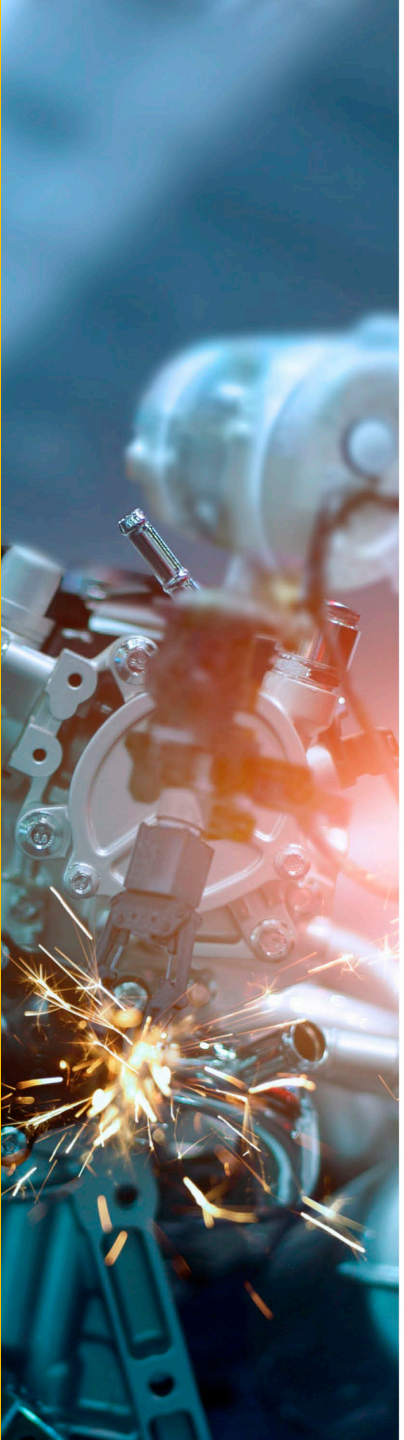
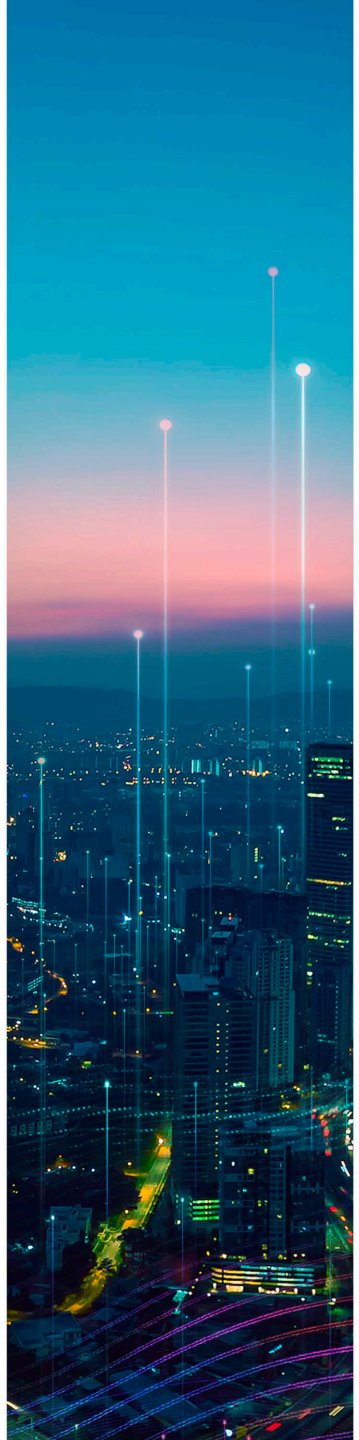




