



Learner Centric Advanced Manufacturing Platform



D7.3 „Katalog von Schulungen für KMU und Benchmark“

WP7 Verbindung zwischen KMU und beruflicher Bildung



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GLOSSAR UND/ODER AKRONYME

5S – Eine Methode zur Arbeitsplatzorganisation aus dem Bereich der schlanken Fertigung
ADMA – ADMA Transformers EU-Projekt – Europäisches Zentrum für fortschrittliche Fertigung
AFIL – Associazione Fabbrica Intelligente Lombardia (Verband Intelligente Fabrik Lombardei)
AFM – Verband für fortschrittliche Fertigungstechnologien in Spanien (Asociación Española de Fabricantes de Máquinas-herramienta, Accesorios, Componentes y Herramientas)
KI – Künstliche Intelligenz
BI – Business Intelligence
CAD – Computergestütztes Design
CAM – Computergestützte Fertigung
CMQE – Campus des Métiers et des Qualifications d'Excellence (Kompetenzzentrum für berufliche Bildung und Qualifikationen)
CNC – Computergesteuerte numerische Steuerung
CRM – Kundenbeziehungsmanagement
CSR – Soziale Verantwortung von Unternehmen
ERP – Unternehmensressourcenplanung
ESG – Umwelt, Soziales und Unternehmensführung
EU – Europäische Union
HR – Personalwesen
IKT – Informations- und Kommunikationstechnologie
IoT – Internet der Dinge
IT – Informationstechnologie
KIC – Wissensintensives Unternehmen
KPI – Leistungskennzahl
LCAMP – Lernende zentrierte Plattform für fortschrittliche Fertigung
MADE – Kompetenzzentrum Industrie 4.0
MES – Fertigungsausführungssystem
MOOC – Massiver Online-Kurs
F&E – Forschung und Entwicklung
SaaS – Software als Dienstleistung
KMU – Kleine und mittlere Unternehmen
VET – Berufliche Aus- und Weiterbildung



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ZUSAMMENFASSUNG

Dieser Bericht bietet einen umfassenden Überblick über das Ausbildungsangebot zur Unterstützung von KMU bei ihrer digitalen, organisatorischen und nachhaltigen Transformation. Er enthält einen strukturierten Katalog mit 109 Ausbildungsaktivitäten, die von Partnern aus acht Ländern beigesteuert wurden und jeweils den ADMA-Transformationsbereichen und Reifegraden zugeordnet sind, um eine gezielte Weiterqualifizierung zu ermöglichen. Der Bericht enthält eine Benchmarking-Analyse führender internationaler Schulungsanbieter. Diese Elemente vermitteln dem Leser ein klares Verständnis der bestehenden Schulungsmöglichkeiten und deren Übereinstimmung mit den in den Reifegradbewertungen von KMU ermittelten Bedürfnissen. So können Leser die für KMU

Dieser Bericht konzentriert sich auf die Stärkung der Verbindung zwischen KMU und dem Ökosystem der beruflichen Aus- und Weiterbildung (VET) durch strukturierte Methoden, praktische Diagnoseaktivitäten und eine umfassende Kartierung der Weiterbildungsmöglichkeiten. Die Arbeit integriert drei Schlüsselkomponenten: die ADMA-Methodik, das Modell der Collaborative Learning Factory (CLF) und Erkenntnisse aus KMU-Scans und Transformationsplänen.

Die ADMA-Methodik dient als Grundlage für das Verständnis der digitalen, organisatorischen und nachhaltigkeitsbezogenen Reife von KMU. 59 KMU-Scans, die in acht Ländern (Baskenland – Spanien, Kanada, Frankreich, Deutschland, Italien, Slowenien, Schweden und Türkei) durchgeführt wurden, zeigen konsistente Stärken in den Bereichen Kundenorientierung und menschenzentrierte Organisation. Gleichzeitig zeigen sie wiederkehrende Schwächen in den Bereichen Smart Manufacturing (geringe Automatisierung und Echtzeit-Datennutzung), Digital Factory (Herausforderungen bei der Systemintegration), ECO Factory (uneinheitliche Nachhaltigkeitspraktiken) und Value Chain Oriented Open Factory (begrenzte externe Zusammenarbeit) auf. Diese Ergebnisse liefern eine klare Richtung für die Priorisierung von Schulungsbereichen innerhalb von LCAMP.

Um diesen Anforderungen gerecht zu werden, stellt der Bericht ein duales Indexierungssystem vor, das die Schulungsaktivitäten nach den sieben ADMA-Transformationsbereichen und fünf Reifegraden organisiert, die von der ersten Sensibilisierung bis zur Exzellenz reichen. Diese Struktur stellt sicher, dass KMU leicht Schulungsangebote identifizieren können, die für ihre aktuelle Entwicklungsstufe relevant sind, und ihre Entwicklung hin zu fortgeschritteneren digitalen und organisatorischen Modellen planen können.

Ein wichtiges Ergebnis dieser Arbeit ist die Erstellung eines Katalogs mit 109 Schulungsaktivitäten, die auf die ADMA-Transformationen abgestimmt sind. Diese Schulungsangebote stammen aus dem Baskenland – Spanien (31), Kanada (10), Frankreich (10), Deutschland (9), Italien (18), Slowenien (10), Schweden (10) und der Türkei (11). Alle sieben ADMA-Transformationsbereiche sind vertreten, wobei die Bereiche „Fortschrittliche Fertigungstechnologien“, „Digitale Fabrik“ und „Intelligente Fertigung“ besonders stark abgedeckt sind – genau die Bereiche, in denen KMU den größten Verbesserungsbedarf hatten.

Darüber hinaus wurde ein Benchmarking zwischen sechs führenden internationalen Schulungsanbietern (Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon University, Polimi Open Knowledge und Udemy) durchgeführt. Diese Anbieter bieten umfangreiche Schulungen in denselben schwachen ADMA-Bereichen an, die in den KMU-



Scans identifiziert wurden, was die Relevanz der strategischen Entscheidungen von LCAMP unterstreicht.

Insgesamt bietet dieser Bericht einen KMU-orientierten Schulungskatalog, der die digitale Transformation, Nachhaltigkeit und menschenzentrierte Innovation unterstützt. Durch die Kombination von diagnostischen Erkenntnissen, strukturierten Reifegradpfaden, praktischen Schulungsangeboten und internationalen Best Practices ist LCAMP in der Lage, Lernlösungen anzubieten, die die Wettbewerbsfähigkeit von KMU beschleunigen und die Belegschaft auf die Anforderungen von Industrie 4.0 und 5.0 vorbereiten.



1. EINLEITUNG

Die im Rahmen von WP7 durchgeführten Arbeiten haben wertvolle Erkenntnisse darüber geliefert, wie KMU durch strukturierte Methoden und praktische Umsetzungsmaßnahmen mit dem Berufsbildungssystem verbunden werden können. Die Kombination von konzeptionellen Rahmenwerken wie ADMA und CLF mit konkreten Erfahrungen aus KMU-Scans und Transformationsplänen bietet einen umfassenden Überblick über die Chancen und Herausforderungen, die mit dem Übergang zu Industrie 4.0 und 5.0 verbunden sind.

Dieser Abschnitt fasst die wichtigsten Ergebnisse früherer Berichte zusammen und hebt die Relevanz der ADMA-Methodik als Diagnose- und Transformationsinstrument sowie der Collaborative Learning Factories als Bildungsmodell hervor, das eine Brücke zwischen Industrie und Ausbildung schlägt. Zusammen bilden sie die Grundlage, auf der der Ausbildungskatalog entwickelt wird.

Um den Ausbildungskatalog zu einem praktischen und strategischen Instrument für KMU zu machen, ist es unerlässlich, die Vielzahl der verfügbaren Ausbildungsangebote klar und strukturiert zu organisieren. Das im Rahmen von LCAMP entwickelte Indexierungssystem dient diesem Zweck und stellt sicher, dass jeder Ausbildungskurs leicht mit den spezifischen Transformationsbedürfnissen der Unternehmen und ihrem digitalen Reifegrad verknüpft werden kann.

1.1. ZUSAMMENFASSUNG DER VORHERIGEN BERICHTE IN WP7

Im Rahmen des LCAMP-Projekts gibt es einen speziellen Arbeitsbereich, der sich auf die Stärkung der Verbindung zwischen beruflicher Bildung und KMU konzentriert. Diese Unternehmen durchlaufen digitale Transformationsprozesse, und durch die ADMA-Methodik kann das Berufsbildungssystem ihnen Instrumente und Wissen zur Verfügung stellen, mit denen sie ihre Wettbewerbsfähigkeit und Nachhaltigkeit verbessern können.

Unter den bisher durchgeführten Aktivitäten ist insbesondere die Integration der ADMA-Methodik in den LCAMP-Rahmen durch die Collaborative Learning Factories (CLF) hervorzuheben. Darüber hinaus wurden mehrere KMU-Scans durchgeführt und Umsetzungspläne entwickelt, um ihre Transformationsprozesse zu unterstützen.

ADMA-Methodik und Collaborative Learning Factory

Die ADMA-Methodik (Advanced Manufacturing Support Centre), die von der Europäischen Kommission gefördert und im Rahmen des ADMA TranS4MErs-Projekts weiterentwickelt wurde, bietet einen Rahmen für die digitale und nachhaltige Transformation industrieller KMU. Sie gliedert sich in sieben Schlüsselbereiche:

- T1 – Fortschrittliche Fertigungstechnologien: Analyse des Stands der Technik bei Fertigungsanlagen und -maschinen; Schwerpunkt auf der Unternehmensvision, dem Leistungsniveau und dem Umsetzungsgrad;
- T2 – Digitale Fabrik: Bewertung, wie digitale Technologien eingesetzt werden, um die Entwicklung von Produkten und/oder Prozessen in physische Produkte, Systeme oder



- Dienstleistungen umzusetzen; Fokus auf die erforderliche Infrastruktur und die digitalen Fähigkeiten;
- T3 – ECO Factory: Analyse des Ansatzes zur Kosten- und Risikoreduzierung und zur Effizienz der Rohstoffnutzung sowie zur Energieversorgung und zum Energieverbrauch und zur Nutzung erneuerbarer Energiequellen ; Schwerpunkt auf Ressourcenmanagement und Compliance & Innovation;
 - T4 – End-to-End-kundenorientiertes Engineering: Bewertung, wie Kundenerwartungen sowie funktions- und abteilungsübergreifendes Design zu neuen Entwicklungen und Prozessen führen können; Schwerpunkt auf Kundenorientierung und Wertversprechen sowie robusten Engineering-Prozessen;
 - T5 – Menschzentrierte Organisation: Analyse, ob und wie Arbeitnehmern Autonomie und Raum gegeben wird, um ihre Talente, Kreativität und Initiativen zu entfalten, auch durch kontinuierliche/wiederholte Bewertung ihrer Fähigkeiten und Aktualisierung ihrer Kompetenzen; Schwerpunkt auf dem einzelnen Mitarbeiter, dem Team, der Führung und der internen Organisation;
 - T6 – Intelligente Fertigung: Bewertung der Kombination aus intelligenter Nutzung der Fähigkeiten von Menschen, intelligenter Nutzung von Technologie und Einsatz eines (selbst-)lernenden Produktionssystems; Fokus auf die Mensch-Maschine-Interaktion und die Fertigungsplanungs- und -steuerungsprozesse;
 - T7 – Wertschöpfungskettenorientierte offene Fabrik: Analyse der Fähigkeit des Unternehmens, Produkte, Fertigungsprozesse und Dienstleistungen unter Berücksichtigung der gesamten Wertschöpfungskette zu entwickeln; Schwerpunkt auf Zusammenarbeit und Partnerschaften sowie auf externem Fachwissen und Wissensmanagement.

Das im Rahmen von LCAMP entwickelte Modell der Collaborative Learning Factory (CLF) beschreibt Lernumgebungen, die reale industrielle Prozesse in Berufsbildungszentren nachbilden. Es ist in acht Dimensionen gegliedert:

- Betriebsmodell: CLFs erfordern robuste Betriebsmodelle, die finanzielle, personelle und thematische Aspekte abdecken. Eine angemessene Finanzierung ist von entscheidender Bedeutung, wobei verschiedene Modelle in Betracht gezogen werden können. Das Personal muss über technische und didaktische Fähigkeiten verfügen.
- Ziele und Zweck: CLFs dienen sowohl Studierenden als auch Arbeitnehmern und bieten immersive Lernerfahrungen und kontinuierliche berufliche Weiterentwicklung im Bereich der fortschrittlichen Fertigung.
- Prozess: Der CLF-Prozess umfasst vier Phasen – Produktdesign, Verfahrenstechnik, Fertigung und Lieferkettenmanagement –, in denen reale Szenarien simuliert werden.
- Umfeld: Die Konfiguration wird durch die technologische Infrastruktur, die Benutzertypen und die Kompetenzen bestimmt.
- Produkt: Das ausgewählte Produkt beeinflusst Kompetenzen und Technologien.
- Didaktik: Der Schwerpunkt liegt auf standardisierten Kompetenzrahmenwerken.
- Metriken: Metriken bewerten die Effektivität, einschließlich der Anzahl der implementierten Industrie 4.0-Technologien, gemeinschaftlicher Entwicklungen und der Zufriedenheit der Studierenden.
- Zusammenarbeit: Die Zusammenarbeit zwischen den Teilnehmern ist von grundlegender Bedeutung und fördert Innovation und Kompetenzentwicklung.

Sowohl die ADMA-Methodik als auch das CLF-Modell weisen relevante Verbindungen auf, die es ermöglichen, die Logik der digitalen Reife von Unternehmen auf den Bildungsbereich zu



übertragen und so Lernpfade zu schaffen, die Studierende und Arbeitnehmer auf die Herausforderungen von Industrie 4.0 und 5.0 vorbereiten.

ADMA-Scans und Umsetzungspläne

Im Rahmen des LCAMP-Projekts wurden 59 KMU-Scans in acht Ländern (Baskenland – Spanien, Kanada, Frankreich, Deutschland, Italien, Slowenien, Schweden und Türkei) durchgeführt, zusammen mit Umsetzungsplänen für ausgewählte Unternehmen. Die Ergebnisse zeigen eine große Vielfalt an digitalen Reifegraden, heben aber auch gemeinsame Trends hervor:

Wiederkehrende Stärken:

- End-to-End-kundenorientierte Entwicklung: Kundenorientierung.
- Menschenzentrierte Organisation.

Wiederkehrende Schwächen:

- Intelligente Fertigung: geringer Automatisierungsgrad und begrenzte Nutzung von Echtzeitdaten.
- Digitale Fabrik: Herausforderungen bei der Systemintegration und Konnektivität.
- Wertschöpfungskettenorientierte offene Fabrik: schwache externe Zusammenarbeit und begrenzte offene Innovation.
- ECO Factory: uneinheitliche Umsetzung von Nachhaltigkeit.

Die Umsetzungspläne umfassen Maßnahmen wie die Einführung von IoT und Sensorik, Prozessautomatisierung, den Einsatz von Business Intelligence und digitalen Zwillingen, die Einbeziehung von Nachhaltigkeitspraktiken und die Einführung interner Schulungsprogramme zur Stärkung der digitalen Kompetenzen.

Auswirkungen auf den Schulungskatalog

Auf der Grundlage der aus früheren Berichten gewonnenen Erkenntnisse wurden mehrere Schulungsschwerpunkte identifiziert, die als Leitfaden für die Entwicklung des Schulungskatalogs für KMU dienen sollen:

- Kompetenzen in den Bereichen Automatisierung und intelligente Fertigung (kollaborative Robotik, vorausschauende Wartung, Steuerungssysteme und Sensorisierung).
- Digitale Fabrik: Systemintegration (ERP, MES, SCADA), Datenmanagement, Cybersicherheit.
- Industrielle Nachhaltigkeit: Energieeffizienz, Ökodesign, Kreislaufwirtschaft.
- Übergreifende digitale Kompetenzen: Datenanalyse, Einsatz künstlicher Intelligenz in der Produktion, kollaborative digitale Tools.
- Organisatorische Fähigkeiten: Veränderungsmanagement, digitale Führung, Innovationskultur.



CLFs und Berufsbildungszentren spielen eine Schlüsselrolle bei der Bereitstellung praktischer Lernumgebungen, in denen diese Kompetenzen in einem Umfeld entwickelt werden können, das der industriellen Realität sehr nahe kommt.

Zusammenfassend lässt sich sagen, dass die Integration der ADMA- und CLF-Rahmenwerke mit den praktischen Erkenntnissen aus KMU-Diagnosen die Notwendigkeit eines Ausbildungskatalogs rechtfertigt, der sich an den Wegen zur digitalen Reife orientiert. Dieser Katalog sollte sich auf die Bereiche mit geringerer Reife konzentrieren (intelligente Fertigung, digitale Fabrik, ECO-Fabrik und wertschöpfungskettenorientierte offene Fabrik) und gleichzeitig die bestehenden Stärken in den Bereichen End-to-End-kundenorientiertes Engineering und menschenzentrierte Organisation stärken. Auf diese Weise werden KMU bei ihrem Übergang zu digitaleren, nachhaltigeren und menschenzentrierten Modellen unterstützt, die mit den Prinzipien von Industrie 5.0 im Einklang stehen.

1.2. KATEGORIEN UND KLASSIFIZIERUNGEN DER SCHULUNGEN

Um KMU einen strukturierten und praktischen Katalog mit Schulungsmöglichkeiten zur Verfügung zu stellen, wurde im Rahmen des Projekts ein duales Indexierungssystem entwickelt. Dieser Ansatz stellt sicher, dass die 109 gesammelten Schulungen – aus dem Baskenland - Spanien (31), Kanada (10), Frankreich (10), Deutschland (9), Italien (18), Slowenien (10), Schweden (10) und der Türkei – mit den strategischen Transformationsbereichen der ADMA-Methodik übereinstimmen und in einem klaren Reifegradpfad positioniert sind, der die fortschreitende Entwicklung digitaler, organisatorischer und nachhaltiger Kompetenzen widerspiegelt.

Index nach ADMA-Transformationsbereichen

Der erste Index ordnet alle Schulungen nach den sieben ADMA-Transformationsbereichen, die die kritischen Dimensionen der industriellen Transformation hin zu Industrie 4.0 und Industrie 5.0 definieren. Diese Bereiche bilden das Rückgrat des Schulungskatalogs:

- T1 – Fortschrittliche Fertigungstechnologien – Einsatz modernster Produktionstechnologien, Robotik, additiver Fertigung, Automatisierung und Qualitätskontrollsystemen.
- T2 – Digitale Fabrik – Integration digitaler Tools und Plattformen wie ERP, MES, SCADA, digitale Zwillinge und Cybersicherheitsmaßnahmen, die eine vernetzte und datengesteuerte Produktion ermöglichen.
- T3 – ECO Factory – Strategien für nachhaltige Fertigung, Energieeffizienz, Ressourcenoptimierung, Kreislaufwirtschaft und Ökodesign.
- T4 – End-to-End-kundenorientiertes Engineering – Kundenorientiertes Produkt- und Prozessdesign, Integration von Feedbackschleifen und Anpassung von Lösungen.
- T5 – Menschzentrierte Organisation – Unternehmenskultur, Mitarbeiterbefähigung, digitale Führung, Kompetenzentwicklung und integrative Arbeitsplätze.
- T6 – Intelligente Fertigung – Autonome Systeme, vorausschauende Wartung, fortschrittliche Analytik, KI-basierte Optimierung und intelligente Produktionsplanung.



- T7 – Wertschöpfungskettenorientierte offene Fabrik – Zusammenarbeit über die gesamte Wertschöpfungskette hinweg, Partnerschaften, offene Innovationsnetzwerke und gemeinsame Plattformen für die gemeinsame Entwicklung.

Durch die Einteilung der Schulungskurse in diese sieben Bereiche können KMU und Schulungsanbieter erkennen, welche Transformationsdimensionen ein bestimmter Kurs abdeckt. In vielen Fällen kann ein Kurs zu mehr als einem Bereich beitragen.

Index nach Reifegraden innerhalb jedes Transformationsbereichs

Der zweite Index verfeinert diese Klassifizierung, indem er für jeden ADMA-Bereich den Reifegrad detailliert beschreibt, auf den eine bestimmte Schulung abzielt. Das Reifegrad-Framework umfasst fünf aufeinander aufbauende Stufen, die von grundlegendem Bewusstsein bis hin zu fortgeschrittener, integrierter Transformation reichen.

- Von Stufe 0 bis Stufe 1 – Erstes Bewusstsein: In dieser Phase unterstützt die Schulung Unternehmen dabei, die Bedeutung der digitalen Transformation und Nachhaltigkeit zu erkennen. Dazu gehören einführende Kenntnisse, grundlegende digitale Kompetenz und die Fähigkeit, potenzielle Chancen und Risiken zu verstehen.
- Von Stufe 1 zu Stufe 2 – Strukturierte Einführung: Unternehmen gehen von der Sensibilisierung zum strukturierten Experimentieren über. Schulungen auf dieser Stufe ermöglichen es KMU, erste digitale oder organisatorische Tools (z. B. einfache Automatisierung, grundlegende ERP-Nutzung oder einführende Ökodesign-Praktiken) einzuführen und Verfahren zur Verbesserung zu etablieren.
- Von Stufe 2 zu Stufe 3 – Konsolidierung und Integration: Die Schulungen unterstützen die Integration digitaler Technologien und Nachhaltigkeitspraktiken in den täglichen Betrieb. Unternehmen beginnen mit der Konsolidierung von Praktiken wie automatisierter Produktionsüberwachung, Einsatz von BI-Tools, systematischem Energiemanagement oder strukturierten Mitarbeiterentwicklungsprogrammen.
- Von Stufe 3 zu Stufe 4 – Fortgeschrittene Umsetzung: Schulungen in dieser Phase helfen Unternehmen dabei, ihre Systeme zu skalieren und zu optimieren. Dazu gehören vorausschauende Wartung mithilfe von IoT und KI, funktionsübergreifende Integration von Kundenfeedback, vollständige ERP-MES-SCADA-Konnektivität und Kooperationsnetzwerke mit Lieferanten und Partnern. Die Organisation beginnt, als digitalisierte und nachhaltige Fabrik mit klaren KPIs zu operieren.
- Von Stufe 4 zu Stufe 5 – Exzellenz und Führungsrolle: Auf der höchsten Reifegradstufe bereitet die Schulung Unternehmen darauf vor, als Benchmarks in ihren Branchen zu fungieren. Unternehmen in dieser Phase implementieren fortschrittliche KI-gesteuerte Smart Factories, erreichen ein hohes Maß an Kreislaufwirtschaft und Nachhaltigkeit, etablieren eine Führungsrolle in der Zusammenarbeit innerhalb der Wertschöpfungskette und dienen als Referenz für menschenzentrierte Organisationsmodelle.

Durch die Verknüpfung jeder Schulungsmöglichkeit mit einem bestimmten Reifegradübergang können KMU leicht erkennen, welche Schulungen für ihre aktuelle Phase am relevantesten sind und wie sie Schritt für Schritt zu einem höheren Grad an digitaler Reife und Wettbewerbsfähigkeit gelangen können.



Mehrwert der doppelten Indizierung

Dieses zweistufige Indexierungssystem gewährleistet sowohl die strategische Ausrichtung (durch ADMA-Transformationsbereiche) als auch den praktischen Fortschritt (durch Reifegrade). Der erste Index beantwortet die Frage: „Welchen Transformationsbereich unterstützt diese Schulung?“ Der zweite Index befasst sich mit der Frage: „In welcher Reifephase hat diese Schulung Auswirkungen?“

Zusammen bieten sie KMU einen Fahrplan, der spezifische Schulungsangebote mit ihrem Weg zur digitalen Transformation verknüpft. Dies erleichtert nicht nur die fundierte Entscheidungsfindung bei der Auswahl von Schulungsangeboten, sondern hilft auch Berufsbildungsanbietern und politischen Entscheidungsträgern, ihre Bildungsstrategien an den tatsächlichen Bedürfnissen der Industrie auszurichten.



2. INDEXE DER AUSBILDUNGEN

2.1. ALLGEMEINER INDEX DER IDENTIFIZIERTEN SCHULUNGEN

TRAINING COURSE	TRANSFORMATION AREA							Page
	Advanced Manufacturing Technologies	Digital Factory	Eco Factory	End-to-end Customer Focused Engineering	Human Centred Organization	Smart Manufacturing	Value Chain Oriented Open Factory	
3D Modeling		x						21
3D Printing and Additive Manufacturing	x	x						22
3D Scanning - Reverse Engineering	x	x						23
3D Scan (France)	x							24
3D Scan (Spain)	x	x				x		25
3D Verification. M-COSMOS	x	x				x		26
3 to 5 axis milling techniques with creo machining	x							27
5S Workplace Organization					x			28
ABB Robot Start-up	x	x				x		29
Additive Manufacturing, 3D Printing	x	x				x		30
Advanced Programming (Siemens S7 1500 PLC with TIA Portal)		x				x		31
Applied Computing Project				x				32
Applied Project Management Integration Project				x				33
AR assistive assembly station - Arkite	x	x						34
Artificial Intelligence		x						35
Artificial Intelligence Applied to Learning Factories	x	x		x		x		36
Artificial Vision Programming	x	x		x		x		37
Automation and Robotics		x						38
Basic Programming (PLC Siemens S7 1500 with TIA Portal)		x				x		39
Basics of Automation with PLC						x		40
Blockchain Technology and platforms for industry						x		41
CAM 5 Axis	x							42
CAM Basics	x							43
CAM NX (2 1/2 and 3 axis milling machine)	x	x				x		44
CAM of subtractive machining processes	x							45
CNC machining from CAM	x							46
CNC machine Operation Basics	x							47
CNC Waste Reduction Strategies			x					48
Collaborative Robot	x	x				x		49
Component inspection using a coordinate measuring machine	x							50
Connected Workers		x			x	x		51
Corporate sustainability basics			x					52
Cybersecurity		x						53
Cybersecurity in Industry		x						54
Development of an Environmental Responsibility and Circular Economy Plan			x		x			55
Design 4.0		x		x		x		56
Design for Additive Manufacturing	x							57
Design of Manufacturing	x							58
Digital Operation		x				x		59
Digital Transformation Pathway		x				x		60
Electrical Discharge Machining (EDM)	x	x						61
Electronic Assembly	x	x						62
Engineering Project Management				x				63
Ergonomics in Industry 5.0		x			x	x		64
Factory Logistics 4.0		x				x	x	65
Fanuc industrial robot programming	x							66
Free-form surface modeling	x							67
Functional Safety	x					x		68
Fundamentals of robotics	x	x						69



TRAINING COURSE	TRANSFORMATION AREA							Page
	Advanced Manufacturing Technologies	Digital Factory	Eco Factory	End-to-end Customer Focused Engineering	Human Centred Organization	Smart Manufacturing	Value Chain Oriented Open Factory	
Human-Centric Technologies & Ergonomic Innovation		x			x	x		70
Industrial communication	x					x		71
Industrial Robot Programming. Level 1 (ABB, FANUC, KUKA)	x	x		x		x		72
Industrial Robot Programming. Level 2 (ABB, FANUC, KUKA)	x	x		x		x		73
Industry 4.0 & 5.0 communication architecture	x					x		74
Installation and Maintenance of Industrial Automation Systems	x	x						75
Installation and maintenance of collaborative robots 'COBOTS'	x	x						76
Introduction to Carbon Footprint			x					77
Introduction to Collaborative Robotics		x			x	x		78
Internet of Things: Raspberry and Arduino	x	x			x			79
Introduction to Automation Systems	x					x		80
Introduction to Digital Twin Tech		x						81
Introduction to Robotics	x					x		82
Introduction to the Programming of UR Cobots	x					x		83
IoT	x					x		84
IoT sensor development and lorawan network configuration						x		85
Lean Fundamental Micro-Credential	x							86
LEAN Introduction					x			87
Make 3D slicing settings						x		88
Manufacturing a part using 3D printing (with wire)	x							89
Manufacturing process design	x							90
Manufacturing processes 1	x							91
Manufacturing processes 2	x							92
Manual assembly techniques					x			93
Master in Digital Manufacturing		x				x		94
Method design concept	x					x	x	95
Measurement and control of physical variables	x							96
Operations Management	x							97
Performing a scientific research					x			98
Pneumatics basic training						x		99
Predictive Maintenance	x							100
Problem Solving					x			101
Process Automation with PLC, HMI, and Electro-Pneumatic Systems	x	x						102
Process Optimization via Advanced Analytics & AI	x	x				x		103
Process Simulation Systems, Digital Twin, Product Digital Twin	x	x				x		104
Project closing & Continuous Improvement				x				106
Project initiation and Charter development				x				107
PLM management: 3D Experience	x	x						108
Redesign of parts and assembly using CAD software	x							109
Reverse Engineering with 3D CAD: NX	x	x						110
Reverse Engineering with 3D CAD: Solid Edge	x	x						111
Risk and change management							x	112
Roadmap to Sustainability			x					113
Robot Programming Health and Security		x				x		114
Robotics and kinematics control	x					x		115
Robotics Laboratory	x					x		116
Simatic S7 SCL						x		117
SLS 3D Printing	x							118
Solidworks advanced part modeling						x		119
Statistical Process Control (SPC)		x				x		120
Subtractive manufacturing processes	x							121
Teamwork					x			122
Thinking innovatively					x			123
Towards Open and Generative Organizational Models					x			124
Understanding Environmental and Social Impacts			x					125
Using a Chemical Reactor	x							126
Waste treatment process			x					127
Workplace Organization & Standard Work				x	x	x		128
Writing a program to PLC						x		129



2.2. INDIZES NACH ADMA-TRANSFORMATIONSBEREICH

TRANSFORMATIONSBEREICH 1: FORTSCHRITTLICHE FERTIGUNGSTECHNOLOGIEN

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
3D Printing and Additive Manufacturing			x			22
3D Scanning - Reverse Engineering				x		23
3D Scan (France)				x		24
3D Scan (Spain)			x			25
3D Verification. M-COSMOS				x		26
3 to 5 axis milling techniques with creo machining					x	27
ABB Robot Start-up				x		29
Additive Manufacturing, 3D Printing				x		30
AR assistive assembly station - Arkite				x		34
Artificial Intelligence Applied to Learning Factories				x		36
Artificial Vision Programming				x		37
CAM 5 Axis				x		42
CAM Basics			x			43
CAM NX (2 1/2 and 3 axis milling machine)					x	44
CAM of subtractive machining processes				x		45
CNC machining from CAM				x		46
CNC machine Operation Basics		x				47
Collaborative Robot				x		49
Component inspection using a coordinate measuring machine				x		50
Design for Additive Manufacturing				x		57
Design of Manufacturing				x		58
Electrical Discharge Machining (EDM)				x		61
Electronic Assembly				x		62
Fanuc industrial robot programming			x			66
Free-form surface modeling				x		67
Functional Safety					x	68
Fundamentals of robotics				x		69



TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
Industrial communication					x	71
Industrial Robot Programming. Level 1 (ABB, FANUC, KUKA)				x		72
Industrial Robot Programming. Level 2 (ABB, FANUC, KUKA)					x	73
Industry 4.0 & 5.0 communication architecture					x	74
Installation and Maintenance of Industrial Automation Systems				x		75
Installation and maintenance of collaborative robots 'COBOTS'				x		76
Internet of Things: Raspberry and Arduino					x	79
Introduction to Automation Systems					x	80
Introduction to Robotics					x	82
Introduction to the Programming of UR Cobots			x			83
IoT					x	84
Lean Fundamental Micro-Credential				x		86
Manufacturing a part using 3D printing (with wire)				x		89
Manufacturing process design				x		90
Manufacturing processes 1				x		91
Manufacturing processes 2				x		92
Method design concept			x			95
Measurement and control of physical variables			x	x		96
Operations Management				x		97
Predictive Maintenance			x			100
Process Automation with PLC, HMI, and Electro-Pneumatic Systems				x		102
Process Optimization via Advanced Analytics & AI				x		103
Process Simulation Systems, Digital Twin, PLM management: 3D Experience				x		104
Redesign of parts and assembly using CAD software			x			108
Reverse Engineering with 3D CAD: NX				x		109
Reverse Engineering with 3D CAD: Solid Edge				x		110
Robotics and kinematics control					x	111
Robotics Laboratory					x	115
SLS 3D Printing			x			116
Subtractive manufacturing processes				x		118
Using a Chemical Reactor			x			121
						126



TRANSFORMATIONSBEREICH 2: DIGITALE FABRIK

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
3D Modeling				x		21
3D Printing and Additive Manufacturing			x			22
3D Scanning - Reverse Engineering				x		23
3D Scan (Spain)			x			25
3D Verification. M-COSMOS				x		26
ABB Robot Start-up				x		29
Additive Manufacturing, 3D Printing				x		30
Advanced Programming (Siemens S7 1500 PLC with TIA Portal)				x		31
AR assistive assembly station - Arkite				x		34
Artificial Intelligence		x				35
Artificial Intelligence Applied to Learning Factories				x		36
Artificial Vision Programming				x		37
Automation and Robotics			x			38
Basic Programming (PLC Siemens S7 1500 with TIA Portal)			x			39
CAM NX (2 1/2 and 3 axis milling machine)					x	44
Collaborative Robot				x		49
Connected Workers			x			51
Cybersecurity			x			53
Cybersecurity in Industry				x		54
Design 4.0				x		56
Digital Operation				x		59
Digital Transformation Pathway			x			60
Electrical Discharge Machining (EDM)				x		61
Electronic Assembly				x		62
Ergonomics in Industry 5.0			x			64
Factory Logistics 4.0				x		65
Fundamentals of robotics				x		69
Human-Centric Technologies & Ergonomic Innovation			x			70
Industrial Robot Programming. Level 1 (ABB, FANUC, KUKA)				x		72
Industrial Robot Programming. Level 2 (ABB, FANUC, KUKA)					x	73
Installation and Maintenance of Industrial Automation Systems				x		75
Installation and maintenance of collaborative robots 'COBOTS'				x		76
Introduction to Collaborative Robotics			x			78
Internet of Things: Raspberry and Arduino					x	79
Introduction to Digital Twin Tech			x			81
Master in Digital Manufacturing				x		94
Process Automation with PLC, HMI, and Electro-Pneumatic Systems				x		102
Process Optimization via Advanced Analytics & AI				x		103
Process Simulation Systems, Digital Twin,				x		104
Product Digital Twin				x		105
PLM management: 3D Experience				x		108
Reverse Engineering with 3D CAD: NX				x		110
Reverse Engineering with 3D CAD: Solid Edge				x		111
Robot Programming Health and Security				x		114
Statistical Process Control (SPC)				x		120



TRANSFORMATIONSBEREICH 3: ÖKO-FABRIK

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
CNC Waste Reduction Strategies			x			48
Corporate sustainability basics				x		52
Development of an Environmental Responsibility and Circular Economy Plan					x	55
Introduction to Carbon Footprint				x		77
Roadmap to Sustainability				x		113
Understanding Environmental and Social Impacts			x			125
Waste treatment process			x			127

TRANSFORMATIONSBEREICH 4: KUNDENORIENTIERTE END-TO-END-TECHNIK

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
Applied Computing Project				x		32
Applied Project Management Integration Project				x		33
Artificial Intelligence Applied to Learning Factories				x		36
Artificial Vision Programming				x		37
Design 4.0				x		56
Engineering Project Management				x		63
Industrial Robot Programming. Level 1 (ABB, FANUC, KUKA)				x		72
Industrial Robot Programming. Level 2 (ABB, FANUC, KUKA)					x	73
Project closing & Continuous Improvement				x		106
Project initiation and Charter development				x		107
Workplace Organization & Standard Work			x			128

TRANSFORMATIONSBEREICH 5: MENSCHENZENTRIERTE ORGANISATION

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
5S Workplace Organization			x			28
Connected Workers			x			51
Development of an Environmental Responsibility and Circular Economy Plan					x	55
Ergonomics in Industry 5.0			x			64
Human-Centric Technologies & Ergonomic Innovation			x			70
Introduction to Collaborative Robotics			x			78
Internet of Things: Raspberry and Arduino					x	79
LEAN Introduction			x			87
Manual assembly techniques			x			93
Performing a scientific research				x		98
Problem Solving				x		101
Teamwork					x	122
Thinking innovatively				x		123
Towards Open and Generative Organizational Models			x			124
Workplace Organization & Standard Work			x			128



TRANSFORMATIONSBEREICH 6: INTELLIGENTE FERTIGUNG

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
3D Scan (Spain)			x			25
3D Verification. M-COSMOS				x		26
ABB Robot Start-up				x		29
Additive Manufacturing, 3D Printing				x		30
Advanced Programming (Siemens S7 1500 PLC with TIA Portal)				x		31
Artificial Intelligence Applied to Learning Factories				x		36
Artificial Vision Programming				x		37
Basic Programming (PLC Siemens S7 1500 with TIA Portal)			x			39
Basics of Automation with PLC					x	40
Blockchain Technology and platforms for industry				x		41
CAM NX (2 1/2 and 3 axis milling machine)					x	44
Collaborative Robot				x		49
Connected Workers			x			51
Design 4.0				x		56
Digital Operation				x		59
Digital Transformation Pathway			x			60
Ergonomics in Industry 5.0			x			64
Factory Logistics 4.0				x		65
Functional Safety					x	68
Human-Centric Technologies & Ergonomic Innovation			x			70
Industrial communication					x	71
Industrial Robot Programming. Level 1 (ABB, FANUC, KUKA)				x		72
Industrial Robot Programming. Level 2 (ABB, FANUC, KUKA)					x	73
Industry 4.0 & 5.0 communication architecture					x	74
Introduction to Collaborative Robotics			x			78
Introduction to Automation Systems					x	80
Introduction to Robotics					x	82
Introduction to the Programming of UR Cobots			x			83
IoT					x	84
IoT sensor development and lorawan network configuration				x		85
Make 3D slicing settings				x		88
Master in Digital Manufacturing				x		94
Method design concept			x			95
Pneumatics basic trainig		x				99
Process Optimization via Advanced Analytics & AI				x		103
Process Simulation Systems, Digital Twin,				x		104
Product Digital Twin				x		105
Robot Programming Health and Security				x		114
Robotics and kinematics control					x	115
Robotics Laboratory					x	116
Simatic S7 SCL				x		117
Solidworks advanced part modeling				x		119
Statistical Process Control (SPC)				x		120
Workplace Organization & Standard Work			x			128
Writing a program to PLC				x		129



TRANSFORMATIONSBEREICH 7: WERTSCHÖPFUNGSKETTENORIENTIERTE OFFENE FABRIK

TRAINING COURSE	MATURITY LEVEL					Page
	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	
Factory Logistics 4.0				x		65
Method design concept			x			95
Risk and change management					x	112



3. SCHULUNGEN FÜR KMU-



3D MODELLING

ADMA TRANSFORMATION AREA

DIGITAL FACTORY

3D MODELLING

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

This course introduces the principles and techniques of 3D modelling for design, prototyping, animation, and production using industry-standard CAD and modelling software.

<https://www.oba.gov.tr/egitim/detay/blender-ile-3-boyutlu-modelleme-egitimi-kursu-682>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D modelling	3D modelling	4

GENERAL INFORMATION

Course provider	GEBKIM VET
Country	Türkiye
Language	Turkish
Education Subject	This course introduces the principles and techniques of 3D modelling for design, prototyping, animation, and production using industry-standard CAD and modelling software.
Learner Profile	VET Students
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	30 Hours
Location	GEBKIM VET
Learning activities	Lectures, PBL, Team Based Mini Projects
Assessment Type	Continuous evaluation through practical assignments, Technical file submissions (model files, STL, documentation)
Entry requirement	Interest in design, production, animation, or engineering
Admission procedure	Online or in-person application submission

3D PRINTING AND ADDITIVE MANUFACTURING

ADMA TRANSFORMATION AREA

This training aims to introduce students to additive manufacturing in Industry 4.0.

For this purpose, a theoretical introduction is provided to two of the most widely used 3D printing technologies for polymeric materials in today's industry, FDM and SLS technologies. The theoretical introduction is also complemented by practical 3D printing with the two technologies mentioned above.

<https://www.fpsanturtzilh.eus/inicio/estudios/cursos-de-especializacion/fabricacion-aditiva/>

Advanced Manufacturing
Technologies; Digital Factory

3D printing; additive
manufacturing

CURRENT MATURITY
LEVEL (1-5)

2



TARGET MATURITY
LEVEL (1-5)

3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D printing process	http://data.europa.eu/esco/skill/2afb2b59-c9a3-4cf3-b1dd-1a2fad51e583	2
Technical terminology	http://data.europa.eu/esco/skill/d8567009-7c6f-43fb-82fb-7154ed8ebca9	3
3D modelling	http://data.europa.eu/esco/skill/97965983-0da4-4902-9daf-d5cd2693ef73	3
Maintain additive manufacturing systems	http://data.europa.eu/esco/skill/3a699f1e-3803-4c1b-b6a8-6230cca92933	2

GENERAL INFORMATION

Course provider	Santurtzi LHII
Country	Spain
Language	Spanish
Education Subject	3D printing and additive manufacturing
Learner Profile	Students
Mode of Learning	In Person
EQF Level	4 and 5
Teaching Methodology	Theoretical and Practical
Learning Environment	3D Lab, Google Suite

INFORMATION ABOUT THE COURSE

Workload / Duration	60 Hours
Location	Santurtzi LHII
Learning activities	Basic knowledge of 3D printing FDM technology.materials and special features components of a 3d printer fdm. printing profiles in fdm. errores comunes en impresión fdm common mistakes in fdm printing main components of a sls printer sls printing workflow
Entry requirement	English adequate level Maturity. Responsibility at personal work Ability to work as part of a team Good level of computer user skills
Admission procedure	Curriculum and personal interview

3D Scanning – Reverse Engineering

ADMA TRANSFORMATION AREA

This course delves into the process of 3D digitization and reverse engineering, focusing on converting physical parts into digital models. Participants will learn how to digitize components by scanning them and transforming the resulting faceted body (STL) files into usable 3D models, whether in a solid or surface environment.

<https://www.hernanilanh.eus/>

Advanced Manufacturing
Technologies, Digital Factory

Reverse engineering, designing,
scanning

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Use 3D scanning techniques	https://esco.ec.europa.eu/en/skill/6b878b85-f321-4a14-92e1-34466d787b68	4
Perform reverse engineering	https://esco.ec.europa.eu/en/skill/f2e0e8f6-3566-46fc-aaf2-9ec116d62724	4
Create 3D models	https://esco.ec.europa.eu/en/skill/15216e6f-2f7c-4411-abe7-90cc2730c4ce	4
Use computer-aided design (CAD) software	https://esco.ec.europa.eu/en/skill/45a4f4e3-0e48-4df9-97d7-ec2d8bc7de8e	4

GENERAL INFORMATION

Course provider	Hernani LH
Country	Basque Country/ Spain
Language	Spanish
Learner Profile	People who are looking to acquire or deepen skills in 3D digitization, reverse engineering processes, and related technologies such as Product Designers, Additive Manufacturing professionals and Quality Control specialists.
Mode of Learning	In Person
Credential Type	Microcredential Course
EQF Level	EQF 5
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Start Date – End Date	14/10/2024 - 24/10/2024
Workload / Duration	24 hours
Price	Free
Location	Hernani, Basque Country

3D Scan

ADMA TRANSFORMATION AREA

Scanning a part and reconstructing a digital model of it to enable further design, analysis, or manufacturing processes.

<https://community.lcamp.eu/catalog-item/3d-scan/>

Advanced Manufacturing
Technologies

3D scanning, reverse engineering,
CAD modeling, digital model
creation.

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Reverse engineering	http://data.europa.eu/esco/skill/8fdf4273-d8ce-47a2-b461-45cb1282ef36	3
Use CAD software	http://data.europa.eu/esco/skill/b34e2ba1-9080-48c9-9b42-ee9192a4d3f1	3
Manage data	http://data.europa.eu/esco/skill/9ff9db9d-d14b-426e-83f3-e7449af6c79f	2
Industrial design	http://data.europa.eu/esco/skill/efacdaad-ab73-4056-bee3-4eb34b458bf6	3

GENERAL INFORMATION

Course provider	Lycée La Découverte
Country	France
Language	French
Education Subject	3D Scanning and Reverse Engineering
Learner Profile	EQF 5 students
Mode of Learning	Online / Hybrid / In Person
Credential Type	ECTS
EQF Level	EQF 5
Teaching Methodology	Theoretical & Practical
Learning Environment	VET centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	2025-01-28 2025-01-29
Workload / Duration	8 Hours
Location	Lycée La Découverte Decazeville France
Learning activities	Theoretical course, project and practical work
Entry requirement	EQF4 diploma
Admission procedure	Registration - Parcoursup

3D SCAN

ADMA TRANSFORMATION AREA

This course provides participants with essential knowledge of different 3D scanning techniques. Learners will acquire practical skills to generate 3D mesh models from real objects and will learn how to edit and repair scanned meshes for further use in digital processes.

Advanced Manufacturing technologies, Digital Factory, Smart Manufacturing

3D Scanning, Mesh Editing

CURRENT MATURITY
LEVEL (1-5)

2



TARGET MATURITY
LEVEL (1-5)

3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D body scanning technologies	http://data.europa.eu/esco/skill/9bc3b9ae-50d8-4a32-857e-8cf8d9b4ba8e	2
create 3D environments	http://data.europa.eu/esco/skill/0620ecd1-e4b1-4dfa-972b-38a93e5ebd9d	2

GENERAL INFORMATION

Course provider	IMH Campus
Country	Spain
Language	English / Spanish
Education Subject	Contents: Types of scanning, Preparation of the environment and part for scanning, Scanning with Kinect, Scanning with EinScan using fixed table, Handheld scanning with EinScan, Mesh editing and repair, Practical exercises
Mode of Learning	In Person
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	15 Hours
Location	IMH Campus

3D VERIFICATION. M-COSMOS

ADMA TRANSFORMATION AREA

This course is designed to equip participants with essential skills for accurately measuring and verifying the dimensional integrity of manufactured parts using advanced Coordinate Measuring Machines (CMM).

<https://community.lcamp.eu/catalog-item/three-dimensional-verification-m-cosmos/>

Advanced Manufacturing technologies, Digital Factory, Smart Manufacturing

Metrology Software

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Operate precision measuring equipment	http://data.europa.eu/esco/skill/42c25baf-ccb3-47d9-a872-bb2ceb615538	3
Verify product specifications	http://data.europa.eu/esco/skill/6ab7c99f-a430-419c-a881-8ef945230e4d	2
Calibrate engines	http://data.europa.eu/esco/skill/0ae61df3-c50a-459d-a912-b5423bfb1a5a	4

GENERAL INFORMATION

Course provider	Miguel Altuna LH
Country	Spain
Language	Basque
Learner Profile	Quality control technician, metrology engineer, or manufacturing technician with basic knowledge of metrology, seeking to enhance their skills in 3D verification using CMM equipment.
Mode of Learning	In Person
Credential Type	Microcredential Course
EQF Level	EQF 5
Teaching Methodology	Theoretical / Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	30 Hours
Location	Miguel Altuna LH

3 TO 5-AXIS MILLING TECHNIQUES WITH CREO MACHINING

ADMA TRANSFORMATION AREA

This course is designed for anyone who wants to learn how to use Creo for milling and drilling in toolmaking, mechanical engineering, and related fields. You will learn how to configure the Creo environment for successful milling operations.

<https://ti.audax.si/tecaji/tehnike-3-do-5-osnega-frezanja-s-creo-machining-98?prijava=1&idtecaji=98&idtermin=16041>

Advance manufacturing technologies

CNC Milling, Creo Parametric, 3-axis, 4-axis, 5-axis

CURRENT
MATURITY
LEVEL 4

TARGET
MATURITY
LEVEL 5

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Use computer-aided design software (CAD)	http://data.europa.eu/esco/skill/b34e2ba1-9080-48c9-9b42-ee9192a4d3f1	4
Technical drawings	http://data.europa.eu/esco/skill/59ea80e1-463a-4dba-82c6-d0b6d577d532	3

GENERAL INFORMATION

Course provider	Audax d. O. O.
Country	Slovenia
Language	Slovenian
Education Subject	Defining raw material and cutting tools, creating milling sequences, drilling cycles
Learner Profile	adult
Mode of Learning	In Person
Credential Type	Certificat
EQF Level	EQF 5
Teaching Methodology	Practical training, solution solving
Learning Environment	Educational lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	16/09/2025 – 20/09/2025
Workload / Duration	4 days
Schedule information	4 days training
Location	Ljubljana
Learning activities	Creating and configuration, practical training
Assessment Type	Practical test
Entry requirement	Recommended Prerequisites: Completion of the <i>Creo Parametric Basics</i> course and at least 200 hours of hands-on practice with Creo software."

5S Workplace Organization

ADMA TRANSFORMATION AREA

This training provides knowledge and hands on training in structure the workplace for efficiency and security, all within the scope of 5S.

<https://community.lcamp.eu/catalog-item/production-philosophy/>

Human Centred Organisation

5S, LEAN, TPS, Production Philosophy

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Continuous Improvement Philosophies	http://data.europa.eu/esco/skill/0550431f-9c8b-4204-9c45-59bc5feacf06	3
Lean project manager	http://data.europa.eu/esco/skill/da6393d5-a53c-4863-abc7-51f36281d74e	2

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	Production Philosophy
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical, Problem solving
Learning Environment	Classroom, Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical and practical training
Assessment Type	Theoretical and practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

ABB Robot Start-up

ADMA TRANSFORMATION AREA

Technicians will get knowledge starting-up a robot cell. The technician is being self-sufficient. Achieve knowledge starting up robot units: ABB robot

<https://www.imh.eus/en>

Advanced Manufacturing Technologies, Digital Factory, Smart Manufacturing Engineering

Robotics, ABB, automation

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Install industrial robots	https://esco.ec.europa.eu/en/skill/f4a2eb3a-e7d6-44da-b84f-4e9e0e360f19	3
Commission industrial robots	https://esco.ec.europa.eu/en/skill/b275f6ec-3f94-42c8-9941-3272a3a33250	4
Program industrial robots	https://esco.ec.europa.eu/en/skill/5bd8b06f-3d47-4a55-bf17-77321ae5f294	4
Perform robot cell testing	https://esco.ec.europa.eu/en/skill/337d1928-03d5-4baf-8b71-c92df4b512b1	3

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country/ Spain
Language	Spanish
Mode of Learning	In-Person
Credential Type	Microcredential Course
EQF Level	4
Teaching Methodology	Theoretical / Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	8 hours
Location	Elgoibar, Basque Country

Additive manufacturing, 3D Printing

The aim of this training is to provide information on the different existing additive manufacturing technologies and their main uses.

It also provides training for printing parts on FDM (Fused Deposition Modeling) printers. Aimed at both individuals and companies who want to get started in the world of additive manufacturing as well as users with basic knowledge of FDM who want to deepen their knowledge.

<https://www.imh.eus/en>

ADMA TRANSFORMATION AREA

Advanced Manufacturing
Technologies, Digital Factory,
Smart Manufacturing Engineering

3D printing, additive manufacturing

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Apply additive manufacturing technologies	https://esco.ec.europa.eu/en/skill/7d196022-d931-4cd9-b7c3-2b2a3cfcc9e9	3
Operate 3D printers	https://esco.ec.europa.eu/en/skill/33af5dd7-22b6-41a0-844f-5e0cb19a5ae7	4
Select additive manufacturing processes	https://esco.ec.europa.eu/en/skill/7bcb02fc-4477-4a9a-b5c0-7d3eb9c56d89	4

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country/ Spain
Language	Spanish
Mode of Learning	In-Person
Credential Type	Microcredential Course
EQF Level	4
Teaching Methodology	Theoretical / Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	20 hours
Location	Elgoibar, Basque Country

The world of industrial automation is constantly evolving, and staying up to date with the latest technologies and techniques is essential for any professional in the field.

The advanced course on SIMATIC S7-1500 | TIA Portal (Level II) is your gateway to becoming an expert in Siemens PLC programming and its integration with TIA Portal.

This course is designed to provide you with a hands-on and enriching learning experience, enabling you to master the skills necessary to operate and program the Siemens SIMATIC S7-1500 programmable logic controller.

<https://www.lhusurbil.eus/web/Default.aspx?lng=EU>

ADMA TRANSFORMATION AREA

Digital Factory, Smart Manufacturing

Robotics, programming, automation

CURRENT
MATURITY (1-5):
3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Program programmable logic controllers (PLCs)	https://esco.ec.europa.eu/en/skill/1f407276-34e6-4e45-a861-1d3bb3cfcb40	4
Use industrial automation software	https://esco.ec.europa.eu/en/skill/693964d2-64a4-4d8a-bcb9-f5f20c02e2fd	4
Operate programmable logic controllers (PLCs)	https://esco.ec.europa.eu/en/skill/07d9e442-bc5d-4635-8232-fdb80d9d11f0	4
Perform industrial automation	https://esco.ec.europa.eu/en/skill/8586e6f7-4e9f-47c4-bfef-91f70eec0933	4
Configure programmable logic controllers	https://esco.ec.europa.eu/en/skill/05eeb62c-2fd1-4bd1-8a91-fd8b4cfa1e4f	4

GENERAL INFORMATION

Course provider	CIFP Usurbil LHII
Country	Basque Country/ Spain
Language	Spanish
Learner Profile	This course is designed for industrial automation professionals, technicians, unemployed individuals, and workers with prior experience in PLC programming who seek advanced skills in Siemens SIMATIC S7-1500 and TIA Portal integration
Mode of Learning	In Person
Credential Type	Microcredential Course
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	35 hours
Price	Free
Location	Usurbil, Basque Country

ICS-199 Applied Computing Project

ADMA TRANSFORMATION AREA

In a collaborative environment, learn the process of defining, designing, developing, and implement simple yet impactful web application. Small teams leverage collaboration and version control tools while navigating the challenges of project management. This course emphasizes continuous web integration and thorough technical documentation.

[ICS 199 - Applied Computing Project - Modern Campus Catalog™](#)

END-TO-END CUSTOMER-
FOCUSED ENGINEERING

Application Development

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Computer Science	http://data.europa.eu/esco/skill/7b5cce4d-c7fe-4119-b48f-70aa05391787	4
Web Programming	http://data.europa.eu/esco/skill/69bbd53f-fbb0-4476-b4b2-ef7844464e28	4
Project Management	http://data.europa.eu/esco/skill/7111b95d-0ce3-441a-9d92-4c75d05c4388	4

GENERAL INFORMATION

Course provider	Camosun College
Country	Canada
Language	English
Education Subject	Information and Computer Systems Technology
Learner Profile	College Students
Mode of Learning	Online
Credential Type	Micro-Credential
EQF Level	4
Teaching Methodology	Practical
Learning Environment	In Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	Four-month term
Workload / Duration	175 Hours
Price	\$ 1,124.76 CAD
Location	Camosun College
Learning activities	Lectures, labs, and group work
Assessment Type	Group work and project development
Entry requirement	Prerequisite college courses
Admission procedure	Apply via Information and Computer Systems degree program

APMC 505V – Applied Project Management Integration Project

ADMA TRANSFORMATION AREA

This is the capstone course in the Applied Project Management Certificate program. It is a comprehensive evaluation of the skills and knowledge developed throughout the first 5 courses in the program. You will be evaluated in two ways, with an integration project and a knowledge exam. Those successful in passing both components for a combined grade of C or better will be granted their certificate.

[APMC 505V Applied Project Management Integration Project](#)

END-TO-END CUSTOMER-
FOCUSED ENGINEERING

APPLIED PROJECT MANAGEMENT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
S4.1 – Developing objectives and strategies	management skills	4
S4.2 – Organising, planning, and scheduling work and activities	management skills	4
S4.4 – performing administrative actions	management skills	4
S4.9 – making decisions	management skills	4

GENERAL INFORMATION

Course provider	Camosun College / ProSIT
Country	Canada
Language	English
Education Subject	Business
Learner Profile	College Students
Mode of Learning	Online
Credential Type	College Certificate
EQF Level	4
Teaching Methodology	Theoretical
Learning Environment	Online

INFORMATION ABOUT THE COURSE

Start Date – End Date	Self-Paced
Workload / Duration	Self-Paced
Price	\$969.00 CAD
Location	Camosun College
Learning activities	Lectures and analysis
Assessment Type	Exams
Entry requirement	Must be enrolled in Applied Project Management Certificate program
Admission procedure	Enroll as part of program above

AR assistive assembly station - Arkite

ADMA TRANSFORMATION AREA

This course explores the use of Augmented Reality (AR) in smart manufacturing through the Arkite platform. Participants will learn to program step-by-step assembly instructions and apply Lean principles by working on the assembly of the LCAMP robot. The course emphasizes error reduction, process guidance, and increased efficiency on the shop floor.

<https://www.maltuna.eus/en/>

Advanced Manufacturing
Technologies, Digital Factory

Robot, AR, mechatronics,
assembly

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Apply lean manufacturing principles	https://esco.ec.europa.eu/en/skill/f36c7b39-2c01-4f28-9e9a-3a8bc8ecbfa6	4
Assemble components	https://esco.ec.europa.eu/en/skill/4c680d8d-36f6-49fd-a23f-e36e4e032162	4
Use augmented reality software	https://esco.ec.europa.eu/en/skill/4a37f3a3-bbb1-4ff0-9472-7ce4ebf5ff07	4
Program machine operations	https://esco.ec.europa.eu/en/skill/bb0b759e-ff60-4696-a146-b5c74c73f8bc	3
Follow safety procedures in industrial contexts	https://esco.ec.europa.eu/en/skill/7f9e180e-800d-4e2d-8eb9-265d487edb9d	4

GENERAL INFORMATION

Course provider	Miguel Altuna LHII
Country	Basque Country, Spain
Language	English
Education Subject	Industrial Automation and Robotics, Production Programming in Mechanical Manufacturing, Industrial mechatronics
Learner Profile	Students EQF5, Workers
Mode of Learning	Online / Hybrid / In Person: In person
EQF Level	EQF5
Teaching Methodology	Theoretical / Practical / Practical in CLF: Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	ECTS / Hours / Days / Weeks: 10 hours
Price	0€
Location	Bergara, Miguel Altuna LHII
Assessment Type	Project
Entry requirement	EQF5 level

Artificial Intelligence

ADMA TRANSFORMATION AREA

This course introduces learners to the fundamentals of Artificial Intelligence (AI) and its applications in modern technology and industry. It explores key concepts such as machine learning, data processing, and intelligent decision-making systems. Learners will understand how AI models are developed and used to solve real-world problems, automate processes, and support innovation across sectors.

<https://3tindustry40training.eu/course/view.php?id=10>

Digital Factory

IT, Artificial Intelligence

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 2

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Manage IT security compliances	http://data.europa.eu/esco/skill/06358891-8424-43c5-891e-d40f226bef40	1
Use IT tools	http://data.europa.eu/esco/skill/f632251a-4078-4546-b19f-7ef528d08325	2
Principles of Artificial Intelligence	http://data.europa.eu/esco/skill/e465a154-93f7-4973-9ce1-31659fe16dd2	2

GENERAL INFORMATION

Course provider	3TIndustry 4.0
Country	France, Spain and Germany
Language	English
Education Subject	Artificial Intelligence , IT
Mode of Learning	Online
Credential Type	None
EQF Level	Not applicable
Teaching Methodology	Theoretical
Learning Environment	E Learning

INFORMATION ABOUT THE COURSE

Start Date – End Date	Not applicable
Workload / Duration	3 Hours
Price	Free
Location	Online
Learning activities	Theoretical
Assessment Type	Quiz
Entry requirement	None
Admission procedure	Registration to the platform

ARTIFICIAL INTELLIGENCE APPLIED TO LEARNING FACTORY

ADMA TRANSFORMATION AREA

This course provides a practical introduction to Artificial Intelligence (AI) and Machine Learning applied to Learning Factory environments. The fundamentals of Machine Learning, data preprocessing, supervised and unsupervised learning techniques will be addressed. Through practical examples, participants will learn how to implement AI models.

Advanced Manufacturing Technologies;
Digital Factory; Smart Manufacturing;
End-to-end Customer Focused

Artificial Intelligence – Machine
Learning

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Principles of artificial intelligence	http://data.europa.eu/esco/skill/e465a154-93f7-4973-9ce1-31659fe16dd2	3
Machine Learning	http://data.europa.eu/esco/skill/3a2d5b45-56e4-4f5a-a55a-4a4a65afdc43	3
Predictive maintenance	http://data.europa.eu/esco/skill/7d913551-e17a-40ba-baf7-48d0c3b12e50	2
Analyse production processes for improvement	http://data.europa.eu/esco/skill/f1b5800e-b763-4740-9586-3fef30568e81	2

GENERAL INFORMATION

Course provider	FP Santurtzi LH
Country	Basque Country - Spain
Language	Spanish
Education Subject	Artificial Intelligence (AI). Machine Learning
Learner Profile	Professionals looking to implement AI solutions in manufacturing, automation and quality control processes.
Mode of Learning	Online
EQF Level	4
Teaching Methodology	Theoretical / Practical
Learning Environment	Moodle

INFORMATION ABOUT THE COURSE

Workload / Duration	40 Hours – 4 Weeks
Learning activities	TU1. Understand the fundamental principles of Machine Learning and its application in industrial environments. TU2. Preprocess and analyze data for decision making. TU3. Apply supervised learning techniques. TU4. Implement unsupervised learning models for pattern detection.
Entry requirement	English adequate level Maturity Responsibility at personal work Ability to work as part of a team Good level of computer user skills
Admission procedure	Curriculum + personal interview

Artificial Vision Programming

ADMA TRANSFORMATION AREA

Apply Artificial Vision system to improve the automation. The objectives of the course are: Know the structure of an artificial vision system, learn how to create the machine vision program, learn how to run the program on a physical station.

