



Learner Centric Advanced Manufacturing Platform



D7.3 “KOBİ'ler için eğitim kataloğu ve kıyaslama”

WP7 KOBİ – Mesleki Eğitim bağlantısı



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Belge özeti

Belge türü:	Kamuya Açık Rapor
Başlık	KOBİ'ler için eğitim kataloğu ve kıyaslama
Yazar	Eda Ipek Haritz Izagirre Iñigo Mujika Josu Riezu Samuel Nazzareno Monaco Sara Caballero
Yorumcu	
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SÖZLÜK VE/VEYA KISALTMALAR

5S – Yalın üretimden gelen bir işyeri organizasyon yöntemi
ADMA – ADMA Transformatörleri AB Projesi - Avrupa İleri İmalat Destek Merkezi
AFIL – Associazione Fabbrica Intelligente Lombardia (Lombardiya Akıllı Fabrika Derneği)
AFM – İspanya İleri Üretim Teknolojileri Derneği (Asociación Española de Fabricantes de Máquinas-herramienta, Accesorios, Componentes y Herramientas)
AI – Yapay Zeka
BI – İş Zekası
CAD – Bilgisayar Destekli Tasarım
CAM – Bilgisayar Destekli Üretim
CMQE – Meslek Eğitimi ve Nitelikler Mükemmellik Merkezi (Campus des Métiers et des Qualifications d'Excellence)
CNC – Bilgisayarlı Sayısal Kontrol
CRM – Müşteri İlişkileri Yönetimi
CSR – Kurumsal Sosyal Sorumluluk
ERP – Kurumsal Kaynak Planlaması
ESG – Çevresel, Sosyal ve Yönetişim
EU – Avrupa Birliği
İK – İnsan Kaynakları
ICT – Bilgi ve İletişim Teknolojisi
IoT – Nesnelerin İnterneti
BT – Bilgi Teknolojisi
KIC – Bilgi Yoğun Şirket
KPI – Temel Performans Göstergesi
LCAMP – Öğrenci Merkezli İleri İmalat Platformu
MADE – Endüstri 4.0 Yetkinlik Merkezi
MES – Üretim Yürütme Sistemi
MOOC – Kitleli Çevrimiçi Eğitim Kursu
Ar-Ge – Araştırma ve Geliştirme
SaaS – Hizmet Olarak Yazılım
KOBİ(ler) – Küçük ve Orta Ölçekli İşletme(ler)
VET – Mesleki Eğitim ve Öğretim



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ÖZET

Bu rapor, KOBİ'lerin dijital, organizasyonel ve sürdürülebilirlik dönüşümlerini desteklemek için tasarlanmış eğitim ortamına ilişkin kapsamlı bir genel bakış sunmaktadır. Rapor, hedefli beceri geliştirmeyi kolaylaştırmak için sekiz ülkedeki ortaklar tarafından sağlanan 109 eğitim faaliyetinin yapılandırılmış bir kataloğunu sunmaktadır. Rapor, önde gelen uluslararası eğitim sağlayıcılarının karşılaştırmalı analizini içermektedir. Bu unsurlar, okuyucuya mevcut eğitim fırsatlarını ve bunların KOBİ olgunluk değerlendirmelerinde belirlenen ihtiyaçlarla nasıl uyumlu olduğunu net bir şekilde anlamasını sağlar ve okuyucuların KOBİ'ler için en uygun eğitim fırsatlarını ve bunların dönüşüm yolculuklarını desteklemek için nasıl kullanılabileceğini net bir şekilde belirlemelerine yardımcı olur.

Bu rapor, yapılandırılmış metodolojiler, pratik teşhis faaliyetleri ve eğitim fırsatlarının kapsamlı bir haritalandırılması yoluyla KOBİ'ler ile Mesleki Eğitim ve Öğretim (VET) ekosistemi arasındaki bağlantıyı güçlendirmeye odaklanmaktadır. Çalışma üç temel bileşeni bir araya getirmektedir: ADMA metodolojisi, İşbirliğine Dayalı Öğrenme Fabrikası (CLF) modeli ve KOBİ taramaları ve dönüşüm planlarından elde edilen kanıtlar.

ADMA metodolojisi, KOBİ'lerin dijital, organizasyonel ve sürdürülebilirlikle ilgili olgunluk düzeyini anlamak için temel taş görevi görmüştür. Sekiz ülkede (Bask Bölgesi- İspanya, Kanada, Fransa, Almanya, İtalya, Slovenya, İsveç ve Türkiye) gerçekleştirilen 59 KOBİ taraması, müşteri odaklılık ve insan merkezli organizasyon konusunda tutarlı güçlü yönleri ortaya koymuştur. Aynı zamanda, Akıllı Üretim (düşük otomasyon ve gerçek zamanlı veri kullanımı), Dijital Fabrika (sistem entegrasyonu zorlukları), ECO Fabrika (dengesiz sürdürülebilirlik uygulamaları) ve Değer Zinciri Odaklı Açık Fabrika (sınırlı dış iş birliği) alanlarında tekrarlayan zayıflıklar tespit edilmiştir. Bu bulgular, LCAMP içinde eğitim alanlarına öncelik verilmesi için net bir yön göstermektedir.

Bu ihtiyaçları karşılamak için rapor, eğitim faaliyetlerini yedi ADMA dönüşüm alanına ve ilk farkındalıktan mükemmelliğe kadar beş olgunluk aşamasına göre düzenleyen ikili bir indeksleme sistemi sunmaktadır. Bu yapı, KOBİ'lerin mevcut gelişim aşamalarına uygun eğitim fırsatlarını kolayca belirleyebilmelerini ve daha gelişmiş dijital ve organizasyonel modellere doğru evrimlerini planlayabilmelerini sağlamaktadır.

Bu çalışmanın önemli bir sonucu, ADMA dönüşümleriyle uyumlu 109 eğitim faaliyetinden oluşan bir kataloğun oluşturulmasıdır. Bu eğitim fırsatları Bask Bölgesi - İspanya (31), Kanada (10), Fransa (10), Almanya (9), İtalya (18), Slovenya (10), İsveç (10) ve Türkiye'den (11) gelmektedir. Yedi ADMA dönüşüm alanının tümü temsil edilmektedir ve özellikle İleri İmalat Teknolojileri, Dijital Fabrika ve Akıllı İmalat alanları, KOBİ'lerin en fazla iyileştirme ihtiyacı duyduğu alanlar olarak öne çıkmaktadır.

Ayrıca, altı önde gelen uluslararası eğitim sağlayıcısı (Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon Üniversitesi, Polimi Open Knowledge ve Udemy) arasında bir karşılaştırma çalışması yapılmıştır. Bu sağlayıcılar, KOBİ taramalarında belirlenen aynı zayıf ADMA alanlarında kapsamlı eğitimler sunarak LCAMP'ın stratejik seçimlerinin uygunluğunu pekiştirmektedir.

Genel olarak, bu rapor dijital dönüşümü, sürdürülebilirliği ve insan odaklı inovasyonu destekleyen KOBİ odaklı bir eğitim kataloğu sunmaktadır. Teşhis içgörülerini, yapılandırılmış olgunluk yolları, pratik eğitim teklifleri ve uluslararası en iyi uygulamaları bir araya getiren



LCAMP, KOBİ'lerin rekabet gücünü artıran ve işgücünü Endüstri 4.0 ve 5.0'ın taleplerine hazırlayan öğrenme çözümleri sunmak için konumlanmıştır.



1. GİRİŞ

WP7'de yürütülen çalışmalar, yapılandırılmış metodolojiler ve pratik uygulama faaliyetleri yoluyla KOBİ'leri mesleki eğitim ve öğretim ekosistemine nasıl bağlayabileceğimiz konusunda değerli bilgiler sağlamıştır. ADMA ve CLF gibi kavramsal çerçevelerin, KOBİ taramaları ve dönüşüm planlarındaki somut deneyimlerle birleştirilmesi, Endüstri 4.0 ve 5.0'a doğru ilerlemede karşılaşılan fırsatlar ve zorluklar hakkında kapsamlı bir bakış açısı sunmaktadır.

Bu bölüm, önceki raporlarda elde edilen ana sonuçları özetlemekte ve ADMA metodolojisinin bir teşhis ve dönüşüm aracı olarak, İşbirliğine Dayalı Öğrenme Fabrikalarının ise endüstri ve eğitimi birbirine bağlayan bir eğitim modeli olarak önemini vurgulamaktadır. Bunlar birlikte, eğitim kataloğunun geliştirileceği temeli oluşturmaktadır.

Eğitim kataloğunu KOBİ'ler için pratik ve stratejik bir araç haline getirmek için, mevcut çok çeşitli eğitim tekliflerini açık ve yapılandırılmış bir şekilde düzenlemek çok önemlidir. LCAMP kapsamında tasarlanan indeksleme sistemi bu amaca hizmet eder ve her bir eğitim kursunun şirketlerin özel dönüşüm ihtiyaçları ve dijital olgunluk düzeyleriyle kolayca ilişkilendirilebilmesini sağlar.

WP7 KAPSAMINDA HAZIRLANAN ÖNCEKİ RAPORLARIN ÖZETİ

LCAMP Projesi kapsamında, Mesleki Eğitim ve Öğretim (VET) ile KOBİ'ler arasındaki bağı güçlendirmeye odaklanan özel bir çalışma alanı bulunmaktadır. Bu şirketler dijital dönüşüm süreçlerinden geçmektedir ve ADMA metodolojisi sayesinde, VET sistemi onların rekabet güçlerini ve sürdürülebilirliklerini artırmalarına yardımcı olacak araçlar ve bilgiler sağlayabilir.

Şimdiye kadar gerçekleştirilen faaliyetler arasında, İşbirlikçi Öğrenme Fabrikaları (CLF) aracılığıyla ADMA metodolojisinin LCAMP çerçevesine entegrasyonu özellikle dikkat çekicidir. Ayrıca, birkaç KOBİ taraması gerçekleştirilmiş ve dönüşüm süreçlerini desteklemek için uygulama planları geliştirilmiştir.