SIE Sustainable Industry Ecosystem

Elina Huculak, University of Vaasa
Dr. Ahm Shamsuzzoha, University of Vaasa

WP2 Skills Gaps & Course Recommendations

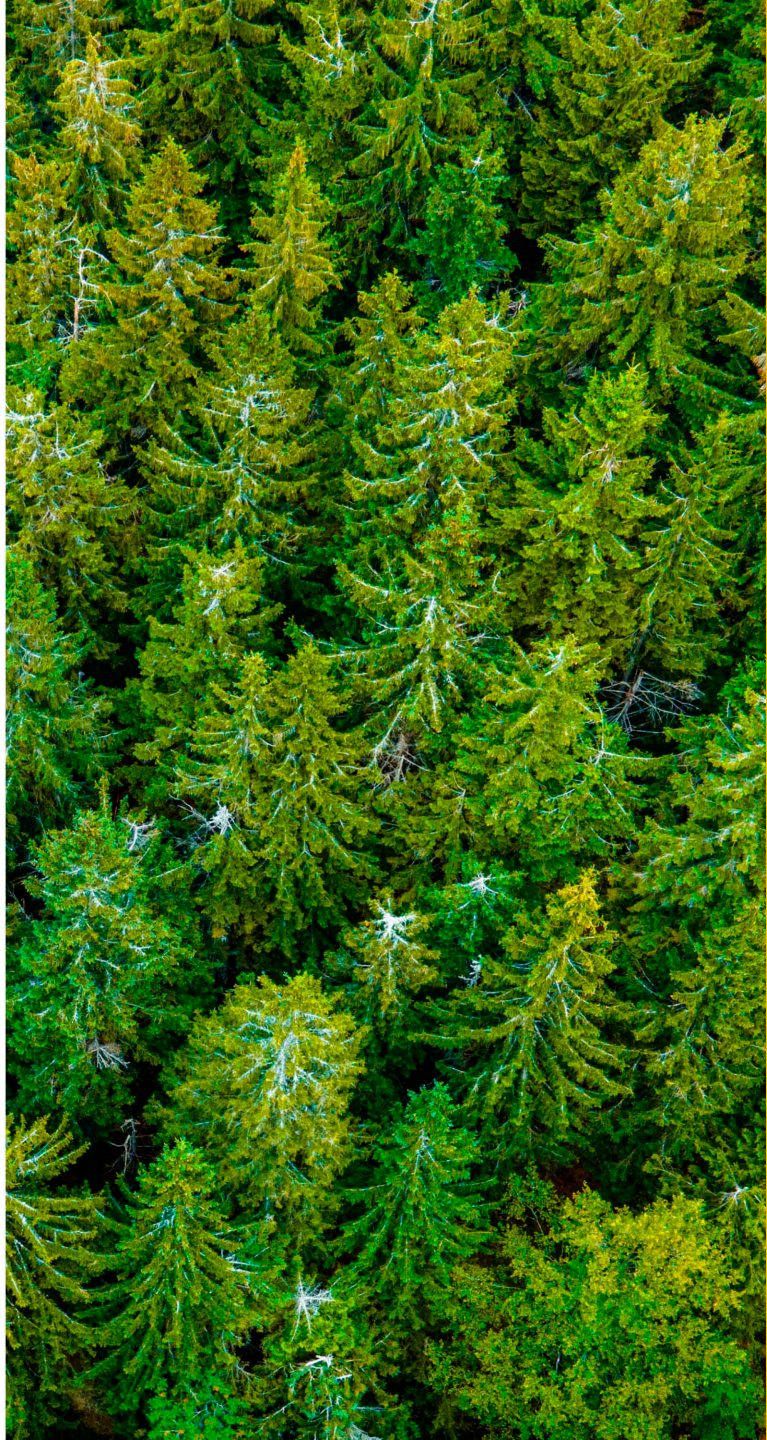
ACADEMY OF FINLAND

Tampere University
Tampere University of Applied Sciences

VTT

LUT University

Vaasan yliopisto
UNIVERSITY OF VAASA



Course Design

Course recommendations were based upon skills & knowledge gaps identified within the SIE Consortium per an analysis of the course offerings of each partner University.