Advanced Manufacturing Technologies;
Digital Factory; Smart Manufacturing;
End-to-end Customer Focused

Programming, artificial, vision,
automation

CURRENT MATURITY
LEVEL (1-5)

3

TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Algorithms	http://data.europa.eu/esco/skill/54924a2c-daca-40d3-9716-4b38ceb04f38	2
Industrial software	http://data.europa.eu/esco/skill/41ec47dd-08b3-464a-9c45-c706f3e74467	2
Use automatic programming	http://data.europa.eu/esco/skill/7d10fcb2-b368-48ab-996b-7c9fafcf68ed	2
Integrate system components	http://data.europa.eu/esco/skill/ed8de897-adbe-4f0e-b4d2-534953e64c72	2
Software and applications development and analysis	http://data.europa.eu/esco/skill/ed8de897-adbe-4f0e-b4d2-534953e64c72	2

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country / Spain
Language	English / Spanish
Education Subject	Participants will have access to the Sherlock7 machine vision software license during the course, for the development of the following points: - Types of lighting, lenses and cameras. - Image capture with different shooting methods. - Image processing. Preprocessing. - Image analysis and pattern search. - Calibration of the images and taking measurements. - Execution of the program in real time.
Mode of Learning	In Person

INFORMATION ABOUT THE COURSE

Start Date – End Date	To define
Workload / Duration	12 Hours
Location	IMH CAMPUS (Elgoibar)
Entry requirement	No requirements. It is required a computer with an internet connection and an email address.

Aimed at those who work in and/or manage production lines that have inspection systems using artificial vision cameras.

ADMA TRANSFORMATION AREA

You'll learn the fundamental principles of PLC operation, master the basics of programming in the TIA Portal environment, and gain practical experience with actual Siemens devices during this training. The course is designed for beginners and anyone looking to refresh their knowledge, so no prior experience is required. You'll take your first steps toward understanding automated systems in a pleasant and supportive environment.

<https://src-edih.rc-nm.si/izobrazevanje/avtomatizacija-in-robotika-siemens-plc-tia-portal/>

Digital factory

Siemens, PLC, TIA Portal, automatization

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Industrial software	http://data.europa.eu/esco/skill/41ec47dd-08b3-464a-9c45-c706f3e74467	2

GENERAL INFORMATION

Course provider	Razvojni center Novo mesto d.o.o.
Country	Slovenia
Language	Slovenian
Education Subject	Automation and Robotics
Learner Profile	Adult, employees
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	Educational lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	16/09/2025
Workload / Duration	4 hours
Schedule information	9.00-12.00
Price	2000 (full price for companies)
Location	Podbreznik 15, 8000 Novo mesto
Learning activities	Practical exercise, problem solving
Assessment Type	Practical task
Entry requirement	Basic knowledge of Electrical Engineering

Basic Programming (PLC Siemens S7 1500 with TIA Portal)

ADMA TRANSFORMATION AREA

Digital Factory, Smart
Manufacturing

Robotics, programming,
automation

CURRENT
MATURITY (1-5)
LEVEL: 2



TARGET
MATURITY
LEVEL (1-5): 3

The world of industrial automation is constantly evolving, and keeping up with the latest technology and techniques is essential for any professional in the field.

The SIMATIC S7-1500 is one of the most widely used PLCs in Industry 4.0 thanks to its performance, flexibility and networking capabilities.

Knowing this system will open doors to numerous opportunities in the field of industrial automation.

In addition, knowledge of TIA Portal, a user interface designed for intuitive operation of all SIMATIC applications and controllers, will enable you to work more efficiently and effectively.

<https://www.lhusurbil.eus/web/Default.aspx?lng=EU>

LEARNING OUTCOMES

GENERAL INFORMATION

INFORMATION ABOUT THE COURSE

BASICS OF AUTOMATION WITH PLC

ADMA TRANSFORMATION AREA

Provide participants with knowledge about configuration of PLC automation and programming hardware, advantages of using PLC in process automation, optimal selection of PLC and extension modules for automation of a specific process, the basic functions of PLC programming, PLC programming on the example of a practical task (basic combination and stepper control).

https://www.tscmb.si/wp-content/uploads/2023/04/OSNOVE_AVTOMATIZACIJE_s_PLK.pdf

Smart Manufacturing

Automation, Programming, PLC, Process Control, Industry 4.0

CURRENT
MATURITY
LEVEL 4



TARGET
MATURITY
LEVELS

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Programmable logic controller	http://data.europa.eu/esco/skill/6468e5fb-f3be-4025-87be-4b6556755c61	2
Operate automated process control	http://data.europa.eu/esco/skill/0a0532c2-ee60-4410-8e07-70e4d69370ec	4
Set up automotive robot	http://data.europa.eu/esco/skill/e975b791-b488-4935-be44-06f2f9a443bb	4

GENERAL INFORMATION

Course provider	TŠC Maribor
Country	Slovenia
Language	Slovenian
Education Subject	PLC (Programmable logic controller)
Learner Profile	students, workers
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	5
Teaching Methodology	Theoretical / Practical
Learning Environment	School laboratory

INFORMATION ABOUT THE COURSE

Start Date – End Date	24/02/2025 – 03/03/2025
Workload / Duration	4h/day (24 hours total)
Schedule information	https://www.tscmb.si/wp-content/uploads/2025/01/VABILO_USPOSABLIJANJE_avomatizacija_POMLAD_2025.pdf
Price	400,00 EUR + VAT
Location	Zolajeva ulica 12, 2000 Maribor, Slovenia
Learning activities	Lecture, exercise, discussion, laboratory work
Assessment Type	Project or problem-based learning – test practical problem-solving skills
Entry requirement	Professionals, engineers and development technologists who are engaged in process automation and want to improve their competencies in the field of application of PLC in process automation, and persons who want to raise their knowledge for personal development and improve their competitiveness in the labour market.
Admission procedure	https://www.tscmb.si/wp-content/uploads/2023/03/PRIJAVNICA_za_institucionalna-usposabljanja-1.pdf

BLOCKCHAIN TECHNOLOGY AND PLATFORMS FOR INDUSTRY

ADMA TRANSFORMATION AREA

You will learn the key advantages as well as the critical performance, security, and cost limitations of blockchain solutions in the IoT domain. Participants will become familiar with ecosystems for developing and deploying decentralized applications and gain the ability to realistically assess opportunities and select the appropriate approach for implementing blockchain-based IoT solutions in their field.

<https://ict-academy.si/usposabljanje/osnove-tehnologije-blokovnih-verig-in-platform-za-industrijo/>

Smart manufacturing

Distributed Ledger Technology (DLT),
Blockchain, IoT, Decentralized Applications

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Internet of Things	http://data.europa.eu/esco/skill/f049d050-12da-4e40-813a-2b5eb6df6b51	4
Blockchain platforms	http://data.europa.eu/esco/skill/9035afc4-5317-455d-ab60-f32e2ecc6bfc	4

GENERAL INFORMATION

Course provider	University of Ljubljana Faculty of electrical engineering
Country	Slovenia
Language	Slovenian
Education Subject	This educational subject explores the expectations versus reality of blockchain's role in IoT, covering its use as a backend system, device authentication, and decentralized industrial applications. It also examines blockchain network architectures, performance optimization, IoT-integrated solution designs, and security frameworks—including smart contracts—for industrial use cases.
Learner Profile	Adult
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	EQF 5, 6
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Start Date – End Date	On demand
Workload / Duration	8 hours
Price	400,00 EUR + VAT
Location	Ljubljana
Learning activities	Practical exercise, training, problem solving
Assessment Type	Practical test
Entry requirement	Advance knowledge in IT

CAM 5-Axis

ADMA TRANSFORMATION AREA

This training is an introduction to 5-Axis milling from CAM using Siemens NX. Taking this training, good knowledge in Siemens NX should already exist.

<https://community.lcamp.eu/catalog-item/cad-specialization/>

Advanced Manufacturing Technologies

CAM, Siemens NX, CNC

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
CAM Software	http://data.europa.eu/esco/skill/27065048-bca8-4b0a-891a-b192b9ceadfd	3
Program a CNC controller	http://data.europa.eu/esco/skill/bf942c60-8539-4951-83ee-63f770da1cb8	3

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	CAD-Specialization
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical, Problem solving
Learning Environment	Classroom, Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical and practical training, CAD/ CAM, Machining
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

Computer Aided Manufacturing (CAM) Basics

ADMA TRANSFORMATION AREA

This training provides the basics in CAM using Siemens NX. How to go from a CAD model into creating toolpaths for CNC-processing.

<https://community.lcamp.eu/catalog-item/cad-specialization/>

Advanced Manufacturing Technologies

CAM, Siemens NX, CNC

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
CAM Software	http://data.europa.eu/esco/skill/27065048-bca8-4b0a-891a-b192b9ceadfd	2
Program a CNC controller	http://data.europa.eu/esco/skill/bf942c60-8539-4951-83ee-63f770da1cb8	2

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	CAD-Specialization
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical, Problem solving
Learning Environment	Classroom, Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical and practical training, CAD/ CAM, Machining
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

CAM NX (2 1/2 AND 3 AXIS MILLING MACHINE)

ADMA TRANSFORMATION AREA

This course focuses on equipping participants with the essential skills to program and operate 2- and 3-axis milling machines using Siemens NX software.

<https://community.lcamp.eu/catalog-item/cam-nx-2-1-2-and-3-axis-milling-machine/>

Advanced Manufacturing Technologies; Digital Factory; Smart Manufacturing

CAM Programming

CURRENT MATURITY
LEVEL (1-5)

4



TARGET MATURITY
LEVEL (1-5)

5

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Tend a CNC milling machine	http://data.europa.eu/esco/skill/4cb58ef4-67a9-4bea-a743-2c83ebd60e79	4
Program CNC controller	http://data.europa.eu/esco/skill/bf942c60-8539-4951-83ee-63f770da1cb8	4
Use CAM software	http://data.europa.eu/esco/skill/7a757fa5-9a6f-43ab-9e66-f8f4dba1ffcb	4

GENERAL INFORMATION

Course provider	Miguel Altuna LH
Country	Spain
Language	Spanish
Learner Profile	CNC operator, machinist, or manufacturing technician with basic knowledge of CNC operations and CAD software, looking to enhance their CAM skills for efficient machining.
Mode of Learning	In Person
Credential Type	Microcredential Course
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	40 Hours
Location	Miguel Altuna LH

CAM of subtractive machining processes

ADMA TRANSFORMATION AREA

Design of the manufacturing process of a subtractive manufacturing process by numerical simulation with CATIA V5. Students will learn to plan machining operations, generate tool paths, select cutting tools, and optimize processes through numerical simulation, combining efficiency, precision, and safety in industrial production.

<https://community.lcamp.eu/catalog-item/computer-aided-manufacturing-cam-of-subtractive-machining-processes/>

Advanced Manufacturing Technologies

Machining processes, digital tools, simulation

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
CAM software	http://data.europa.eu/esco/skill/27065048-bca8-4b0a-891a-b192b9ceadfd	3
Machine tools	http://data.europa.eu/esco/skill/f5084a43-42c9-4bbb-b47c-b3029cf8381d	3
Run simulations	http://data.europa.eu/esco/skill/a432ffcd-b58d-4417-836c-ea3282b626ca	2
Manufacturing processes	http://data.europa.eu/esco/skill/3786b61f-f22e-48d1-af8d-ad4c354534db	3

GENERAL INFORMATION

Course provider	Lycée La Découverte
Country	France
Language	French
Education Subject	Machining processes
Learner Profile	Students in EQF 5
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	5
Teaching Methodology	Theoretical & Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	2025-02-03 2025—02-05
Workload / Duration	15 Hours
Location	Lycée La Découverte Decazeville France
Learning activities	Theoretical courses and practical work
Entry requirement	EQF 4 diploma
Admission procedure	Registration - Parcoursup

CNC machining from CAM

ADMA TRANSFORMATION AREA

This training provides knowledge in Post-processing a set-up from CAM, using Siemens NX and machining of the part, using CNC machines such as Milling and Turning machines.

<https://community.lcamp.eu/catalog-item/cad-specialization/>

Advanced Manufacturing Technologies

CNC, CAM, Post-processing, machining

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Program a CNC controller	http://data.europa.eu/esco/skill/bf942c60-8539-4951-83ee-63f770da1cb8	2
Tend CNC milling machine	http://data.europa.eu/esco/skill/4cb58ef4-67a9-4bea-a743-2c83ebd60e79	2
CAM Software	http://data.europa.eu/esco/skill/27065048-bca8-4b0a-891a-b192b9ceadfd	2

GENERAL INFORMATION

Course provider	Curt Nicolín Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	CAD-Specialization, Industrial production methods
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical
Learning Environment	Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Practical training in CNC turning and milling machine, CAM
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

CNC-machine Operation Basics

ADMA TRANSFORMATION AREA

This training provides an introduction to operating a CNC-machine, including safety and basic settings.

<https://www.cng.se/te4-gymnasieingenj%C3%B6r>

Advanced Manufacturing
Technologies

CNC, machine operating, PPE

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 2

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Tend CNC milling machine	http://data.europa.eu/esco/skill/4cb58ef4-67a9-4bea-a743-2c83ebd60e79	1
Program a CNC controller	http://data.europa.eu/esco/skill/bf942c60-8539-4951-83ee-63f770da1cb8	1

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	Industrial production methods
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Practical
Learning Environment	Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Practical training in CNC turning machine and CNC milling machine
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

CNC Waste Reduction Strategies

ADMA TRANSFORMATION AREA

This training provides the basic practical methods to reduce waste and inefficiency in CNC-machining, using CAM Siemens NX.

<https://community.lcamp.eu/catalog-item/production-philosophy/>

ECO Factory

CAM, Siemens NX, CNC, LEAN

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
CAM Software	http://data.europa.eu/esco/skill/27065048-bca8-4b0a-891a-b192b9ceadfd	3
Tend CNC milling machine	http://data.europa.eu/esco/skill/4cb58ef4-67a9-4bea-a743-2c83ebd60e79	2
Continuous improvement philosophies	http://data.europa.eu/esco/skill/0550431f-9c8b-4204-9c45-59bc5feacf06	2

GENERAL INFORMATION

Course provider	Curt Nicolín Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	Production Philosophy
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical
Learning Environment	Classroom, Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical and practical training, CAD/ CAM, Machining
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

Collaborative Robot

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies, Digital Factory, Smart Manufacturing Engineering

Cobot, automation, robotics

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

Using collaborative robots improve the production, risks and reduce production time. Get better work conditions. Make easy collaborative robot installations. Learn safety rules. Installation repair/changes. Insert a collaborative robot in the production.

<https://www.imh.eus/en>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Install collaborative robots	https://esco.ec.europa.eu/en/skill/ed9290f6-f3a7-4bc7-9f5e-9e26a30e69a4	3
Ensure safety in collaborative robotics	https://esco.ec.europa.eu/en/skill/6e19de27-3693-4d3a-9484-5ef53b360b01	4
Perform maintenance on collaborative robots	https://esco.ec.europa.eu/en/skill/f8451baf-8c85-465b-b9cf-17fd315f77a7	4
Integrate collaborative robots into production lines	https://esco.ec.europa.eu/en/skill/d5e0f8d5-1380-4c89-bf78-8d1cf8a83c0c	3

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country/ Spain
Language	English, Spanish
Mode of Learning	In-Person
Credential Type	Microcredential Course
EQF Level	4
Teaching Methodology	Theoretical / Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	24 hours
Location	Elgoibar, Basque Country

Component inspection using a coordinate measuring machine

ADMA TRANSFORMATION AREA

Operate a three-dimensional measuring machine and carry out an inspection programme on the same machine. Participants will learn to set up and calibrate the CMM, program inspection routines, measure parts, and analyze results according to engineering standards.

<https://community.lcamp.eu/catalog-item/component-inspection-using-a-coordinate-measuring-machine-cmm/>

Advanced Manufacturing Technologies

Metrology, inspection programme, quality control, tolerances

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Metrology	http://data.europa.eu/esco/skill/a181e89d-44ae-40e7-8d37-177071237c74	3
Adjust measuring machines	http://data.europa.eu/esco/skill/236c446a-f4ff-4893-850a-0d93250c551f	2
Conduct quality control analysis	http://data.europa.eu/esco/skill/41a3240f-58ba-44e2-a688-edeb21ea5c16	2
Interpret geometric dimensions and tolerances	http://data.europa.eu/esco/skill/e3688cae-7a28-4405-88b5-6b87179e0d76	3

GENERAL INFORMATION

Course provider	Lycée La Découverte
Country	France
Language	French
Education Subject	Metrology
Learner Profile	Learners EQF 5
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	5
Teaching Methodology	Theoretical & Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	2025-02-17 2025-02-18
Workload / Duration	7 Hours
Location	Lycée La Découverte Deazeville France
Learning activities	Theoretical classes and practical work
Entry requirement	EQF 4 diploma
Admission procedure	Registration - Parcoursup

Connected Workers

ADMA TRANSFORMATION AREA

Equip participants to design and manage “Connected Worker” solutions in an Industry 5.0 context, leveraging wearables, IoT sensors, AR/VR, mobile apps and dashboards for real-time posture, health and performance monitoring, on-the-job training and operator-machine collaboration.

<https://www.smarttvalley.it/manufacturing/>

Human-Centred Organisation;
Smart Manufacturing; Digital
Factory

Connected Worker · Wearables · IoT sensor integration · Real-time
KPI dashboards · AR/VR training · Mobile decision-support apps ·
Operator performance analysis · Well-being monitoring · Cobot
collaboration

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Human-robot interaction	http://data.europa.eu/esco/skill/9136cbf1-7916-4f1c-bc9a-0318ee1d6016	2
Analyze operator performance and well-being data	http://data.europa.eu/esco/skill/5d204ec8-981b-4405-9a82-0b1cb21ca9d3	3
Introduce XR/VR and mobile applications for on-the-job training	http://data.europa.eu/esco/skill/S1.3.3	2
Integrate wearable and IoT sensor data for worker monitoring	http://data.europa.eu/esco/skill/8a753714-9a19-4418-9b37-77e79d72c705	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Design and management of “Connected Worker” solutions in an Industry 5.0 context
Learner Profile	Digital-transformation leads, HSE specialists, line managers, ergonomists
Mode of Learning	In-Person/Hybrid
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Campus Smartt Valley KIIS

INFORMATION ABOUT THE COURSE

Workload / Duration	3 days (24h) – approx
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	Connected-Worker prototype demo + data-analysis report
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Basic familiarity with industrial data systems;

The course’s content, schedule and location can be adapted to the needs of the recipients.

CORPORATE SUSTAINABILITY BASICS

ADMA TRANSFORMATION AREA

ECO FACTORY

ECO-EFFICIENT PRODUCTION

CURRENT
MATURITY
LEVEL 2

TARGET
MATURITY
LEVEL 4

This introductory course provides a comprehensive overview of corporate sustainability, equipping participants with the fundamental knowledge and tools necessary to understand and implement sustainability strategies in the corporate world. The course explores the key principles of environmental, social, and governance (ESG) frameworks, sustainable business models, and how companies can balance profitability with positive societal and environmental impacts.

<https://community.lcamp.eu/catalog-item/gebkim-oiz-corporate-sustainability-basics/>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Corporate sustainability	Corporate sustainability	4
Promote sustainability	Promote sustainability	4

GENERAL INFORMATION

Course provider	GEBKIM OIZ
Country	Türkiye
Language	Turkish
Education Subject	This course introduces learners to the foundations of corporate sustainability, covering environmental, social, and governance (ESG) principles, sustainability reporting, green business strategies, and regulatory frameworks relevant to modern organizations.
Learner Profile	VET Students
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	20 Hours
Location	GEBKIM OIZ
Learning activities	Lectures, Practices
Assessment Type	Quizzes and mid-term evaluations, Exam
Entry requirement	Interest in
Admission procedure	Online or in-person application submission

Cybersecurity

ADMA TRANSFORMATION AREA

This course introduces learners to the fundamentals of cybersecurity and digital protection. It covers key concepts such as data security, network protection, threat detection, and risk management. Learners will explore common cyber threats and vulnerabilities, understand how to safeguard systems and information

<https://3tindustry40training.eu/course/view.php?id=14>

Digital Factory

Cybersecurity, ICT, digital technologies

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Cyber security	http://data.europa.eu/esco/skill/8088750d-8388-4170-a76f-48354c469c44	2
ICT security legislation	http://data.europa.eu/esco/skill/7814e88f-c133-4c3b-b27f-857afa145d42	1
Implement ICT safety policies	http://data.europa.eu/esco/skill/14d1e367-3efe-4ec5-86ae-eca48710ee4e	1

GENERAL INFORMATION

Course provider	3TIndustry
Country	France Spain and Germany
Language	English
Education Subject	ICT
Mode of Learning	Online
Credential Type	None
EQF Level	None
Teaching Methodology	Theoretical
Learning Environment	E learning

INFORMATION ABOUT THE COURSE

Start Date – End Date	Non applicable
Workload / Duration	3 Hours
Price	Free
Location	Online
Learning activities	Theoretical
Assessment Type	Quiz
Entry requirement	None
Admission procedure	Registration to the platform

Cybersecurity in industry

ADMA TRANSFORMATION AREA

Training service for security technologies and trust in digital system. The weak point of digital transformation when it does not contemplate the “security by design” principles nor does it comply with protective measures in depth.

Digital Factory

Cyber Threat Management;
Defense in Depth

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
implement ICT security policies	http://data.europa.eu/esco/skill/14d1e367-3efe-4ec5-86ae-eca48710ee4e	2
handle cybersecurity incidents	http://data.europa.eu/esco/skill/8181aa4c-42bc-4036-a3d2-5cb6bbb34239	3
perform risk analysis	http://data.europa.eu/esco/skill/1dd23dba-dd00-45ab-abf4-642902538317	3

GENERAL INFORMATION

Course provider	TECNALIA RESEARCH & INNOVATION
Country	Spain
Language	English, Spanish
Education Subject	Tecnalia experience in cybersecurity. Development of proof of concept and solutions based on privacy or traceability technologies. Tools and methods to ensure safety & security from the early stages of design. Technologies for controlling and safeguarding the security of systems, data, and networks. Management of security risks in critical systems. With this, we offer new applications in the following areas: Distributed Ledger Technologies: Blockchain Distributed Ledgers. Security, privacy and protection by design. Identity/privacy management solutions. Control, Protection and Risk Management. Artificial Intelligence for cybersecurity (e.g. Adversarial ML). Cyber Ranges and Attack Simulations. Quantum Security / Post-Quantum Cryptography. Compliance within new cybersecurity scenarios.
Learner Profile	Introduction and advanced
Mode of Learning	Hybrid
Credential Type	Training programme
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	4 Hours
Location	TECNALIA RESEARCH & INNOVATION

Development of an Environmental Responsibility and Circular Economy Plan

ADMA TRANSFORMATION AREA

The objective of an Environmental Responsibility Plan is to define a set of guidelines for any company or organization to help protect the environment by reducing the impact of their actions on the natural surroundings and being highly aware of the importance of environmental care in all their activities.

<https://www.lhusurbil.eus/web/Default.aspx?lng=EU>

Eco Factory, Human Centred Organization

Environment, green company, organization

CURRENT
MATURITY (1-5)
LEVEL: 4



TARGET
MATURITY
LEVEL (1-5): 5

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Develop environmental policy	https://esco.ec.europa.eu/en/skill/c0df7ca4-2953-4e2d-a6cd-e82692c19da1	3
Apply environmental legislation	https://esco.ec.europa.eu/en/skill/9a7ec89e-5003-4933-a1a1-18132578032e	4
Promote environmental awareness	https://esco.ec.europa.eu/en/skill/79dd84f6-b429-4bc0-9381-c1697dc99f47	4
Implement environmental management systems	https://esco.ec.europa.eu/en/skill/9cb6f95c-8f18-4c69-b745-f1eaf5409a90	3
Assess environmental impact	https://esco.ec.europa.eu/en/skill/3e3d17b0-13f7-4dd9-94ff-cd6e164bd9f0	4

GENERAL INFORMATION

Course provider	CIFP Usurbil LHII
Country	Basque Country/ Spain
Language	Spanish
Learner Profile	Unemployees and employees from various sectors interested in environmental management, and individuals seeking to enhance their understanding of environmental impact reduction strategies within organizations.
Mode of Learning	In Person
Credential Type	Microcredential Course
EQF Level	EQF 5
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	21 hours
Price	Free
Location	Usurbil, Basque Country

Design 4.0

ADMA TRANSFORMATION AREA

The course will present technologies and approaches typical of the new way of understanding product design and development, from modern approaches for life cycle management (PLM) to virtual and augmented reality in the context of product development. At the same time application examples from different industrial sectors will be presented.

<https://www.made-cc.eu/en/servizio/training-skills/>

Digital Factory, End-to-end
Customer Focused Engineering,
Smart Manufacturing

Product Design and Simulation,
Augmented and Virtual Reality

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Work with virtual learning environments	http://data.europa.eu/esco/skill/b78f324d-e16c-43f8-97d2-50d3a7cd1fb3	2
Run simulations	http://data.europa.eu/esco/skill/a432ffcd-b58d-4417-836c-ea3282b626ca	2

GENERAL INFORMATION

Course provider	MADE Competence Center Industry 4.0
Country	Italy
Language	Italian
Education Subject	Product Design, Industry 4.0, Engineering
Learner Profile	Workers, Engineers, Design Professionals
Mode of Learning	Online / Hybrid / In Person
Credential Type	Microcredential
EQF Level	EQF3
Teaching Methodology	Practical
Learning Environment	Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	TBD
Workload / Duration	4 hours
Schedule information	The course presents technologies and approaches typical of the new view of product design and development, from modern life-cycle management (PLM) to virtual and augmented reality in the product development context. Application examples from a range of industrial sectors are presented in conjunction with this.
Price	450 EUR
Location	Milan, Italy
Learning activities	Hands-on labs, case studies, technology demonstrations
Assessment Type	Final test and evaluation
Entry requirement	Basic understanding of product design and industrial processes
Admission procedure	By filling up online module - Formare competenze - Made

Design for Additive Manufacturing (DfAM)

ADMA TRANSFORMATION AREA

This training provides insights into how to design parts optimized for 3D printing, focusing on material efficiency, functionality and manufacturability. Part of the course CAD – Specialization.

<https://community.lcamp.eu/catalog-item/cad-specialization/>

Advanced Manufacturing Technologies

CAD, Additive Manufacturing, 3D-printing

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
CAD Software	http://data.europa.eu/esco/skill/a2b5dcf3-5b6a-453d-876c-cff540c0faf1	3
3D Printing process	http://data.europa.eu/esco/skill/2afb2b59-c9a3-4cf3-b1dd-1a2fad51e583	3

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	CAD-Specialization
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical , Practical, problem solving
Learning Environment	Classroom, Educational Lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical and practical training, CAD and 3D Printing
Assessment Type	Practical Test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

ECET-292 Design of Manufacturing

ADMA TRANSFORMATION AREA

ADVANCED MANUFACTURING

Manufacturing Design

CURRENT
MATURITY
LEVEL 2

TARGET
MATURITY
LEVEL 4

Students will study material that emphasizes the relationship of electronic design and manufacturing, including an introduction to CAD/CAM, Resource Management, Thermal Management and various standards. They will also examine design methodology for the various materials and equipment used in the manufacture of electronic products.

[ECET 292 - Design for Manufacturing - Modern Campus Catalog™](#)

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
K072 Manufacturing and Processing	http://data.europa.eu/esco/iscde-f/072	4
K0710 Engineering and Engineering Trades not further defined	http://data.europa.eu/esco/iscde-f/070	4

GENERAL INFORMATION

Course provider	Camosun College
Country	Canada
Language	English
Education Subject	Electronics & Computer Engineering Technology
Learner Profile	College Students
Mode of Learning	In Person
Credential Type	College Diploma
EQF Level	4
Teaching Methodology	Practical
Learning Environment	In Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	Four-month term
Workload / Duration	75 Hours
Price	\$749.84 CAD
Location	Camosun College
Learning activities	Lectures, analysis, and direct experience
Assessment Type	Papers / Exams / Physical Tests
Entry requirement	Requires prerequisite course from Camosun College
Admission procedure	Apply as part of Camosun electronics and computer engineering degree

Digital Operation

ADMA TRANSFORMATION AREA

The course aims to introduce participants to the two industrial production paradigms (Lean production and Industry 4.0) by integrating them. In order to optimize the transition to Industry 4.0, identifying the processes to be followed, the resources to be allocated, and the investments to be made, it is essential to adopt a management and production method that minimizes costs and waste.

<https://www.made-cc.eu/en/servizio/training-skills/>

Digital Factory, Smart Manufacturing

Industrial Engineering, Operations management, Artificial Intelligence

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Optimise production	http://data.europa.eu/esco/skill/798d427e-51b3-4cd4-8b24-1357015e9ae7	3
Operations management	http://data.europa.eu/esco/skill/2d140a3a-45a6-4248-80dd-b3760ebc9cc6	3

GENERAL INFORMATION

Course provider	MADE Competence Center Industry 4.0
Country	Italy
Language	Italian
Education Subject	Lean production and Industry 4.0
Learner Profile	Quality managers, Production managers, Programmers, Production directors, Department heads, Function managers
Mode of Learning	Online / Hybrid / In Person
Credential Type	Microcredential
EQF Level	EQF4
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom

INFORMATION ABOUT THE COURSE

Workload / Duration	6 Hours
Schedule information	At the end of the course, learners experience digital factory application examples first-hand, with a special focus on Digital Twinning process and logistics. A focus on maximum participant-lecturer interaction during the lessons with a marked operational focus in teaching methods on real business context experiences.
Price	450 EUR
Location	Milan, Italy
Learning activities	Introduction to production process planning and control; digital twinning for process simulation; AR/VR solutions to support industrial processes; MES as an enabling technology for real-time production control; elements of Lean 4.0; IoT: from smart product to industrial process control and monitoring; product quality and traceability
Assessment Type	Final test and evaluation
Entry requirement	Managers, SME entrepreneurs
Admission procedure	By filling up online module - Formare competenze - Made

Digital Transformation pathway

ADMA TRANSFORMATION AREA

The Digital Transformation pathway is a training programme on digital technologies with lectures and industrial visits with the objective to explain new technologies and their impact on the company development.