ADMA Metodolojisi ve İşbirliğine Dayalı Öğrenme Fabrikası

Avrupa Komisyonu tarafından desteklenen ve ADMA TranS4MErs projesi çerçevesinde daha da geliştirilen ADMA (İleri İmalat Destek Merkezi) metodolojisi, endüstriyel KOBİ'lerin dijital ve sürdürülebilir dönüşümü için bir çerçeve sunmaktadır. Yedi ana alanda yapılandırılmıştır:

- T1 - İleri İmalat Teknolojileri: imalat cihazları ve makinelerinin son teknolojisini analiz etmek; şirket vizyonuna, yetenek düzeyine ve uygulama düzeyine odaklanmak;
- T2 - Dijital Fabrika: ürün ve/veya süreçlerin geliştirilmesini fiziksel ürünlere, sistemlere veya hizmetlere dönüştürmek için dijital teknolojinin nasıl uygulandığını değerlendirme; olanak sağlayan altyapı ve dijital yeteneklere odaklanma;
- T3 - ECO Fabrika: maliyet ve risk azaltma ve hammadde kullanımının verimliliği ile enerji tedariki ve tüketimi ve yenilenebilir kaynakların kullanımına yönelik yaklaşımın analizi; kaynak yönetimi ve uyumluluk ve inovasyona odaklanma;
- T4 - Uçtan Uca Müşteri Odaklı Mühendislik: müşteri beklentilerinin yanı sıra işlevler arası ve departmanlar arası tasarımın yeni gelişmelere ve süreçlere nasıl yol açabileceğini



- değerlendirmek; müşteri odaklılık ve değer önerisi ile sağlam mühendislik süreçlerine odaklanmak;
- T5 - İnsan Odaklı Organizasyon: çalışanlara yeteneklerini, yaratıcılıklarını ve girişimlerini ortaya koymaları için özerklik ve alan tanınıp tanınmadığını ve nasıl tanındığını, ayrıca becerilerinin sürekli/tekrarlı değerlendirilmesi ve yetkinliklerinin güncellenmesi yoluyla analiz etmek; bireysel çalışan, ekip, liderlik ve iç organizasyona odaklanmak;
 - T6 - Akıllı Üretim: İnsanların yeteneklerinin akıllı kullanımı, teknolojinin akıllı kullanımı ve (kendi kendine) öğrenen bir üretim sisteminin devreye alınmasının birleşimini değerlendirmek; insan-makine etkileşimi ve üretim planlama ve kontrol süreçlerine odaklanmak;
 - T7 - Değer Zinciri Odaklı Açık Fabrika: şirketin, değer zincirinin tamamını göz önünde bulundurarak ürünler, üretim süreçleri ve hizmetler geliştirme yeteneğini analiz etmek; işbirliği ve ortaklıklara, ayrıca dış uzmanlık ve bilgi yönetimine odaklanmak.

LCAMP kapsamında geliştirilen İşbirliğine Dayalı Öğrenme Fabrikası (CLF) modeli, mesleki eğitim merkezlerinde gerçek endüstriyel süreçleri taklit eden öğrenme ortamlarını tanımlar. Bu model sekiz boyutta yapılandırılmıştır:

- Operasyonel model: CLF'ler, finansal, personel ve tematik yönleri kapsayan sağlam operasyonel modellere ihtiyaç duyar. Yeterli finansman çok önemlidir ve çeşitli modeller araştırılabilir. Personel, teknik ve didaktik becerilere sahip olmalıdır.
- Hedefler ve amaç: CLF'ler hem öğrencilere hem de çalışanlara hizmet eder, ileri imalat alanında kapsamlı bir öğrenme deneyimi ve sürekli mesleki gelişim sunar.
- Süreç: CLF süreci, gerçek dünya senaryolarını simüle eden dört aşamadan oluşur: Ürün Tasarımı, Süreç Mühendisliği, Üretim ve Tedarik Zinciri Yönetimi.
- Ayar: Yapılandırma, teknolojik altyapı, kullanıcı türleri ve yetkinlikler tarafından belirlenir.
- Ürün: Seçilen ürün, yetkinlikleri ve teknolojileri etkiler.
- Didaktik: Standartlaştırılmış yetkinlik çerçevelerine odaklanın.
- Metrikler: Metrikler, uygulanan Endüstri 4.0 teknolojilerinin sayısı, işbirliğine dayalı gelişmeler ve öğrenci memnuniyeti dahil olmak üzere etkinliği değerlendirir.
- İşbirliği: Katılımcılar arasındaki işbirliği, inovasyonu ve beceri gelişimini teşvik eden temel bir unsurdur.

Hem ADMA metodolojisi hem de CLF modeli, işletmelerin dijital olgunluk mantığını eğitim alanına aktarmayı mümkün kılan ilgili bağlantılar sunarak, öğrencileri ve çalışanları Endüstri 4.0 ve 5.0'in zorluklarına hazırlayan öğrenme yolları oluşturulmasını sağlar.

ADMA Taramaları ve Uygulama Planları

LCAMP Projesi kapsamında, sekiz ülkede (Bask Bölgesi - İspanya, Kanada, Fransa, Almanya, İtalya, Slovenya, İsveç ve Türkiye) 59 KOBİ taraması gerçekleştirilmiş ve seçilen şirketler için uygulama planları hazırlanmıştır. Sonuçlar, dijital olgunluk düzeylerinde büyük bir çeşitlilik olduğunu ortaya koyarken, aynı zamanda ortak eğilimleri de vurgulamaktadır:

Tekrarlanan güçlü yönler:

- Uçtan uca müşteri odaklı mühendislik: müşteri odaklılık.
- İnsan merkezli organizasyon.



Tekrarlayan zayıflıklar:

- Akıllı Üretim: düşük otomasyon seviyeleri ve gerçek zamanlı verilerin sınırlı kullanımı.
- Dijital Fabrika: sistem entegrasyonu ve bağlantıdaki zorluklar.
- Değer Zinciri Odaklı Açık Fabrika: zayıf dış iş birliği ve sınırlı açık inovasyon.
- ECO Fabrika: sürdürülebilirliğin dengesiz bir şekilde uygulanması.

Uygulama planları, IoT ve sensörleştirmenin benimsenmesi, süreç otomasyonu, İş Zekası ve dijital ikizlerin kullanımı, sürdürülebilirlik uygulamalarının dahil edilmesi ve dijital becerileri güçlendirmek için iç eğitim programlarının başlatılması gibi eylemleri içermektedir.

Eğitim Kataloğu için Sonuçlar

Önceki raporlardan elde edilen kanıtlara dayanarak, KOBİ eğitim kataloğunun geliştirilmesine rehberlik edecek birkaç eğitim önceliği belirlenmiştir:

- Otomasyon ve Akıllı Üretim alanındaki yetkinlikler (işbirlikçi robotik, kestirimci bakım, kontrol sistemleri ve sensörleştirme).
- Dijital Fabrika: sistem entegrasyonu (ERP, MES, SCADA), veri yönetimi, siber güvenlik.
- Endüstriyel sürdürülebilirlik: enerji verimliliği, eko-tasarım, döngüsel ekonomi.
- Çapraz kesen dijital yetkinlikler: veri analizi, üretime uygulanan yapay zekâ kullanımı, işbirliğine dayalı dijital araçlar.
- Organizasyonel beceriler: değişim yönetimi, dijital liderlik, inovasyon kültürü.

CLF'ler ve mesleki eğitim merkezleri, bu yetkinliklerin endüstriyel gerçekliğe çok yakın bağlamlarda geliştirilebileceği pratik öğrenme ortamları sunmada önemli bir rol oynamaktadır.

Sonuç olarak, ADMA ve CLF çerçevelerinin KOBİ teşhislerinden elde edilen pratik kanıtlarla entegrasyonu, dijital olgunluk yolları etrafında yapılandırılmış bir eğitim kataloğuna olan ihtiyacı haklı çıkarmaktadır. Bu katalog, daha düşük olgunluk alanlarına (Akıllı Üretim, Dijital Fabrika, ECO Fabrika ve Değer Zinciri Odaklı Açık Fabrika) odaklanmalı ve aynı zamanda Uçtan Uca Müşteri Odaklı Mühendislik ve insan merkezli organizasyondaki mevcut güçlü yönleri güçlendirmelidir. Bu şekilde, KOBİ'ler, Endüstri 5.0 ilkeleriyle uyumlu, daha dijital, sürdürülebilir ve insan merkezli modellere geçişlerinde desteklenecektir.

1.1. EĞİTİMLERİNİN KATEGORİLERİ VE SINIFLANDIRMALARI

KOBİ'lere yapılandırılmış ve pratik bir eğitim fırsatları kataloğu sunmak için, proje çift indeksleme sistemi tasarlanmıştır. Bu yaklaşım, Bask Bölgesi'nden - İspanya (31), Kanada (10), Fransa (10), Almanya (9), İtalya (18), Slovenya (10), İsveç (10) ve Türkiye (11) ülkeleri tarafından toplanan 109 eğitimin, ADMA metodolojisi tarafından tanımlanan stratejik dönüşüm alanlarıyla uyumlu olmasını ve dijital, organizasyonel ve sürdürülebilirlik yetkinliklerinin aşamalı gelişimini yansıtan net bir olgunluk yolunda konumlandırılmasını sağlar.

ADMA Dönüşüm Alanlarına Göre Dizin



İlk dizin, tüm eğitim kurslarını Endüstri 4.0 ve Endüstri 5.0'a doğru endüstriyel dönüşümün kritik boyutlarını tanımlayan yedi ADMA dönüşüm alanına göre düzenler. Bu alanlar, eğitim kataloğunun omurgasını oluşturur:

- T1 - İleri İmalat Teknolojileri – En son teknoloji üretim teknolojileri, robotik, katmanlı imalat, otomasyon ve kalite kontrol sistemlerinin kullanımı.
- T2 - Dijital Fabrika – ERP, MES, SCADA, dijital ikizler ve siber güvenlik önlemleri gibi dijital araç ve platformların entegrasyonu, bağlantılı ve veri odaklı üretimi mümkün kılar.
- T3 - ECO Fabrika – Sürdürülebilir üretim, enerji verimliliği, kaynak optimizasyonu, döngüsel ekonomi ve eko-tasarım stratejileri.
- T4 - Uçtan Uca Müşteri Odaklı Mühendislik – Müşteri odaklı ürün ve süreç tasarımı, geri bildirim döngülerinin entegrasyonu ve çözümlerin özelleştirilmesi.
- T5 - İnsan Odaklı Organizasyon – Organizasyon kültürü, çalışanların yetkilendirilmesi, dijital liderlik, beceri geliştirme ve kapsayıcı iş yerleri.
- T6 - Akıllı Üretim – Otonom sistemler, öngörücü bakım, gelişmiş analitik, yapay zeka tabanlı optimizasyon ve akıllı üretim planlaması.
- T7 - Değer Zinciri Odaklı Açık Fabrika – Tüm değer zinciri boyunca işbirliği, ortaklıklar, açık inovasyon ağları ve ortak geliştirme için paylaşılan platformlar.

Eğitim kurslarını bu yedi alan altında sınıflandırmak, KOBİ'lerin ve eğitim sağlayıcılarının belirli bir kursun hangi dönüşüm boyutlarını ele aldığını belirlemelerine olanak tanır. Çoğu durumda, bir kurs birden fazla alana katkıda bulunabilir.

Her Dönüşüm Alanındaki Olgunluk Düzeylerine Göre Endeks

İkinci endeks, her bir ADMA alanı için belirli bir eğitimin ele almayı amaçladığı olgunluk düzeyini ayrıntılı olarak açıklayarak bu sınıflandırmayı daha da netleştirir. Olgunluk çerçevesi, temel farkındalıktan ileri düzeyde entegre dönüşüme kadar beş aşamalı bir süreç içerir.