Tampere University
Tampere University of Applied Sciences

VTT

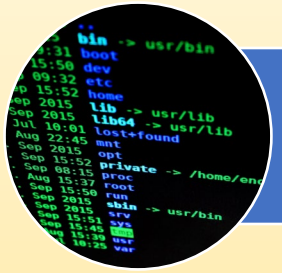
Degree Program	Initials	Department	Course Name	Main Course Instructor Name/Email	Education Level: Bachelors,	Accreditation	Attached Syllabus/Learning Ou	Link/ Source
Master's Programme in Information an	HV	Information and knowledge n	TUO.412 Data and Software Business	***Henri Pirkkalainen***	Masters	MAB Management and busin	Student understands the basic principles	TUO.412: Data and Software
Master's Programme in Information an	HV	Information and knowledge n	TUO.424 Information Analytics Semin	Hongxiu Li	Masters	MAB Management and busin	1. The student is able to understand the	TUO.424: Information Analy
Master's Programme in Information an	HV	Information and knowledge n	TUO.410 Information Security Manag	Karan Menon	Masters	MAB Management and busin	After the course the student has a basic	TUO.410: Information Secur
Master's Programme in Industrial Engi	HV	Industrial Engineering and Mi	TUTA.330 Technology Strategy	Saku Mäkinen, Johanna Kirjavainen, Laura Valto	Masters	MAB Management and busin	After completing this course, the studen	TUTA.330: Technology Strat
Master's Programme in Information Te	AS	Information Technology and C	COMP.CS.300 Data Structures and Alg	Matti Rintala	Masters	Information Technology and (	After completing the course, the student	COMP.CS.300 Data Structur
Master's Programme in Information Te	AS	Information Technology and C	MATH.MA.140 Vectors and Matrices	Terhi Kaarakka	Masters	Information Technology and (	In this course the student learns the basi	MATH.MA.140 Vectors and
Master's Programme in Information Te	AS	Information Technology and C	MATH.APP.160 Differential and Integr	Simo Ali-Löytty	Masters	Information Technology and (	On this course the students learn basic t	MATH.APP.160 Differential
Master's Programme in Information Te	AS	Information Technology and C	MATH.APP.240 Fourier Methods	Merja Laaksonen, Petteri Laakkonen	Masters	Information Technology and (	After completing the course, a student k	MATH.APP.240 Fourier Meth

LUT University

Vaasan yliopisto
UNIVERSITY OF VAASA

Example pulled from Work Package 2's course analysis data

WP2 Grouped Six Sectors Based upon Skills Linkages per the Gaps



Cybersecurity within the Context of Manufacturing

Photovoltaic Systems Design Engineering; End of Life Applications for PV Cells

Industrial Symbiosis and Circular Economy within Manufacturing (recycling, resource efficiency, data analysis)

Photonics Application Potential within the Manufacturing Sector

Environmental Goods and Services Management

ICT Management Supporting the Manufacturing Industry

Cybersecurity within the Context of Manufacturing Module Recommendations

Module 1

Introduction to Cybersecurity

Module 2

Cybercrimes and Attack Scenarios

Module 3

Data Security and Privacy

Module 4

Data Security and Privacy

Module 5

Management of Cybersecurity

Module 6

Advanced Cybersecurity

Industrial Symbiosis and Circular Economy within Manufacturing (recycling, resource efficiency, data analysis) Module Recommendations

Module 1

Transforming from linear towards circular business model

Module 2

Design Thinking (Reduce, Reuse, Refurbish, Remanufacture, Repair, Recycle)

Module 3

Sustainable business model in an industrial ecosystem (Supply chain management)

Module 4

Circular economy for achieving UN's SDG

Environmental Goods and Services Management Module Recommendations

Module 1

The application of Environmental Economics in the Manufacturing Sector

Module 2

Striving for Carbon Neutrality in the Manufacturing Supply Chain

Module 3

Climate Risk Management in the Transportation Sector

Photovoltaic Systems Design Engineering; End of Life Applications for PV Cells Module Reccomendations