<https://www.made-cc.eu/it/corso/percorso-digital-transformation/>

Digital Factory, Smart Manufacturing

Industry 4.0 and 5.0, Open Innovation, Circular Economy

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Keep up with digital transformation of industrial processes	http://data.europa.eu/esco/skill/0458f6a0-cb54-4ff5-a543-b2c5354e17c0	3
Data extraction, transformation and loading tools	http://data.europa.eu/esco/skill/9d0d89be-bffa-4393-b6f6-8d05bea49051	2

GENERAL INFORMATION

Course provider	MADE Competence Center Industry 4.0
Country	Italy
Language	Italian
Education Subject	Industry 4.0
Learner Profile	Managers, entrepreneurs and professionals
Mode of Learning	Online + company visits
Credential Type	Microcredential
EQF Level	EQF4
Teaching Methodology	Practical
Learning Environment	Online

INFORMATION ABOUT THE COURSE

Start Date – End Date	30 September 2025
Workload / Duration	4 hours
Price	1000 EUR
Location	Milan, Italy
Learning activities	Module 1 - Trends in manufacturing Module 2 - Analysis, costs and benefits of introducing new technologies Module 3 - Open Innovation Module 4 - What it means to be a Data Driven Company Module 5 - What it means to be a sustainable company
Assessment Type	No formal exam or graded assessment. Participation-based evaluation
Entry requirement	No prior coding or deep technical expertise required, but a basic understanding of business or operations is probably expected
Admission procedure	By filling up online module - Formare competenze - Made

Electrical Discharging Machining (EDM) processes

ADMA TRANSFORMATION AREA

Digital Factory, Advanced Manufacturing Technologies

EDM, CAD, CAM, Solidworks, programming

CURRENT MATURITY
LEVEL (1-5)

3

TARGET MATURITY
LEVEL (1-5)

4

This intensive hands-on course introduces learners to Electrical Discharge Machining (EDM) technology, with a special focus on tool and die manufacturing, CAD design using SolidWorks, and machine programming. Participants will explore the fundamentals of stamping die and mold theory, and apply their knowledge in a real workshop environment using the ONA AV-35 EDM machine and Teksoft CAM software.

Through practical projects, students will learn to interpret technical drawings, model components in 3D CAD, and prepare EDM operations from setup to execution. This includes aligning the workpiece, setting offsets, and executing wire and die-sinking EDM processes.

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Tend spark erosion machine	http://data.europa.eu/esco/skill/347162b5-d136-4791-b2a5-392f37a5d1c0	3
Technical drawings	http://data.europa.eu/esco/skill/59ea80e1-463a-4dba-82c6-d0b6d577d532	2
Operate precision machinery	http://data.europa.eu/esco/skill/d8045ecd-22f3-4711-bb51-58969d9f28c7	2
Use CAM software	http://data.europa.eu/esco/skill/7a757fa5-9a6f-43ab-9e66-f8f4dba1ffcb	3

GENERAL INFORMATION

Course provider	CIFP Armeria eskola LHII
Country	Basque Country – Spain
Language	English
Education Subject	Machining
Learner Profile	Mechanical students
Mode of Learning	In Person
EQF Level	4/5
Teaching Methodology	Practical in CLF
Learning Environment	Workshop

INFORMATION ABOUT THE COURSE

Workload / Duration	60 Hours
Location	CIFP Armeria eskola LHII
Learning activities	EDM Theory ONA AV35 Machine Operation Stamping and Die Theory SolidWorks Design CAM Programming for EDM
Assessment Type	Final project
Entry requirement	Enrolment in mechanical cycle EQF4/5

Electronic Assembly of the LCAMP Robot: Soldering Components, Motor Driver Regulation, and DC-DC Converters

This course provides a deep understanding of stepper motors, including their operation, applications, driver regulation, DC-DC regulator parameterization, and practical soldering techniques. It integrates these concepts with the Industrial Automation and Robotics curriculum.

<https://www.maltuna.eus/es/>

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies, Digital Factory

Electronic welding, electronics, robotics

CURRENT
MATURITY (1-5)
LEVEL: 3

TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Maintain electric motors	https://esco.ec.europa.eu/en/skill/f1914a84-4cf8-4ea4-b8f6-96736a3e5703	3
Apply principles of motor control	https://esco.ec.europa.eu/en/skill/7b00e5e6-94c0-4bd1-b663-b7f7a5a77cbb	4
Integrate electrical components into control systems	https://esco.ec.europa.eu/en/skill/40a9bc3e-46d3-4c3c-8f15-2e49e05fbb14	3
Install electronic control equipment	https://esco.ec.europa.eu/en/skill/36ae938d-183e-4c1b-bc12-4fdc57d4a9f1	4

GENERAL INFORMATION

Course provider	Miguel Altuna LHII
Country	Basque Country, Spain
Language	Basque
Education Subject	Industrial Automation and Robotics
Learner Profile	Engineering students, automation technicians, robotic enthusiasts
Mode of Learning	In Person
Credential Type	Certification of Completion
EQF Level	EQF4-5
Teaching Methodology	Practical in CLF
Learning Environment	CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	15 hours
Schedule information	During the hours of the courses Power Systems and Measurement and Regulation Systems
Price	0€
Location	Bergara, Miguel Altuna LHII
Learning activities	Theoretical lessons, practical soldering exercises, stepper motor control experiments, Arduino integration workshops.
Assessment Type	Teaching demonstrations, lesson plan evaluations, peer reviews
Entry requirement	First-year students of Robotics and Industrial Automation.

FULL LEARNING OUTCOMES

1. Understand the working principles of stepper motors and their role in industrial automation.
2. Identify different types of stepper motors and their applications.
3. Learn to regulate and configure stepper motor drivers for optimal performance.
4. Explore the importance of DC-DC regulators and their parameterization.
5. Develop practical skills in soldering for assembling and repairing motor control circuits.

6. Integrate stepper motor applications into automation and robotics systems.

ECET-291 Engineering Project Management

ADMA TRANSFORMATION AREA

Students are introduced to engineering project management and budgeting techniques, as well as strategies for effective project teamwork. They will also study engineering standards, the effect of engineering on the environment, professional responsibility, and engineering ethics.

[ECET 291 - Engineering Project Management - Modern Campus Catalog™](#)

END-TO-END CUSTOMER-
FOCUSED ENGINEERING

Project Management

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
S4.0 Management Skills	http://data.europa.eu/esco/skill/c1a13ee0-b00d-4cfa-a22c-20d284e398b0	4
S4.3 Allocating and Controlling Resources	http://data.europa.eu/esco/skill/9827c329-3492-4e8d-852c-da0894228ff6	4
K0710 Engineering and Engineering Trades not further defined	http://data.europa.eu/esco/iscd-f/070	4

GENERAL INFORMATION

Course provider	Camosun College
Country	Canada
Language	English
Education Subject	Electronics & Computer Engineering Technology
Learner Profile	College Students
Mode of Learning	Online
Credential Type	Micro-Credential
EQF Level	4
Teaching Methodology	Practical
Learning Environment	In Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	Four-month term
Workload / Duration	175 Hours
Price	\$374.92 CAD
Location	Camosun College
Learning activities	Lectures, labs, and group work
Assessment Type	Group work and project development
Entry requirement	Prerequisite college courses
Admission procedure	Apply via Electronics & Computer Engineering Technology program

Ergonomics in Industry 5.0

This course provides an in-depth overview of ISO 11228/11226 standards and ergonomic risk mapping, hands-on training with EAWS calculation methods to quantify the risk of biomechanical overload, and a deep dive into the Ergo-MTM methodology via the TiCon Base, EAWS, Takt modules. Participants will learn to assess and optimize work postures, forces and repetitive tasks in Industry 5.0 environments.

<https://www.smarttvalley.it/manufacturing/>

ADMA TRANSFORMATION AREA

Human-Centred Organisation;
Smart Manufacturing; Digital
Factory

Ergonomic risk mapping · ISO 11228 · ISO 11226 · EAWS (Ergonomic Assessment Work-sheet) · Ergo-MTM methodology · TiCon Base · TiCon EAWS · TiCon Takt · Biomechanical load assessment · Repetitive task analysis

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Follow safety precautions in work practices	http://data.europa.eu/esco/skill/d2d9051a-10e1-41c5-9cfb-bbdc58016176	2
Analyse ergonomics in different workplaces	http://data.europa.eu/esco/skill/a2e4fe18-b65d-46c2-8bee-d81fad8cd53b	3
Plan manufacturing process	http://data.europa.eu/esco/skill/7d0f33ea-e724-4d77-8b75-ee4fe66bb9ba	3
Perform ergonomic risk assessments	http://data.europa.eu/esco/skill/d3a0f1fd-3a6e-452c-84a2-dc594b403a18	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Ergonomics: introduction to ISO/CEN Standards; EAWS calculation method for a comprehensive ergonomic assessment of work postures, forces and repetitive tasks in Industry 5.0 environments; introduction to Ergo-MTM model (TiCon)
Learner Profile	Ergonomists, HSE specialists, process engineers, safety managers
Mode of Learning	In-Person/Hybrid
Credential Type	Certificate
EQF Level	5-6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Experience lab with workstations, Campus Smartt Valley Ergo-Lab

INFORMATION ABOUT THE COURSE

Workload / Duration	8 days – approx
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	ISO-standard lectures, EAWS scoring theory and examples, TiCon-guided simulations, group risk-mapping exercises
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Familiarity with basic ergonomic concepts

The course's content, schedule and location can be adapted to the needs of the recipients.

Factory Logistics 4.0

ADMA TRANSFORMATION AREA

Explore the enabling technologies of Factory Logistics 4.0—IoT/RFID for real-time traceability, AGVs/AMRs for automated material handling, Digital Twins for flow simulation, and Advanced Analytics/AI for demand forecasting and inventory optimization, integrated with MES/WMS/ERP to synchronize production and supply chain. Hands-on cases illustrate “just-in-time” delivery and uptime improvement.

<https://www.smarttvalley.it/manufacturing/>

Value Chain-Oriented Open
Factory; Smart Manufacturing;
Digital Factory

RFID & IoT traceability · AGVs & AMRs · Digital Twin simulation ·
Advanced Analytics & AI forecasting · MES/WMS/ERP integration ·
Cross-departmental interoperability · Flow optimization

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Deploy IoT and RFID systems for real-time asset tracking	http://data.europa.eu/esco/skill/9136cbf1-7916-4f1c-bc9a-0318ee1d6016	3
Build and validate Digital Twin models for logistics flow simulation	http://data.europa.eu/esco/skill/737f8895-46df-4283-8f38-13f3f0fc3b77	4
Apply advanced analytics and AI for demand forecasting and inventory optimization	http://data.europa.eu/esco/skill/8dcbcab0-09f7-4d11-940d-125af57bbc40	4
Integrate MES, WMS and ERP systems to synchronize production and supply chain	http://data.europa.eu/esco/skill/8a753714-9a19-4418-9b37-77e79d72c705	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Enabling technologies of Factory Logistics 4.0
Learner Profile	Logistics engineers, operations managers, supply-chain analysts, automation specialists
Mode of Learning	In-Person/Hybrid
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Campus Smartt Valley KIIS

INFORMATION ABOUT THE COURSE

Workload / Duration	3 days (24h) – approx
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	RFID tagging exercises, AGV route planning, Digital Twin flow builds, AI-forecasting case studies
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Basic logistics concepts and familiarity with ERP/WMS systems

The course’s content, schedule and location can be adapted to the needs of the recipients.

FANUC INDUSTRIAL ROBOT PROGRAMMING

ADMA TRANSFORMATION AREA

Participants learn how to work safely with an industrial robot, learn about the structure of an industrial robotic system and know how to program a robot for a selected robotic application.

https://www.tscmb.si/wp-content/uploads/2023/04/OPIS_PROGRAMA-Programiranje_Fanuc_robota-TSC_MB.pdf

Advanced Manufacturing

Robotic components, PLC integration, Automation, Robotics

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Robotics	http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40	2
Robotic Components	http://data.europa.eu/esco/skill/7a950986-27fe-4b6c-adf3-88f211e77019	3
Maintain Robotic Equipment	http://data.europa.eu/esco/skill/7341904f-5913-470c-8c53-bc832df248ec	3

GENERAL INFORMATION

Course provider	TŠC Maribor
Country	Slovenia
Language	Slovenian
Education Subject	Automation
Learner Profile	Students, workers
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	5
Teaching Methodology	Theoretical / Practical
Learning Environment	School laboratory

INFORMATION ABOUT THE COURSE

Start Date – End Date	24/02/2025 – 07/03/2025
Workload / Duration	40 Hours
Price	420,00 EUR + VAT
Location	Zolajeva ulica 12, 2000 Maribor, Slovenia
Learning activities	Lecture, exercise, discussion, laboratory work
Assessment Type	Self-assessment learning diaries or portfolios – test reflection skills
Entry requirement	https://www.tscmb.si/wp-content/uploads/2025/01/VABILO_USPOSABLIJANJE_ROBOTIKA_POMLAD_2025.pdf
Admission procedure	https://www.tscmb.si/wp-content/uploads/2023/03/PRIJAVNICA_za_institucionalna-usposabljanja-1.pdf

FREE-FORM SURFACE MODELING

ADMA TRANSFORMATION AREA

The Free-form Surface Modeling course is an upgrade to the Creo Parametric Fundamentals course and serves as a starting point for fast and efficient work with complex surface models for every designer of products and devices with demanding shapes.

<https://ti.audax.si/tecaji/modeliranje-prostih-povrsin-96?prijava=1&idtecaji=96&idtermin=16553>

Advance manufacturing technologies

Surface Design, Curve Modeling, Solid Modeling

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D modelling	http://data.europa.eu/esco/skill/97965983-0da4-4902-9daf-d5cd2693ef73	3
Apply reverse engineering	http://data.europa.eu/esco/skill/a7a14be2-78b5-4b4a-ba77-2658285e2756	4

GENERAL INFORMATION

Course provider	Audax d. O. O.
Country	Slovenia
Language	Slovenian
Education Subject	Curve Modeling, Surface Creation (Extrude, Revolve, Fill, Sweep, Blend, Boundary Blend, Rotational Blend, Swept Blend, Variable Section Sweep)
Learner Profile	adult
Mode of Learning	In Person
Credential Type	Certificat
EQF Level	EQF 5
Teaching Methodology	Practical training, solution solving
Learning Environment	Educational lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	01/10/2025 – 03/10/2025
Workload / Duration	2 days
Schedule information	2 days training
Location	Ljubljana
Learning activities	Creating and configuration, practical training
Assessment Type	Practical test
Entry requirement	Creo Parametric Fundamentals Course and prior independent practical work with Creo software.

Functional Safety

ADMA TRANSFORMATION AREA

Advanced Manufacturing, Smart Manufacturing

Safety, machinery

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

MC 2322 Functional Safety

Part of the lecture T4WIW9014

Learning Outcome: The various aspects of safety in machinery (e.g. the Machinery Directive, SIL, Performance Level, CE, etc.).

<https://www.heidenheim.dhbw.de/en/home>

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Functional Safety
Learner Profile	A-levels
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.10.25 – 31.12.25
Workload / Duration	2 ECTS / 50h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO skills

Safety engineering

<http://data.europa.eu/esco/skill/47d491a9-f7c0-4b13-a10f-983d3aa0113e>

Selected teaching units are explored in greater depth in the laboratory.

Automation systems – laboratory:

- Automation components (e.g. industrial robots or machine tools).
- Modular production systems (e.g. learning factories).

FUNDAMENTALS OF ROBOTICS

The Fundamentals of Robotics course provides a comprehensive introduction to the principles, technologies, and applications of robotics in modern industries. Designed for learners seeking to understand the core components of robotic systems.

<https://community.lcamp.eu/catalog-item/fundamentals-of-robotics/>

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies, Digital Factory

Application of robotics to industrial processes

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Set up automotive robot	http://data.europa.eu/esco/skill/e975b791-b488-4935-be44-06f2f9a443bb	2
Maintain control systems for automated equipment	http://data.europa.eu/esco/skill/df12fd50-55dc-4cfd-a021-818880668789	3
Human-robot collaboration	http://data.europa.eu/esco/skill/0f5374e3-0b9b-4b16-af7a-49654ce0bb15	3

GENERAL INFORMATION

Course provider	Miguel Altuna LH
Country	Spain
Language	Spanish
Education Subject	Historical background of robotics Morfology of the robot Mathematical Tools for Spatial Localization Robot Kinematics Kinematic Control Robot Programming Criteria for the Implementation of an Industrial Robot Industrial application
Learner Profile	Unemployed individuals,CNC operators, machinist, or manufacturing technicians with basic knowledge of CNC operations and CAD software.
Mode of Learning	In Person
Credential Type	Microcredential course
EQF Level	EQF 4
Teaching Methodology	Theoretical and Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	50 hours
Location	Miguel Altuna LH

ADMA TRANSFORMATION AREA

Human-Centred Organisation;
Smart Manufacturing; Digital
Factory

Immersive simulation · Digital Twin ergonomics · AR/VR workstation design · Wearable posture monitoring · Biomechanical stress analysis · Exoskeleton applications · Human-centric integration · Cobot-operator collaboration

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

Deepen knowledge of emerging technologies for improving human-machine interaction in industrial workplaces, with a focus on ergonomics, well-being, and productivity. Provide tools to integrate digital and wearable solutions in an Industry 5.0 approach, maintaining the centrality of the human in production processes.

<https://www.smarttvalley.it/manufacturing/>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Digital modelling technologies	http://data.europa.eu/esco/skill/737f8895-46df-4283-8f38-13f3f0fc3b77	3
Supervise worker safety	http://data.europa.eu/esco/skill/5d204ec8-981b-4405-9a82-0b1cb21ca9d3	3
Integrate human-centric technologies into standard workflows	http://data.europa.eu/esco/skill/33c8742f-fc91-433b-8d3f-3238f7e3018f	3
Perform ergonomic risk assessments	http://data.europa.eu/esco/skill/d3a0f1fd-3a6e-452c-84a2-dc594b403a18	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Improvement of human-machine interaction in industrial workplaces; integration of digital and wearable solutions in an Industry 5.0 approach
Learner Profile	Ergonomists, HSE specialists, automation and digital-transformation managers
Mode of Learning	In-Person/Hybrid
Credential Type	Certificate
EQF Level	5-6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Experience lab with workstations, Campus Smartt Valley KIIS and Ergo-Lab

INFORMATION ABOUT THE COURSE

Workload / Duration	3 days (24 h) – approx
Price	Depending on time schedule and location
Location	Smartt Valley
Learning activities	AR/VR ergonomics workshop, wearable-sensor and device presentation, exoskeleton introduction
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Familiarity with basic ergonomic concepts

The course's content, schedule and location can be adapted to the needs of the recipients.

Industrial Communication

ADMA TRANSFORMATION AREA

MC 2323 Industrial Communication

Part of the lecture T4WIW9014

Learning Outcome: Automation components include robots, networks, industrial communication systems (e.g. CoDeSys and SCADA), and programming systems.

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Automation, robots, systems

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Industrial Communication
Learner Profile	A-Levels
Mode of Learning	In Person / Lab
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.10.25 – 31.12.25
Workload / Duration	2 ECTS / 50h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO skills

Apply technical communication skills

<http://data.europa.eu/esco/skill/c32ad607-0c4d-4e34-b73f-668298f7bf13>

Selected teaching units are explored in greater depth in the laboratory.

Automation systems – laboratory:

- Automation components (e.g. industrial robots or machine tools).
- Modular production systems (e.g. learning factories).

Industry 4.0 & 5.0 communication architecture

ADMA TRANSFORMATION AREA

MC 2324 Industry 4.0 & 5.0 communication architecture

Part of the lecture T4Wiw9014

Learning Outcome: automation concepts (HMI, OPC-UA, MQTT, MESA, ISA95, VDI5600)

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Automation

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Industry 4.0 & 5.0 communication architecture
Learner Profile	A-Levels
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture / Lab
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.10.25 – 31.12.25
Workload / Duration	2 ECTS / 50h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO skills

Automation technology

<http://data.europa.eu/esco/skill/f4a6e9f7-5cff-46c0-894c-59c20bb78694>

Information architecture

<http://data.europa.eu/esco/skill/1bba98a7-92b9-450b-9235-e0c905f8f3c4>

Selected teaching units are explored in greater depth in the laboratory.

Automation systems – laboratory:

- Automation components (e.g. industrial robots or machine tools).
- Modular production systems (e.g. learning factories).

INTRODUCTION TO CARBON FOOTPRINT

This course provides a basic understanding of what a carbon footprint is, why it matters, and how individuals and industries can measure and reduce their carbon emissions. Students will explore the environmental impact of carbon emissions and learn simple, actionable strategies for lowering their carbon footprint. Topics include energy efficiency, renewable energy, waste reduction, and everyday practices that contribute to carbon reduction. By the end of the course, students will be equipped to take meaningful steps toward reducing their carbon impact.

<https://community.lcamp.eu/catalog-item/gebkim-oiz-introduction-to-carbon-footprint/>

ADMA TRANSFORMATION AREA

ECO FACTORY

ENVIRONMENTALLY FRIENDLY
OPERATIONS

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Advise on carbon emissions reduction	Advise on carbon emissions reduction	4
Promote sustainability	Promote sustainability	4

GENERAL INFORMATION

Course provider	GEBKIM OIZ
Country	Türkiye
Language	Turkish
Education Subject	This course introduces the concept of carbon footprint, covering how greenhouse gas emissions are calculated, sources of emissions, and strategies for reduction in personal, corporate, and industrial contexts. It promotes awareness and action toward climate responsibility.
Learner Profile	VET Students
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	20 Hours
Location	GEBKIM OIZ
Learning activities	Lectures, Practices
Assessment Type	Quizzes and mid-term evaluations, Carbon footprint calculation tasks
Entry requirement	Interest in climate, sustainability, or environmental issues
Admission procedure	Online or in-person application submission

Introduction to Collaborative Robotics

ADMA TRANSFORMATION AREA

Provide basic knowledge of collaborative-robotics principles, standards and applications, with a focus on safety, basic programming and human-robot integration in production processes.

<https://www.smarttvalley.it/manufacturing/>

Human-Centred Organisation;
Smart Manufacturing; Digital
Factory

Industrial robotics · Collaborative robots (cobots) · ISO 10218-1/2 ·
ISO/TS 15066 · Human-robot collaboration · Force sensing ·
Machine vision · Cobot programming · Risk assessment

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Human-robot interaction	http://data.europa.eu/esco/skill/9136cbf1-7916-4f1c-bc9a-0318ee1d6016	2
Interpret collaborative-robotics paradigm	http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40	2
Configure and program collaborative robots	http://data.europa.eu/esco/skill/abf982c1-6b59-4572-a38c-97d3a6869af4	3
Integrate new products in manufacturing	http://data.europa.eu/esco/skill/8a753714-9a19-4418-9b37-77e79d72c705	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Collaborative-robotics principles, standards and applications
Learner Profile	Automation engineers, safety officers, production managers, robotics technicians
Mode of Learning	In-Person/Hybrid
Credential Type	Certificate
EQF Level	5-6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Campus Smartt Valley KIIS

INFORMATION ABOUT THE COURSE

Workload / Duration	8 days – approx
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	Introduction to industrial collaborative robotics and Safety regulations; Enabling sensors and technologies; Cobot programming principles and risk assessment and feasibility analysis
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Basic knowledge of automation; no prior cobot experience required

The course's content, schedule and location can be adapted to the needs of the recipients.

Installation and Maintenance of Industrial Automation Systems

ADMA TRANSFORMATION AREA

Through this course, the student will learn to assemble and maintain regulation and control systems in industrial installations, applying the required techniques and procedures in each case, ensuring quality standards, complying with the company's occupational and environmental risk prevention plans, and adhering to the applicable regulations in force.

<https://community.lcamp.eu/catalog-item/installation-and-maintenance-of-industrial-automation-systems/>

Digital Factory, Advanced Manufacturing Technologies

Automation, maintenance

CURRENT MATURITY
LEVEL (1-5)
3



TARGET MATURITY
LEVEL (1-5)
4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Install automation components	http://data.europa.eu/esco/skill/818c2b89-1335-4443-ada7-e1046862e273	3
Maintain industrial equipment	http://data.europa.eu/esco/skill/3e4cdaee-740c-4754-9135-466362bbd22e	3
Read technical datasheet	http://data.europa.eu/esco/skill/651675ef-d203-4ba9-bde0-c4fb8a2f3ef3	2
Perform maintenance on installed equipment	http://data.europa.eu/esco/skill/79aa4ec0-399d-432e-aae8-7a390ce89bcc	2

GENERAL INFORMATION

Course provider	CIFP ZORNOTZA LHII
Country	Basque Country / Spain
Language	Spanish
Education Subject	Installation of equipment and elements of industrial automation systems. Commissioning of industrial automation systems. Prevention of occupational and environmental hazards in the assembly and maintenance of industrial automation systems. Preventive maintenance of industrial automation systems Fault diagnosis and corrective maintenance of industrial automation systems
Learner Profile	Individuals interested in working as maintenance technicians in the field of industrial automation.
Mode of Learning	In Person
Credential Type	Microcredential Course - Professional Certificate (Level 2)
EQF Level	4
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	390 Hours
Location	CIFP ZORNOTZA LHII - Zornotza (Basque Country)
Entry requirement	Title of Bachiller / Certificate of professionalism of level 2 or level 1 of the same family and professional área / Academic requirement of access to the higher VET degree or pass the corresponding entrance tests / Entrance test to the university for older than 25 years and/or of 45 years / In accordance with the regulations, training knowledge or professional knowledge sufficient to take the training with advantage.

Installation and maintenance of collaborative robots 'COBOTS'

ADMA TRANSFORMATION AREA

The course is designed to provide participants with a comprehensive understanding of the installation, operation, and maintenance of collaborative robots, commonly known as cobots. As automation technologies continue to evolve, cobots have become essential in enhancing productivity and efficiency across various industries by working alongside human operators safely and effectively.

<https://community.lcamp.eu/catalog-item/installation-and-maintenance-of-collaborative-robots-cobots/>

Digital Factory, Advanced Manufacturing Technologies

Robot, cobot, automation

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Robotics	http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40	3
Assemble robots	http://data.europa.eu/esco/skill/7ffae77a-93ce-40a3-af99-fae5729e8b15	3
Maintain robotic equipment	http://data.europa.eu/esco/skill/7341904f-5913-470c-8c53-bc832df248ec	3
Manage health and safety standards	http://data.europa.eu/esco/skill/44e2c4c4-9fd2-42d4-a133-d81360ded4bc	3

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	BASQUE COUNTRY – SPAIN
Language	SPANISH
Education Subject	Integrate and maintain collaborative robots "COBOTS" in automated installations, in conditions of quality and safety for people, machines and the environment.
Learner Profile	People who wish to acquire knowledge of programming, integration and maintenance of Cobots collaborative robots.
Mode of Learning	Online
Credential type	Microcredential
EQF Level	5

INFORMATION ABOUT THE COURSE

Workload / Duration	12 Hours
Price	190€
Location	Elgoibar (Spain)

Internet of Things: Raspberry and Arduino

In recent years, IoT has become one of the most important technologies of the 21st century. Now that we can connect everyday objects to the Internet through embedded devices, seamless communication between people, processes and things is possible.

<https://www.lhusurbil.eus/web/Default.aspx?lng=EU>

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies, Digital Factory, Human Centred Organization

IoT, automation, machine communication

CURRENT
MATURITY (1-5)
: 4



TARGET
MATURITY
LEVEL (1-5): 5

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Apply internet of things (IoT)	https://esco.ec.europa.eu/en/skill/e4b32a5b-989b-4a62-a4e3-24371f3fe3ac	4
Integrate embedded systems	https://esco.ec.europa.eu/en/skill/8b9a8bb7-3f7a-43e1-bc7e-ec1e4eaa7e8e	5
Implement machine to machine communication	https://esco.ec.europa.eu/en/skill/6b27e8da-8895-4b45-a9de-8f9c949f7eac	5
Work with smart devices	https://esco.ec.europa.eu/en/skill/bcbf2c6e-b1df-4424-89c4-2372bda7f327	4

GENERAL INFORMATION

Course provider	CIFP Usurbil LHII
Country	Basque Country/ Spain
Language	Spanish
Learner Profile	Unemployees and professionals seeking to enhance their skills in networking and programming, and individuals looking to gain practical experience with Raspberry Pi and related technologies.
Mode of Learning	In Person
Credential Type	Microcredential Course
EQF Level	EQF 5
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	100 hours
Price	Free
Location	Usurbil, Basque Country

Introduction to Automation Systems

ADMA TRANSFORMATION AREA

MC 2321 Introduction to Automation Systems

Part of the lecture T4WIW9014

Learning Outcome: Automation fundamentals (definitions, standards for implementation). Analysis of technical systems (system description and approach).

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Automation, technical systems

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Introduction to Automation Systems
Learner Profile	A-Levels
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.10.25 – 31.12.25
Workload / Duration	1 ECTS / 25h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO skills

Automation technology

<http://data.europa.eu/esco/skill/f4a6e9f7-5cff-46c0-894c-59c20bb78694>

Introduction to Digital Twin Technology

ADMA TRANSFORMATION AREA

This training provides basic knowledge in how digital copies from physical systems are used for simulates and optimization.

<https://community.lcamp.eu/catalog-item/production-philosophy/>

Digital Factory

Digital Twins

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Digital Twin Technology	http://data.europa.eu/esco/skill/737f8895-46df-4283-8f38-13f3f0fc3b77	2
Digital Systems	http://data.europa.eu/esco/skill/397da142-ab35-48fe-b154-7c38f447adfb	2

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	Production Philosophy
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical
Learning Environment	Classroom, Educational Lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical practice and practical training in software
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

Introduction to Robotics

ADMA TRANSFORMATION AREA

MC 2334 Introduction to Robotics

Part of the lecture T3M30306

Learning Outcome: Robotics systems and industrial robots.