- Seviye 0'dan Seviye 1'e – İlk Farkındalık: Bu aşamada, eğitim şirketlerin dijital dönüşüm ve sürdürülebilirliğin önemini kavramalarına destek olur. Bu aşama, giriş bilgisi, temel dijital okuryazarlık ve potansiyel fırsatları ve riskleri anlama becerisini içerir.
- Seviye 1'den Seviye 2'ye – Yapılandırılmış Giriş: Şirketler farkındalıktan yapılandırılmış deneylere geçer. Bu seviyedeki eğitimler, KOBİ'lerin ilk dijital veya organizasyonel araçları (ör. basit otomasyon, temel ERP kullanımı veya giriş niteliğinde eko-tasarım uygulamaları) benimsemelerini ve iyileştirme prosedürleri oluşturmalarını sağlar.
- Seviye 2'den Seviye 3'e – Konsolidasyon ve Entegrasyon: Eğitim, dijital teknolojilerin ve sürdürülebilirlik uygulamalarının günlük operasyonlara entegrasyonunu destekler. Şirketler, otomatik üretim izleme, BI araçlarının kullanımı, sistematik enerji yönetimi veya yapılandırılmış çalışan geliştirme programları gibi uygulamaları konsolide etmeye başlar.
- Seviye 3'ten Seviye 4'e – İleri Düzey Uygulama: Bu aşamadaki eğitim, şirketlerin sistemlerini ölçeklendirmelerine ve optimize etmelerine yardımcı olur. Buna IoT ve AI kullanarak öngörücü bakım, işlevler arası müşteri geri bildirimi entegrasyonu, tam ERP-MES-SCADA bağlantısı ve tedarikçiler ve ortaklarla işbirliği ağları dahildir. Kuruluş, net KPI'lara sahip, dijital olarak etkin ve sürdürülebilir bir fabrika olarak çalışmaya başlar.
- Seviye 4'ten Seviye 5'e – Mükemmellik ve Liderlik: En yüksek olgunluk seviyesinde, eğitim şirketleri sektörlerinde referans noktası olarak hareket etmeye hazırlar. Bu aşamadaki kuruluşlar, gelişmiş AI destekli akıllı fabrikalar kurar, yüksek düzeyde döngüsellik ve sürdürülebilirlik sağlar, değer zinciri işbirliğinde liderlik kurar ve insan merkezli organizasyon modellerinde referans olarak hizmet eder.



Her eğitim fırsatını belirli bir olgunluk geçişiyle ilişkilendirerek, KOBİ'ler mevcut aşamaları için en uygun eğitimleri ve dijital olgunluk ve rekabetçilikte daha yüksek seviyelere adım adım nasıl ilerleyebileceklerini kolayca belirleyebilirler.

Çift Endekslemenin Katma Değeri

Bu iki seviyeli endeksleme sistemi, hem stratejik uyumu (ADMA dönüşüm alanları aracılığıyla) hem de pratik ilerlemeyi (olgunluk seviyeleri aracılığıyla) sağlar. İlk endeks şu soruyu yanıtlar: "Bu eğitim hangi dönüşüm alanını destekliyor?" İkinci endeks ise şu soruyu ele alır: "Bu eğitim hangi olgunluk aşamasında etki yaratıyor?"

Bu iki endeks birlikte, KOBİ'lere belirli eğitim tekliflerini dijital dönüşüm yolculuklarıyla ilişkilendiren bir yol haritası sunar. Bu, eğitim fırsatlarını seçerken bilinçli karar vermeyi kolaylaştırmakla kalmaz, aynı zamanda mesleki eğitim sağlayıcılarının ve politika yapıcıların eğitim stratejilerini sektörün gerçek ihtiyaçlarıyla uyumlu hale getirmelerine de yardımcı olur.



2. EĞİTİM DİZİNLERİ

2.1. BELİRLENEN EĞİTİMLERE İLİŞKİN GENEL DİZİN

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 Iorawan 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 & Continious Improvement				x				105
Project initiation and Charter development				x				106
PLM management: 3D Experience	x	x						107
Redesign of parts and assembly using CAD software	x							108
Reverse Engineering with 3D CAD: NX	x	x						109
Reverse Engineering with 3D CAD: Solid Edge	x	x						110
Risk and change management							x	111
Roadmap to Sustainability			x					112
Robot Programming Health and Security		x				x		113
Robotics and kinematics control	x					x		114
Robotics Laboratory	x					x		115
Simatic S7 SCL						x		116
SLS 3D Printing	x							117
Solidworks advanced part modeling						x		118
Statistical Process Control (SPC)		x				x		119
Subtractive manufacturing processes	x							120
Teamwork					x			121
Thinking innovatively					x			122
Towards Open and Generative Organizational Models					x			123
Understanding Environmental and Social Impacts			x					124
Using a Chemical Reactor	x							125
Waste treatment process			x					126
Workplace Organization & Standard Work				x	x	x		127
Writing a program to PLC						x		128
								129



2.2. ADMA DÖNÜŞÜM ALANINA GÖRE DİZİNLER

DÖNÜŞÜM ALANI 1: İLERİ ÜRETİM TEKNOLOJİLERİ

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



DÖNÜŞÜM ALANI 2: DİJİTAL FABRİKA

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



DÖNÜŞÜM ALANI 3: EKOLOJİK FABRİKA

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

DÖNÜŞÜM ALANI 4: UÇTAN UCA MÜŞTERİ ODAKLI MÜHENDİSLİK

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

DÖNÜŞÜM ALANI 5: İNSAN MERKEZLİ ORGANİZASYON

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



DÖNÜŞÜM ALANI 6: AKILLI İMALAT

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



DÖNÜŞÜM ALANI 7: DEĞER ZİNCİRİ ODAKLI AÇIK FABRİKA

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. KOBİ'LERE EĞİTİMLER

YÖNELİK



3D MODELLING

ADMA TRANSFORMATION AREA

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>

DIGITAL FACTORY

3D MODELLING

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

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

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

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/>

ADMA TRANSFORMATION AREA

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

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>

ADMA TRANSFORMATION AREA

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-a861-1d3bb3cfc40	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-91f70e0933	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

END-TO-END CUSTOMER-
FOCUSED ENGINEERING

APPLIED PROJECT MANAGEMENT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

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](#)

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

Advanced Manufacturing
Technologies, Digital Factory

Robot, AR, mechatronics,
assembly

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

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/>

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.

Automation and Robotics – Siemens PLC, TIA Portal

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/>

ADMA TRANSFORMATION AREA

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)

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>

ADMA TRANSFORMATION AREA

Digital Factory, Smart Manufacturing

Robotics, programming, automation

CURRENT
MATURITY (1-5)
LEVEL: 2



TARGET
MATURITY
LEVEL (1-5): 3

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-a861-1d3bb3cfc40	3
Use industrial automation software	https://esco.ec.europa.eu/en/skill/693964d2-64a4-4d8a-bcb9-f5f20c02e2fd	3
Operate programmable logic controllers (PLCs)	https://esco.ec.europa.eu/en/skill/07d9e442-bc5d-4635-8232-fdb80d9d11f0	3
Perform industrial automation	https://esco.ec.europa.eu/en/skill/8586e6f7-4e9f-47c4-bfef-91f70eec0933	3
Configure programmable logic controllers	https://esco.ec.europa.eu/en/skill/05eeb62c-2fd1-4bd1-8a91-fd8b4cfa1e4f	3

GENERAL INFORMATION

Course provider	CIFP Usurbil LHII
Country	Basque Country/ Spain
Language	Spanish
Learner Profile	Unemployed individuals, Industrial automation technicians, mechatronics professionals seeking to acquire foundational skills in PLC programming and automation using Siemens S7 1500 and TIA Portal.
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	30 hours
Price	Free
Location	Usurbil, Basque Country

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
LEVEL 5

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_USPOSABLJANJE_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 Nicolin 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 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, 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

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>

Advanced Manufacturing Technologies, Digital Factory, Smart Manufacturing Engineering

Cobot, automation, robotics

CURRENT
MATURITY (1-5)
LEVEL: 3



TARGET
MATURITY
LEVEL (1-5): 4

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 costumized 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

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/>

ECO FACTORY

ECO-EFFICIENT PRODUCTION

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

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

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/

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/iscsed-f/072	4
K0710 Engineering and Engineering Trades not further defined	http://data.europa.eu/esco/iscsed-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

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.

Digital Factory, Advanced Manufacturing Technologies

EDM, CAD, CAM, Solidworks, programming

CURRENT MATURITY
LEVEL (1-5)

3



TARGET MATURITY
LEVEL (1-5)

4

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/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	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/8dcbcabe-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_USPOSABLJANJE_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

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>

ADMA TRANSFORMATION AREA

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

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>

Advanced Manufacturing, Smart Manufacturing

Safety, machinery

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	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

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/>

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

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 area / 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

ADMA TRANSFORMATION AREA

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>

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

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

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

SMART MANUFACTURING

SMART PROTOTYPING

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

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/iscsed-f/072	4
K071 Engineering and Engineering Trades	http://data.europa.eu/esco/iscsed-f/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/8dcbcabbe-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

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/>

HUMAN-CENTERED
ORGANIZATION

SOCIAL IMPACT

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

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/8dcbcabbe-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	September 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 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

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/>

ADMA TRANSFORMATION AREA

Advanced Manufacturing Technologies

Manufacturing processes, machining strategies

CURRENT
MATURITY
LEVEL 3



TARGET
MATURITY
LEVEL 4

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

ADMA TRANSFORMATION AREA

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/>

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

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

ADMA TRANSFORMATION AREA

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.rold.com/academy-offering/>

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 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

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

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

SMART MANUFACTURING

SMART MANUFACTURING

CURRENT
MATURITY
LEVEL 2



TARGET
MATURITY
LEVEL 4

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	GEBKIM 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. DİĞER EĞİTİMLERE İLİŞKİN KİYASLAMA

Bu bölüm, LCAMP'ın KOBİ'ler için eğitim kataloğunun sürekli iyileştirilmesi amacıyla dış eğitim tekliflerinin karşılaştırmasını sunmaktadır. Bu karşılaştırmanın gerekliliği, D7.2'deki bulgulara dayanmaktadır. Sekiz ülkede 59 KOBİ taramasında, iki güçlü yön tutarlı bir şekilde ortaya çıkmıştır: Uçtan Uca Müşteri Odaklı Mühendislik (müşteri odaklılık) ve İnsan Odaklı Organizasyon (çalışan odaklılık). Dört alan daha zayıf bir olgunluk göstermiştir: Akıllı Üretim (düşük otomasyon ve sınırlı gerçek zamanlı veri kullanımı), Dijital Fabrika (sistem entegrasyonu ve bağlantı zorlukları), Değer Zinciri Odaklı Açık Fabrika (sınırlı açık inovasyon ve dış ortaklıklar) ve ECO Fabrika (dengesiz sürdürülebilirlik uygulamaları). Buna göre, bu karşılaştırmalı değerlendirme, mevcut güçlü yönleri koruyarak ve bunlardan yararlanarak, bu zayıf alanlarda ilerlemeyi hızlandırabilecek eğitimlere öncelik vermektedir.

Tamamlayıcı profillere ve küresel erişime sahip altı temsilci sağlayıcıyı analiz ediyoruz: Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon Üniversitesi, POK (POLIMI Open Knowledge) ve Udemy. Bunlar birlikte şunları kapsamaktadır:

- Akademik olarak titiz ve endüstri tarafından onaylanmış içerik (üniversiteler, araştırma kuruluşları)
- Büyük ölçekli, modüler çevrimiçi eğitim (MOOC platformları)
- Uygulamalı, pratik odaklı eğitim ekosistemleri (inovasyon KIC'leri ve uygulamalı araştırma enstitüleri)
- Kısa kurslar, uzmanlık alanları, mikro sertifikalar ve tam derece programlarını kapsayan çok düzeyli teklifler.

