



PRACTERIA

RETHINKING
SKILLS
TRAINING

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COURSES

- ❖ Industry 4.0 Foundation
- ❖ Industry 4.0 Transformation
- ❖ 3D Printing
- ❖ CNC Machining
- ❖ LEAN Management
- ❖ Product Development
- ❖ Application of IOT Devices in Predictive Maintenance
- ❖ Predictive Maintenance 4.0
- ❖ Journey to Digital Transformation
- ❖ Software technologies driving Industry 4.0
- ❖ Reverse Engineering
- ❖ Introduction to Machining
- ❖ Machine Maintenance
- ❖ 3D Design & Modelling

GENERIC PROGRAMMES

FOR BUSINESS CLIENTS



INDUSTRY 4.0 - FOUNDATION

**Impact on
Manufacturing
and its workforce**

The course's aim is to develop a comprehensive knowledge of Industry 4.0 to enable you to make informed decisions about the future of your business or your career.

You will discover the technological advancements that have given rise to I4.0 and explore how each of these technologies is transforming business models, production, and the workforce. You will explore how I4.0 is driving manufacturing and what steps businesses should undertake to transform their operations. You will explore the job roles of the future and learn how you can position yourself at the forefront of the changing workforce.



TARGET AUDIENCE

Production managers, shopfloor managers, engineering graduates



FORMAT

Face-to-face tutoring and digital content



DURATION

2 days



INDUSTRY 4.0 - TRANSFORMATION

**Transformation
journey**

This course aims to equip key decision makers with the knowledge needed to lead their business through the transformation journey towards an Industry 4.0 model.

Through various examples and case studies, you will learn how manufacturing businesses transform and how the Industry 4.0 model benefits their bottom line. You will be introduced to the model's 16 dimensions, where you explore how transformation should be conducted at key parts of your business. You will learn all the steps of this journey and how to prepare for it.



TARGET AUDIENCE

Senior managers, production managers, shopfloor managers



FORMAT

Face-to-face tutoring or webinars



DURATION

2 days



3D PRINTING

**For spare parts
production**

This course will enable you to acquire competencies to perform the role of Additive Manufacturing Operator, specialised in spare parts production.

Once you complete this training you will be able to 3D print various metal or plastic spare parts. With these skills you will be able to serve internal or external customers by fulfilling their need for rapid replacement of damaged parts. The sectors that will benefit from your services typically are shipping, mining, oil & gas, construction and energy production as well as other manufacturing industries.



TARGET AUDIENCE

Vocational college graduates,
engineering students, operations
staff working on the production
shopfloor, maintenance technicians



FORMAT

Face-to-face tutoring,
webinars and digital
content



DURATION

25 days

UPCOMING PROGRAMMES



CNC MACHINING

**For precision
production of parts**

This course will enable you to acquire competencies to perform the role of Computer Numerical Control (CNC) Operator + Setter for various sectors such as automotive, aerospace, mining, industrial machinery, food and beverage and other related advanced manufacturing industries. Once you complete this training you will be able to work effectively in these industries making use of CNC machining skills for parts production.

You will learn to:

1. Operate CNC equipment to machine parts
2. Monitor and record quality data and interpret machine data.
3. Maintain CNC equipment
4. Troubleshoot machining process



TARGET AUDIENCE

Vocational college graduates,
engineering students, operations
staff working on the production
shopfloor, maintenance technicians



FORMAT

Face-to-face tutoring &
digital content



DURATION

25 days



LEAN MANAGEMENT

This course will give the necessary knowledge related to lean management in production and manufacturing environments. Looking at different models such as the Toyota Production System and the synchronisation of tasks with 'Just In time' production you will learn:

1. Toyota Production System as a basis
2. Lean thinking principles
3. Lean principles
4. Different dimensions and competence levels of an industrialization framework
5. Synchronization and sequencing



TARGET AUDIENCE

Production & Shopfloor managers,
engineering students, operations
staff working on the production
shopfloor, maintenance technicians



FORMAT

Webinars & digital content



DURATION

2 days



PRODUCT DEVELOPMENT

Once your product idea has been validated thoroughly, by market and customer testing, you are ready to start.

This course will take you through the process of product development from design through prototyping, preparation for manufacturing to first batch production. It will equip you with the necessary knowledge so you can choose the right design approach, manufacturing methods, and suitable production model for your product.

The course will prepare you for managing your journey as a concise project, from costing it to planning and implementation. It will explain what experts and specialist services you will need throughout your journey. As you progress, you will be prompted to make choices and decisions which will impact your journey's next steps. The course content will guide you so your decisions lead to desired goals while reducing typical risks.