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Robotics, industrial robots

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Introduction to Robotics
Learner Profile	A-Level
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.01.26 – 01.04.26
Workload / Duration	1 ECTS / 25h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO Skills

Robotics

<http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40>

Robotic components

<http://data.europa.eu/esco/skill/7a950986-27fe-4b6c-adf3-88f211e77019>

INTRODUCTION OF THE PROGRAMMING OF UR COBOTS

The Introduction to the Programming of UR Cobots course provides learners with foundational skills to configure, calibrate, and program Universal Robots collaborative robots. Participants will use the PolyScope interface to develop simple programs, execute basic movements, and perform pick & place operations with tools and sensors. The training focuses on practical, hands-on tasks to ensure participants can confidently operate UR cobots in real industrial environments.

ADMA TRANSFORMATION AREA

Advanced Manufacturing
Technologies, Smart
Manufacturing

Automatization

CURRENT MATURITY
LEVEL (1-5)

2



TARGET MATURITY
LEVEL (1-5)

3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
working with computers	http://data.europa.eu/esco/skill/39499028-35bf-4d69-9275-fb98902ed88b	2
programming computer systems	http://data.europa.eu/esco/skill/d6e4373a-ef2c-4b64-9dc6-4140846f6609	2
maintain robotic equipment	http://data.europa.eu/esco/skill/7341904f-5913-470c-8c53-bc832df248ec	2

GENERAL INFORMATION

Course provider	Tolosaldea LHII
Country	Spain
Language	English
Education Subject	Robotics
Learner Profile	VET workers
Mode of Learning	In Person
EQF Level	4
Teaching Methodology	Practical
Learning Environment	Vocational learning classroom

INFORMATION ABOUT THE COURSE

Workload / Duration	2 Days
Location	Tolosaldea LHII
Learning activities	Lectures, guided practises and demonstrations.
Assessment Type	Exercises/practical assignments
Entry requirement	Electricity or Electronics Vocational Training Program or Engineering.

Industrial Robot Programming. Level 1 (ABB, FANUC, KUKA)

ADMA TRANSFORMATION AREA

Using robots improve the production and reduce time. It helps getting better work conditions. The objectives of the course are: Achieve robotics knowledges, Know robot safety, I/O, Calibration, Condition comands, Wait comands.

Advanced Manufacturing Technologies /
Digital Factory / Smart Manufacturing /
End-to-end Customer Focused
Engineering

Robot, programming, ABB,
FANUC, KUKA, AUTOMATIZATION

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Robotics	http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40	2
Operate industrial equipment	http://data.europa.eu/esco/skill/7c632656-361e-4db1-8d69-b9f85d6be0d0	2
Use automatic programming	http://data.europa.eu/esco/skill/7d10fcb2-b368-48ab-996b-7c9fafcf68ed	2
Manage health and safety standards	http://data.europa.eu/esco/skill/44e2c4c4-9fd2-42d4-a133-d81360ded4bc	3
Interpret technical texts	http://data.europa.eu/esco/skill/85c11255-469f-41bd-a6d1-382bc4a87783	2

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country / Spain
Language	English / Spanish
Education Subject	Introduction to industrial robots. Basic operation of the robot. Navigation through the programming unit. Program structure. Editing and execution of the program.
Mode of Learning	In Person

INFORMATION ABOUT THE COURSE

Workload / Duration	24 Hours
Location	IMH CAMPUS (Elgoibar)

Industrial Robot Programming. Level 2 (ABB, FANUC, KUKA)

ADMA TRANSFORMATION AREA

Using robots improve the production and reduce time. It helps getting better work conditions.

The objectives of the course are: To know how to program an industrial robot, to perform any automation process, to program interruption routines, to train the attendees to program industrial robots from the operator.

Advanced Manufacturing Technologies /
Digital Factory / Smart Manufacturing /
End-to-end Customer Focused
Engineering

ROBOT, PROGRAMMING, ABB,
FANUC, KUKA, AUTOMATIZATION

CURRENT MATURITY
LEVEL (1-5)

4



TARGET MATURITY
LEVEL (1-5)

5

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Robotics	http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40	3
Operate industrial equipment	http://data.europa.eu/esco/skill/7c632656-361e-4db1-8d69-b9f85d6be0d0	3
Use automatic programming	http://data.europa.eu/esco/skill/7d10fcb2-b368-48ab-996b-7c9fafcf68ed	3
Manage health and safety standards	http://data.europa.eu/esco/skill/44e2c4c4-9fd2-42d4-a133-d81360ded4bc	4
Interpret technical texts	http://data.europa.eu/esco/skill/85c11255-469f-41bd-a6d1-382bc4a87783	3

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country / Spain
Language	English / Spanish
Education Subject	Data type structures. Program flow instructions. Advanced movement instructions. Time control. Interrupt routines. Creation of forbidden zones.
Mode of Learning	In Person

INFORMATION ABOUT THE COURSE

Workload / Duration	25 Hours
Location	IMH CAMPUS (Elgoibar)
Entry requirement	Industrial Robot Programming course (level 1) completed or similar knowledge

Internet of Things (IoT)

ADMA TRANSFORMATION AREA

MC 2325 Internet of Things (IoT)

Part of the lecture T4WIW9014

Learning Outcome: Current topics in automation, including the latest developments and trends in the field (e.g. IoT).

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Automation

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	IoT
Learner Profile	A-Level
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.10.25 – 31.12.25
Workload / Duration	2 ECTS / 50h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO skills

Internet of Things

<http://data.europa.eu/esco/skill/f049d050-12da-4e40-813a-2b5eb6df6b51>

IoT SENSOR DEVELOPMENT AND LORAWAN NETWORK CONFIGURATION

ADMA TRANSFORMATION AREA

The program presents the basic concepts of developing connected IoT devices for smart cities and the use of modern low-power wireless LoRaWAN technology.

<https://ict-academy.si/usposabljanje/razvoj-senzorja-iot-in-konfiguracija-omrezja-lorawan/>

Smart manufacturing

IoT, LPWAN Technologies, Sensor Configuration, Data Visualization

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Internet of Things	http://data.europa.eu/esco/skill/f049d050-12da-4e40-813a-2b5eb6df6b51	4
Information and communication technologies (icts)	http://data.europa.eu/esco/iscsd-f/06	4

GENERAL INFORMATION

Course provider	University of Ljubljana Faculty of electrical engineering
Country	Slovenia
Language	Slovenian
Education Subject	This educational content covers the fundamentals of IoT devices for smart cities, explores low-power wireless communication technologies like LPWAN (LTE-M, NB-IoT, LoRaWAN, SigFox), and guides through the process of building, configuring, and deploying IoT sensor systems, including server setup and data analysis.
Learner Profile	Adult
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	EQF 5, 6
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Start Date – End Date	On demand
Workload / Duration	8 hours
Price	400,00 EUR + VAT
Location	Ljubljana
Learning activities	Practical exercise, training, problem solving
Assessment Type	Practical test
Entry requirement	Advance knowledge in IT

MCRO-250V Lean Fundamental Micro-Credential

ADMA TRANSFORMATION AREA

ADVANCED MANUFACTURING

Lean Business Operations

CURRENT
MATURITY
LEVEL 2

TARGET
MATURITY
LEVEL 4

Lean is an organizational philosophy, and an approach to business, that develops people through respect, training and engagement to facilitate problem solving that drives innovation and productivity. Though Lean methodologies are already common in fields such as manufacturing and supply chain management, every field from healthcare to construction can benefit from this philosophy.

[MCRO 250V Lean Fundamentals Micro-Credential](#)

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
0413 - Lean project management	http://data.europa.eu/esco/skill/da6393d5-a53c-4863-abc7-51f36281d74e	4

GENERAL INFORMATION

Course provider	Camosun College / ProSIT
Country	Canada
Language	English
Education Subject	Business
Learner Profile	College Students
Mode of Learning	Online
Credential Type	Micro-Credential
EQF Level	3
Teaching Methodology	Theoretical
Learning Environment	Online

INFORMATION ABOUT THE COURSE

Start Date – End Date	Self-paced, maximum length one year
Workload / Duration	One Year
Price	\$40.00 CAD
Location	Camosun College
Learning activities	Lectures and analysis
Assessment Type	Exams
Entry requirement	None
Admission procedure	Apply online; no prerequisites

LEAN Introduction

ADMA TRANSFORMATION AREA

This training is an introduction to LEAN. It provides basic principles like value flows, waste, Kaizen.

<https://community.lcamp.eu/catalog-item/production-philosophy/>

Human Centred Organisation

LEAN, TPS, 5S, Kaizen

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 2

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Continuous improvement philosophies	http://data.europa.eu/esco/skill/0550431f-9c8b-4204-9c45-59bc5feacf06	2

GENERAL INFORMATION

Course provider	Curt Nicolín Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	Production Philosophy
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Theoretical, Practical
Learning Environment	Classroom, Educational Lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Theoretical and practical training
Assessment Type	Theoretical and practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

MAKE 3D SLICING SETTINGS

ADMA TRANSFORMATION AREA

SMART MANUFACTURING

SMART PROTOTYPING

CURRENT
MATURITY
LEVEL 2

TARGET
MATURITY
LEVEL 4

Making flow, speed, extrusion width settings in 3d slicing programs.

<https://community.lcamp.eu/catalog-item/make-3d-slicing-settings/>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D printing process	3D printing process	4

GENERAL INFORMATION

Course provider	GEBKIM VET
Country	Türkiye
Language	Turkish
Education Subject	This course teaches learners how to prepare and optimize 3D models for printing by using slicing software. It covers layer settings, infill, support structures, temperature control, and material-specific configurations to ensure high-quality additive manufacturing output.
Learner Profile	VET Students
Mode of Learning	Online / Hybrid / In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	30 Hours
Location	GEBKIM VET
Learning activities	Lectures, Practices, Lab Work
Assessment Type	Practical slicing tasks and print project, Peer and instructor evaluation of slicing quality
Entry requirement	Basic computer skills and interest in digital design or manufacturing
Admission procedure	Online or in-person application submission

Manufacturing a part using 3D printing (with wire)

ADMA TRANSFORMATION AREA

Using a computer equipped with CAD software and 3D printing software, learners must process files and prepare the necessary file for optimal 3D printing of a part. Learners will develop skills to process CAD files, optimize part geometry, and generate 3D printing-ready files, ensuring accuracy, efficiency, and print quality.

<https://decouverte.mon-ent-occitanie.fr/>

Advanced Manufacturing Technologies

CAD, 3D printing

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Use CAD software	http://data.europa.eu/esco/skill/b34e2ba1-9080-48c9-9b42-ee9192a4d3f1	3
3D modelling	http://data.europa.eu/esco/skill/97965983-0da4-4902-9daf-d5cd2693ef73	3

GENERAL INFORMATION

Course provider	La Découverte
Country	France
Language	French
Education Subject	Manufacturing engineering
Learner Profile	EQF 4
Mode of Learning	In Person
Credential Type	Baccalaureate
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	September 2025
Workload / Duration	3 Hours
Location	Lycée La Découverte Decazeville France

Manufacturing process design

ADMA TRANSFORMATION AREA

Design the manufacturing process by machining the chassis plates of the LCAMP CLF's robot

<https://decouverte.mon-ent-occitanie.fr/presentation-du-lycee/nos-filieres/bts-erom-18018.htm>

Advanced Manufacturing
Technologies

Manufacturing process, LCAMP
robot, CLF

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Planning production processes	http://data.europa.eu/esco/skill/e6eeb84c-ad99-42e2-b883-e6ce338aef59	3
Select material to process	http://data.europa.eu/esco/skill/d55e3866-3ec1-4bbb-b946-2c16696d0dcb	3
Use CAM software	http://data.europa.eu/esco/skill/7a757fa5-9a6f-43ab-9e66-f8f4dba1ffcb	3
Assembling and fabricating products	http://data.europa.eu/esco/skill/b8e142fe-e508-42b1-b037-efebcef3a7	3
Control production	http://data.europa.eu/esco/skill/feceacee-d425-4e73-821a-02dfb85084db	2

GENERAL INFORMATION

Course provider	Lycée La Découverte
Country	France
Language	French
Education Subject	Manufacturing processes
Learner Profile	Learners EQF 5 involved in LCAMP's CLF i BTS CPRP
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	5
Teaching Methodology	Practical in CLF
Learning Environment	CLF

INFORMATION ABOUT THE COURSE

Start Date – End Date	Decembre 2025 – January 2026
Workload / Duration	2 months
Location	Lycée La Découverte Decazeville France
Learning activities	Manufacturing process design course + Practical work (design and implement the manufacturing process of the chassis
Assessment Type	Summative assesent : manufacturing document and oal presentation of the manufacturing process
Admission procedure	Be registered in theBTS CPRP programme

MENG-141 Manufacturing Processes 1

ADMA TRANSFORMATION AREA

ADVANCED MANUFACTURING

Manufacturing Tools

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

Students will be introduced to manufacturing processes and basic measuring tools. The safe and effective use of common manufacturing tools is emphasized. Students then work with machine and hand tools to manufacture a project set by the instructor. Only open to students in the Mechanical Engineering Technology and Mechanical Engineering Technology Access programs.

[MENG 141 - Manufacturing Processes 1 - Modern Campus Catalog™](#)

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
K072 Manufacturing and Processing	http://data.europa.eu/esco/iscdf/072	4
K071 Engineering and Engineering Trades	http://data.europa.eu/esco/iscdf/071	4

GENERAL INFORMATION

Course provider	Camosun College
Country	Canada
Language	English
Education Subject	Mechanical Engineering
Learner Profile	College Students
Mode of Learning	In Person
Credential Type	College Diploma
EQF Level	4
Teaching Methodology	Practical
Learning Environment	In Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	Four-month term
Workload / Duration	75 Hours
Price	\$562.38 CAD
Location	Camosun College
Learning activities	Lectures, analysis, and direct experience
Assessment Type	Papers / Exams / Physical Tests
Entry requirement	Requires prerequisite course from Camosun College
Admission procedure	Apply as part of Camosun mechanical engineering degree

MENG-141 Manufacturing Processes 2

ADMA TRANSFORMATION AREA

ADVANCED MANUFACTURING

Manufacturing Processes

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

Students will be introduced to automated machine tools including CNC lathes and milling machines. Using software, students will specify tools, set speeds and feeds and generate toolpaths to create machined parts. Work holding methods and tool selection will be reviewed. Use of laser cutter and 3D printing will also be explored. Only open to students in the Mechanical Engineering Technology program.

[MENG 244 - Manufacturing Processes 2/CAM - Modern Campus Catalog™](#)

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
K071 – Engineering and Engineering Trades	http://data.europa.eu/esco/iscd-f/071	4
S5.7.0 – Operate Machine Tools	http://data.europa.eu/esco/skill/f5750c05-7b15-4e0b-8591-f9a1bb95aaac	4

GENERAL INFORMATION

Course provider	Camosun College
Country	Canada
Language	English
Education Subject	Mechanical Engineering
Learner Profile	College Students
Mode of Learning	In Person
Credential Type	College Diploma
EQF Level	4
Teaching Methodology	Practical
Learning Environment	In Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	Four-month term
Workload / Duration	75 Hours
Price	\$551.34 CAD
Location	Camosun College
Learning activities	Lectures, analysis, and direct experience
Assessment Type	Papers / Exams / Physical Tests
Entry requirement	Requires prerequisite course from Camosun College
Admission procedure	Apply as part of Camosun mechanical engineering degree

MANUAL ASSEMBLY TECHNIQUES

ADMA TRANSFORMATION AREA

This course focuses on the fundamental skills required for manual assembly in industrial and manufacturing environments. It covers essential techniques, tools, and best practices for assembling mechanical and electronic components by hand.

https://lcamp.eu/wp-content/uploads/sites/53/2025/05/PPT_LFs-in-partners-labs2025_LCAMP-3.pdf (slide 38)

HUMAN-CENTERED
ORGANIZATION

ERGONOMIC PRACTICES AND
SAFETY FOCUS

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Apply Assembly Techniques	Apply Assembly Techniques	4

GENERAL INFORMATION

Course provider	GEBKIM VET
Country	Türkiye
Language	Turkish
Learner Profile	VET Students
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	12 Hours
Location	GEBKIM VET
Learning activities	Lecture, exercise, discussion, laboratory work
Assessment Type	Self-assessment learning diaries or portfolios – test reflection skills
Entry requirement	Basic mechanical or technical skills, Manual dexterity and visual-motor coordination
Admission procedure	Online or in-person application submission

ADMA TRANSFORMATION AREA

The Dual University Master's Degree in Digital Manufacturing responds to the new reality of companies within the framework of Industry 4.0, in which companies need professionals with a global vision of the Digital Factory, mastery of the associated technologies and capacity to lead the changes that the new industrial revolution implies in business models.

Digital Factory, Smart Manufacturing

Industry 4.0

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Internet of Things	http://data.europa.eu/esco/skill/f049d050-12da-4e40-813a-2b5eb6df6b51	3
Analyse Big Data	http://data.europa.eu/esco/skill/47a49cd6-097d-457a-9f7b-c290c14930d5	2
Perform data Mining	http://data.europa.eu/esco/skill/4216e465-7baa-4884-a241-54b197bb9278	2
Run simulations	http://data.europa.eu/esco/skill/4216e465-7baa-4884-a241-54b197bb9278	3

GENERAL INFORMATION

Course provider	IMH Campus
Country	Spain
Language	Spanish/English
Education Subject	Multidisciplinary training and preparation to provide solutions to the challenges posed by the different technologies of Industry 4.0 from a global perspective.
Learner Profile	Graduates in engineering or related fields. Who wish to broaden their skills and training in the area of Digital Manufacturing. Working professionals who wish to promote towards 5.0 profiles. Who wish to specialise in order to lead digitalisation projects within their own company.
Mode of Learning	In Person
Credential Type	Master's degree
Teaching Methodology	Dual

INFORMATION ABOUT THE COURSE

Workload / Duration	2250 Hours
Price	12700 €
Location	ELGOIBARKO INGENIARITZA DUALAREN ESKOLA (UPV/EHU) / IDEKO (Elgoibar) / TECNALIA (Donostia eta Zamudio) / VICOMTECH (Donostia) / TEKNIKER (Eibar)
Learning activities	Comprehensive Engineering Solutions / Systemic Organizational Processes / Research Methodology and Project / Leadership for New Business Models / Data Mining, Big Data, and AI / Applied Industrial Robotics / Industrial Technologies / Connected Industrial Systems

MDC – Method Design Concept

Methods Design Concept (MDC) is an industrial-engineering methodology for redesigning production processes, aimed at boosting productivity (Method, Performance, Utilisation) and, in turn, company profitability. The course equips participants with practical tools to calculate and realise concrete improvements along the production flow.

<https://www.smarttvalley.it/manufacturing/>

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies; Smart Manufacturing; Value-Chain-Oriented Open Factory

MDC; SMED; Changeover standardisation; IED; OED; Time study & motion analysis; KPI monitoring; Process optimisation

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Planning production processes	http://data.europa.eu/esco/skill/e6eeb84c-ad99-42e2-b883-e6ce338aef59	3
Quality and cycle time optimisation	http://data.europa.eu/esco/skill/3b3b7373-220a-4287-87cf-e24a208b63c6	2
Design changeover processes using SMED standards	http://data.europa.eu/esco/skill/7af76a2b-6bba-4350-9bfa-980e50c98481	3
Monitor productivity KPIs	http://data.europa.eu/esco/skill/8dcbcabe-09f7-4d11-940d-125af57bbc40	2

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Redesign and improvement of production processes
Learner Profile	Process manager, Management engineer, team leader
Mode of Learning	Hybrid
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Experience lab with workstations

INFORMATION ABOUT THE COURSE

Workload / Duration	ECTS / Hours / Days / Weeks
Schedule information	3 days (24 h) – approx.
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	Lectures, SMED lab exercises
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Basic Lean-manufacturing and production-process knowledge

The course's content, schedule and location can be adapted to the needs of the recipients.

MEASUREMENT AND CONTROL OF PHYSICAL VARIABLES

ADMA TRANSFORMATION AREA

Measures and controls pressure, temperature, flow, level.

<https://community.lcamp.eu/catalog-item/measurement-and-control-of-physical-variables/>

ADVANCED MANUFACTURING
TECHNOLOGIES

SMART SENSORS

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Use measurement instruments	Use measurement instruments	4

GENERAL INFORMATION

Course provider	GEBKIM VET
Country	Türkiye
Language	Turkish
Education Subject	This course focuses on the measurement, monitoring, and control of key physical variables such as temperature, pressure, flow, level, and speed in industrial systems using sensors, transducers, and control devices.
Learner Profile	VET Students
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	80 Hours
Location	GEBKIM VET
Learning activities	Lectures, Practices, Lab Work
Assessment Type	Lab performance, Design and implementation of a control system
Entry requirement	Motivation for working in technical and industrial settings
Admission procedure	Online or in-person application submission

BUS 232 – Operations Management

ADMA TRANSFORMATION AREA

ADVANCED MANUFACTURING

OPERATIONS MANAGEMENT

CURRENT
MATURITY
LEVEL 2

TARGET
MATURITY
LEVEL 4

This course provides a detailed look at Operations Management and its practical application to service and manufacturing operations. Numerous cases and off-campus tours are used. Topics include: supply chain management, forecasting, location selection, allocating resources, designing work systems, capacity planning, scheduling, quality management, inventory control and transportation.

[BUS 232 - Operations Management - Modern Campus Catalog™](#)

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
S1.2 Liasing and Network	http://data.europa.eu/esco/skill/b76cd1e5-d5e7-464a-b7bb-4164d3616452	4
S2.1.0 Conducting studies, investigations and examinations	http://data.europa.eu/esco/skill/8fde007e-ea4c-48c2-84c5-752834acd31d	4
S4.0 – Management Skills	http://data.europa.eu/esco/skill/c1a13ee0-b00d-4cfa-a22c-20d284e398b0	4

GENERAL INFORMATION

Course provider	Camosun College
Country	Canada
Language	English
Education Subject	Business
Learner Profile	College Students
Mode of Learning	In Person
Credential Type	College Diploma
EQF Level	4
Teaching Methodology	Theoretical
Learning Environment	In Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	Four-month term
Workload / Duration	45 Hours
Price	\$290.25 CAD
Location	Camosun College
Learning activities	Lectures, case studies, and analysis
Assessment Type	Papers / Exams / Case Studies
Entry requirement	Requires prerequisite course from recognized post-secondary institution
Admission procedure	Apply as part of Camosun business degree

PERFORMING A SCIENTIFIC RESEARCH

ADMA TRANSFORMATION AREA

HUMAN-CENTERED
ORGANIZATION

SOCIAL IMPACT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

The course's aim is to gain, correct or improve knowledge about phenomena by using scientific methods and techniques, based on empirical or measurable observations.

<https://community.lcamp.eu/catalog-item/gebkim-vet-performing-a-scientific-research/>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Perform scientific research	Perform scientific research	4

GENERAL INFORMATION

Course provider	KPDoNE
Country	Türkiye
Language	Turkish
Education Subject	This course introduces students to the principles and methods of scientific research, including how to design, conduct, document, and present a research study using systematic inquiry and academic ethics.
Learner Profile	VET Students and Teachers
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	42 Hours
Location	KPDoNE
Learning activities	Defining research problems and hypotheses, Data collection (observation, experiment, survey), Data analysis (basic statistics, charts)
Assessment Type	Individual or group research project, Oral or visual presentation
Entry requirement	Interest in inquiry, analysis, and technical/scientific communication
Admission procedure	Online or in-person application submission

PNEUMATICS BASIC TRAINING

ADMA TRANSFORMATION AREA

Course short description (+ URL): Acquire the physical foundations of pneumatics, understand the operation of pneumatic components, design pneumatic control systems, operate pneumatic components, maintain pneumatic systems.

https://www.tscmb.si/wp-content/uploads/2023/09/STRUKTURA-PNEVMATIKA_osnovni-seminar.pdf

Smart manufacturing

Pneumatics, Industrial Automation, control components

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 2

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Pneumatics	http://data.europa.eu/esco/skill/bf419e00-8548-491a-a06f-d72ab439df2f	2
Install pneumatic systems	http://data.europa.eu/esco/skill/82da5835-1759-4eeb-9d58-a834ee80384e	2

GENERAL INFORMATION

Course provider	TŠC Maribor
Country	Slovenia
Language	Slovenian
Education Subject	Engineering
Learner Profile	Students, workers
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	5
Teaching Methodology	Theoretical / Practical
Learning Environment	School laboratory

INFORMATION ABOUT THE COURSE

Start Date – End Date	March, April, May 2025
Workload / Duration	4h/day, 2 times a week (24 hours total)
Price	380,00 EUR + VAT (incl. welder certification)
Location	Zolajeva ulica 12, 2000 Maribor, Slovenia
Learning activities	Lecture, exercise, discussion, laboratory work
Assessment Type	Self-assessment learning diaries or portfolios – test reflection skills
Entry requirement	Persons who design, construct and manufacture devices with pneumatic components and service and maintain pneumatic systems, and persons who wish to increase their knowledge for their personal development and improve their competitiveness in the labor market.
Admission procedure	https://www.tscmb.si/wp-content/uploads/2025/02/VABILO_PNEVMATIKA_OSNOVNI_februar_2025.pdf

Predictive maintenance

ADMA TRANSFORMATION AREA

This course provides the foundational understanding of predictive maintenance and its role in modern industry. Learners are introduced to the basic principles of condition monitoring, data collection, and analysis used to anticipate equipment failures.

<https://3tindustry40training.eu/course/view.php?id=5>

Advanced Manufacturing
Technologies

Maintenance

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Maintenance and repair	http://data.europa.eu/esco/skill/6cb9c23b-e3bc-4917-b588-26c4cef9d920	1
Build predictive models	http://data.europa.eu/esco/skill/38d49d88-9069-467b-b29e-3cae739bdd4d	1

GENERAL INFORMATION

Course provider	3TIndustry 4.0
Country	France, Spain and Germany
Language	English
Education Subject	Maintenance
Mode of Learning	Online
Credential Type	None
EQF Level	None
Teaching Methodology	Theoretical
Learning Environment	E Learning

INFORMATION ABOUT THE COURSE

Start Date – End Date	Not applicable
Workload / Duration	3 Hours
Price	Free
Location	Online
Learning activities	Theoretical
Assessment Type	Quiz
Entry requirement	None
Admission procedure	Registration to the platform

Problem Solving

ADMA TRANSFORMATION AREA

The course offers the opportunity to explore and enhance your creative potential, while learning to balance divergent and convergent thinking in a dynamic and effective way.

You will also gain hands-on experience with tools and techniques designed to help you generate creative ideas and develop innovative solutions to real-world challenges.

<https://www.rolld.com/academy-offering/>

Human Centred Organization

Teamwork

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Solving problems	http://data.europa.eu/esco/skill/S1.9.0	4

GENERAL INFORMATION

Course provider	Rold Academy
Country	Italy
Language	Italian (but it can also be delivered in English)
Education Subject	Problem Solving
Learner Profile	Roles involved in business organization (HR, Managers, Area Managers, Team Leaders)
Mode of Learning	In Person
Credential Type	Certificate
EQF Level	5
Teaching Methodology	Theoretical and Practical
Learning Environment	MIND (Milan Innovation District), but it can also be arranged at company premises

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to requests
Workload / Duration	8 hours (4h per day)
Schedule information	Possibility to arrange specific courses
Price	800 €
Location	Milan (Italy)
Learning activities	Understanding the process of Applied Creativity and Creative Problem Solving (CPS) and how to use it to overcome creative challenges Experiencing the dynamic balance between divergent and convergent thinking, and learn how to apply it to achieve creative outcomes Being able to identify personal traits (Creative Thinking Preferences) and environmental factors (Creative Environment), as well as behaviors and attitudes that can enhance or inhibit creativity
Assessment Type	Questionnaire
Entry requirement	No entry requirement
Admission procedure	Interview

Course schedules and content can be customized, and additional follow-up meetings and continuous learning activities can be planned.

Process Automation with PLC, HMI and electro pneumatic systems

ADMA TRANSFORMATION AREA

This intensive training module focuses on the automation of industrial processes using PLCs, HMIs, and electropneumatic systems. The course combines theoretical lessons, hands-on workshops, and real-life challenges to develop technical skills in programming, commissioning, and troubleshooting automated systems. Participants will work in international teams to control FESTO stations, apply GRAFCET and KOP programming, and complete a challenge-based project simulating real industrial tasks. The module promotes collaborative learning and includes cultural activities to enrich the international experience.

Digital Factory, Advanced Manufacturing Technologies

Automation, PLC, HMI, electropneumatic

CURRENT MATURITY
LEVEL (1-5)

3

TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Programmable logic controller	http://data.europa.eu/esco/skill/6468e5fb-f3be-4025-87be-4b6556755c61	3
Use automatic programming	http://data.europa.eu/esco/skill/7d10fcb2-b368-48ab-996b-7c9fafcf68ed	3
Install automation components	http://data.europa.eu/esco/skill/818c2b89-1335-4443-ada7-e1046862e273	3
Human-robot collaboration	http://data.europa.eu/esco/skill/0f5374e3-0b9b-4b16-af7a-49654ce0bb15	2

GENERAL INFORMATION

Course provider	CIFP Armeria eskola LHII
Country	Basque country – Spain
Language	English
Education Subject	PLC programming
Learner Profile	Automation students
Mode of Learning	In Person
EQF Level	4/5
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Workshop

INFORMATION ABOUT THE COURSE

Workload / Duration	60 Hours
Location	CIFP Armeria eskola LHII
Learning activities	Identify and wire PLC inputs and outputs, including PNP/NPN configurations. Sequential control, design and simulate GRAFCET diagrams for basic automation sequences. Use TIA Portal, program PLCs with ladder logic (KOP). Simulate and debug programs, practicing fault detection, signal tracing, and testing system behavior in manual and automatic modes. Work on FESTO workstations, creating I/O tables, GRAFCET diagrams, and full PLC programs.
Assessment Type	Final project
Entry requirement	Enrolment in automation cycle EQF 4/5

This course delivers a thorough grounding in advanced data-analysis and AI methods (Process Mining, Machine Learning, Predictive/Prescriptive Analytics, RPA and dashboards) to optimize processes across production, supply chain, maintenance and customer service. Participants will learn to deploy digital tools for real-time KPI monitoring and rapid issue detection.