Bu karışım, farklı sunum mantıkları (açık platformlar, üniversite programları, enstitü liderliğindeki akademiler) arasında müfredat, pedagoji, sertifika modelleri ve endüstri entegrasyonunu karşılaştırmamızı ve LCAMP ortaklarına aktarılacak en iyi uygulamaları belirlememizi sağlar.

Analiz edilen farklı kuruluşlar arasında tutarlı ve anlamlı bir karşılaştırma sağlamak için, bu kıyaslama ortak bir analitik yaklaşım izlemektedir.

D7.2'de ortaya çıkan zayıflıklar göz önüne alındığında, bu bölümde aşağıdaki özelliklere sahip eğitimler öne çıkarılmaktadır:

- Akıllı Üretimi mümkün kılan (ör. otomasyon, öngörücü bakım, yapay zekâ odaklı optimizasyon, gerçek zamanlı izleme)
- Dijital Fabrikayı Güçlendiren (ERP-MES-SCADA arasında sistem entegrasyonu, veri yönetimi, siber güvenlik, dijital ikizler).
- Değer Zinciri Odaklı Açık Fabrika geliştirir (açık inovasyon, tedarikçi/müşteri ortak geliştirme, veri paylaşımı, ağ bağlantılı operasyonlar).
- ECO Fabrika uygulamalarını işlevsel hale getirir (enerji/kaynak verimliliği, döngüsellik, eko-tasarım, su ve malzeme yönetimi).

Bu kıyaslama, LCAMP eğitim kataloğuna ve mikro sertifika çerçevesine doğrudan katkıda bulunarak, ortakların ilgili mevcut eğitimleri belirlemelerine, yeni modül geliştirme alanlarını tanımlamalarına ve KOBİ'lerin etkisini ve olgunluk büyümesini güçlendirmek için pedagoji, değerlendirme ve endüstri iş birliğini geliştirmelerine yardımcı olur.



4.1. COURSERA

Coursera, 2012 yılında Stanford profesörleri Daphne Koller ve Andrew Ng tarafından kurulan, çevrimiçi öğrenim için önde gelen bir küresel platformdur. Dünya çapında üniversiteler ve endüstri liderleriyle iş birliği yaparak esnek, yüksek kaliteli kurslar, mesleki sertifikalar ve tam derece programları sunmaktadır. Teknoloji ve veri biliminden liderlik, işletme ve sosyal bilimlere kadar çeşitli konuları kapsayan Coursera, akademik titizliği pratik, işle ilgili becerilerle birleştirir. Güçlü yönleri arasında dünya çapında erişilebilirlik, prestijli ortaklıklar, modüler öğrenme seçenekleri ve mesleki gelişim ve yaşam boyu öğrenmeye odaklanma sayılabilir.

Temel özellikler

- Öğrenme formatları: bireysel kurslar, uzmanlık alanları (bir dizi ilgili kurs), rehberli projeler, Profesyonel Sertifikalar ve bazen tam derece programları.
- Esneklik: Kursların çoğu eş zamansız ve kendi hızınızda ilerleyen kurslardır, ancak bazıları belirli bir programa göre ilerler.
- Sertifikalar: Öğrenciler, sertifikanın değerinin veren üniversite veya kuruluşun itibarını yansıttığı sertifikalar alırlar.
- Freemium ve ücretli seçenekler: birçok kurs ücretsiz olarak (sertifika almadan) denetlenebilirken, ücretli sürümler notlandırılmış değerlendirmeler ve sertifikalar içerir. *Coursera Plus* gibi abonelik seçenekleri de mevcuttur.
- Kalite ve güvenilirlik: Platform, IIM, Illinois Üniversitesi ve IBM gibi en iyi kurumların kurslarına ev sahipliği yaparak akademik ve profesyonel güvenilirliği garanti eder.
- Geniş konu kapsamı: veri bilimi ve yapay zekadan liderlik, işletme ve dijital pazarlamaya kadar.
- Destek ve ek hizmetler: Akran değerlendirmesi, vaka çalışmaları, bitirme projeleri ve uygulamalı ödevler gibi özellikler yaygındır. Birçok kurs, birden fazla dilde çeviri ve altyazı da içerir.

Coursera'nın kurs tasarımı, onu dijital eğitimde bir referans noktası haline getiren yapılandırılmış ve tutarlı bir yaklaşımı yansıtmaktadır. Çoğu uzmanlık alanı, temel kavramlarla başlayıp stratejik uygulamalara geçerek gerçek dünya veya bitirme projeleriyle sonuçlanan aşamalı bir yol izler. Bu katmanlı yaklaşım, öğrenenlerin motivasyonlarını korurken adım adım beceriler geliştirmelerine yardımcı olur. Esneklik ve modülerlik merkezi öneme sahiptir: öğrenenler kendi hızlarında ilerleyebilir, karar vermeden önce kursları denetleyebilir veya hızlı ve erişilebilir öğrenme için *Herkes için Yapay Zekâ* veya *Herkes için Üretken Yapay Zekâ* gibi kısa tanıtım programlarını tercih edebilir.

Bir diğer belirleyici özellik ise liderlik, değişim yönetimi ve teknolojinin entegrasyonudur. Coursera, dönüşümü sadece teknik bir süreç olarak değil, yönetim, organizasyon kültürü ve insanlarla derinlemesine bağlantılı bir süreç olarak sunar. Birçok kurs, stratejik ve teknik gelişimi teşvik etmek için bu boyutları birbirine entegre eder. Ayrıca platform, sadece araç kullanımını öğretmekten ziyade iş değeri yaratmaya önem verir. Kurslar genellikle dijital teknolojilerin iş modellerini, yönetim yapılarını ve rekabet stratejilerini nasıl yeniden şekillendirebileceğini gösterir ve öğrenmeyi ölçülebilir sonuçlarla uyumlu hale getirir.



Analitik ve performans ölçümü, Coursera'nın öğrenme tasarımının her aşamasına entegre edilmiştir ve kanıta dayalı karar vermeyi ve sürekli iyileştirmeyi teşvik eder. Platform , kısa, farkındalık düzeyinde sunumları kapsamlı uzmanlıklarla dengeleyerek, hem sıradan öğrenenlere hem de daha derin uzmanlık arayan profesyonellere hitap eder. Çoğu program, uygulamalı öğrenmeyi ve somut sonuçları pekiştiren pratik veya gerçek dünya projeleriyle sona erer.

Coursera'nın yaklaşımından farklılaşmak için, yeni ortaya çıkan öğrenim platformları, gerçek organizasyonel zorlukları yansıtan etkileşimli simülasyonlara ve uygulamalı laboratuvarlara odaklanabilir. Akran mentorluğu, iş birliğine dayalı projeler ve yerelleştirilmiş vaka çalışmalarının dahil edilmesi, katılımı ve bağlamsal alaka düzeyini artıracaktır. Gelişmiş ilerleme izleme panoları, öğrencilerin gelişimlerini ve başarılarını görselleştirmelerine yardımcı olabilir. Biriktirilebilir mikro sertifikalar sunmak ve teknik becerileri liderlik gelişimi ile birleştirmek, daha zengin ve daha entegre bir öğrenim deneyimi yaratacaktır.

ADMA metodolojisi dönüşümleriyle ilgili Coursera eğitimlerine örnekler

1. Yapay Zekâ ve Makine Öğreniminin Temelleri (Microsoft)

- ADMA alanları: Akıllı Üretim; Dijital Fabrika
- Özet: Bu orta düzey kurs, veri yönetimi, ön işleme, model dağıtımı ve altyapıya odaklanarak yapay zekâ ve makine öğreniminin temellerini tanıtmaktadır. Yapay zeka sistemlerinin teknik altyapısını (veri, donanım ve yazılım) nasıl tasarlayıp sürdüreceğinizi açıklamaktadır.
- Bağlantı: <https://www.coursera.org/learn/foundations-of-ai-and-machine-learning>

2. Herkes için Yapay Zekâ Temelleri (IBM) Uzmanlık

- ADMA alanları: Dijital Fabrika; Akıllı İmalat; İnsan Odaklı Organizasyon
- Özet: Yapay zekanın ne olduğunu, nasıl sorumlu bir şekilde uygulanabileceğini ve benimsenmesi için gerekli olan organizasyonel, etik ve yönetim değişikliklerinin nasıl yönetileceğini açıklayan teknik olmayan bir uzmanlık programıdır. Derin teknik uzmanlık yerine farkındalık ve temel anlayış geliştirir.
- Bağlantı: <https://www.coursera.org/specializations/ai-foundations-for-everyone>

3. Stratejik Liderlik ve Yönetim Uzmanlığı (Illinois Urbana-Champaign Üniversitesi)

- ADMA alanları: İnsan Odaklı Organizasyon; Değer Zinciri Odaklı Açık Fabrika, Uçtan Uca Müşteri Odaklı Mühendislik
- Özet: Mevcut ve gelecek vadede liderler için tasarlanan bu uzmanlık alanı, liderlik, organizasyonel kültür, stratejik uyum, takım oluşturma ve değişim yönetimini inceler. Etkili liderlik ve yapının, uyarlanabilir, müşteri odaklı organizasyonları nasıl desteklediğini vurgular.
- Bağlantı: <https://www.coursera.org/specializations/strategic-leadership>

4. Dijital Pazarlama Uzmanlığı (Illinois Üniversitesi Urbana-Champaign)

- ADMA alanları: Uçtan Uca Müşteri Odaklı Mühendislik; Dijital Fabrika, Değer Zinciri Odaklı Açık Fabrika
- Özet: Modern dijital pazarlama stratejileri, analitik, müşteri davranışı ve performans ölçümüne odaklanır. Öğrenciler, müşteri yolculuklarını haritalama, dijital kampanyalar tasarlama ve bağlantılı ekosistemler genelinde pazarlama girişimlerini yönetme becerileri kazanır.
- Bağlantı: <https://www.coursera.org/specializations/digital-marketing>



4.2. EIT MANUFACTURING

Avrupa İnovasyon ve Teknoloji Enstitüsü (EIT), üniversiteleri, araştırma merkezlerini ve şirketleri birbirine bağlayarak Avrupa'da inovasyonu teşvik etmek amacıyla 2008 yılında kurulmuş bir Avrupa Birliği kurumudur. Bu amaca ulaşmak için EIT, KIC (Bilgi ve İnovasyon Toplulukları) adı verilen büyük tematik topluluklar aracılığıyla çalışır. Her bir topluluk, sürdürülebilir enerji, sağlık, dijitalleşme, iklim değişikliği, hammaddeler, gıda ve imalat gibi stratejik bir konuya odaklanır.