TARGET AUDIENCE

Inventor / Maker; Entrepreneur /
Investor; Manufacturer



FORMAT

Webinars & digital content



DURATION

25 days



APPLICATION of IoT Devices in Predictive Maintenance

Effectively planned Preventive & Predictive Maintenance which is integrated with the workflow is critical for a successful company. This comprehensive online training course has been designed to benefit both qualified new professionals in the Computer Science and Information Technology fields with an interest in predictive maintenance..

One will determine failures of different physical aspects within a business by using data extracted from specific devices and elements and analyze the said data to make informed decisions. It includes the set-up and configuration of an IoT device to effectively demonstrate predictive maintenance which includes programming and data analysis.



TARGET AUDIENCE

Data analysts, Software Engineers, Network Engineers, Smart System Engineers, , Maintenance Technicians & Supervisors, CMMS key users



FORMAT

E-learning, video tutorials and online workshops



DURATION

5 weeks



PREDICTIVE MAINTENANCE 4.0

Effectively planned Preventive & Predictive Maintenance which is integrated with the workflow is critical for a successful company and an integral part of maintenance management strategies such as RCM, RBM, TPM, and even 6-Sigma. This comprehensive online training course has been designed to benefit both qualified new professionals as well as experienced professionals who may be involved in the rollout of a comprehensive Maintenance & Asset Management process or auditing an existing process.

It covers all the steps required in developing a successful Preventive & Predictive Maintenance Program from failure behavior and finding the right preventive maintenance task until a well- managed preventive & predictive maintenance program, fully integrated with the workflow and the CMMS. It includes practical sessions where the learner will set-up and configure an IoT device to effectively demonstrate predictive maintenance which includes programming and data analysis.



TARGET AUDIENCE

Maintenance Managers & Supervisors, Personnel designated as planners, Predictive Maintenance Technicians & Supervisors, Maintenance & Reliability engineers



FORMAT

E-learning, video tutorials and online workshops



DURATION

8 weeks



JOURNEY TO DIGITAL TRANSFORMATION

Has the Industry 4.0 phenomenon influenced sectors and businesses beyond Manufacturing? Is Digital Transformation a form of Industry 4.0 which forces changes in other industries? Which of the Industry 4.0 technologies have become enablers for the transformation? This comprehensive online training course has been designed to benefit both engineering and IT professionals, as well as project managers who aspire to manage the implementation of digital transformation in their organization.

This course aims to equip you with the knowledge and skills needed to lead the businesses through the often-complex transformation journey with purpose and confidence. You will be introduced to various transformation models and roadmaps.



TARGET AUDIENCE

Technology and engineering students, Data analysts, IT managers, Technical leads, Operation managers, Technical and business consultants, Change managers, Project managers



FORMAT

E-learning, video tutorials and online workshops



DURATION

8 weeks



SOFTWARE TECHNOLOGIES DRIVING INDUSTRY 4.0

Industry 4.0 was first coined in 2011 by a German researcher. Since then, the term has been used differently in many parts of the world. Often difficult to comprehend and to understand. Its place in the future of technology and how it will change the way we work is crucial to the process.

It became clear very soon after that there would be 9 main technology enablers that would drive Industry 4.0 forward. This comprehensive online course will clearly define what Industry 4.0 is and dive into the 9 technology pillars using real-life case studies. Using a live project throughout the course careful implementation of the 9 technology pillars will be demonstrated and its effect and outcome shown.

Geared towards software engineers, Data analysts, Computer Science professionals and graduates as well as overall engineering disciplines the insights of this course will pave the way to future ready job skills.



TARGET AUDIENCE

Technology and engineering students, Data analysts, Network engineers, Software engineers, IT specialists, Computer Science engineers, Engineers, Manufacturers



FORMAT

E-learning, video tutorials and online workshops



DURATION

11 weeks



REVERSE Engineering

**To Capture and
Existing Parts
Geometrical Data**

This course will enable you to acquire competencies to perform the role of Reverse Engineering Technician. The prerequisite to the course is the 3D Design & Modelling course. Once complete with this training you will be able to use scanning equipment and software effectively to capture an existing parts geometrical features. Using subsequent post scanning software and CAD software you will be able to recreate the parts geometry to create a 3D dimensional model of the part. With the then available CAD data you will be able to produce the part using various manufacturing techniques. This is relevant to various sectors including automotive, oil & gas, aerospace, marine and various other sectors where original design data is no longer available.



TARGET AUDIENCE

Vocational college graduates, CAD Technicians, engineering graduates, Manufacturing Technicians



FORMAT

e-learning, virtual seminars, individual learning, final project, final assessment



DURATION

8 weeks



INTRODUCTION To Machining

**Advanced
Manufacturing
Equipment &
Fabrication Processes**

This course will enable you to acquire competencies so that you have a clear and concise understanding of different types of machining and how to perform machining tasks using various types of advanced equipment and machinery. This will include all aspects of the metal cutting processes including drilling, milling, turning as well as processes such as EDM and wire cutting. Successful machining also requires knowledge about the material you are cutting and the use of the correct tooling and machining parameters. Different advanced manufacturing equipment and techniques will be taught. This is relevant to various sectors including automotive, oil & gas, aerospace, marine and various other sectors in the manufacturing fields.



