature of environmental aspects from University, Environmental Associations, Case studies.
Unit 7	Implementing Ecodesign	-	-	Apply ecodesign principles.	Case studies.
Unit 8	Environmental management	Environmental Management Systems.	Plan Do Check Act Process management Communicatio	To implement an environmental management in industry processes.	Environmenta l Management Systems, Standards:

			n. Control and Register of documents. Environmental aspects management. Environmental incidences management.	To manage industry processes.	ISO 14001, EMAS .
Unit 9	Ecodesign in the environmental management	Ecodesign Management System.	Plan Do Check Act Process management Communication. Control and Register of documents. Environmental aspects management. Environmental incidences management.	Apply ecodesign principles.	Standards: ISO 14006,
Unit 10	Introduction of eco-labelling Communication	The different Ecolabels existing.	To understand different ways to communicate the environmental behavior of a product. To understand different ecolabels types.	Implement communication methodologies for informing about the environmental behavior of a product. To implement all requirements needed for complying with all ecolabel types.	European Ecolabel, Literature of Ecolabel.
Unit 11	Environmental product declaration. Communication.	EPD	To understand the EPD system and the relation to LCA.	Implement EPD system under the frame of a LCA.	Official Bodies for EDP .
Unit 12	Ecodesign practical cases	Know case studies of companies in several sectors.	Technology transfer.	Identify and transfer ecodesign principles.	Case studies.

Unit 13	Course final review				Previous units.
Title of the Module		Electronics			
Title of the Qualification		Ecodesigner of Electronics			
Lenght		55 hours			
EQF Level	5	Procedures and Criteria for Learning outcomes assessment	Unit assignments and quizzes	ECVET Point Associated	3
No. Unit	Title	Knowledge	Skills	Competences	Resources
Unit 1	Introduction to Ecodesign in electronics	Re-use of products/materials	Measures the environmental impact of electronic devices throughout the product life cycle.	Explain main activates of eco design in electronic sector	Directive 2009/125/EC on the Ecodesign of energy related products
Unit 2	European environmental standards and Directives on electronic devices	Environmental policies, standards. Attitude for Ecodesign Knowledge about production processes.	Uses Life Cycle Assessment (LCA), Environmental Product Declaration (EDP) and PEF Methodology (Product Environment Footprint) models.	Valid EU directives in standards for electronic devices	
Unit 3	ECO certification and labeling on electronic devices	Embedded software / firmware.		To explain the certification procedure and labeling of electronic equipment	ISO 17025 ISO 17020 The Environment Protection Act, EFQM excellence model
Unit 4	Design concept for electronic devices	Electronic device assembly. Electrical circuit design. Printed circuit design. Characteristics of electrical and electronic components and devices.	Analyses the materials used in the electronic devices industry and evaluates them from the point of view of sustainability.	To know main approaches and design technique in electronic design. Principle of ECO-design and benefits.	
Unit 5	Management of the Ecodesign process.	Life cycle	Analyses the technological procedures used in the	To know the main eco-design procedure and approaches	Certificates related with the origin of the material

Unit 6	Life cycle assessment on electronic devices.	assessment models. Proficient in technical terminology. Uses various databases and is proficient in information-searching techniques.	manufacture of electronic devices and evaluates them from the point of view of sustainability.	To understanding the Life Cycle Assessment approach. Thinking through the life cycle.	Regulation on the level of purification of waste water
Unit 7	Recycling of the electronic devices.	Electronic devices market and trends. Proficient in various innovation techniques.	Identifies weaknesses in the production technology process or product from the point of view of sustainability. Seeks information relating to materials, technological processes and products in various databases.	To explain the recycling technique and approaches.	
Unit 8	Eco design in Electronics and Microelectronics system, Part 1	Role of the market in product development.	Analyses the needs and requirements of the market from the point of view of sustainability.	To know principle of microelectronics and embedded systems	
Unit 9	Eco design in Electronics and Microelectronics system, Part 2	Masters and understands the 5R concept (Re-think, Re-duce, Re-cycle, Re-use, Re-place).	Develops products and improvements in the manufacture of electronic devices, with emphasis on environmental friendliness throughout the product life cycle in cooperation with members of the development team. Monitors and	To know principle of microelectronics and embedded systems	
Unit 10	Electrical power engineering	Development trends in technologies and materials in the field of electrical and electronic devices.		Basic and advanced principles in eco-electronics power systems.	
Unit 11	Computer aided design CAD-tools for electronics			To explain a CAD tools of printed circuit boards (PCB) and electronic equipment.	
Unit 12	Case study			Example of the design and modification.	
Unit 13	Internet of things - IoT			To know the main ideas and areas of IoT and Eco-design.	

		<p>observes required environmental standards in the electrical field. Monitors and observes international, European and national legislation in the field of the sustainable design of electronic products. Observes the business strategy and vision of the company in the field of sustainable development. Monitors technological development trends. Monitors the requirements of the market. Takes into account the 5R concept in development (Re-think, Re-duce, Re-cycle, Re-use, Re-place). Takes into account and envisages servicing possibilities and the recyclability of the product during the planning stage. Plans activities for project</p>	
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		<p>implementation. Selects materials for the manufacture of electronic devices. Selects technological procedures for the manufacture of electronic devices. Cooperates with industrial designers on product development and planning. Uses modern software to plan electronic products. Prepares, edits and monitors technological documentation. Cooperates with a project group when putting a new product into production.</p>	
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