EIT Manufacturing, endüstriyel ve ileri imalat sektörüne adanmış bu KIC'lerden biridir. Genel amacı, Avrupa imalatını daha rekabetçi, dijital ve sürdürülebilir hale getirmektir. Bunu başarmak için dört ana eylem hattı boyunca faaliyetler geliştirir:

- İnovasyon: yeni üretim çözümleri geliştirmek için şirketler, araştırma merkezleri ve üniversiteler arasında iş birliği projelerini desteklemek.
- Eğitim: Öğrencilere, profesyonellere ve KOBİ'lere eğitim programları (yüksek lisans dereceleri, çevrimiçi kurslar, yaz okulları, atölye çalışmaları) sunarak, geleceğin endüstrisinin talep ettiği yetkinlikleri sağlar.
- İş kurma: girişimcilerin, start-up'ların ve scale-up'ların imalat için yenilikçi teknolojileri ve hizmetleri pazara sunmalarına yardımcı olmak.
- Topluluk: Endüstriyel inovasyonun yerel ekosistemlerini birbirine bağlayan Avrupa ağı oluşturmak.

Karşılaştırmalı değerlendirme açısından, eğitim ayağı özellikle önemlidir. EIT Manufacturing, EIT Campus <https://eit-campus.eu/courses> aracılığıyla, kısa çevrimiçi modüllerden uzmanlık yüksek lisans programlarına kadar geniş bir eğitim fırsatları kataloğu sunmaktadır. Portföy, dijital üretim, sürdürülebilirlik, liderlik ve girişimcilik gibi konuları kapsamakta ve farklı hedef gruplara (öğrenciler, endüstri profesyonelleri ve KOBİ'ler) hizmet vermek üzere tasarlanmıştır.

Bu yapı, teknik becerileri (ör. dijitalleşme, otomasyon, sürdürülebilir üretim) ve çapraz yetkinlikleri (ör. inovasyon yönetimi, liderlik, girişimcilik) birleştiren kapsamlı bir eğitim yaklaşımını yansıtmaktadır. Bu nedenle EIT Manufacturing, eğitim, araştırma ve endüstriyel ihtiyaçlar arasında uyumu sağlayarak, eğitim hizmetlerinin daha geniş bir inovasyon ekosistemine nasıl entegre edilebileceğine dair bir kıyaslama noktası oluşturmaktadır.

ADMA metodolojisi dönüşümleri için ilgi çekici eğitim kurslarına örnekler:

- Sürdürülebilir Üretim için Dijital İkiz Teknolojisinden Yararlanma
 - o Çevrimiçi kurs, başlangıç seviyesi.
 - o İlgili ADMA alanları: Dijital Fabrika, Eko Fabrika, İleri Üretim Teknolojileri.
 - o Genel bakış: Verimliliği artırmak, israfı azaltmak, operasyonları optimize etmek ve sürdürülebilirliği geliştirmek için dijital ikizlerin nasıl kullanılacağını tanıtır.
 - o Bağlantı: <https://eitmanufacturingacademy.eu/courses/leveraging-digital-twin-technology-for-sustainable-manufacturing-31925/>
- Değer Yaratmayı Teşvik Etmek: Sürdürülebilir ve Kapsayıcı Bir Gelecek için Beceriler
 - o Çevrimiçi kurs, orta seviye.
 - o İlgili ADMA alanları: İnsan Odaklı Organizasyon, ECO Fabrika, Değer Zinciri Odaklı Açık Fabrika.
 - o Genel bakış: Endüstride sürdürülebilirliği, kapsayıcılığı ve değer yaratmayı teşvik etmek için gerekli yetkinlikleri sağlar. İşletmeyi sosyal ve çevresel



- hedeflerle uyumlu hale getirmek için liderlik, işbirliği ve sorumlu inovasyona odaklanır.
- Bağlantı: <https://eit-campus.eu/learning-path/driving-value-creation-skills-for-a-sustainable-and-inclusive-future>
 - Sürdürülebilir Üretim için İnsan-Robot Etkileşimi Yüksek Lisans Programı
 - Yüksek lisans programı, ileri düzey (2 yıl, çift diploma).
 - İlgili ADMA alanları: İleri İmalat Teknolojileri, Akıllı İmalat, İnsan Odaklı Organizasyon.
 - Genel bakış: Sürdürülebilir üretimde robotik ve insan merkezli tasarımın entegrasyonuna odaklanır. Teknik uzmanlığı inovasyon ve girişimcilik eğitimiyle birleştirir.
 - Bağlantı: <https://www.eitmanufacturing.eu/what-we-do/education/master-school/msc-in-human-robot-interaction-for-sustainable-manufacturing/>
 - Yenilikçi Ekosistemler için Dijital Üretim Yüksek Lisans Programı
 - Yüksek lisans programı, ileri düzey (2 yıl, çift diploma).
 - İlgili ADMA alanları: Dijital Fabrika, Akıllı Üretim, Değer Zinciri Odaklı Açık Fabrika.
 - Genel bakış: Sistem entegrasyonu, veri odaklı inovasyon ve değer zincirleri içindeki işbirliği dahil olmak üzere üretim ekosistemleri için dijital teknolojileri ele alır. Mezunlarını endüstriyel ağlarda dijital dönüşümü yönetmeye hazırlar.
 - Bağlantı: <https://www.eitmanufacturing.eu/what-we-do/education/master-school/msc-in-digital-manufacturing-for-innovative-ecosystems/>
 - Döngüsel Ekonomi için Sıfır Hata Üretiminde Yüksek Lisans
 - Yüksek lisans programı, ileri düzey (2 yıl, çift diploma).
 - İlgili ADMA alanları: Akıllı Üretim, ECO Fabrika, İleri Üretim Teknolojileri.
 - Genel bakış: İleri üretim ile döngüsel ekonomi ilkelerini birbirine bağlayarak, kusur önleme ve yüksek kaliteli üretim yöntemlerinde uzmanlaşır. Gerçek zamanlı izleme, süreç optimizasyonu ve sürdürülebilir uygulamalara odaklanır.
 - Bağlantı: <https://www.eitmanufacturing.eu/what-we-do/education/master-school/msc-in-zero-defect-manufacturing-for-a-circular-economy/>
 - Döngüsel Ekonomi – Sürdürülebilir Malzeme Yönetimi
 - Çevrimiçi kurs, başlangıç seviyesi
 - İlgili ADMA alanları: ECO Fabrika, Değer Zinciri Odaklı Açık Fabrika
 - Genel bakış: Yeniden kullanım, geri dönüşüm ve sorumlu tedarik zincirlerine vurgu yaparak sürdürülebilir malzeme yönetimi ilkelerini tanıtır. Döngüsel ekonomi uygulamalarını üretime entegre etmek isteyen profesyonellere yöneliktir.
 - Bağlantı: <https://eit-campus.eu/course/raw-materials/circular-economy-sustainable-materials-management>
 - Yapay Zekâ ve Döngüsel Ekonomi
 - Çevrimiçi kurs, başlangıç seviyesi
 - İlgili ADMA alanları: ECO Fabrika, Dijital Fabrika, Akıllı Üretim
 - Genel bakış: Kaynak verimliliğini optimize etmekten yeni sürdürülebilir iş modellerini mümkün kılmaya kadar, yapay zekanın döngüsel ekonomi



stratejilerini nasıl destekleyebileceğini açıklar. Vaka çalışmaları ve pratik örnekler sunar.

- Bağlantı: <https://eit-campus.eu/course/girls-go-circular/artificial-intelligence-and-the-circular-economy>

4.3. FRAUNHOFER-GESELLSCHAFT

Fraunhofer-Gesellschaft (Fraunhofer Topluluğu), 1949 yılında Almanya'da kurulan, akademik araştırma ile endüstriyel uygulama arasındaki boşluğu doldurarak inovasyon, teknoloji transferi ve toplumsal faydayı teşvik etmeyi temel amacı olarak belirleyen, Avrupa'nın önde gelen uygulamalı araştırma kuruluşlarından biridir.

Fraunhofer, Almanya genelinde dağılmış yaklaşık 75-76 enstitü ve bağımsız araştırma birimi aracılığıyla faaliyet göstermektedir. Yaklaşık 32.000 araştırmacı, mühendis ve destek personeli istihdam eden kurumun yıllık araştırma bütçesi yaklaşık 3,6 milyar avrodur. Bu bütçenin yaklaşık 3,1 milyar avrosu, endüstri ve kamu sektörü ortaklarıyla yapılan sözleşmeli araştırmalardan gelmektedir.

Fraunhofer'in misyonu, dijital dönüşüm, iklim değişikliği, enerji geçişi, sağlık hizmetleri ve dayanıklı altyapı gibi acil toplumsal sorunları, sürdürülebilir ve etik açıdan sağlam teknolojik çözümler arayarak ele almaktır. Araştırmaları etkili ürünlere, hizmetlere ve süreçlere dönüştürmek için üniversiteler, işletmeler (her büyüklükte), kamu kurumları ve uluslararası ortaklarla yakın işbirliği içinde çalışmaktadır.

Fraunhofer'in temel ilkeleri ve ayırt edici özellikleri şunlardır:

- Uygulamalı ve pazar odaklı araştırma: Çalışmaların çoğu sözleşmeli araştırma, prototip geliştirme ve kamu-özel sektör iş birlikleri yoluyla gerçekleştirilmektedir.
- Temel fon + proje fonu modeli: Federal/eyalet hükümetlerinden sağlanan temel fon, enstitülerin daha uzun vadeli, rekabet öncesi araştırmaları keşfetmelerini desteklerken, kaynakların büyük bir kısmı dış kaynaklı projelerden gelmektedir.
- Disiplinlerarası yapı: Araştırma alanları arasında biyoeкономи, yapay zekâ, kuantum teknolojisi, kaynak verimliliği, dijital sağlık hizmetleri, hidrojen teknolojileri ve diğerleri bulunmaktadır.
- Teknoloji transferi ve inovasyon ekosistemi: Fraunhofer, yan kuruluşları, lisanslamayı ve işbirliğine dayalı inovasyonu desteklemektedir. Kuruluş, araştırma sonuçlarının gerçek dünyadaki uygulamalara daha hızlı aktarılmasını sağlamaya çalışmaktadır.

Fraunhofer, bilimsel mükemmelliği ilerletmekle endüstri ve toplum için ölçülebilir bir etki yaratmak arasında denge kurmayı hedeflemektedir. Bunu özellikle küçük ve orta ölçekli işletmelerin yüksek teknolojili inovasyona katılmalarına yardımcı olarak ve Almanya ve Avrupa'nın endüstriyel rekabet gücüne katkıda bulunarak gerçekleştirmektedir.

ADMA metodolojisi dönüşümleri için ilgi çekici eğitim kurslarına örnekler:

T1. İleri İmalat Teknolojileri

- Fraunhofer Katmanlı Üretim Akademisi – Katmanlı Üretim Temel Eğitimi → AM teknolojileri, potansiyelleri ve uygulamalarını kapsayan giriş eğitimi.
- AM Temel Eğitimi – Tasarım (Fraunhofer IAPT).

T2. Dijital Fabrika



- Fraunhofer Academy – Akıllı Üretim Uzmanı → akıllı üretim, sensörler, eklemeli üretim, makine öğrenimi, trendleri kapsar.
- Akıllı Üretim Uzmanlığı (Fraunhofer Akademisi).