TARGET AUDIENCE

Vocational college students, engineering students, operations staff working on the production shopfloor, maintenance technicians



FORMAT

e-learning, video tutorials, case studies, group workshops, final assessment



DURATION

8 weeks



MACHINE Maintenance

**For Industrial
Maintenance**

This course provides operators with the basic engineering skills and competencies necessary to perform routine product line changes and maintenance tasks, including the removal and replacement of components, cleaning, lubrication and inspection. This is mainly related to the machinery & equipment that is relevant to you and your working environment and to understand the necessity to adhere to maintenance schedules and tasks so that the safe and efficient working of machinery and equipment is ensured.



TARGET AUDIENCE

Vocational college graduates, engineering students, operations staff working on the production shopfloor, maintenance technicians



FORMAT

e-learning, virtual seminars, individual learning, final project, final assessment



DURATION

4 weeks



3D DESIGN & Modelling

**3D Design with
Software for Standard
and Custom Parts**

This course will provide learners with the necessary skills and competencies to create designs in 2D and 3D in CAD software. It will introduce firstly the key concepts of design and the key elements of 2D drawings and what information is required on them. Other topics include basic part design and detailing in 3D, creating assemblies, 2D drawings from 3D models and creating and editing surfaces. The course will use CAD software. Once you complete this training you will be able to create, or update designs yourself and which will serve various sectors in manufacturing and engineering.



TARGET AUDIENCE

Vocational college graduates, engineering students, operations staff working on the production shopfloor, Part Designers



FORMAT

e-learning, virtual seminars, individual learning, final project, final assessment



DURATION

4 weeks

ASSETS

- ❖ CNC&AM workshop in VR
- ❖ Smart Factory visualisation in VR
- ❖ Visualisation of technical drawings in AR
- ❖ Post-training performance assistant
- ❖ Testing of a new assembly process in VR
- ❖ Virtual Absorption Plant
- ❖ Various e-learning assets with Industry 4.0 content localized for Saudi Arabia audience



CNC and AM workshops in VR

Set of training scenarios inside a virtual workshop equipped with CNC machine or Additive Manufacturing printer . Here trainees can practice various machining processes and learn how to manage a workshop's hardware to achieve best results



TARGET AUDIENCE

Technology and engineering students, TVET students, post-commissioning training



FORMAT

Virtual Reality



DURATION

Scenario dependent



Visualisations of a Smart Factory

Visualisation of key Industry 4.0 technologies and concepts orchestrated in a factory setting. Trainee can experience how a smart factory operates following the Industry 4.0 technology enhanced production process.



TARGET AUDIENCE

Manufacturers, decision-makers, operation managers, engineering students



FORMAT

Virtual Reality scenario



DURATION

5 mins



Visualisation of technical drawings

Purpose of this application is to help trainees to understand and interpret various types of engineering drawings in order to build, assemble, produce or make real products or structures.



TARGET AUDIENCE

Technology and engineering students, TVET students



FORMAT

Augmented Reality



DURATION

Scenario dependent



Post-training performance assistant

On-demand assistance after formal training is completed. Using AR headset inexperienced staff will be able to perform unfamiliar tasks & procedures to satisfactory standards. The application will push relevant instructions exactly when users need them to resolve real-work issues and at the same time, refresh skills learned during training.



TARGET AUDIENCE

Technology and engineering students, TVET students, operational staff working on a production shopfloor



FORMAT

Augmented Reality



DURATION

process dependent



Testing of a new assembling process in VR

Virtual version of a new assembly environment for production and assembling of a new product. The close to real manufacturing environment facilitates design and testing of a new working environment and new processes before they are executed in real environment .



TARGET AUDIENCE

Production & Shopfloor managers, operations staff working on the production shopfloor, engineering students



FORMAT

Virtual Reality



DURATION

Product & assembly process dependent



Virtual Plant Simulation

This scenario was planned to simulate operations of an absorption plant to allow trainees to learn how to operate certain aspects of the plant by performing tasks and procedures as in real life and to experience consequences of right / wrong decisions.



TARGET AUDIENCE

TVET students, engineering students



FORMAT

Virtual Reality scenario

DURATION

7-10 mins



E-Learning

Self paced learning using E-learning with video for acquisition of necessary theory and concepts. Various Industry 4.0 topics localized for Saudi Arabia audience.



TARGET AUDIENCE

Technology and engineering students,



FORMAT

E-learning, video content



DURATION

various



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