Module 1

Introduction to photovoltaic systems

Module 2

Design engineering

Module 3

Life cycle and end of life management

Module 4

Applications of Photovoltaic systems

Photonics Application Potential within the Manufacturing Sector Module Recommendations

Module 1

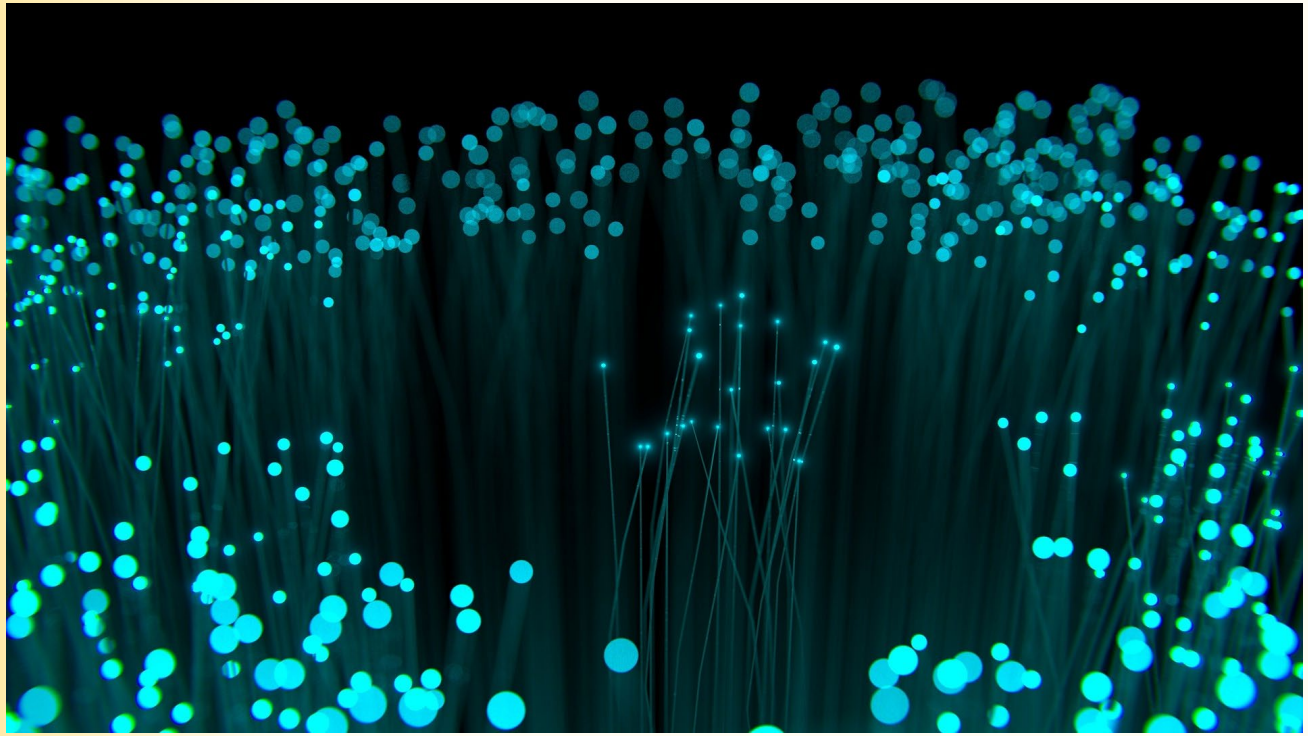
Smart Technology Applications in Smart Cities

Module 2

Optical Metrology within the Nanofilm Applications

Module 3

Photonics-based Technologies to support Carbon Neutrality



ICT Management Supporting the Manufacturing Industry Module Recommendations

Module 1
Introduction to ICT

Module 2
Advanced ICT

Module 3
ICT for Business

Module 4
Interpersonal Skills

THANK YOU FOR YOUR TIME

If you have any WP related questions, you can reach the Vaasa team at:

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Ahm.Shamsuzzoha@uwasa.fi

University of Vaasa
FINLAND