T3. Eko-Fabrika (Sürdürülebilirlik)

- Fraunhofer Akademisi / Fraunhofer Akademisi'nin sürekli eğitim kataloğunda "Enerji ve Sürdürülebilirlik" başlığı altında genel teklifler.
- Fraunhofer Akademisi – Enerji ve Sürdürülebilirlik dahil olmak üzere ileri eğitim konuları.

T4. Müşteri Odaklı Entegre Mühendislik

- Fraunhofer Katmanlı Üretim Akademisi – Katmanlı Üretim için Tasarım Eğitimi (DfAP) → tasarım, işlevsel entegrasyon ve hafif yapılar üzerine odaklanır.
- Katmanlı Üretim Eğitimi için Tasarım (Fraunhofer IAPT).

T5. İnsan Odaklı Organizasyon

- Fraunhofer Akademisi – dönüşüm, liderlik dahil olmak üzere endüstri profesyonelleri ve yöneticileri için tasarlanmış genel mesleki ve sertifika kursları.
- Fraunhofer Akademisi – endüstri ve yöneticiler için mesleki kurslar.

T6. Akıllı Üretim

- AMPOWER & Fraunhofer IAPT – Bağlayıcı Püskürtme Eğitimi (uygulamalı) → belirli bir ileri üretim teknolojisi (metal bağlayıcı püskürtme) konusunda derinlemesine teknik kurs.
- Bağlayıcı Püskürtme Eğitimi (AMPOWER + Fraunhofer IAPT).

T7. Değer Zincirine Yönelik Açık Fabrika

- Fraunhofer Akademisi'nin üretim, lojistik ve süreç entegrasyonu alanlarında sunduğu sürekli eğitim programları – tedarik zinciri / değer zinciri perspektifine hizmet eder.
- Fraunhofer Akademisi – üretim, lojistik vb. alanlarda sürekli eğitim.

4.4. MONDRAGON UNIBERTSITATEA

Mondragon Unibertsitatea (MU), 1997 yılında kurulan ve Bask Bölgesi'nde ve uluslararası alanda bilgi, inovasyon, sosyal ve ticari gelişimi teşvik etmeyi amaçlayan bir kooperatif üniversitesidir. Misyonu, eğitim, araştırma ve bilgi transferinin entegrasyonu etrafında yapılandırılmış olup, öğrencileri, şirketleri ve araştırma merkezlerini birbirine bağlamaktadır.

Mondragon Unibertsitatea, mühendislik, işletme, eğitim, beşerî bilimler, iletişim ve gastronomi alanlarında fakülteler ve uzmanlık merkezleri aracılığıyla faaliyet göstermekte ve özellikle ileri sanayi, dijitalleşme, sürdürülebilirlik, döngüsel ekonomi ve girişimcilik gibi stratejik alanlarda iş ve sanayi ağıyla yakın iş birliği içindedir.

Mondragon Unibertsitatea'nın genel amacı, yetkin ve yenilikçi profesyoneller yetiştirmek ve endüstrinin ve toplumun teknolojik ve sosyal gelişimine katkıda bulunmaktır. Bunu başarmak için dört ana alanda faaliyetler geliştirmektedir:

- Eğitim: Öğrencilere, profesyonellere ve şirketlere lisans, yüksek lisans, doktora ve uzmanlık programları sunarak, geleceğin endüstrisinin talep ettiği becerileri kazandırır.
- İnovasyon ve uygulamalı araştırma: Gerçek endüstriyel zorlukları çözmeyi amaçlayan, şirketler ve teknoloji merkezleri ile iş birliği içinde Ar-Ge projelerini desteklemek.
- Girişimcilik: Mondragon Team Academy ve özel programlar aracılığıyla start-up'ları, girişimcilik girişimlerini ve inovasyon projelerini teşvik etmek.



- Topluluk: Endüstriyel ve sosyal dönüşüm projeleri etrafında üniversite, şirketler ve toplumu birbirine bağlayan bir kooperatif ve inovasyon ekosistemi oluşturmak.

Karşılaştırmalı bir bakış açısıyla, eğitimin temel direği özellikle önemlidir. Mondragon Unibertsitatea, sürekli eğitim ve mikro sertifikalardan resmi yüksek lisans derecelerine ve uzmanlık doktora programlarına kadar geniş bir yelpazede programlar sunmaktadır. Bu programlar dijital üretim, robotik, yapay zekâ, sürdürülebilirlik, döngüsel ekonomi ve liderlik gibi alanları kapsamakta ve farklı hedef gruplara (öğrenciler, aktif profesyoneller ve KOBİ'ler) hizmet vermek üzere tasarlanmıştır.

Bu yapı, teknik beceriler (dijitalleşme, otomasyon, ileri üretim) ile çapraz becerileri (inovasyon yönetimi, girişimcilik, kooperatif liderliği) birleştiren kapsamlı bir yaklaşımı yansıtmaktadır. Bu nedenle Mondragon Unibertsitatea, eğitim, araştırma ve üretici sektörün ihtiyaçları arasında uyumu sağlayan, endüstri ve topluma uygulanan üniversite eğitiminde bir referans noktası oluşturmaktadır.

ADMA metodolojisi dönüşümleri için ilgi çekici eğitim kurslarına örnekler:

T1. İleri İmalat Teknolojileri

- Endüstriyel Katmanlı İmalat Yüksek Lisans Programı → metaller, kompozitler ve biyomalzemelerde 3D baskı.
- İleri İmalat Süreçlerinde Sürekli Eğitim → hassas işleme, kompozitler, yüksek verimlilik teknikleri.
- Öngörücü Bakım ve Akıllı Bakım Kursu.

T2. Dijital Fabrika

- Robotik ve Kontrol Sistemleri Yüksek Lisans Programı → otomasyon, siber-fiziksel sistemler.
- Endüstriyel Bakım Dijitalleşmesi Kursu → IoT, dijital ikizler, sensörleştirme.
- OT ortamlarında Siber Güvenlik Uzmanlığı.

T3. Eko-Fabrika (Sürdürülebilirlik)

- Döngüsel Ekonomi ve Endüstriyel Sürdürülebilirlik Yüksek Lisans Programı.
- Enerji Verimliliği ve Yenilenebilir Enerji Kursları.
- Değer zincirinde sürdürülebilir malzeme yönetimi.

T4. Müşteri Odaklı Entegre Mühendislik

- Endüstri Mühendisliği Yüksek Lisans Programı → müşteri odaklı tasarım ve üretim proje yönetimi.
- Ürün Tasarımı ve Kullanıcı Deneyimi (UX) Eğitimi.
- Ortak yaratıma uygulanan Simülasyon ve CAD/CAE/PLM dersleri.

T5. İnsan Odaklı Organizasyon

- Öğrenme Kolaylaştırma ve Liderlik Yüksek Lisans Programı (MU Eğitim).
- İşbirliğine Dayalı Liderlik ve Takım Yönetimi eğitimi.
- Mondragon Takım Akademisi (MTA): girişimcilik ve iş birliğine dayalı çalışma.

T6. Akıllı Üretim

- Robotik ve Kontrol Sistemleri Yüksek Lisans Programı (esnek otomasyon, kobotlar, üretimde yapay zekâ).
- Yalın Üretim ve Dijital Altı Sigma Kursları.
- Endüstride Büyük Veri ve Yapay Zekâ.

T7. Değer Zincirine Yönelik Açık Fabrika



- Kooperatifçilik, Açık İnovasyon ve Sosyal Ekonomi Programları.
- Değer Ağlarında İşbirliğine Dayalı İnovasyon Kursu.
- Endüstri 4.0'da Yönetici Eğitimi (4GUNE) → dijital tedarik zincirlerine odaklanarak.

4.5. POK (POLIMI OPEN KNOWLEDGE)

POK (POLIMI Open Knowledge), Politecnico di Milano'nun yüksek kaliteli eğitime açık ve kapsayıcı erişimi teşvik etmek için başlattığı resmi MOOC (Kitlese Açık Çevrimiçi Kurs) platformudur. Üniversitenin METID (Metodi e Tecnologie Innovative per la Didattica - Öğretim için Yenilikçi Yöntemler ve Teknolojiler) - Öğrenme Yenilik Birimi tarafından geliştirilen ve yönetilen POK, Politecnico di Milano'nun akademik bilgi ve uzmanlığını öğrenciler ve profesyonellerden dünya çapındaki vatandaşlara ve eğitimcilere kadar geniş bir kitle ile paylaşma taahhüdünü somutlaştırmaktadır.

Ticari öğrenim pazarlarından farklı olarak, POK bir devlet üniversitesi çatısı altında faaliyet göstererek akademik titizliği, araştırma temelli içeriği ve kurumsal öğretim hedefleriyle uyumu garanti etmektedir. Misyonu, Politecnico di Milano'nun bilimsel ve teknik uzmanlığını çevrimiçi olarak ücretsiz erişilebilir hale getirerek eğitimdeki boşlukları doldurmaktır.

POK'un faaliyetleri ve sunduğu hizmetler dört ana boyutta gruplandırılabilir:

- Akademik MOOC'lar:

POK, Politecnico di Milano'nun profesörleri ve araştırmacıları tarafından tasarlanan ve giderek büyüyen bir ücretsiz çevrimiçi kurs kataloğuna ev sahipliği yapmaktadır. Kurslar, mühendislik, mimarlık, tasarım, bilgisayar bilimi, sürdürülebilirlik ve yönetim gibi çok çeşitli disiplinleri kapsamaktadır ve lisans ve yüksek lisans öğrencileri, araştırmacılar ve vatandaşlar gibi farklı kitleler için yapılandırılmıştır.

- Mesleki ve Yaşam Boyu Öğrenme:

Akademik eğitimin ötesinde, POK, Agile Proje Yönetimi, Dijital İnovasyon ve Sürdürülebilir Kalkınma gibi yeni gelişen alanlarda sürekli beceri geliştirme arayışında olan profesyonellere yönelik MOOC'lar sunmaktadır. Bu kurslar, yaşam boyu öğrenmeyi destekler ve akademi ile endüstrinin ihtiyaçları arasındaki uçurumu kapatmaya yardımcı olur.

- Açık Bilgi ve Kapsayıcılık:

Açık eğitim ilkelerine sadık kalan tüm POK kursları ücretsizdir ve birden fazla dilde (çoğunlukla İtalyanca ve İngilizce) mevcuttur. Platform, lise öğrencilerinden yaşlılara kadar çeşitli öğrenci gruplarına ulaşarak ve coğrafi veya sosyal engellerden bağımsız olarak katılımı teşvik ederek kapsayıcılığı desteklemektedir.

- Üniversite-Toplum Katılımı:

POK, Politecnico di Milano ile toplum arasındaki bağı güçlendirir. Unfolding Gianfranco Ferré veya City and Sustainability gibi vatandaş odaklı MOOC'lar aracılığıyla kültürel farkındalığı,



sürdürülebilirliği ve sivil katılımı teşvik eder ve akademik bilginin kamuoyunun anlayışına ve inovasyona nasıl katkıda bulunabileceğini gösterir.