<https://www.smarttvalley.it/manufacturing/>

ADMA TRANSFORMATION AREA

Digital Factory; Advanced Manufacturing Technologies; Smart Manufacturing

Business process mapping · Process Mining · Machine Learning · Predictive Maintenance · Prescriptive Analytics · Demand Forecasting · RPA & Hyperautomation · Dashboards & Real-time KPI monitoring · IoT sensor integration

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Analyse and map business processes	http://data.europa.eu/esco/skill/56042303-972b-41be-9310-58467599ff7e	3
Use advanced data-analysis and mining tools	http://data.europa.eu/esco/skill/4216e465-7baa-4884-a241-54b197bb9278	2
Develop predictive and prescriptive models	http://data.europa.eu/esco/skill/e2887d71-8ff4-4188-9926-22bdaefa7713	4
Build interactive dashboards for real-time KPI monitoring	http://data.europa.eu/esco/skill/8dcbcabe-09f7-4d11-940d-125af57bbc40	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Process Optimization via Advanced Data Analytics & AI
Learner Profile	Data analysts, process-improvement specialists, operations managers, digital transformation leads
Mode of Learning	Hybrid/ In-person
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, IT lab

INFORMATION ABOUT THE COURSE

Workload / Duration	4 days (32 h) – approx.
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	Process mapping exercises, Process Mining case studies, ML model builds, dashboard creation workshops
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Basic statistics

The course's content, schedule and location can be adapted to the needs of the recipients.

This course enables professionals to design and deploy Digital Twin systems by integrating IoT sensors, dynamic process models, and advanced analytics for real-time monitoring, simulation, and optimization of physical assets. It also demonstrates how AR/VR technologies enhance operator training, hazard detection, and field operations to boost quality, safety, and time-to-market.

<https://www.smarttvalley.it/manufacturing/>

ADMA TRANSFORMATION AREA

Digital Factory; Advanced Manufacturing Technologies; Smart Manufacturing

Digital Twin · IoT integration · Real-time simulation · Advanced analytics · AR/VR training · Hazard detection · Operator support systems · Process optimization

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Digital modelling technologies	http://data.europa.eu/esco/skill/737f8895-46df-4283-8f38-13f3f0fc3b77	3
Integrate IoT sensor data for process monitoring	http://data.europa.eu/esco/skill/46ec0033-3c71-415e-bcff-b065675ba2dc	3
Apply advanced process simulation and analytics	http://data.europa.eu/esco/skill/b9e451f5-a62f-4a16-a229-255fa5c222a5	4
Design and implement AR/VR training environments	http://data.europa.eu/esco/skill/0620ecd1-e4b1-4dfa-972b-38a93e5ebd9d	3

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Process Simulation Systems, Digital Twin, AR/VR
Learner Profile	Industry automation engineers, maintenance managers, digital transformation specialists
Mode of Learning	Hybrid/In-persons
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, IT lab with VR solutions, Experience lab with XR-equipped workstations, Campus Smartt Valley KIIS

INFORMATION ABOUT THE COURSE

Workload / Duration	3 days (18 h) – approx.
Price	Depending on time schedule and location
Location	Smartt Valley
Learning activities	Lectures, simulation labs, AR/VR scenario exercises
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	Basic knowledge of IoT, production processes; familiarity with digital analytics

The course's content, schedule and location can be adapted to the needs of the recipients.

Product Digital Twin

ADMA TRANSFORMATION AREA

The course offers an intensive, dynamic learning experience on the strength of the Competence Centre demonstration areas, integrating theory and practice and team project work at the end of the course. The approach is multidisciplinary, collaborative, experiential and concrete.

<https://www.made-cc.eu/en/servizio/training-skills/>

Digital Factory, Smart Manufacturing

Digitalisation, design, automation

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D Modelling	http://data.europa.eu/esco/skill/97965983-0da4-4902-9daf-d5cd2693ef73	2
Run simulations	http://data.europa.eu/esco/skill/a432ffcd-b58d-4417-836c-ea3282b626ca	3

GENERAL INFORMATION

Course provider	MADE Competence Center Industry 4.0
Country	Italy
Language	Italian
Education Subject	Digital Twin, Product Lifecycle, Industry 4.0
Learner Profile	Engineers, Technical Designers, Workers in product development roles
Mode of Learning	Online / Hybrid / In Person
Credential Type	Microcredential
EQF Level	EQF3
Teaching Methodology	Practical
Learning Environment	Classroom

INFORMATION ABOUT THE COURSE

Workload / Duration	6 hours
Price	450 EUR
Location	Milan, Italy / online
Learning activities	Workshops, simulation labs, technology tours
Assessment Type	Group exercises and applied project evaluation
Entry requirement	Familiarity with CAD/PLM and industrial design processes
Admission procedure	By filling up online module - Formare competenze - Made

APMC 504V – Project Closing & Continuous Improvement

ADMA TRANSFORMATION AREA

Learn the close out procedures for an individual phase or completed project. You will work through an administrative closure, financial closure and transfer to operations, using the lessons learned review process for continuous improvement. Also, you will explore the Organizational Project Management Maturity Model (OPM3)[®] and how to set up a Project Management Office.

[APMC 504V Project Closing & Continuous Improvement](#)

END-TO-END CUSTOMER-
FOCUSED ENGINEERING

APPLIED PROJECT MANAGEMENT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
S4.2 Organising, Planning, and Scheduling Work and Activities	management skills	4
S4.4 Performing administrative activities	management skills	4
S4.9 Decision-Making	management skills	4

GENERAL INFORMATION

Course provider	Camosun College / ProSIT
Country	Canada
Language	English
Education Subject	Business
Learner Profile	College Students
Mode of Learning	Online
Credential Type	College Certificate
EQF Level	4
Teaching Methodology	Theoretical
Learning Environment	Online

INFORMATION ABOUT THE COURSE

Start Date – End Date	Self-Paced
Workload / Duration	Self-Paced
Price	\$487.47 CAD
Location	Camosun College
Learning activities	Lectures and analysis
Assessment Type	Exams
Entry requirement	Must be enrolled in Applied Project Management Certificate program
Admission procedure	Enroll as part of program above

APMC 500V – Project Initiation and Charter Development

ADMA TRANSFORMATION AREA

Learn the fundamentals of project management for organizations including project selection and start up methods. Gain practical experience defining specific project needs and developing a project charter that provides the correct level of detail for your situation.

[APMC 500V Project Initiation & Charter Development](#)

END-TO-END CUSTOMER-
FOCUSED ENGINEERING

APPLIED PROJECT MANAGEMENT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
S4.2 Organising, Planning, and Scheduling Work and Activities	management skills	4
S4.4 Performing administrative activities	management skills	4
S4.9 Decision-Making	management skills	4

GENERAL INFORMATION

Course provider	Camosun College / ProSIT
Country	Canada
Language	English
Education Subject	Business
Learner Profile	College Students
Mode of Learning	Online
Credential Type	College Certificate
EQF Level	3
Teaching Methodology	Theoretical
Learning Environment	Online

INFORMATION ABOUT THE COURSE

Start Date – End Date	Self-Paced
Workload / Duration	Self-Paced
Price	\$487.47 CAD
Location	Camosun College
Learning activities	Lectures and analysis
Assessment Type	Exams
Entry requirement	Must be enrolled in Applied Project Management Certificate program
Admission procedure	Enroll as part of program above

PLM management: 3D experience

This course introduces the fundamentals of Product Lifecycle Management (PLM) using Dassault Systèmes 3DEXPERIENCE platform. Based on the practical case of the LCAMP robot development, participants will learn basic PLM management and how to manage design data in a collaborative and efficient way.

<https://www.maltuna.eus/en/>

ADMA TRANSFORMATION AREA

Advanced Manufacturing
Technologies, Digital Factory

PLC, automation, robotics

CURRENT
MATURITY (1-5):
3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Apply product lifecycle management (PLM)	https://esco.ec.europa.eu/en/skill/c8399675-1d86-4d67-8004-97b37ef36f39	3
Manage data for product development	https://esco.ec.europa.eu/en/skill/3a34535a-f2ef-441e-8a00-fd7e95d4e60d	4
Collaborate in engineering processes	https://esco.ec.europa.eu/en/skill/44db4045-b91a-459e-9384-9f5280fbc230	4
Use computer-aided software (CAD, CAM, CAE)	https://esco.ec.europa.eu/en/skill/61a19164-7277-4d3b-931d-2779a7de18f6	4

GENERAL INFORMATION

Course provider	Miguel Altuna LHII
Country	Basque Country, Spain
Language	English
Education Subject	Higher Technician in Mechanical Manufacture Design
Learner Profile	students EQF5, workers
Mode of Learning	In Person
EQF Level	EQF5
Teaching Methodology	Practical in CLF
Learning Environment	CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	10 hours
Price	0€
Location	Bergara, Miguel Altuna LHII
Assessment Type	Project
Entry requirement	EQF5 level

Redesign of parts and assembly using CAD software

ADMA TRANSFORMATION AREA

Advanced Manufacturing
Technologies

CAD software, Redesign

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

Using a computer equipped with CAD software, learners must modify existing parts and assemblies to facilitate the manufacturing of certain components, improve the assembly of specific sets, and enhance performance. Participants will develop skills in redesigning components, adjusting assemblies for better fit and function, and applying engineering principles to optimize designs.

<https://decouverte.mon-ent-occitanie.fr/presentation-du-lycee/nos-filieres/>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
CAD software	http://data.europa.eu/esco/skill/a2b5dcf3-5b6a-453d-876c-cff540c0faf1	3
Industrial design	http://data.europa.eu/esco/skill/efacdaad-ab73-4056-bee3-4eb34b458bf6	3
Engineering principles	http://data.europa.eu/esco/skill/209a5498-3449-4689-8ed9-bd08cab4fd78	3

GENERAL INFORMATION

Course provider	Lycée La Découverte
Country	France
Language	French
Education Subject	Design engineering
Learner Profile	Learners EQF4
Mode of Learning	In Person
Credential Type	Baccalaureate
EQF Level	4
Teaching Methodology	Theoretical & Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	Septeber 2025
Workload / Duration	6 Hours
Location	Lycée La Découverte Decazeville France
Learning activities	Theoretical classes and practical work

Reverse Engineering with 3D CAD: NX

ADMA TRANSFORMATION AREA

Practical exercises using the CAD program demonstrate the work process of reverse engineering and its applications. Suitable for CAD software users who want to learn about the reverse engineering process with NX.

<https://www.imh.eus/en>

Advanced Manufacturing
Technologies, Digital Factory

3D modeling, reverse engineering,
solid edge

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Perform reverse engineering	https://esco.ec.europa.eu/en/skill/0d7f5b15-9b59-4cd6-b8fd-bb5f390234d5	3
Use computer-aided design software (CAD)	https://esco.ec.europa.eu/en/skill/ba1e95b2-7e99-4ec5-8d51-8cb13e4f74e2	4
Create 3D models	https://esco.ec.europa.eu/en/skill/33265b4d-92c7-4532-b1de-fd42c3e049b4	4
Interpret technical drawings	https://esco.ec.europa.eu/en/skill/f387a644-d24b-4d83-b948-80e4f43c5130	3

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country/ Spain
Language	English, Spanish
Mode of Learning	In-Person
Credential Type	Microcredential Course
EQF Level	3
Teaching Methodology	Theoretical / Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	15 hours
Location	Elgoibar, Basque Country

SERVICE / TOOL DESCRIPTION

1. General concepts.
2. Tools for repairing the scanned file.
3. Methods for reverse engineering.
4. Directly fast modeling of surfaces.
5. Color classification method
6. Extract curves and create surfaces
7. Boundary curve projection method.

Reverse Engineering with 3D CAD: Solid Edge

Practical exercises using the CAD program demonstrate the work process of reverse engineering and its applications. Suitable for CAD software users who want to learn about the reverse engineering process with Solid Edge.

<https://www.imh.eus/en>

ADMA TRANSFORMATION AREA

Advanced Manufacturing
Technologies, Digital Factory

3D modeling, reverse engineering,
solid edge

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Perform reverse engineering	https://esco.ec.europa.eu/en/skill/0d7f5b15-9b59-4cd6-b8fd-bb5f390234d5	3
Use computer-aided design software (CAD)	https://esco.ec.europa.eu/en/skill/ba1e95b2-7e99-4ec5-8d51-8cb13e4f74e2	4
Create 3D models	https://esco.ec.europa.eu/en/skill/33265b4d-92c7-4532-b1de-fd42c3e049b4	4
Interpret technical drawings	https://esco.ec.europa.eu/en/skill/f387a644-d24b-4d83-b948-80e4f43c5130	3

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country/ Spain
Language	English, Spanish
Mode of Learning	In-Person
Credential Type	Microcredential Course
EQF Level	3
Teaching Methodology	Theoretical / Practical

INFORMATION ABOUT THE COURSE

Workload / Duration	15 hours
Location	Elgoibar, Basque Country

SERVICE / TOOL DESCRIPTION

1. General concepts.
2. Tools for repairing the scanned file.
3. Methods for reverse engineering.
4. Directly fast modeling of surfaces.
5. Color classification method
6. Extract curves and create surfaces
7. Boundary curve projection method.

Risk and change management

ADMA TRANSFORMATION AREA

Risk and change management

Part of the lecture T4WIW9146

Learning Outcome: Learning psychology / Decision-making / Organisational culture / Personality description / Motivation / Group dynamics / Stress and coping

<https://www.heidenheim.dhbw.de/en/home>

Value Chain Oriented Open
Factory

Psychology, organisation,
decision, management

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Understanding behaviour: psychological foundations for organisation and decision-making
Learner Profile	A-Level
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Theoretical / Practical
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.10.25 – 31.12.25
Workload / Duration	1 ECTS /30h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO Skills

Apply change management

<http://data.europa.eu/esco/skill/3c03ee71-4a23-448f-b79e-81fd75d27dca>

Risk management

<http://data.europa.eu/esco/skill/6eff134b-e34f-4d6e-a6e8-5e47cf2228d0>

Roadmap to Sustainability

ADMA TRANSFORMATION AREA

The course aims at supporting management and key personnel in acquiring the necessary skills for integrating sustainability practices into the company. Participants will be able to (i) Identify existing activities aligned with ESG principles, (ii) Effectively engage internal and external stakeholders, (iii) Analyze challenges and opportunities through the IRO approach (Impacts, Risks, Opportunities), (iv) define ESG strategy.

<https://www.rolld.com/academy-offering/>

Eco Factory

Environmental impact:
improvement strategies

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Promote sustainable management	http://data.europa.eu/esco/skill/6742977a-aa00-4c8c-9861-898b0373907e	4

GENERAL INFORMATION

Course provider	Rold Academy
Country	Italy
Language	Italian (but it can also be delivered in English)
Education Subject	Strategies for integrating sustainability practices in an SME
Learner Profile	Roles involved in business organization (HR, Managers, Area Managers)
Mode of Learning	In Person
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical and Practical
Learning Environment	MIND (Milan Innovation District), but it can also be arranged at company premises

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to requests
Workload / Duration	16 hours (4h per day)
Schedule information	Possibility to arrange specific courses
Price	1600 €
Location	Milan (Italy)
Learning activities	Mapping of existing activities and analysis of the company context Analysis of case studies and industry benchmarks (with a focus on SMEs and the supply chain) Interactive Workshop: Identification of Impacts, Risks, and Opportunities (IRO) Stakeholder Engagement: Defining key actors and engagement methods (internal and external – customers, suppliers, communities, etc.) Definition of Priority Actions based on relevance, feasibility, and impact Drafting of a Strategic Sustainability Plan (with focus on objectives, indicators, roles, and communication methods)
Assessment Type	Questionnaire
Entry requirement	No entry requirement
Admission procedure	Interview

Course schedules and content can be customized, and additional follow-up meetings and continuous learning activities activities can be planned.

Robot programming health and security

The focus of this course is operator safety. Technology's impact on occupational health and safety is explored together with ways technology can best be used to mitigate occupational injury and/or illness, where possible, synergically with productivity.

<https://www.made-cc.eu/it/corso/salute-e-sicurezza-nella-fabbrica-4-0-vr-ar-robotica-collaborativa-esoscheletri/>

ADMA TRANSFORMATION AREA

Digital Factory, Smart Manufacturing

Operator assistance systems, Collaborative robotics, Virtual design

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Occupational health	http://data.europa.eu/esco/skill/d5e39a53-4f54-4d5f-9df3-b49664c9559d	2
Robotics	http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40	2
Emergent technologies	http://data.europa.eu/esco/skill/42cb7669-c371-4903-9c0b-13db67b2e4bb	2

GENERAL INFORMATION

Course provider	MADE Competence Center Industry 4.0
Country	Italy
Language	Italian
Education Subject	Industry 4.0
Learner Profile	Operational-technical: entrepreneurs, Departmental Workers, Maintenance workers, HR, Programmers, ICT experts
Mode of Learning	Online / Hybrid / In Person
Credential Type	Microcredential
EQF Level	EQF3
Teaching Methodology	Practical
Learning Environment	Classroom

INFORMATION ABOUT THE COURSE

Start Date – End Date	22 October 2025
Workload / Duration	8 hours
Price	1000 EUR
Location	Milan, Italy
Learning activities	Participant-lecturer interaction during the lessons with a marked operational focus in teaching methods on real business context experience
Assessment Type	No formal exam or graded assessment. Participation-based evaluation
Entry requirement	No prior coding or deep technical expertise required, but a basic understanding of business or operations is probably expected
Admission procedure	By filling up online module - Formare competenze - Made

Robotics Kinematics and Control

ADMA TRANSFORMATION AREA

MC 2335 Robotics and Kinematics Control

Part of the lecture T3M30306

Learning Outcome: Kinematics and interpolation. Robot and process control. The use of robot systems (with case studies involving technical and economic analyses).

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Kinematics, interpolation, robot, systems

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Robotics and Kinematics Control
Learner Profile	A-Level
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Lecture
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.01.26 – 01.04.26
Workload / Duration	2 ECTS / 50h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO Skills

Human-robot collaboration

<http://data.europa.eu/esco/skill/0f5374e3-0b9b-4b16-af7a-49654ce0bb15>

Robotics Laboratory

ADMA TRANSFORMATION AREA

MC 2336 Robotics Laboratory

Part of the lecture T3M30306

Learning Outcome: Laboratory robotics. Case studies on programming various robotic systems in a laboratory environment.

<https://www.heidenheim.dhbw.de/en/home>

Advanced Manufacturing, Smart Manufacturing

Robotics, system, laboratory

CURRENT
MATURITY (1-5)
LEVEL 4



TARGET
MATURITY
LEVEL (1-5)
LEVEL 5

GENERAL INFORMATION

Course provider	DHBW Heidenheim
Country	Germany
Language	German
Education Subject	Robotics Laboratory
Learner Profile	A-Level
Mode of Learning	Laboratory
Credential Type	ECTS
EQF Level	EQF6
Teaching Methodology	Laboratory
Learning Environment	HVET Centre

INFORMATION ABOUT THE COURSE

Start Date – End Date	01.01.26 – 01.04.26
Workload / Duration	2 ECTS / 50h
Location	DHBW Heidenheim (Baden-Wuerttemberg Cooperative State University)

ESCO Skills

Set up automotive robot

<http://data.europa.eu/esco/skill/e975b791-b488-4935-be44-06f2f9a443bb>

Robotics

<http://data.europa.eu/esco/skill/e87ec79a-c9ff-46f5-84fa-7a0f394cdf40>

SIMATIC S7 SCL

ADMA TRANSFORMATION AREA

This course covers the advanced Structured Control Language (SCL) programming, which is increasingly replacing traditional Statement List (STL) programming due to more complex algorithms and evolving CPU architectures. Upon completion, participants will be capable of independently developing sophisticated algorithms and performing system diagnostics.

<https://www.dankon.si/izobra%C5%BEEvanje/simatic-s7-scl/#opis>

Smart manufacturing

SCL, PLC Programming, Data Processing, SIMATIC

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Industrial software	http://data.europa.eu/esco/skill/41ec47dd-08b3-464a-9c45-c706f3e74467	4
Operate programmable logic controllers (PLCs)	http://data.europa.eu/esco/skill/6468e5fb-f3be-4025-87be-4b6556755c61	4

GENERAL INFORMATION

Course provider	Dankon industrijska avtomatizacija
Country	Slovenia
Language	Slovenian
Education Subject	SIMATIC S7 SCL
Learner Profile	Workers, Adult
Mode of Learning	In Person
Credential Type	Paper based
EQF Level	EQF 4 and 5
Teaching Methodology	Theoretical / Practical
Learning Environment	Learning lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	06/10/2025 – 08/10/2025
Workload / Duration	24 hours (3 days)
Schedule information	06/10/2025 – 08/10/2025 (morning/afternoon)
Price	1.195,60 EUR (VAT included)
Location	Žalec
Learning activities	Practical example, diagnostic, creating programme code
Assessment Type	Practical exam
Entry requirement	Basic knowledge of electrical engineering

Selective Laser Sintering (SLS) 3D-Printing

ADMA TRANSFORMATION AREA

This training includes practical training using SLS-printing in ABS-plastic, for precise additive manufactured parts, using similar techniques as SLS-printing in Metal. This training also includes PPE.

<https://www.cng.se/te4-gymnasieingenj%C3%B6r>

Advanced Manufacturing Technologies

Additive manufacturing, 3D-printing, SLS, PPE

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D Printing process	http://data.europa.eu/esco/skill/2afb2b59-c9a3-4cf3-b1dd-1a2fad51e583	3
Maintain AM systems	http://data.europa.eu/esco/skill/3a699f1e-3803-4c1b-b6a8-6230cca92933	3
Set up AM systems	http://data.europa.eu/esco/skill/5f8e1bde-a2f9-4742-a4f4-309dfc2f6311	3

GENERAL INFORMATION

Course provider	Curt Nicolin Gymnasiet
Country	Sweden
Language	Swedish
Education Subject	Industrial production methods
Learner Profile	EQF 5
Mode of Learning	In Person
Credential Type	Certificate of Completion
EQF Level	EQF 5
Teaching Methodology	Practical
Learning Environment	Workshop

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to agreement
Workload / Duration	4 days
Schedule information	4 days training
Location	Finspång Sweden
Learning activities	Practical training in SLS 3D-printer, PPE
Assessment Type	Practical test
Entry requirement	Technical studies or similar completed EQF 4
Admission procedure	https://www.cng.se/

SOLIDWORKS ADVANCED PART MODELING

SOLIDWORKS Advanced Part Modeling is designed for users who want to deepen their knowledge and master advanced modeling techniques. Participants will learn how to handle complex geometries, use advanced sketching and modeling methods, adapt imported geometry, and efficiently use the feature library.

<https://www.solidworld.si/izobrazevanja/napredno-modeliranje-kosov>

ADMA TRANSFORMATION AREA

Smart manufacturing

3D Modeling, SOLIDWORKS,
Multibody Design

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
3D modeling	http://data.europa.eu/esco/skill/97965983-0da4-4902-9daf-d5cd2693ef73	4
Interpret 3D plans	http://data.europa.eu/esco/skill/aafbb139-02c6-4f35-bc62-ff73faf97d6d	4

GENERAL INFORMATION

Course provider	Solid World
Country	Slovenia
Language	Slovenian
Education Subject	This course delves into advanced 3D modeling techniques, focusing on multibody design, complex 3D sketching, and sophisticated feature creation like sweeps, lofts, and advanced fillets. You'll gain expertise in managing complex geometries, working with imported data, and building reusable design libraries within a CAD environment.
Learner Profile	Adult, students
Mode of Learning	Online / Hybrid / In Person
Credential Type	Certificat
EQF Level	EQF 5
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Educational lab

INFORMATION ABOUT THE COURSE

Start Date – End Date	21/10/2025 – 29/10/2025
Workload / Duration	3 days (21 hours)
Schedule information	21/10/2025, 8:30 - 15:30 22/10/2025, 8:30 - 15:30 29/10/2025, 8:30 - 15:30
Price	570,00 EUR
Location	Rusjanova ulica 10, 1235 Radomlje
Learning activities	Practical exercises
Assessment Type	Certificat of achievement

Statistical Process Control (SPC)

Statistical Process Control (SPC) is a method used in manufacturing and service industries to monitor and control processes through statistical techniques. This course provides participants with the knowledge and tools to apply SPC to improve process performance, reduce variability, and ensure product quality.

<https://community.lcamp.eu/catalog-item/statistical-process-control-spc/>

ADMA TRANSFORMATION AREA

Digital Factory, Smart Manufacturing

Big data, data analysis, business intelligence

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Statistical process control	http://data.europa.eu/esco/skill/0c77bcd5-b94a-475d-98e9-5a4327e4d726	3
Apply control process statistical methods	http://data.europa.eu/esco/skill/ee8fee1a-75c1-43fb-b08d-779929f99249	3
Interpret current data	http://data.europa.eu/esco/skill/1e77e42a-181f-4b48-8e74-201ce50ffc29	3
Monitor manufacturing quality standards	http://data.europa.eu/esco/skill/3edfcb2b-2d0e-4673-87ce-f55c37eb5fca	2

GENERAL INFORMATION

Course provider	IMH CAMPUS
Country	Basque Country / Spain
Language	Spanish
Education Subject	Analyze a production process by means of control charts and capacity studies to predict its evolution over time and make decisions.
Learner Profile	Technical personnel responsible for production and quality areas who want to apply statistical control techniques.
Mode of Learning	Online
Credential Type	Microcredential Course
EQF Level	5
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	16 Hours
Price	250€
Location	Online
Entry requirement	Basic knowledge of production and quality control, and spreadsheet management.

Subtractive manufacturing processes

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies

Manufacturing processes, machining strategies

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

This course introduces learners to the principles and practical aspects of subtractive manufacturing. Participants will learn how to prepare digital files, set up machining operations, and produce components. They will learn principles such as : file management, machining strategies, process control, and quality verification to ensure efficient and accurate manufacturing outcomes.

<https://community.lcamp.eu/catalog-item/subtractive-manufacturing-processes/>

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Manufacturing processes	http://data.europa.eu/esco/skill/3786b61f-f22e-48d1-af8d-ad4c354534db	3
Abrasive machining processes	http://data.europa.eu/esco/skill/f777173e-567c-4d4a-80b3-0ff5353bb9ce	3
Quality standards	http://data.europa.eu/esco/skill/8d4271ca-c9fd-40b3-875f-15f78332a49e	3

GENERAL INFORMATION

Course provider	Lycée La Découverte
Country	France
Language	French
Education Subject	Manufacturing processes
Learner Profile	Learners in EQF 5 diploma
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	5
Teaching Methodology	Theoretical & Practical
Learning Environment	VET Center

INFORMATION ABOUT THE COURSE

Start Date – End Date	2025-02-10 2025-02-11
Workload / Duration	12 Hours
Location	Lycée La Découverte Decazeville France
Learning activities	Theoretical classes and practical work
Entry requirement	EQF 4 diploma
Admission procedure	Registration – Parcoursup

Teamwork

Teamwork has proven to be a soft skill that is becoming increasingly important in the development of organizations, bringing numerous benefits to both the organization and the employee.

<https://www.lhusurbil.eus/web/Default.aspx?lng=EU>

ADMA TRANSFORMATION AREA

Human Centred Organization

Human, teamwork, Industry 5.0

CURRENT
MATURITY (1-5)
LEVEL: 4



TARGET
MATURITY
LEVEL (1-5): 5

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Work in a team	https://esco.ec.europa.eu/en/skill/431bd4e6-0994-4ef8-b388-71c9f326b0d7	4
Foster teamwork	https://esco.ec.europa.eu/en/skill/f69b145c-f4f4-4c5b-8b90-d3b252e9c81d	5
Communicate in a team	https://esco.ec.europa.eu/en/skill/8eae4f48-dab3-4484-8963-805e6bd72d4e	4
Show intercultural awareness	https://esco.ec.europa.eu/en/skill/c4d57995-6b4b-4d11-b430-4c198ae12e68	5

GENERAL INFORMATION

Course provider	CIFP Usurbil LHII
Country	Basque Country/ Spain
Language	Spanish
Learner Profile	Professionals, team leaders, and employees from various organizational levels who seek to enhance their teamwork skills
Mode of Learning	Online
Credential Type	Microcredential Course
EQF Level	Although it is not currently part of the National Qualifications Framework (NQF), the course is part of the lifelong learning offer of the Basque Government.
Teaching Methodology	Theoretical / Practical / Practical in CLF

INFORMATION ABOUT THE COURSE

Workload / Duration	30 hours
Price	Free
Location	Usurbil, Basque Country

THINKING INNOVATIVELY

Thinking innovately is important in terms of to develop ideas or conclusions that lead to the creation and Implementation of innovations or changes. Objectives of this course are: understanding the concept and importance of innovative thinking in today's world, developing skills to approach problems creatively and propose new ideas, learning techniques to foster innovation in different areas of life and work, practicing on applying innovative thinking to real-world situations and projects, working in teams to create and present innovative solutions.

<https://community.lcamp.eu/catalog-item/gebkim-vet-thinking-innovatively/>

ADMA TRANSFORMATION AREA

HUMAN-CENTERED
ORGANIZATION

HUMAN-FOCUSED INNOVATION

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Thinking creatively and innovatively	Thinking creatively and innovatively	4
Think innovatively	Think innovatively	4

GENERAL INFORMATION

Course provider	KPDoNE
Country	Türkiye
Language	Turkish
Education Subject	The course introduces the principles and tools of innovative thinking, fostering creativity, problem-solving, and idea development. It encourages learners to generate novel solutions in work, entrepreneurship, and social contexts.
Learner Profile	VET Students and Teachers
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	42 Hours
Location	KPDoNE
Learning activities	Lectures, Practicing brainstorming and mind-mapping
Assessment Type	Participation in workshops and creative sessions, Team-based innovation challenge or mini-project
Entry requirement	Interest in creativity, entrepreneurship, or personal development
Admission procedure	Online or in-person application submission

Towards Open and Generative Organizational Models

ADMA TRANSFORMATION AREA

The course aims to develop the ability to (i) critically analyse organizational and leadership models, (ii) Encourage reflection on the changes impacting the effectiveness of current organizational structures, (iii) introduce and experiment with new learning approaches to support change.

<https://www.rolld.com/academy-offering/>

Human Centred Organization

People management and development

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Leading and motivating	http://data.europa.eu/esco/skill/S4.5	3

GENERAL INFORMATION

Course provider	Rold Academy
Country	Italy
Language	Italian
Education Subject	Towards Open and Generative Organizational Models
Learner Profile	Roles involved in business organization (HR, Managers, Area Managers, Board Members, Team Leaders)
Mode of Learning	In Person
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical and Practical
Learning Environment	MIND (Milan Innovation District), but it can also be arranged at company premises

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to requests
Workload / Duration	8 hours (4h per day)
Schedule information	Possibility to arrange specific courses
Price	800 €
Location	Milan (Italy)
Learning activities	The learning activities include: (i) What is an organization? (ii) Closed vs. open organizations: features and key differences (iii) Introduction to global change agents and their impact (iv) The strategic value of plurality and inclusion in organizations (v) Group work: exploring and practicing models of distributed leadership (vi) How skills and knowledge are acquired and transmitted in open contexts
Assessment Type	Questionnaire
Entry requirement	No entry requirement
Admission procedure	Interview

Course schedules and content can be customized, and additional follow-up meetings and continuous learning activities activities can be planned.

