COURSE OVERVIEW - *Introduction to CAD and 3D Printing*

OVERVIEW

Produced by lead technologists in the field, the course *Introduction to Computer Aided Design and 3D Printing*, is created to give the trainee a transferrable professional technical skill. At its core it combines and explores numerous topics in Computer Aided Design (CAD) and 3D printing. The course is a smart combination of Cloud-based capabilities. Those include the use of Onshape™ (CAD) and Printr™ (3D Printing) tools, online video training, self-assessments and independent work. For more details about the course, please refer to your course Content Document.

COURSE CODE

CAD3DP01

COURSE BENEFITS

1. The course runs entirely on cloud-based platform requiring minimal local computing power thus offering greater flexibility.

2. All user interfaces are designed to effortlessly adapt on mobile and tablet devices.

3. The training materials are developed to offer the maximum benefits of independent learning.

4. The course provides professional technical skill in CAD (Onshape, Inc.) and 3D printing (Printr B.V.), which when mastered allow for a direct route to employment.

5. Our post-training commitment is offered through our blog, set up to tackle on-going questions, and informed the trainee about new technical breakthroughs, trends and course content updates. Importantly you can also email us for any question you might have.

6. Post-training, our trainees will have free access to all the technology platforms being taught, as well as our downloadable eBook.

7. Our trainees will be invited to take part in 4Delta's educational competition initiatives.

COURSE AIM

- Introduce the trainee to CAD and 3D printing academic and application concepts, in a detailed yet simplified approach.
- Introduce the trainee to the design capabilities of the cloud CAD Onshape software, achieving an intermediate level user status.
- Through carefully formulated lessons, transform the trainee to a competent designer and maker, capable of producing basic designs and assemblies.

- To provide the trainee the confidence to operate, troubleshoot and maintain a Fused Filament Fabrication (FFF) desktop 3D printer.
- Introduce the trainee to the Cloud 3D printing software by Printr.
- Provide fundamental manufacturing design knowledge.

LEARNING OUTCOMES

By successfully completing this course the trainee should be able to:

- Achieve thorough academic and application knowledge of CAD and 3D printing.
- Gain FREE life time access to Onshape cloud CAD software and Formide (Printr) 3D printing Cloud software.
- Use confidently the Onshape cloud CAD software to an intermediate level.
- Create complex 2D sketches and transform them into 3D solid parts.
- Create sub-assemblies, assemblies and relations between different 3D parts.
- Export parts and assemblies for 3D printing process.
- Be a competent user of FFF desktop 3D printing hardware and software.
- Understand generic troubleshooting and maintain an FFF 3D printer.
- Have a good knowledge of FFF desktop 3D printing materials.
- Be a confined user of the Printr 3D printing Cloud software Formide.

TRAINEE PREREQUISITES

Basic knowledge of any computer operating software (i.e. Windows, Mac OS, Linux) and the use of WebGL Internet web browsing (i.e. Firefox, Google Chrome, Opera and Safari) is necessary.

COURSE FORMAT

The course is a smart combination of Cloud-based capabilities, these include the CAD software (Onshape™) and Printr™ online video training, self-assessment and independent work. All elements complement each other and are essential for the successful completion of this course. The trainee is invited to join our technical Blog for further advice and knowledge sharing.

- 30 days access to online course.
- 6+ hours of online self-paced video training.
- 9 Online and e-Book tutorials.
- 60+ Self-assessment questions.
- At least 12 hours of independent learning.

STUDY LITERATURE

- Course e-Book is provided with your course registration.
- Various complementary online and book literature resources for independent study are recommended in the e-Book's Bibliography section.

COURSE CONTENT BREAKDOWN

Introduction to CAD	History of CAD; Different types of CAD available; CAD data management; General CAD design methodologies.
Meet Onshape™	Introduction to cloud CAD and Onshape™, the full cloud CAD software; Onshape™ environment and capabilities.
Part Modelling	Designing a phone bike mount: Introduction; Lesson 1 - M5 washer; Lesson 2 - Lower clamp; Tutorial 1 - Bracket; Lesson 3 - M5 Screw; Tutorial 2 - M4 washer; Lesson 4 - M5 nut; Tutorial 3 - House model; Lesson 5 - Upper clamp; Lesson 6 - M4 screw; Tutorial 4 - Cone; Lesson 7 - M8 screw; Tutorial 5 - M4 nut; Lesson 8 - Top mount; Tutorial 6 - Gear1; Lesson 9 - Lower mount 1 and 2; Tutorial 7 - Gear2.
Assembly	Introduction; Environment and features; Lower mount assembly; Main assembly.
Introduction to 3D Printing	History of 3D printing; Types of technologies and materials; Production process of 3D prints; Printable objects and applications; Explore the fused filament fabrication 3D printing technology.
FFF Practical 3D Printing	Introduction and advance use of the Element and the Formide Cloud 3D printing platform.
3D Printing Knowledge	How to best use the settings in 3D printing software and design for 3D printing.

The *COURSE CONTENT BREAKDOWN* refers only to the main chapters covered in the course and not the full content of those chapters. For a detailed outline of the course please refer to the e-Book contents page available online.

FURTHER INFORMATION

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ABOUT US

Established by experienced scientists and engineers in London, 2015, 4Delta is a venture technology company. We embrace revolutionary ideas from the science, technology, art and socioeconomic world to research, educate and develop future disruptive technologies.

As part of our vision for a sustainable, secure and fairer world, we have created 4Delta Education. Here you will find a series of carefully formulated training courses designed to bring technology, science and the arts closer to you. We have gathered the right knowledge and adapted it for you, aiming to stimulate questions, creativity and innovation. Using online tools and community driven initiatives we strive to seed the next generations of innovators.

4Delta is a private limited company registered in England, UK. Co N° 9373440.