Karşılaştırmalı bir bakış açısıyla, POK akademik güvenilirliği erişilebilirlikle birleştiren, üniversite odaklı bir açık dijital eğitim modelini temsil eder. Gücü, açık erişim çerçevesine, kendi hızında öğrenme, multimedya dersleri ve etkileşimli değerlendirmeler dahil olmak üzere modern pedagojik yaklaşımlarla titiz bilimsel içeriği entegre etmesinde yatmaktadır.

Eğitimdeki yenilikçiliği Politecnico di Milano'nun araştırma ve öğretim mükemmelliği ile uyumlu hale getiren POK, Avrupa'daki kurumsal MOOC'lar için bir referans noktası olarak, üniversitelerin dijital platformları sürekli öğrenmeyi, mesleki gelişimi ve toplumsal etkiyi teşvik etmek için nasıl kullanabileceğini göstermektedir.

ADMA metodolojisi dönüşümleri için ilgi çekici eğitim kurslarına örnekler:

- Çevik Proje Yönetimi: SCRUM'ın ötesinde bir kültür olarak çeviklik
 - o Çevrimiçi kurs, orta seviye
 - o İlgili ADMA alanları: İnsan Odaklı Organizasyon, Akıllı Üretim, Dijital Fabrika
 - o Genel bakış: Kültürel ve örgütsel bir dönüşüm yaklaşımı olarak Agile zihniyetini keşfetmek; dijital dönüşüm projelerinde esnekliği, iş birliğini ve inovasyonu artırmak için Agile ve geleneksel proje yönetimini birleştiren hibrit modelleri tanıtmak
 - o Bağlantı: https://www.pok.polimi.it/course/view.php?id=206&utm_source=chatgpt.com#tab2
- Platform Düşüncesi: platformlar aracılığıyla verileri kullanma
 - o Çevrimiçi kurs, orta seviye
 - o İlgili ADMA alanları: Dijital Fabrika, İleri Üretim Teknolojileri, Dijital Fabrika, Akıllı Üretim
 - o Genel bakış: Verilerin ve dijital platformların nasıl yeni iş modelleri ve değer ağları yarattığını anlamak; platform tabanlı inovasyonun stratejik ve teknolojik boyutlarına odaklanmak
 - o Bağlantı: <https://www.pok.polimi.it/course/view.php?id=91#courseTabContent>
- Eğitim ve bakımı desteklemek için sanal ve artırılmış gerçeklik
 - o Çevrimiçi kurs, orta seviye
 - o İlgili ADMA alanları: İleri İmalat Teknolojileri, Dijital Fabrika, Akıllı İmalat, İnsan Odaklı Organizasyon
 - o Genel bakış: Endüstriyel süreçlere, eğitime ve bakıma Sanal ve Artırılmış Gerçeklik uygulamalarının tanıtılması; sürükleyici teknolojilerin üretim ortamlarında performansı, güvenliği ve öğrenmeyi nasıl iyileştirdiğinin keşfedilmesi
 - o Bağlantı: <https://www.pok.polimi.it/course/view.php?id=172#courseTabContent>
- Kültürel ve yaratıcı endüstriler modellerini altüst eden Moda Teknolojisi paradigması
 - o Çevrimiçi kurs, başlangıç seviyesi
 - o İlgili ADMA alanları: Akıllı Üretim, ECO Fabrika, Değer Zinciri Odaklı Açık Fabrika
 - o Genel bakış: Teknoloji ve dijital inovasyonun moda endüstrisinde tasarım, üretim ve dağıtımı nasıl yeniden şekillendirdiğini analiz etmek; yaratıcı üretim ekosistemlerinin sürdürülebilir, dijital ve veri odaklı dönüşümünü keşfetmek



- Bağlantı: https://www.pok.polimi.it/course/view.php?id=66&utm_source=chatgpt.com#courseTabContent
- İnovasyon Yönetimi ve Dijital Dönüşüm
 - Çevrimiçi kurs, orta seviye
 - İlgili ADMA alanları: Akıllı Üretim, Dijital Fabrika, İleri Üretim Teknolojileri
 - Genel bakış: Dijital dönüşüm bağlamında inovasyonu yönetmek için çerçeveler ve araçlar tanıtmak; rekabet gücünü artırmak için teknoloji, strateji ve organizasyonel kültürün nasıl etkileşime girdiğine odaklanmak
 - Bağlantı: <https://www.pok.polimi.it/course/view.php?id=207#courseTabContent>

4.6. UDEMY

Udemy, öğrenme yoluyla yaşamları iyileştirme misyonuyla 2010 yılında kurulmuş küresel bir çevrimiçi öğrenme platformudur. Öğrencileri, eğitmenleri ve kuruluşları birbirine bağlayan bir pazar yeri olarak faaliyet gösterir ve herkesin çevrimiçi olarak yeni beceriler öğretmesini ve öğrenmesini sağlar. Geleneksel eğitim kurumlarından farklı olarak, Udemy'nin modeli açık ve merkezi olmayan bir yapıdadır — dünyanın dört bir yanından bireysel uzmanlar ve profesyoneller kurslar oluşturabilir ve küresel bir kitleye ulaşabilir.

Udemy'nin faaliyetleri ve sunduğu hizmetler dört ana boyutta gruplandırılabilir:

- Kurs Pazarı: Udemy, iş ve teknolojiye kişisel gelişime, tasarıma ve dil öğrenimine kadar çok çeşitli konularda 200.000'den fazla kurs içeren, dünyanın en büyük çevrimiçi kurs kataloglarından birine ev sahipliği yapmaktadır. Kurslar genellikle kısa, video tabanlı ve öğrencinin kendi hızına göre ilerleyen, öğrencilerin esneklik ihtiyaçlarına cevap veren kurslardır.
- Mesleki Beceri Geliştirme: Platform, "Udemy Business" aracılığıyla şirketler ve kuruluşlar için özel olarak hazırlanmış öğrenim çözümleri sunar. Bu hizmet, mesleki ve teknik becerilere (ör. veri bilimi, bulut bilişim, proje yönetimi) odaklanan yüksek kaliteli kursların yanı sıra sosyal beceriler ve liderlik gelişimi konularını içeren bir kataloğa erişim sağlar. Şirketler, işgücünün yeniden beceri kazanmasını ve sürekli öğrenimini desteklemek için Udemy Business'ı kullanır.
- Eğitmen Ekosistemi: Udemy, eğitmenlerin ve konu uzmanlarının kendi kurslarını tasarlamasına, yayınlamasına ve bunlardan gelir elde etmesine olanak tanır. Bu açık model, sürekli içerik yenilemeyi ve çeşitliliği teşvik ederek öğrenme materyallerinin gelişen teknolojiler ve endüstri uygulamalarıyla uyumlu kalmasını sağlar.
- Küresel Öğrenim Topluluğu: Dünya çapında 70 milyondan fazla öğrencisi olan Udemy, gerçek anlamda küresel bir öğrenci ve eğitmen topluluğu oluşturmuştur. Platformu, birden fazla dili ve yerelleştirilmiş içeriği destekleyerek, coğrafi konum veya geçmişten bağımsız olarak eğitime kapsayıcı erişimi teşvik eder.

Karşılaştırma açısından Udemy, esnek, talep odaklı çevrimiçi eğitimde önemli bir referans noktasıdır. Başarısı, dijital pazar modeli ve hem bireysel öğrencilerin hem de kurumsal eğitim ihtiyaçlarını karşılayan kurs çeşitliliğinin ölçeklenebilirliğinde yatmaktadır.



Teknik içerik (ör. programlama, yapay zekâ, bulut bilişim) ve çapraz beceriler (ör. iletişim, liderlik, inovasyon) kombinasyonu sayesinde Udemy, yaşam boyu öğrenme için önde gelen küresel bir platform olarak konumlanmıştır. Hızla değişen bir ekonomide sürekli beceri geliştirme ve istihdam edilebilirliği teşvik ederek, eğitimin dijital platformlar aracılığıyla nasıl etkili bir şekilde büyük ölçekte sunulabileceğini göstermektedir.

ADMA metodolojisi dönüşümleri için ilgi çekici eğitim kurslarına örnekler:

- Endüstri 4.0'ı Ustaca Kullanma: Otomasyon, Robotik ve Siber Güvenlik
 - o Çevrimiçi kurs, başlangıç seviyesi — önceden derinlemesine deneyimi olmayan öğrenciler için tasarlanmıştır, ancak genel mühendislik veya bilgisayar sistemlerine aşina olmak faydalıdır
 - o İlgili ADMA alanları: İleri İmalat Teknolojileri, Dijital Fabrika, Akıllı İmalat
 - o Genel bakış: endüstriyel otomasyon sistemlerini anlama; Güvenlik Enstrümanlı Sistemleri uygulama; endüstriyel sistemler için siber güvenliği öğrenme; robotik temellerini ve uygulamalarını keşfetme
 - o Bağlantı: <https://www.udemy.com/course/master-industry-40-automation-robotics-cybersecurity/>
- Sürdürülebilir Teknolojiler ve Veriye Dönüştürme 2.0 Yüksek Lisans Kursu
 - o Çevrimiçi kurs, başlangıç seviyesi — İş Sistemleri, Bilgi Teknolojisi ve Bilgisayar Bilimleri alanlarında lisans ve lisansüstü öğrencilerinin yanı sıra sürdürülebilir teknoloji hakkında bilgi edinmek isteyen herkes için tasarlanmıştır
 - o İlgili ADMA alanları: ECO Fabrika, Akıllı Üretim
 - o Genel bakış: Çevresel zorlukları etkili bir şekilde ele almak için teknoloji ve veriden yararlanma
 - o Bağlantı: <https://www.udemy.com/course/sustainable-technologies-datafication/>
- Otomasyon için Endüstriyel Dijital İkizler - Godot ve CoDeSys
 - o Çevrimiçi kurs, ileri seviye — PLC programlama konusunda temel bilgisi olan ve dijital ikiz teknolojisi becerilerini geliştirmek isteyen mühendisler, geliştiriciler ve otomasyon meraklıları için tasarlanmıştır
 - o İlgili ADMA alanları: İleri İmalat Teknolojileri, Dijital Fabrika, Akıllı İmalat
 - o Genel bakış: Sanal devreye alma için PLC'lerle entegre ederken makinelerin ve robotların etkileşimli modellerini oluşturmak
 - o Bağlantı: <https://www.udemy.com/course/industrial-digital-twins-for-automation/>
- Robotik: İnsan-Robot Etkileşimi — Teori ve Uygulamalar
 - o Çevrimiçi kurs, başlangıç seviyesi
 - o İlgili ADMA alanları: İleri İmalat Teknolojileri, İnsan Odaklı Organizasyon, Akıllı İmalat,
 - o Genel bakış: İnsanlar ve robotlar arasındaki işbirliğini geliştiren HRI sistemlerinin nasıl etkili bir şekilde tasarlanacağı, değerlendirileceği ve uygulanacağı konusunda derinlemesine bir anlayışa ulaşmak
 - o Bağlantı: <https://www.udemy.com/course/robotics-human-robot-interaction-theory-and-applications/>



4.7. İNCELENEN EĞİTİM SAĞLAYICILARININ ORTAK ÖZELLİKLERİ

Analiz edilen altı eğitim sağlayıcı (Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon Üniversitesi, POLIMI Open Knowledge ve Udemy), öğrenme ve beceri geliştirme konusunda çeşitli yaklaşımlar sunmaktadır. Ancak, kurumsal yapı ve kapsamdaki farklılıklara rağmen, dijital ve sürdürülebilir dönüşüm için eğitimleri tasarlama ve sunma konusunda ortak ilkeleri gösteren birkaç ortak unsur ortaya çıkmaktadır. Bu ortaklıklar, ADMA çerçevesi ve LCAMP'nin entegre, KOBİ odaklı bir eğitim kataloğu oluşturma hedefi ile büyük ölçüde ilgilidir.