Understanding Environmental and Social Impacts

The course aims to (i) identify the key factors that make sustainability processes a lever for competitiveness, (ii) gain knowledge related to environmental and social impact assessments, (iii) understand the role of supply chain relationships and stakeholders in enabling shared and systemic sustainability processes.

<https://www.rolld.com/academy-offering/>

ADMA TRANSFORMATION AREA

Eco Factory

Eco design

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Assess environmental impact	http://data.europa.eu/esco/skill/e541c69c-ea80-4b17-87cb-4001d0b9d303	3

GENERAL INFORMATION

Course provider	Rold Academy
Country	Italy
Language	Italian (but it can also be delivered in English)
Education Subject	Strategies for leveraging LCA to redesign processes and products
Learner Profile	Roles involved in business organization (HR, Managers, Area Managers)
Mode of Learning	In Person
Credential Type	Certificate
EQF Level	6
Teaching Methodology	Theoretical and Practical
Learning Environment	MIND (Milan Innovation District), but it can also be arranged at company premises

INFORMATION ABOUT THE COURSE

Start Date – End Date	According to requests
Workload / Duration	8 hours
Schedule information	Possibility to arrange specific courses
Price	1400 €
Location	Milan (Italy)
Learning activities	CURRENT CONTEXT & FUTURE SCENARIOS: DRIVERS AND REGULATIONS Why it is still strategic for SMEs to invest in sustainability UNDERSTANDING AND MANAGING IMPACTS ON ENVIRONMENT AND PEOPLE LCA (Life Cycle Assessment) as a tool for creativity and redesign (includes theory and practical exercise) Social impacts in the supply chain (includes theory and practical exercise)
Assessment Type	Questionnaire
Entry requirement	No entry requirement
Admission procedure	Interview

Course schedules and content can be customized, and additional follow-up meetings and continuous learning activities activities can be planned.

USING A CHEMICAL REACTOR

ADMA TRANSFORMATION AREA

Preparing the reactor for production and commissioning.

<https://community.lcamp.eu/catalog-item/using-a-chemical-reactor/>

ADVANCED MANUFACTURING
TECHNOLOGIES

CHEMICAL PROCESS CONTROL

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Use chemical analysis equipment	Use chemical analysis equipment	4
Chemical processes	Chemical processes	4

GENERAL INFORMATION

Course provider	GEBKIM VET
Country	Türkiye
Language	Turkish
Education Subject	This course provides learners with the theoretical and practical skills required to operate, monitor, and control chemical reactors safely and efficiently in industrial environments. It includes understanding reaction types, process parameters, and safety protocols.
Learner Profile	Students, Technician
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	30 Hours
Location	GEBKIM VET
Learning activities	Lectures, Practices, Lab Work
Assessment Type	Lab performance, Hands-on practical evaluations
Entry requirement	Interest in industrial chemical processes and plant operations
Admission procedure	Online or in-person application submission

WASTE TREATMENT PROCESS

ADMA TRANSFORMATION AREA

It aimed at educating students or professionals about waste treatment methods, environmental impacts, and modern waste management practices.

<https://community.lcamp.eu/catalog-item/gebkim-vet-waste-treatment-process/>

ECO FACTORY

WASTE MANAGEMENT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Waste management	Waste management	4
Manage waste	Manage waste	4
Dispose waste	Dispose waste	4

GENERAL INFORMATION

Course provider	Gebkim VET
Country	Türkiye
Language	Turkish
Education Subject	"Waste Treatment Process" course aims to equip learners with practical and theoretical knowledge about waste collection, segregation, treatment technologies, and environmental sustainability in accordance with European and national standards.
Learner Profile	EQF 4
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	30 Hours
Location	GEBKIM VET
Learning activities	Lectures & Practices
Assessment Type	Quizz, Lab Works, Exams
Entry requirement	Motivation and interest in environmental sustainability
Admission procedure	Online or in-person application submission

Workplace Organization & Standard Work

This course introduces the key methods and tools for standardizing work operations in both production and service contexts. Participants learn how to develop Standard Operating Procedures (SOPs), implement 5S, conduct improvement audits and sustain continuous workplace organization.

<https://www.smarttvalley.it/manufacturing/>

ADMA TRANSFORMATION AREA

Human-Centred Organisation; Smart Manufacturing; End-to-End Customer-Focused Engineering

Standard Work · SOP · Visual SOP · One-Point Lessons (OPL) · Work Instructions · 5S · Improvement Audits · Checklists · Workplace Organization · Continuous Improvement

CURRENT
MATURITY
LEVEL 1



TARGET
MATURITY
LEVEL 3

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Develop Standard Operating Procedures	http://data.europa.eu/esco/skill/c64c4f42-253b-4d53-8637-fd00d86100c7	3
Apply workplace organization techniques	http://data.europa.eu/esco/skill/d3eccb86-f02d-4950-bfbd-20b9510774a1	2
Conduct improvement and compliance audits	http://data.europa.eu/esco/skill/d3eccb86-f02d-4950-bfbd-20b9510774a1	2

GENERAL INFORMATION

Course provider	Fondazione Ergo
Country	Italy
Language	Italian / English
Education Subject	Key methods and tools for standardizing work operations in both production and service contexts
Learner Profile	Production supervisors, line operators, quality engineers, continuous-improvement specialists
Mode of Learning	In-Person/Hybrid
Credential Type	Certificate
EQF Level	5-6
Teaching Methodology	Theoretical / Practical / Practical in CLF
Learning Environment	Classroom, Experience lab with workstations

INFORMATION ABOUT THE COURSE

Workload / Duration	3 days (24 h) – approx
Price	Depending on time schedule and location
Location	Learning Factory, Smartt Valley
Learning activities	5S zone set-up, SOP writing workshops, audit simulations, group projects
Assessment Type	Multiple choice assessment customized on client needs + situational interview
Entry requirement	No prerequisites; familiarity with basic manufacturing concepts beneficial

The course's content, schedule and location can be adapted to the needs of the recipients.

WRITING A PROGRAM TO PLC

ADMA TRANSFORMATION AREA

SMART MANUFACTURING

SMART MANUFACTURING

CURRENT
MATURITY
LEVEL 2

TARGET
MATURITY
LEVEL 4

Writes basic program to PLC by making relay and contact operations.

[GEBKİM VET-Writing a Program to PLC - Open Innovation Community](#)

LEARNING OUTCOMES

ESCO Skill	ESCO URL	Maturity Level 1-4
Programmable logic controller	Programmable logic controller	4
Use logic programming	Use logic programming	4

GENERAL INFORMATION

Course provider	Gebkim VET
Country	Türkiye
Language	Turkish
Education Subject	This course focuses on the fundamentals of PLC (Programmable Logic Controller) programming, enabling learners to design, write, test, and troubleshoot basic automation programs used in industrial systems.
Learner Profile	EQF 4
Mode of Learning	In Person
Credential Type	ECTS
EQF Level	EQF 4
Teaching Methodology	Theoretical / Practical
Learning Environment	VET Centre

INFORMATION ABOUT THE COURSE

Workload / Duration	60 Hours
Location	GEBKİM VET
Learning activities	Lectures & Practices
Assessment Type	Practical programming tasks, Exams
Entry requirement	Basic knowledge of electricity, electronics, or IT
Admission procedure	Basic technical knowledge interview or short assessment

4. BENCHMARKING ANDERER SCHULUNGEN

Dieses Kapitel enthält einen Benchmarking-Vergleich externer Schulungsangebote mit dem Ziel, den Schulungskatalog von LCAMP für KMU kontinuierlich zu verbessern. Die Notwendigkeit dieses Benchmarking-Vergleichs ergibt sich aus den Ergebnissen von D7.2. Bei 59 KMU-Scans in acht Ländern zeigten sich zwei Stärken: End-to-End-kundenorientiertes Engineering (Kundenorientierung) und menschenzentrierte Organisation (Mitarbeiterorientierung). Vier Bereiche wiesen eine geringere Reife auf: Smart Manufacturing (geringe Automatisierung und begrenzte Nutzung von Echtzeitdaten), Digital Factory (Herausforderungen bei der Systemintegration und Konnektivität), Value Chain Oriented Open Factory (begrenzte offene Innovation und externe Partnerschaften) und ECO Factory (uneinheitliche Nachhaltigkeitspraktiken). Dementsprechend priorisiert dieser Vergleich Schulungen, die den Fortschritt in diesen schwächeren Bereichen beschleunigen können, während die bereits vorhandenen Stärken erhalten bleiben und genutzt werden.

Wir analysieren sechs repräsentative Anbieter mit sich ergänzenden Profilen und globaler Reichweite: Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon University, POK (POLIMI Open Knowledge) und Udey. Zusammen decken sie folgende Bereiche ab:

- Akademisch fundierte und von der Industrie validierte Inhalte (Universitäten, Forschungseinrichtungen)
- Groß angelegte, modulare Online-Angebote (MOOC-Plattformen)
- Angewandte, praxisorientierte Ausbildungsökosysteme (Innovations-KICs und angewandte Forschungsinstitute)
- Mehrstufige Angebote, die Kurzurse, Spezialisierungen, Mikro-Zertifikate und vollständige Studiengänge umfassen.

Dieser Mix ermöglicht es uns, Lehrpläne, Pädagogik, Qualifikationsmodelle und Branchenintegration über verschiedene Bereitstellungslogiken hinweg (offene Plattformen, Universitätsprogramme, institutsgeführte Akademien) zu vergleichen und bewährte Verfahren zu identifizieren, die auf LCAMP-Partner übertragbar sind.

Um einen konsistenten und aussagekräftigen Vergleich zwischen den verschiedenen analysierten Organisationen zu gewährleisten, folgt dieses Benchmarking einem gemeinsamen analytischen Ansatz.

Angesichts der in D7.2 aufgezeigten Schwächen werden in diesem Kapitel Schulungen hervorgehoben, die:

- Smart Manufacturing ermöglichen (z. B. Automatisierung, vorausschauende Wartung, KI-gesteuerte Optimierung, Echtzeitüberwachung).
- die digitale Fabrik stärken (Systemintegration über ERP-MES-SCADA, Datenverwaltung, Cybersicherheit, digitale Zwillinge).
- eine wertschöpfungskettenorientierte offene Fabrik entwickeln (offene Innovation, gemeinsame Entwicklung mit Lieferanten/Kunden, Datenaustausch, vernetzte Abläufe).
- ECO-Fabrik-Praktiken operationalisieren (Energie-/Ressourceneffizienz, Kreislaufwirtschaft, Ökodesign, Wasser- und Materialmanagement).

Dieses Benchmarking fließt direkt in den LCAMP-Schulungskatalog und das Micro-Credential-Framework ein und hilft den Partnern, relevante bestehende Schulungen zu identifizieren, Bereiche für die Entwicklung neuer Module zu definieren und die Pädagogik, Bewertung und



Zusammenarbeit mit der Industrie zu verbessern, um die Wirkung und Reife von KMU zu stärken.

4.1. COURSERA

Coursera ist eine weltweit führende Plattform für Online-Lernen, die 2012 von den Stanford-Professoren Daphne Koller und Andrew Ng gegründet wurde. Sie arbeitet mit weltweit führenden Universitäten und Branchenführern zusammen, um flexible, hochwertige Kurse, professionelle Zertifikate und vollständige Studiengänge anzubieten. Coursera deckt Themen von Technologie und Datenwissenschaft bis hin zu Führung, Wirtschaft und Sozialwissenschaften ab und verbindet akademische Strenge mit praktischen, berufsrelevanten Fähigkeiten. Zu seinen Stärken zählen weltweite Zugänglichkeit, renommierte Partnerschaften, modulare Lernooptionen und ein Fokus auf berufliche Weiterentwicklung und lebenslanges Lernen.

Wichtigste Merkmale

- Lernformate: Einzelkurse, Spezialisierungen (eine Reihe verwandter Kurse), geführte Projekte, berufliche Zertifikate und gelegentlich vollständige Studiengänge.
- Flexibilität: Die meisten Kurse sind asynchron und können im eigenen Tempo absolviert werden, während einige einem festen Zeitplan folgen.
- Zertifikate: Die Lernenden erwerben Zertifikate, deren Wert sich nach dem Ruf der ausstellenden Universität oder Organisation richtet.
- Freemium- und kostenpflichtige Optionen: Viele Kurse können kostenlos (ohne Zertifizierung) besucht werden, während die kostenpflichtigen Versionen benotete Prüfungen und Zertifikate umfassen. Abonnementoptionen wie *Coursera Plus* sind ebenfalls verfügbar.
- Qualität und Glaubwürdigkeit: Die Plattform bietet Kurse von renommierten Institutionen wie IIM, der University of Illinois und IBM an, wodurch die akademische und berufliche Glaubwürdigkeit gewährleistet ist.
- Breites Themenspektrum: von Datenwissenschaft und KI bis hin zu Führung, Wirtschaft und digitalem Marketing.
- Support und zusätzliche Dienstleistungen: Funktionen wie Peer-Review, Fallstudien, Capstone-Projekte und praktische Aufgaben sind weit verbreitet. Viele Kurse enthalten auch Übersetzungen und Untertitel in mehreren Sprachen.

Das Kursdesign von Coursera spiegelt einen strukturierten, konsistenten Ansatz wider, der es zu einem Maßstab in der digitalen Bildung gemacht hat. Die meisten Spezialisierungen folgen einem progressiven Ansatz – beginnend mit grundlegenden Konzepten über strategische Anwendungen bis hin zu realen oder Abschlussprojekten. Dieser mehrschichtige Ansatz hilft den Lernenden, Schritt für Schritt Fähigkeiten aufzubauen und gleichzeitig ihre Motivation aufrechtzuerhalten. Flexibilität und Modularität stehen weiterhin im Mittelpunkt: Die Lernenden können in ihrem eigenen Tempo voranschreiten, Kurse vor der Anmeldung testen oder sich für kurze Einführungsprogramme wie „KI für alle“ oder „Generative KI für alle“ entscheiden, um schnell und leicht zugänglich zu lernen.



Ein weiteres charakteristisches Merkmal ist die Integration von Führung, Veränderungsmanagement und Technologie. Coursera präsentiert Transformation nicht nur als einen technischen Prozess, sondern als einen Prozess, der eng mit Governance, Unternehmenskultur und Menschen verbunden ist. Viele Kurse verknüpfen diese Dimensionen miteinander, um sowohl die strategische als auch die technische Entwicklung zu fördern. Darüber hinaus legt die Plattform den Schwerpunkt auf die Schaffung von Geschäftswert und nicht nur auf die Vermittlung der Nutzung von Tools. Die Kurse zeigen oft, wie digitale Technologien Geschäftsmodelle, Governance-Strukturen und Wettbewerbsstrategien neu gestalten können, und verbinden so das Lernen mit messbaren Ergebnissen.

Analysen und Leistungsmessungen sind in das gesamte Lerndesign von Coursera eingebettet und fördern evidenzbasierte Entscheidungen und kontinuierliche Verbesserungen. Die Plattform bietet sowohl kurze Kurse zur Sensibilisierung als auch umfassende Spezialisierungen und spricht damit sowohl Gelegenheitslernende als auch Fachleute an, die tiefergehende Fachkenntnisse erwerben möchten. Die meisten Programme enden mit einem praktischen oder realen Projekt, wodurch das angewandte Lernen und greifbare Ergebnisse verstärkt werden.

Um sich vom Ansatz von Coursera abzuheben, könnten sich neue Lernplattformen auf interaktive Simulationen und praktische Übungen konzentrieren, die reale organisatorische Herausforderungen widerspiegeln. Die Einbindung von Peer-Mentoring, Gemeinschaftsprojekten und lokalisierten Fallstudien würde das Engagement und die kontextuelle Relevanz erhöhen. Fortschrittliche Dashboards zur Fortschrittsverfolgung könnten den Lernenden helfen, ihre Fortschritte und Erfolge zu visualisieren. Das Angebot von stapelbaren Mikro-Zertifikaten und die Kombination von technischen Fähigkeiten mit der Entwicklung von Führungsqualitäten würden eine reichhaltigere, integriertere Lernerfahrung schaffen.

Beispiele für Coursera-Schulungen, die für die Methodik-Transformationen der ADMA relevant sind

1. Grundlagen der KI und des maschinellen Lernens (Microsoft)

- ADMA-Bereiche: Intelligente Fertigung; Digitale Fabrik
- Zusammenfassung: Dieser Kurs für Fortgeschrittene vermittelt die Grundlagen der KI und des maschinellen Lernens mit Schwerpunkt auf Datenmanagement, Vorverarbeitung, Modellbereitstellung und Infrastruktur. Er erklärt, wie man die technische Basis – Daten, Hardware und Software – von KI-Systemen entwirft und wartet.
- Link: <https://www.coursera.org/learn/foundations-of-ai-and-machine-learning>

2. KI-Grundlagen für alle (IBM) Spezialisierung

- ADMA-Bereiche: Digitale Fabrik; Intelligente Fertigung; Menschzentrierte Organisation
- Zusammenfassung: Eine nicht-technische Spezialisierung, die erklärt, was KI ist, wie sie verantwortungsbewusst implementiert werden kann und wie die für die Einführung erforderlichen organisatorischen, ethischen und governancebezogenen Veränderungen bewältigt werden können. Der Schwerpunkt liegt eher auf der Sensibilisierung und dem grundlegenden Verständnis als auf tiefgreifendem technischem Fachwissen.
- Link: <https://www.coursera.org/specializations/ai-foundations-for-everyone>

3. Spezialisierung „Strategische Führung und Management“ (University of Illinois Urbana-Champaign)

- ADMA-Bereiche: Menschzentrierte Organisation; Wertschöpfungskettenorientierte offene Fabrik; End-to-End-kundenorientiertes Engineering



- Zusammenfassung: Diese Spezialisierung richtet sich an aktuelle und angehende Führungskräfte und befasst sich mit Führung, Unternehmenskultur, strategischer Ausrichtung, Teambildung und Veränderungsmanagement. Der Schwerpunkt liegt darauf, wie effektive Führung und Strukturen adaptive, kundenorientierte Organisationen fördern.
 - Link: <https://www.coursera.org/specializations/strategic-leadership>
4. Spezialisierung im Bereich digitales Marketing (Universität von Illinois Urbana-Champaign)
- ADMA-Bereiche: End-to-End-kundenorientiertes Engineering; digitale Fabrik; wertschöpfungskettenorientierte offene Fabrik
 - Zusammenfassung: Der Schwerpunkt liegt auf modernen digitalen Marketingstrategien, Analysen, Kundenverhalten und Leistungsmessung. Die Lernenden erwerben Fähigkeiten in den Bereichen Customer Journey Mapping, Gestaltung digitaler Kampagnen und Management von Marketinginitiativen in vernetzten Ökosystemen.
 - Link: <https://www.coursera.org/specializations/digital-marketing>

4.2. EIT MANUFACTURING

Das Europäische Innovations- und Technologieinstitut (EIT) ist eine Einrichtung der Europäischen Union, die 2008 mit dem Ziel gegründet wurde, Innovationen in Europa durch die Vernetzung von Universitäten, Forschungszentren und Unternehmen zu fördern. Um dies zu erreichen, arbeitet das EIT mit großen thematischen Gemeinschaften, den sogenannten KICs (Wissens- und Innovationsgemeinschaften), die sich jeweils auf eine strategische Herausforderung wie nachhaltige Energie, Gesundheit, Digitalisierung, Klimawandel, Rohstoffe, Lebensmittel ... und Fertigung konzentrieren.

EIT Manufacturing ist eine dieser KICs, die sich dem industriellen und fortschrittlichen Fertigungssektor widmet. Ihr übergeordnetes Ziel ist es, die europäische Fertigung wettbewerbsfähiger, digitaler und nachhaltiger zu machen. Um dies zu erreichen, entwickelt sie Aktivitäten entlang vier Hauptaktionslinien:

- Innovation: Unterstützung von Kooperationsprojekten zwischen Unternehmen, Forschungszentren und Universitäten zur Entwicklung neuer Fertigungslösungen.
- Bildung: Angebot von Ausbildungsprogrammen für Studierende, Fachkräfte und KMU (Masterstudiengänge, Online-Kurse, Sommerschulen, Workshops), um die von der Industrie der Zukunft geforderten Kompetenzen zu vermitteln.
- Unternehmensgründung: Unterstützung von Unternehmern, Start-ups und Scale-ups bei der Markteinführung innovativer Technologien und Dienstleistungen für die Fertigung.
- Gemeinschaft: Aufbau europäischer Netzwerke, die lokale Ökosysteme industrieller Innovation miteinander verbinden.

Aus Sicht des Benchmarking ist der Bereich Bildung besonders relevant. Über den EIT Campus <https://eit-campus.eu/courses> bietet EIT Manufacturing ein breites Spektrum an Ausbildungsmöglichkeiten, das von kurzen Online-Modulen bis hin zu spezialisierten Masterstudiengängen reicht. Das Portfolio umfasst Themen wie digitale Fertigung, Nachhaltigkeit, Führung und Unternehmertum und richtet sich an verschiedene Zielgruppen: Studierende, Fachleute aus der Industrie und KMU.

Diese Struktur spiegelt einen umfassenden Ausbildungsansatz wider, der technische Fähigkeiten (z. B. Digitalisierung, Automatisierung, nachhaltige Fertigung) mit übergreifenden Kompetenzen (z. B. Innovationsmanagement, Führung, Unternehmertum) kombiniert. Damit



stellt EIT Manufacturing einen Maßstab dafür dar, wie Ausbildungsangebote in ein breiteres Innovationsökosystem eingebettet werden können, um die Abstimmung zwischen Bildung, Forschung und industriellen Anforderungen sicherzustellen.

Beispiele für Schulungskurse, die für die Transformation der ADMA-Methodik von Interesse sind:

- Nutzung der Digital-Twin-Technologie für nachhaltige Fertigung
 - o Online-Kurs, Anfängerniveau.
 - o Relevante ADMA-Bereiche: Digitale Fabrik, Ökofabrik, fortschrittliche Fertigungstechnologien.
 - o Überblick: Einführung in die Verwendung digitaler Zwillinge zur Verbesserung der Effizienz, Reduzierung von Abfall, Optimierung von Abläufen und Steigerung der Nachhaltigkeit.
 - o Link: <https://eitmanufacturingacademy.eu/courses/leveraging-digital-twin-technology-for-sustainable-manufacturing-31925/>
- Wertschöpfung vorantreiben: Kompetenzen für eine nachhaltige und integrative Zukunft
 - o Online-Kurs, Mittelstufe.
 - o Relevante ADMA-Bereiche: Menschzentrierte Organisation, Öko-Fabrik, wertschöpfungskettenorientierte offene Fabrik.
 - o Überblick: Vermittelt Kompetenzen zur Förderung von Nachhaltigkeit, Inklusion und Wertschöpfung in der Industrie. Der Schwerpunkt liegt auf Führung, Zusammenarbeit und verantwortungsvoller Innovation, um Unternehmen mit sozialen und ökologischen Zielen in Einklang zu bringen.
 - o Link: <https://eit-campus.eu/learning-path/driving-value-creation-skills-for-a-sustainable-and-inclusive-future>
- MSc in Mensch-Roboter-Interaktion für nachhaltige Fertigung
 - o Masterstudiengang, Fortgeschrittenenstufe (2 Jahre, Doppelabschluss).
 - o Relevante ADMA-Bereiche: Fortschrittliche Fertigungstechnologien, intelligente Fertigung, menschenzentrierte Organisation.
 - o Überblick: Der Schwerpunkt liegt auf der Integration von Robotik und menschenzentriertem Design in der nachhaltigen Fertigung. Kombiniert technisches Fachwissen mit einer Ausbildung in Innovation und Unternehmertum.
 - o Link: <https://www.eitmanufacturing.eu/what-we-do/education/master-school/msc-in-human-robot-interaction-for-sustainable-manufacturing/>
- MSc in digitaler Fertigung für innovative Ökosysteme
 - o Masterstudiengang, Fortgeschrittenenstufe (2 Jahre, Doppelabschluss).
 - o Relevante ADMA-Bereiche: Digitale Fabrik, intelligente Fertigung, wertschöpfungskettenorientierte offene Fabrik.
 - o Überblick: Befasst sich mit digitalen Technologien für Fertigungsökosysteme, einschließlich Systemintegration, datengesteuerter Innovation und Zusammenarbeit innerhalb von Wertschöpfungsketten. Bereitet Absolventen



darauf vor, die digitale Transformation in industriellen Netzwerken voranzutreiben.

- Link: <https://www.eitmanufacturing.eu/what-we-do/education/master-school/msc-in-digital-manufacturing-for-innovative-ecosystems/>
- MSc in Null-Fehler-Fertigung für eine Kreislaufwirtschaft
 - Masterstudiengang, Fortgeschrittenenstufe (2 Jahre, Doppelabschluss).
 - Relevante ADMA-Bereiche: Intelligente Fertigung, ECO Factory, fortschrittliche Fertigungstechnologien.
 - Überblick: Spezialisiert auf Fehlervermeidung und hochwertige Produktionsmethoden, verbindet fortschrittliche Fertigung mit den Prinzipien der Kreislaufwirtschaft. Konzentriert sich auf Echtzeitüberwachung, Prozessoptimierung und nachhaltige Praktiken.
 - Link: <https://www.eitmanufacturing.eu/what-we-do/education/master-school/msc-in-zero-defect-manufacturing-for-a-circular-economy/>
- Kreislaufwirtschaft – Nachhaltiges Materialmanagement
 - Online-Kurs, Anfängerniveau
 - Relevante ADMA-Bereiche: ECO Factory, Value Chain Oriented Open Factory
 - Überblick: Einführung in die Prinzipien des nachhaltigen Materialmanagements mit Schwerpunkt auf Wiederverwendung, Recycling und verantwortungsvollen Lieferketten. Richtet sich an Fachleute, die Kreislaufwirtschaftspraktiken in die Fertigung integrieren möchten.
 - Link: <https://eit-campus.eu/course/raw-materials/circular-economy-sustainable-materials-management>
- Künstliche Intelligenz und Kreislaufwirtschaft
 - Online-Kurs, Anfängerniveau
 - Relevante ADMA-Bereiche: ECO Factory, Digital Factory, Smart Manufacturing
 - Übersicht: Erläutert, wie KI Strategien der Kreislaufwirtschaft unterstützen kann, von der Optimierung der Ressourceneffizienz bis hin zur Ermöglichung neuer nachhaltiger Geschäftsmodelle. Bietet Fallstudien und praktische Beispiele.
 - Link: <https://eit-campus.eu/course/girls-go-circular/artificial-intelligence-and-the-circular-economy>

4.3. FRAUNHOFER-GESELLSCHAFT

Die Fraunhofer-Gesellschaft ist eine der führenden Organisationen für angewandte Forschung in Europa. Sie wurde 1949 in Deutschland gegründet und hat sich zum Ziel gesetzt, Innovation, Technologietransfer und gesellschaftlichen Nutzen zu fördern, indem sie eine Brücke zwischen akademischer Forschung und industrieller Anwendung schlägt.

Fraunhofer ist mit rund 75 bis 76 Instituten und unabhängigen Forschungseinheiten in ganz Deutschland vertreten und beschäftigt fast 32.000 Forscher, Ingenieure und Support-Mitarbeiter. Das jährliche Forschungsbudget beträgt rund 3,6 Milliarden Euro, davon stammen etwa 3,1 Milliarden Euro aus Auftragsforschung mit Partnern aus Industrie und öffentlichem Sektor.



Die Mission von Fraunhofer umfasst die Bewältigung drängender gesellschaftlicher Herausforderungen – wie digitale Transformation, Klimawandel, Energiewende, Gesundheitswesen und resiliente Infrastruktur – durch die Suche nach nachhaltigen, ethisch vertretbaren technologischen Lösungen. Fraunhofer arbeitet eng mit Universitäten, Unternehmen (aller Größenordnungen), öffentlichen Einrichtungen und internationalen Partnern zusammen, um Forschungsergebnisse in effektive Produkte, Dienstleistungen und Prozesse umzusetzen.

Die wichtigsten Grundsätze und Alleinstellungsmerkmale von Fraunhofer sind:

- Angewandte und marktorientierte Forschung: Ein Großteil der Arbeit erfolgt im Rahmen von Auftragsforschung, Prototypentwicklung und öffentlich-privaten Kooperationen.
- Grundfinanzierung + Projektfinanzierungsmodell: Die Kernfinanzierung durch Bund und Länder unterstützt die Institute bei der Erforschung längerfristiger, vorwettbewerblicher Themen, während ein großer Teil der Ressourcen aus extern finanzierten Projekten stammt.
- Interdisziplinäre Struktur: Zu den Forschungsbereichen gehören unter anderem Bioökonomie, künstliche Intelligenz, Quantentechnologie, Ressourceneffizienz, digitale Gesundheitsversorgung und Wasserstofftechnologien.
- Technologietransfer & Innovationsökosystem: Fraunhofer unterstützt Ausgründungen, Lizenzierungen und kooperative Innovationen. Die Organisation ist bestrebt, die Umsetzung von Forschungsergebnissen in die Praxis zu beschleunigen.

Fraunhofer strebt ein Gleichgewicht zwischen der Förderung wissenschaftlicher Exzellenz und der Erzielung messbarer Auswirkungen für Industrie und Gesellschaft an – insbesondere durch die Unterstützung kleiner und mittlerer Unternehmen bei der Teilnahme an Hightech-Innovationen und durch den Beitrag zur industriellen Wettbewerbsfähigkeit Deutschlands und Europas.

Beispiele für Schulungskurse, die für die Transformation der ADMA-Methodik von Interesse sind:

T1. Fortgeschrittene Fertigungstechnologien

- Fraunhofer Additive Academy – Additive Fertigung Grundlagenschulung → Einführungsschulung zu AM-Technologien, Potenzialen und Anwendungen.
- AM-Grundlagenschulung – Design (Fraunhofer IAPT).

T2. Digitale Fabrik

- Fraunhofer Academy – Smart Production Professional → umfasst intelligente Produktion, Sensoren, additive Fertigung, ML, Trends.
- Smart Production Professional (Fraunhofer Academy).

T3. Öko-Fabrik (Nachhaltigkeit)

- Fraunhofer Academy / Fraunhofer Academy allgemeine Angebote zu „Energie und Nachhaltigkeit“ im Weiterbildungsprogramm.
- Fraunhofer Academy – Weiterbildungsthemen einschließlich Energie & Nachhaltigkeit.