Tüm sağlayıcılar, istihdam edilebilirlik ve yetkinlik geliştirmeye güçlü bir şekilde odaklanmaktadır. Eğitim teklifleri, endüstride doğrudan uygulanabilir ve mesleki gelişimi destekleyen beceriler geliştirmek için tasarlanmıştır. Tematik kapsam, ADMA dönüşüm alanlarıyla, özellikle Dijital Fabrika, Akıllı Üretim, ECO Fabrika ve Değer Zinciri Odaklı Açık Fabrika ile yakından uyumludur.

Analiz edilen kurumlar, üniversite öğrencilerinden kariyerinin başındaki profesyonellere, KOBİ'lerden kurumsal müşterilere kadar geniş bir öğrenci kitlesini hedeflemektedir. Kursları, giriş veya farkındalık programlarından (başlangıç seviyesi MOOC'lar veya kısa çevrimiçi kurslar) ileri dereceli programlara (yüksek lisans ve uzmanlık mesleki eğitim) kadar farklı giriş seviyeleri için tasarlanmıştır.

Tüm kurumlarda belirgin bir eğilim, esneklik ve modülerliğe verilen önemdir. Çevrimiçi ve asenkron öğrenme baskındır ve karma veya yüz yüze seçeneklerle tamamlanmaktadır. Kurslar genellikle bağımsız modüller, öğrenme yolları veya derece programları olarak yapılandırılmıştır ve öğrencilerin ihtiyaçlarına ve olgunluk düzeylerine göre adım adım ilerlemelerine olanak tanır.

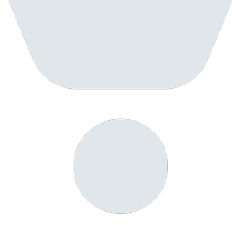
Tüm kuruluşlar, endüstri ve inovasyon ekosistemleriyle güçlü bir bağ kurmaktadır. Bu, eğitimin, araştırma ve iş uygulamaları arasında bir köprü olduğu yönündeki ortak vizyonu güçlendirmektedir.

Karşılaştırmalı değerlendirme, D7.2'de KOBİ'ler arasında daha zayıf olduğu belirlenen ADMA alanlarında eğitim tekliflerinin yoğunlaştığını göstermektedir. Altı kuruluşun tümü, bu dönüşüm alanlarının güçlendirilmesine doğrudan veya dolaylı olarak katkıda bulunan kurslar sunmaktadır:

- Akıllı Üretim – otomasyon, yapay zekâ, öngörücü bakım ve gerçek zamanlı veri yönetimi.
- Dijital Fabrika – sistem entegrasyonu, dijital ikizler ve siber güvenlik.
- ECO Fabrika – sürdürülebilir üretim, döngüsel ekonomi, kaynak ve enerji verimliliği.
- Değer Zinciri Odaklı Açık Fabrika – açık inovasyon, tedarik ağları arasında iş birliği ve müşteri odaklı tasarım.

Bu sağlayıcılar, etkili eğitim ekosistemlerinin esneklik, modülerlik ve güçlü endüstri bağlantılarını bir araya getirerek yaşam boyu öğrenmeyi ve dijital dönüşümü nasıl desteklediğini göstermektedir. Ortak uygulamaları, LCAMP ortaklarına kendi eğitim tekliflerini yapılandırma konusunda değerli ilham kaynağı oluşturmakta, yeni veya uyarlanmış kursların KOBİ'lerin ihtiyaçlarına uygun olmasını, ADMA dönüşüm yollarını desteklemesini ve dijital ve sürdürülebilir olgunlukta ölçülebilir ilerlemeyi sağlamaktadır.





5. SONUÇ

WP7 kapsamında yürütülen çalışmalar, yapılandırılmış metodolojiler, teşhis araçları ve hedefli eğitim stratejileri aracılığıyla KOBİ'lerin Endüstri 4.0 ve Endüstri 5.0'a geçişlerinde nasıl etkili bir şekilde desteklenebileceğine dair kapsamlı bir anlayış sağlar. ADMA ve İşbirlikçi Öğrenme Fabrikası (CLF) gibi kavramsal çerçeveleri KOBİ taramalarından, uygulama planlarından ve yapılandırılmış bir eğitim kataloğundan elde edilen pratik kanıtlarla entegre ederek, proje gerçek endüstriyel ihtiyaçlar ve dijital olgunluk yollarıyla tamamen uyumlu bir öğrenme teklifi için sağlam temeller atmıştır.

Önceki raporların analizi, ADMA metodolojisinin KOBİ'lerde dijital hazırlığı değerlendirmek ve dönüşüm süreçlerine rehberlik etmek için sağlam bir çerçeve olmaya devam ettiğini göstermektedir. Yedi dönüşüm alanı, güçlü yönleri, zayıf yönleri ve geliştirme önceliklerini yakalamak için yapılandırılmış bir dil sunmaktadır. Buna paralel olarak, CLF kavramı, mesleki eğitim merkezlerinin endüstriyel ortamları taklit eden ve deneyimsel öğrenmeyi destekleyen canlı laboratuvarlar olarak nasıl hizmet edebileceğini göstermektedir. ADMA ve CLF arasındaki tamamlayıcılık, endüstriyel olgunluk teşhislerini pedagojik tasarımla birleştirmenin uygulanabilirliğini teyit ederek, özelleştirilmiş öğrenme yolları için sağlam bir temel oluşturmaktadır.

Sekiz ülkede yapılan KOBİ taramaları, olgunluk düzeylerinin heterojen bir manzarasını ortaya koyarken, aynı zamanda bir dizi tekrarlayan model de ortaya çıkarmaktadır. Güçlü yönler, müşteri odaklılık ve insan merkezli organizasyonda açıkça ortaya çıkarken, zayıf alanlar tüm bölgelerde tutarlıdır: sınırlı otomasyon ve gerçek zamanlı veri kullanımı (Akıllı Üretim), sistem entegrasyonundaki zorluklar (Dijital Fabrika), değer zinciri boyunca yetersiz iş birliği ve sürdürülebilirlik uygulamalarının dengesiz uygulanması (EKO Fabrika). Bu bulgular, eğitim kataloğunun önceliklerini doğrudan belirlemekte ve dijitalleşme, sürdürülebilirlik, veriye dayalı üretim ve iş birliğine dayalı inovasyona güçlü bir vurgu yapılmasını haklı çıkarmaktadır.

WP7, tümü bir veya daha fazla ADMA dönüşüm alanıyla uyumlu 109 eğitim faaliyetinden oluşan yapılandırılmış bir katalogla sonuçlanmıştır. Katalogda İspanya'dan 31, İtalya'dan 18, Türkiye'den 11, Kanada'dan 10, Fransa'dan 10, Slovenya'dan 10, İsveç'ten 10 ve Almanya'dan 9 eğitim yer almaktadır. Tüm ADMA dönüşüm alanları, en azından bazı eğitim teklifleriyle kapsamaktadır ve özellikle İleri İmalat Teknolojileri, Dijital Fabrika ve Akıllı İmalat alanlarında güçlü bir temsil söz konusudur. Bu, hem bu alanların KOBİ'ler için önemini hem de mesleki eğitim ekosisteminin dönüşüm ihtiyaçlarına cevap verme kapasitesini teyit etmektedir.

WP7'de geliştirilen ikili indeksleme sistemi, bu eğitim teklifinin kullanılabilirliğini ve stratejik önemini sağlamak için çok önemlidir. Her bir eğitim fırsatını hem belirli bir ADMA dönüşüm alanına hem de olgunluk ilerleme düzeyine bağlamak, KOBİ'lerin ihtiyaçlarına, yeteneklerine ve stratejik hedeflerine göre katalogu incelemelerini sağlar. Bu yapı, aşamalı öğrenmeyi destekler, bilinçli karar vermeyi teşvik eder ve mesleki eğitim sağlayıcılarının gerçek endüstriyel zorluklarla uyumlu eğitim müdahaleleri tasarlamasına yardımcı olur.

Altı uluslararası eğitim sağlayıcısının (Coursera, EIT Manufacturing, Fraunhofer-Gesellschaft, Mondragon Üniversitesi, POLIMI Open Knowledge ve Udemy) karşılaştırmalı değerlendirmesi, LCAMP'ın eğitim yaklaşımının uygunluğunu ve eksiksizliğini doğrulamaktadır. Çeşitliliklerine rağmen, bu kurumlar birkaç temel ilkeyi paylaşmaktadır: istihdam edilebilirliğe güçlü bir



odaklanma, modüler ve esnek eğitim formatları, çok seviyeli öğrenme yolları ve endüstriyel inovasyon uygulamalarıyla sürekli uyum. Portföyleri, KOBİ'lerde tespit edilen aynı zayıf alanları, özellikle Akıllı Üretim, Dijital Fabrika, ECO Fabrika ve Değer Zinciri Odaklı Açık Fabrika'yı tutarlı bir şekilde ele almaktadır. Bu yakınsama, LCAMP'ın kendi eğitim kataloğunun yönelimini doğrulamakta ve benimsenebilecek veya uyarlanabilecek en iyi uygulamaları vurgulamaktadır.

ADMA olgunluk taramaları, CLF eğitim modelleri, 109 kursluk KOBİ odaklı eğitim kataloğu ve dış benchmarking'in birleşik içgörüler, LCAMP için net bir stratejik yön belirlemektedir. Kataloğun gelecekteki gelişimi ve iyileştirilmesi şunları içermelidir:

- En zayıf ADMA alanlarında olgunluğu hızlandıran eğitimlere öncelik vermelidir.
- Müşteri odaklılık ve insan merkezli organizasyondaki güçlü yönleri güçlendirmelidir.
- Modüler, esnek ve ilerleme odaklı öğrenme yollarını teşvik etmelidir.
- Mesleki eğitim kurumları, KOBİ'ler ve inovasyon ekosistemleri arasında güçlü köprüler kurmalıdır.
- Sürdürülebilirlik, dijitalleşme ve insan merkezli yaklaşımı tüm tekliflerde çapraz unsurlar olarak entegre etmelidir.

Sonuç olarak, WP7, KOBİ'lerin daha dijital, sürdürülebilir, dayanıklı ve insan merkezli modellere dönüşümünü destekleyecek bir eğitim kataloğu için tutarlı ve kanıta dayalı bir temel oluşturmuştur. Bu katalog, yalnızca mevcut endüstriyel ihtiyaçlara cevap vermekle kalmayacak, aynı zamanda yeni nesil Avrupa imalatı için gerekli olan yetkinliklerin şekillenmesine de yardımcı olacaktır.

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