T4. Kundenorientiertes integriertes Engineering

- Fraunhofer Additive Academy – Design for Additive Production Training (DfAP) → Schwerpunkt auf Design, funktionaler Integration, Leichtbaukonstruktionen.
- Design for Additive Production Training (Fraunhofer IAPT).

T5. Menschenzentrierte Organisation



- Fraunhofer-Akademie – allgemeine Berufs- und Zertifikatskurse für Fach- und Führungskräfte in der Industrie, einschließlich Transformation und Führung.
- Fraunhofer Academy – berufsbezogene Kurse für Industrie und Führungskräfte.

T6. Intelligente Fertigung

- AMPOWER & Fraunhofer IAPT – Binder-Jetting-Schulung (praxisorientiert) → tiefgreifender technischer Kurs zu einer bestimmten fortschrittlichen Fertigungstechnologie (Metall-Binder-Jetting).
- Binder-Jetting-Schulung (AMPOWER + Fraunhofer IAPT).

T7. Offene Fabrik ausgerichtet auf die Wertschöpfungskette

- Weiterbildungsprogramme der Fraunhofer Academy in den Bereichen Produktion, Logistik und Prozessintegration – aus Sicht der Lieferkette/Wertschöpfungskette.
- Fraunhofer-Akademie – Weiterbildung in Produktion, Logistik usw.

4.4. MONDRAGON UNIVERSITY

Die Mondragon Unibertsitatea (MU) ist eine 1997 gegründete genossenschaftliche Universität, deren Ziel es ist, Wissen, Innovation sowie soziale und wirtschaftliche Entwicklung im Baskenland und international zu fördern. Ihre Mission basiert auf der Integration von Bildung, Forschung und Wissenstransfer und verbindet Studierende, Unternehmen und Forschungszentren miteinander.

Die Mondragon Unibertsitatea verfügt über Fakultäten und Fachzentren in den Bereichen Ingenieurwesen, Wirtschaft, Bildung, Geisteswissenschaften, Kommunikation und Gastronomie und arbeitet eng mit dem Unternehmens- und Industrienetzwerk zusammen, insbesondere in strategischen Bereichen wie fortschrittliche Industrie, Digitalisierung, Nachhaltigkeit, Kreislaufwirtschaft und Unternehmertum.

Das übergeordnete Ziel der Mondragon Unibertsitatea ist es, kompetente und innovative Fachkräfte auszubilden und zur technologischen und sozialen Entwicklung von Industrie und Gesellschaft beizutragen. Um dies zu erreichen, entwickelt sie Aktivitäten in vier Hauptbereichen:

- Bildung: Angebot von Bachelor-, Master-, Doktoranden- und Spezialisierungsprogrammen für Studierende, Fachleute und Unternehmen, um die von der Industrie der Zukunft geforderten Kompetenzen zu vermitteln.
- Innovation und angewandte Forschung: Unterstützung von F&E-Projekten in Zusammenarbeit mit Unternehmen und Technologiezentren, die auf die Lösung realer industrieller Herausforderungen abzielen.
- Unternehmertum: Förderung von Start-ups, unternehmerischen Initiativen und Innovationsprojekten durch die Mondragon Team Academy und spezialisierte Programme.
- Gemeinschaft: Aufbau eines kooperativen und innovativen Ökosystems, das Universität, Unternehmen und Gesellschaft im Rahmen von Projekten zur industriellen und sozialen Transformation miteinander verbindet.

Aus vergleichender Perspektive ist der Pfeiler Bildung besonders relevant. Die Mondragon Unibertsitatea bietet eine breite Palette von Programmen an, von Weiterbildung und Mikro-Zertifikaten bis hin zu offiziellen Master-Abschlüssen und spezialisierten Doktorandenprogrammen. Das Angebot umfasst Bereiche wie digitale Fertigung, Robotik,



künstliche Intelligenz, Nachhaltigkeit, Kreislaufwirtschaft und Führung und richtet sich an verschiedene Zielgruppen: Studierende, Berufstätige und KMU.

Diese Struktur spiegelt einen umfassenden Ansatz wider, der technische Fähigkeiten (Digitalisierung, Automatisierung, fortschrittliche Fertigung) mit übergreifenden Kompetenzen (Innovationsmanagement, Unternehmertum, kooperative Führung) kombiniert. Damit ist die Mondragon Unibertsitatea ein Maßstab für die Hochschulbildung in Industrie und Gesellschaft und gewährleistet die Abstimmung zwischen Bildung, Forschung und den Bedürfnissen des produktiven Sektors.

Beispiele für Schulungskurse, die für die Transformationen der ADMA-Methodik von Interesse sind:

T1. Fortgeschrittene Fertigungstechnologien

- Master in industrieller additiver Fertigung → 3D-Druck mit Metallen, Verbundwerkstoffen, Biomaterialien.
- Weiterbildung in fortschrittlichen Fertigungsprozessen → Präzisionsbearbeitung, Verbundwerkstoffe, hochproduktive Techniken.
- Kurs in vorausschauender Wartung und intelligenter Instandhaltung.

T2. Digitale Fabrik

- Master in Robotik und Steuerungssystemen → Automatisierung, cyber-physische Systeme.
- Kurs in Digitalisierung der industriellen Instandhaltung → IoT, digitale Zwillinge, Sensorisierung.
- Spezialisierung auf Cybersicherheit in OT-Umgebungen.

T3. Öko-Fabrik (Nachhaltigkeit)

- Master in Kreislaufwirtschaft und industrieller Nachhaltigkeit.
- Kurse in Energieeffizienz und erneuerbaren Energien.
- Nachhaltiges Materialmanagement in der Wertschöpfungskette.

T4. Kundenorientiertes integriertes Engineering

- Master in Wirtschaftsingenieurwesen → Design- und Fertigungsprojektmanagement mit Fokus auf den Kunden.
- Ausbildung in Produktdesign und User Experience (UX).
- Kurse in Simulation und CAD/CAE/PLM für die gemeinsame Entwicklung.

T5. Menschenzentrierte Organisation

- Master in Lernförderung und Führung (MU Education).
- Ausbildung in kooperativer Führung und Teammanagement.
- Mondragon Team Academy (MTA): Unternehmertum und kollaboratives Arbeiten.

T6. Intelligente Fertigung

- Master in Robotik und Steuerungssystemen (flexible Automatisierung, Cobots, KI in der Produktion).
- Kurse in Lean Manufacturing und Digital Six Sigma.
- Big Data und künstliche Intelligenz in der Industrie.

T7. Offene Fabrik ausgerichtet auf die Wertschöpfungskette

- Programme zu Genossenschaftswesen, offener Innovation und Sozialwirtschaft.
- Kurs in kollaborativer Innovation in Wertschöpfungsnetzwerken.



- Führungskräftetraining in Industrie 4.0 (4GUNE) → mit Schwerpunkt auf digitalen Lieferketten.

4.5. POK (POLIMI OPEN KNOWLEDGE)

POK (POLIMI Open Knowledge) ist die offizielle MOOC-Plattform (Massive Open Online Course) des Politecnico di Milano, die ins Leben gerufen wurde, um einen offenen und inklusiven Zugang zu hochwertiger Bildung zu fördern. POK wurde von der METID (Metodi e Tecnologie Innovative per la Didattica – Innovative Methoden und Technologien für die Lehre) – Learning Innovation Unit der Universität entwickelt und wird von ihr verwaltet. POK verkörpert das Engagement des Politecnico di Milano, akademisches Wissen und Fachkenntnisse einem breiten Publikum zugänglich zu machen – von Studierenden und Fachleuten bis hin zu Bürgern und Pädagogen weltweit.

Im Gegensatz zu kommerziellen Lernplattformen arbeitet POK im Rahmen einer öffentlichen Universität und gewährleistet so akademische Stringenz, forschungsbasierte Inhalte und die Übereinstimmung mit den institutionellen Lehrzielen. Seine Mission ist es, Bildungslücken zu schließen, indem es das wissenschaftliche und technische Fachwissen des Politecnico di Milano online frei zugänglich macht.

Die Aktivitäten und Angebote von POK lassen sich in vier Hauptbereiche unterteilen:

- Akademische MOOCs:

POK bietet einen wachsenden Katalog kostenloser Online-Kurse, die von Professoren und Forschern des Politecnico di Milano entwickelt wurden. Die Kurse decken ein breites Spektrum an Disziplinen ab – darunter Ingenieurwesen, Architektur, Design, Informatik, Nachhaltigkeit und Management – und sind für unterschiedliche Zielgruppen wie Bachelor- und Masterstudierende, Forscher und Bürger konzipiert.

- Berufliche Weiterbildung und lebenslanges Lernen:

Über die akademische Ausbildung hinaus bietet POK MOOCs für Fachleute an, die sich in neuen Bereichen wie agiles Projektmanagement, digitale Innovation und nachhaltige Entwicklung weiterbilden möchten. Diese Kurse unterstützen das lebenslange Lernen und tragen dazu bei, die Lücke zwischen akademischen und industriellen Anforderungen zu schließen.

- Offenes Wissen und Inklusion:

Getreu den Prinzipien der offenen Bildung sind alle POK-Kurse kostenlos zugänglich und in mehreren Sprachen (hauptsächlich Italienisch und Englisch) verfügbar. Die Plattform fördert die Inklusion, indem sie verschiedene Lerngruppen – von Schülern bis zu Senioren – anspricht und zur Teilnahme unabhängig von geografischen oder sozialen Barrieren ermutigt.

- Engagement der Universität für die Gemeinschaft:



POK stärkt die Verbindung zwischen dem Politecnico di Milano und der Gesellschaft insgesamt. Durch bürgerorientierte MOOCs wie „Unfolding Gianfranco Ferré“ oder „City and Sustainability“ fördert es kulturelles Bewusstsein, Nachhaltigkeit und bürgerschaftliches Engagement und zeigt, wie akademisches Wissen zum öffentlichen Verständnis und zu Innovationen beitragen kann.

Aus Benchmarking-Sicht stellt POK ein universitätsorientiertes Modell für offene digitale Bildung dar, das akademische Glaubwürdigkeit mit Zugänglichkeit verbindet. Seine Stärke liegt in der Integration strenger wissenschaftlicher Inhalte mit modernen pädagogischen Ansätzen – darunter selbstbestimmtes Lernen, Multimedia-Unterricht und interaktive Bewertungen – innerhalb eines frei zugänglichen Rahmens.

Durch die Verbindung von Bildungsinnovation mit der Exzellenz des Politecnico di Milano in Forschung und Lehre ist POK ein Bezugspunkt für institutionelle MOOCs in Europa und zeigt, wie Universitäten digitale Plattformen nutzen können, um kontinuierliches Lernen, berufliche Weiterentwicklung und gesellschaftliche Wirkung zu fördern.

Beispiele für Schulungskurse, die für die Methodik-Transformationen von ADMA von Interesse sind:

- Agiles Projektmanagement: Agilität als Kultur, jenseits von SCRUM
 - o Online-Kurs, mittleres Niveau
 - o Relevante ADMA-Bereiche: Menschzentrierte Organisation, intelligente Fertigung, digitale Fabrik
 - o Überblick: Erforschung der agilen Denkweise als Ansatz für kulturelle und organisatorische Transformation; Einführung hybrider Modelle, die agiles und traditionelles Projektmanagement kombinieren, um Flexibilität, Zusammenarbeit und Innovation innerhalb digitaler Transformationsprojekte zu verbessern
 - o Link: https://www.pok.polimi.it/course/view.php?id=206&utm_source=chatgpt.com#tab2
- Plattformdenken: Nutzung von Daten durch Plattformen
 - o Online-Kurs, Mittelstufe
 - o Relevante ADMA-Bereiche: Digitale Fabrik, fortschrittliche Fertigungstechnologien, digitale Fabrik, intelligente Fertigung
 - o Überblick: Verständnis dafür, wie Daten und digitale Plattformen neue Geschäftsmodelle und Wertschöpfungsnetzwerke schaffen; Fokus auf den strategischen und technologischen Dimensionen plattformbasierter Innovation
 - o Link: <https://www.pok.polimi.it/course/view.php?id=91#courseTabContent>
- Virtuelle und erweiterte Realität zur Unterstützung von Schulung und Wartung
 - o Online-Kurs, Mittelstufe
 - o Relevante ADMA-Bereiche: Fortschrittliche Fertigungstechnologien, digitale Fabrik, intelligente Fertigung, menschenzentrierte Organisation
 - o Überblick: Einführung in die Anwendung von virtueller und erweiterter Realität in industriellen Prozessen, Schulungen und Wartungsarbeiten; Untersuchung, wie immersive Technologien die Leistung, Sicherheit und das Lernen in Fertigungsumgebungen verbessern
 - o Link: <https://www.pok.polimi.it/course/view.php?id=172#courseTabContent>
- Das Fashion-Tech-Paradigma, das die Modelle der KKI revolutioniert



- Online-Kurs, Anfängerniveau
- Relevante ADMA-Bereiche: Intelligente Fertigung, ECO-Fabrik, wertschöpfungskettenorientierte offene Fabrik
- Überblick: Analyse, wie Technologie und digitale Innovation Design, Produktion und Vertrieb in der Modebranche neu gestalten; Untersuchung der nachhaltigen, digitalen und datengesteuerten Transformation kreativer Fertigungsökosysteme
- Link: https://www.pok.polimi.it/course/view.php?id=66&utm_source=chatgpt.com#courseTabContent
- Innovationsmanagement und digitale Transformation
 - Online-Kurs, Mittelstufe
 - Relevante ADMA-Bereiche: Intelligente Fertigung, digitale Fabrik, fortschrittliche Fertigungstechnologien
 - Überblick: Einführung von Frameworks und Tools zum Innovationsmanagement im Kontext der digitalen Transformation; Schwerpunkt auf der Wechselwirkung zwischen Technologie, Strategie und Unternehmenskultur zur Steigerung der Wettbewerbsfähigkeit
 - Link: <https://www.pok.polimi.it/course/view.php?id=207#courseTabContent>

4.6. UDEMY

Udemy ist eine globale Online-Lernplattform, die 2010 mit dem Ziel gegründet wurde, das Leben durch Lernen zu verbessern. Sie fungiert als Marktplatz, der Lernende, Lehrende und Organisationen miteinander verbindet und es jedem ermöglicht, online neue Fähigkeiten zu vermitteln und zu erlernen. Im Gegensatz zu traditionellen Bildungseinrichtungen ist das Modell von Udemy offen und dezentralisiert – einzelne Experten und Fachleute aus der ganzen Welt können Kurse erstellen und ein globales Publikum erreichen.

Die Aktivitäten und Angebote von Udemy lassen sich in vier Hauptbereiche unterteilen:

- Kursmarktplatz: Udemy verfügt über einen der größten Online-Kurskataloge der Welt mit über 200.000 Kursen zu einer Vielzahl von Themen – von Wirtschaft und Technologie über persönliche Entwicklung bis hin zu Design und Sprachenlernen. Die Kurse sind in der Regel kurz, videobasiert und können im eigenen Tempo absolviert werden, um den Flexibilitätsanforderungen der Lernenden gerecht zu werden.
- Berufliche Weiterbildung: Über „Udemy Business“ bietet die Plattform kuratierte Lernlösungen für Unternehmen und Organisationen. Dieser Service bietet Zugang zu einem Katalog hochwertiger Kurse, die sich auf berufliche und technische Fähigkeiten (z. B. Datenwissenschaft, Cloud Computing, Projektmanagement) sowie Soft Skills und Führungskräfteentwicklung konzentrieren. Unternehmen nutzen Udemy Business, um die Umschulung ihrer Mitarbeiter und das kontinuierliche Lernen zu unterstützen.
- Dozenten-Ökosystem: Udemy ermöglicht es Dozenten und Fachexperten, ihre eigenen Kurse zu konzipieren, zu veröffentlichen und zu monetarisieren. Dieses offene Modell fördert die ständige Erneuerung und Vielfalt der Inhalte und stellt sicher, dass die Lernmaterialien mit den sich weiterentwickelnden Technologien und Branchenpraktiken Schritt halten.



- Globale Lerngemeinschaft: Mit über 70 Millionen Lernenden weltweit hat Udey eine wahrhaft globale Gemeinschaft von Lernenden und Lehrenden aufgebaut. Die Plattform unterstützt mehrere Sprachen und lokalisierte Inhalte und fördert so einen inklusiven Zugang zu Bildung, unabhängig von geografischer Lage oder Hintergrund.

Aus Benchmarking-Sicht ist Udey eine wichtige Referenz für flexible, nachfrageorientierte Online-Bildung. Der Erfolg des Unternehmens beruht auf der Skalierbarkeit seines digitalen Marktplatzmodells und der Vielfalt seines Kursangebots, das sowohl auf die Bedürfnisse einzelner Lernender als auch auf die Anforderungen der betrieblichen Weiterbildung zugeschnitten ist.

Durch die Kombination von technischen Inhalten (z. B. Programmierung, KI, Cloud Computing) und übergreifenden Kompetenzen (z. B. Kommunikation, Führung, Innovation) hat sich Udey als weltweit führende Plattform für lebenslanges Lernen positioniert. Das Unternehmen ist ein Beispiel dafür, wie Bildung über digitale Plattformen effektiv und in großem Umfang bereitgestellt werden kann, um in einer sich schnell verändernden Wirtschaft die kontinuierliche Weiterqualifizierung und Beschäftigungsfähigkeit zu fördern.

Beispiele für Schulungskurse, die für die Methodik-Transformationen von ADMA von Interesse sind:

- Master Industry 4.0: Automatisierung, Robotik und Cybersicherheit
 - o Online-Kurs, Anfängerniveau – konzipiert für Lernende ohne vorherige fundierte Erfahrungen, wobei Kenntnisse im Bereich allgemeiner Technik oder Computersysteme hilfreich sind
 - o Relevante ADMA-Bereiche: Fortschrittliche Fertigungstechnologien, digitale Fabrik, intelligente Fertigung
 - o Überblick: Verständnis industrieller Automatisierungssysteme; Implementierung sicherheitsgerichteter Systeme; Beherrschung der Cybersicherheit für industrielle Systeme; Erkundung der Grundlagen und Anwendungen der Robotik
 - o Link: <https://www.udemy.com/course/master-industry-40-automation-robotics-cybersecurity/>
- Masterkurs in nachhaltigen Technologien und Datenverarbeitung 2.0
 - o Online-Kurs, Anfängerniveau – konzipiert für Bachelor- und Masterstudierende in den Bereichen Wirtschaftssysteme, Informationstechnologie und Informatik sowie für alle, die sich für nachhaltige Technologien interessieren
 - o Relevante ADMA-Bereiche: ECO Factory, Smart Manufacturing
 - o Überblick: Nutzung von Technologie und Daten zur effektiven Bewältigung von Umweltproblemen
 - o Link: <https://www.udemy.com/course/sustainable-technologies-datafication/>
- Industrielle digitale Zwillinge für die Automatisierung – Godot und CoDeSys
 - o Online-Kurs, Fortgeschrittenenstufe – konzipiert für Ingenieure, Entwickler und Automatisierungsbegeisterte, die über Grundkenntnisse in der SPS-Programmierung verfügen und ihre Fähigkeiten im Bereich der Digital-Twin-Technologie erweitern möchten
 - o Relevante ADMA-Bereiche: Fortschrittliche Fertigungstechnologien, Digitale Fabrik, Intelligente Fertigung
 - o Übersicht: Erstellung interaktiver Modelle von Maschinen und Robotern und deren Integration in SPSEN für die virtuelle Inbetriebnahme
 - o Link: <https://www.udemy.com/course/industrial-digital-twins-for-automation/>



- Robotik: Mensch-Roboter-Interaktion – Theorie und Anwendungen
 - o Online-Kurs, Anfängerniveau
 - o Relevante ADMA-Bereiche: Fortschrittliche Fertigungstechnologien, menschenzentrierte Organisation, intelligente Fertigung
 - o Überblick: Erlangung eines tiefgreifenden Verständnisses darüber, wie HRI-Systeme, die die Zusammenarbeit zwischen Menschen und Robotern verbessern, effektiv entworfen, bewertet und implementiert werden können
 - o Link: <https://www.udemy.com/course/robotics-human-robot-interaction-theory-and-applications/>

4.7. GEMEINSAME ELEMENTE DER ANALYSIERTEN AUSBILDUNGSANBIETER

Die sechs analysierten Ausbildungsanbieter (Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon University, POLIMI Open Knowledge und Udemy) verfolgen unterschiedliche Ansätze für das Lernen und die Weiterqualifizierung. Trotz der Unterschiede in Bezug auf institutioneller Natur und Umfang lassen sich jedoch mehrere gemeinsame Elemente erkennen, die gemeinsame Prinzipien bei der Konzeption und Durchführung von Schulungen für die digitale und nachhaltige Transformation verdeutlichen. Diese Gemeinsamkeiten sind für das ADMA-Rahmenwerk und das Ziel von LCAMP, einen integrierten, KMU-orientierten Schulungskatalog aufzubauen, von großer Bedeutung.

Alle Anbieter legen einen starken Fokus auf Beschäftigungsfähigkeit und Kompetenzentwicklung. Ihre Schulungsangebote sind darauf ausgerichtet, Fähigkeiten zu vermitteln, die direkt in der Industrie anwendbar sind und die berufliche Entwicklung fördern. Die thematische Abdeckung stimmt weitgehend mit den ADMA-Transformationsbereichen überein, insbesondere mit den Bereichen „Digitale Fabrik“, „Intelligente Fertigung“, „Ökologische Fabrik“ und „Wertschöpfungskettenorientierte offene Fabrik“.

Die analysierten Einrichtungen richten sich an ein breites Spektrum von Lernenden, von Studierenden und Berufseinsteigern bis hin zu KMU und Firmenkunden. Ihre Kurse sind für verschiedene Einstiegsniveaus konzipiert und reichen von Einführungs- oder Sensibilisierungsprogrammen (MOOCs für Anfänger oder kurze Online-Kurse) bis hin zu höheren Abschlüssen (Master- und spezialisierte Berufsausbildungen).

Ein klarer Trend, der sich bei allen Einrichtungen zeigt, ist die Betonung von Flexibilität und Modularität. Online- und asynchrones Lernen dominieren, ergänzt durch Blended-Learning- oder Präsenzooptionen. Die Kurse sind in der Regel als eigenständige Module, Lernpfade oder Studiengänge strukturiert, sodass die Lernenden entsprechend ihren Bedürfnissen und ihrem Reifegrad Schritt für Schritt voranschreiten können.

Alle Einrichtungen pflegen enge Beziehungen zur Industrie und zu Innovationsökosystemen. Dies stärkt die gemeinsame Vision von Ausbildung als Brücke zwischen Bildung, Forschung und Unternehmenspraxis.



Das Benchmarking zeigt eine starke Konzentration von Ausbildungsangeboten in den ADMA-Bereichen, die in D7.2 als schwächer unter KMU identifiziert wurden. Alle sechs Einrichtungen bieten Kurse an, die direkt oder indirekt zur Stärkung dieser Transformationsbereiche beitragen:

- Intelligente Fertigung – Automatisierung, KI, vorausschauende Wartung und Echtzeit-Datenmanagement.
- Digitale Fabrik – Systemintegration, digitale Zwillinge und Cybersicherheit.
- ECO Factory – nachhaltige Produktion, Kreislaufwirtschaft, Ressourcen- und Energieeffizienz.
- Wertschöpfungskettenorientierte offene Fabrik – offene Innovation, Zusammenarbeit über Lieferketten hinweg und kundenorientiertes Design.

Zusammen veranschaulichen diese Anbieter, wie effektive Ausbildungsökosysteme Flexibilität, Modularität und starke Verbindungen zur Industrie kombinieren, um lebenslanges Lernen und digitale Transformation zu unterstützen. Ihre gemeinsamen Praktiken liefern den LCAMP-Partnern wertvolle Anregungen für die Gestaltung ihres eigenen Ausbildungsangebots, um sicherzustellen, dass neue oder angepasste Kurse den Bedürfnissen von KMU entsprechen, die ADMA-Transformationspfade unterstützen und messbare Fortschritte in der digitalen und nachhaltigen Reife ermöglichen.



5. SCHLUSSFOLGERUNGEN

Die im Rahmen von WP7 durchgeführten Arbeiten vermitteln ein umfassendes Verständnis dafür, wie KMU durch strukturierte Methoden, Diagnosetools und gezielte Ausbildungsstrategien bei ihrem Übergang zu Industrie 4.0 und Industrie 5.0 wirksam unterstützt werden können. Durch die Integration konzeptioneller Rahmenwerke wie ADMA und der Collaborative Learning Factory (CLF) mit praktischen Erkenntnissen aus KMU-Scans, Umsetzungsplänen und einem strukturierten Schulungskatalog hat das Projekt eine solide Grundlage für ein Lernangebot geschaffen, das vollständig auf die tatsächlichen industriellen Bedürfnisse und digitalen Reifepfade abgestimmt ist.

Die Analyse früherer Berichte zeigt, dass die ADMA-Methodik nach wie vor ein robustes Rahmenwerk für die Bewertung der digitalen Bereitschaft und die Steuerung von Transformationsprozessen in KMU darstellt. Ihre sieben Transformationsbereiche bieten eine strukturierte Sprache, um Stärken, Schwächen und Entwicklungsprioritäten zu erfassen. Parallel dazu zeigt das CLF-Konzept, wie Berufsbildungszentren als lebende Labore dienen können, die industrielle Umgebungen nachbilden und das Erfahrungslernen unterstützen. Die Komplementaritäten zwischen ADMA und CLF bestätigen die Machbarkeit der Verknüpfung von Diagnosen zur industriellen Reife mit pädagogischen Konzepten und bilden eine solide Grundlage für maßgeschneiderte Lernpfade.

Die in acht Ländern durchgeführten KMU-Scans zeigen ein heterogenes Bild der Reifegrade, aber auch eine Reihe wiederkehrender Muster. Stärken zeigen sich deutlich in der Kundenorientierung und der menschenzentrierten Organisation, während die Schwachstellen in allen Regionen einheitlich sind: begrenzte Automatisierung und Echtzeit-Datennutzung (Smart Manufacturing), Schwierigkeiten bei der Systemintegration (Digital Factory), unzureichende Zusammenarbeit entlang der Wertschöpfungskette und uneinheitliche Umsetzung von Nachhaltigkeitspraktiken (ECO Factory). Diese Erkenntnisse fließen direkt in die Prioritäten des Ausbildungskatalogs ein und rechtfertigen eine starke Betonung von Digitalisierung, Nachhaltigkeit, datengesteuerter Produktion und kollaborativer Innovation.

WP7 hat zu einem strukturierten Katalog mit 109 Schulungsaktivitäten geführt, die alle auf einen oder mehrere ADMA-Transformationsbereiche abgestimmt sind. Der Katalog umfasst 31 Schulungen aus Spanien, 18 aus Italien, 11 aus der Türkei, 10 aus Kanada, 10 aus Frankreich, 10 aus Slowenien, 10 aus Schweden und 9 aus Deutschland. Alle ADMA-Transformationsbereiche werden durch mindestens einige Schulungsangebote abgedeckt, wobei die Bereiche „Fortgeschrittene Fertigungstechnologien“, „Digitale Fabrik“ und „Intelligente Fertigung“ besonders stark vertreten sind. Dies bestätigt sowohl die Relevanz dieser Bereiche für KMU als auch die Fähigkeit des Berufsbildungssystems, auf deren Transformationsbedürfnisse zu reagieren.

Das in WP7 entwickelte duale Indexierungssystem erweist sich als unerlässlich, um die Nutzbarkeit und strategische Relevanz dieses Ausbildungsangebots sicherzustellen. Durch die Verknüpfung jeder Ausbildungsmöglichkeit sowohl mit einem bestimmten ADMA-Transformationsbereich als auch mit einem Reifegrad ermöglicht es KMU, den Katalog entsprechend ihren Bedürfnissen, Fähigkeiten und strategischen Zielen zu durchsuchen. Diese Struktur unterstützt das schrittweise Lernen, fördert fundierte Entscheidungen und hilft



Berufsbildungsanbietern dabei, Ausbildungsmaßnahmen zu entwickeln, die auf die tatsächlichen Herausforderungen der Industrie abgestimmt sind.

Das Benchmarking von sechs internationalen Bildungsanbietern (Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon University, POLIMI Open Knowledge und Udemy) bestätigt die Relevanz und Vollständigkeit des Ausbildungsansatzes von LCAMP. Trotz ihrer Vielfalt teilen diese Institutionen mehrere Grundprinzipien: einen starken Fokus auf Beschäftigungsfähigkeit, modulare und flexible Ausbildungsformate, mehrstufige Lernpfade und eine ständige Ausrichtung an der industriellen Praxis des „“. Ihre Portfolios befassen sich durchweg mit denselben Schwachstellen, die in KMU identifiziert wurden, insbesondere Smart Manufacturing, Digital Factory, ECO Factory und Value Chain Oriented Open Factory. Diese Konvergenz bestätigt die Ausrichtung des eigenen Ausbildungskatalogs von LCAMP und hebt Best Practices hervor, die übernommen oder angepasst werden können.

Die kombinierten Erkenntnisse aus ADMA-Reifegrad-Scans, CLF-Bildungsmodellen, dem 109 Kurse umfassenden KMU-orientierten Schulungskatalog und externen Benchmarking-Verfahren weisen LCAMP eine klare strategische Richtung. Die zukünftige Weiterentwicklung und Verfeinerung des Katalogs sollte:

- Schulungen priorisieren, die die Reife in den schwächsten ADMA-Bereichen beschleunigen.
- die Stärken in den Bereichen Kundenorientierung und menschenzentrierte Organisation zu stärken
- Modulare, flexible und fortschrittsorientierte Lernwege fördern.
- Starke Brücken zwischen Berufsbildungseinrichtungen, KMU und Innovationsökosystemen bauen.
- Nachhaltigkeit, Digitalisierung und Menschzentriertheit als Querschnittselemente in alle Angebote integrieren.

Zusammenfassend lässt sich sagen, dass WP7 eine kohärente und evidenzbasierte Grundlage für einen Ausbildungskatalog geschaffen hat, der KMU bei ihrer Transformation hin zu digitaleren, nachhaltigeren, widerstandsfähigeren und menschenzentrierten Modellen unterstützen wird. Dieser Katalog wird nicht nur den aktuellen industriellen Anforderungen gerecht, sondern auch dazu beitragen, die Kompetenzen zu formen, die für die nächste Generation der europäischen Fertigungsindustrie erforderlich sind.

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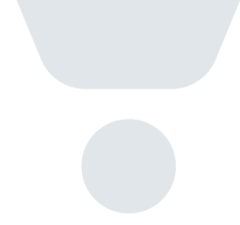
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