



3DF Zephyr Foundation Course

AUGUST 30, 2022 | SIMON BROWN

7% COMPLETE Last activity on September 7, 2022 3:57 pm [IN PROGRESS](#)

Welcome to the course and we hope you enjoy the lessons as Jose and Simon share their collective knowledge of photogrammetry and 3DF Zephyr Lite.

This course is aimed at the following users:

- Users of 3DF Zephyr Lite who wish to create the highest quality models
- Users of 3DF Zephyr who intend to create accurate and repeatable models

The course is broadly split into two main sections:

- Photography for photogrammetry
- Using 3DF Zephyr Lite for 3D reconstruction

It may seem strange to concentrate on creating images and you may consider yourself a skilled photographer already, but we urge you to work through the section on the how and why of creating images as photogrammetry has its specific requirements and understanding them will reduce the risk of issues and enhance quality of the final product.

That is not to say just any set of images will work – 3DF Zephyr Lite can be quite forgiving at times – but like any digital process if you start with a fundamentally sound set of data (images) everything that follows is usually easier, quicker and more accurate.

For this reason alone we start with photography before progressing into 3D reconstruction.

The section on photogrammetry will take your knowledge beyond the interface and into how 3D reconstruction works, where the pitfalls lie and act as a authoritative guide towards always delivering the highest quality reconstruction.

There are a series of quizzes to test your knowledge at the end of each section and an assignment to complete. The quizzes are mandatory and have a minimum pass mark to achieve before progressing and the assignments are optional with the exception of the last one where you have to submit a report of your own model. Don't worry...Zephyr Lite writes the report for you and we will cover how to do this in the course.

This is the Foundation course and it teaches the basics of the photogrammetry workflow and prepares you for the AccuPixel 3DF Zephyr Course for Surveying.

We are naturally grateful of the endorsement of this course by none other than 3D Flow and we are extremely proud for their continuing support in ensuring all users – professional and enthusiasts – of 3DF Zephyr Lite edition extract as much value as possible from the software.

So, do please enjoy the course and please feel free to get in touch at any time – we always welcome feedback.

One final note – the contents of this course are © AccuPixel Limited and all rights are reserved. Trademarks of their respective owners are acknowledged.

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Course Content

[Collapse All](#)

Photography for Photogrammetry

Introduction to Photogrammetry
2 Topics | [Collapse](#)

Lesson Content | 50% COMPLETE | 1/2 Steps

- Old Process - New Methods
- The First Model - End-to-End Road Scene Example

Introduction

Photography for Photogrammetry
7 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/7 Steps

- The Digital Camera
- Shutter, Aperture and ISO
- Optimum Depth of Field
- Freeze Frame - Shutter Speeds
- Precise Focus for Zephyr
- Exposure and Metering
- Camera Modes

Image Technical Requirements
2 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/2 Steps

- Image File Formats
- Image Metadata and EXIF in Zephyr

Image Overlap and Composition
2 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/2 Steps

- Image Overlap for Zephyr
- Composition for Geometry and Zephyr

Artificial Lighting
1 Topic | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/1 Steps

- Using Artificial Lighting

Equipment Selection
6 Topics | 1 Quiz | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/6 Steps

- Camera Types
- Lenses - Overview
- Lenses - Field of View
- Accessories
- Processing Hardware
- A Word on Action Cameras
- Quiz Time - Photography for Photogrammetry

Fundamentals of Photogrammetry

The Principles of Photogrammetry
5 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/5 Steps

- Basic Principles
- 2D to 3D - Basic Steps in Zephyr
- Aerial vs Close Range
- Results and Outputs From Zephyr
- Applications

Use Cases
2 Topics | 1 Quiz | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/2 Steps

- Use Cases in Zephyr - Simple & Straightforward
- Use Cases - Challenging to Impossible
- Quiz Time - Fundamentals of Photogrammetry

Calibration and Referencing

Camera Calibration
1 Topic | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/1 Steps

- Interior Orientation - Camera Calibration

Coordinate Systems
1 Topic | 1 Quiz | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/1 Steps

- Coordinate Systems and Zephyr
- Quiz Time - Calibration and Referencing

Introduction to Zephyr

Zephyr User Interface and Settings
5 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/5 Steps

- Zephyr Installation Instructions
- Managing Licenses
- Zephyr Program Settings
- Zephyr User Interface
- 3D Render Viewport

Managing Zephyr Projects
3 Topics | 1 Quiz | [Collapse](#)

Lesson Content | 33% COMPLETE | 1/3 Steps

- Creating a Zephyr Project
- Saving Zephyr Projects
- Opening 3D Content in Zephyr
- Quiz Time - Introduction to Zephyr

Zephyr Workflow - Orientation In Detail

Camera Orientation
4 Topics | 1 Quiz | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/4 Steps

- Zephyr Key Points and Tie Points
- Preselection Strategies
- Image Matching Settings
- Initial Reconstruction Settings
- Quiz Time - Camera Orientation

The Sparse Cloud
5 Topics | [Collapse](#)

Lesson Content | 20% COMPLETE | 1/5 Steps

- Interrogating the Sparse Cloud
- Understanding Reprojection Errors
- Validating Camera Orientation
- Reviewing and Removing Cameras
- The Bounding Box

Masking Images

Masks And Alignment
6 Topics | 1 Quiz | [Collapse](#)

Lesson Content | 66% COMPLETE | 4/6 Steps

- Why Use Masks?
- Selecting Images To Mask
- Creating and Saving Masks
- Using Masks in Zephyr
- Working With 3rd Party Masks in Zephyr
- Generating Masks From Mesh in Zephyr
- Quiz Time - Masks and Alignment

Zephyr Workflow - Dense Cloud and Mesh

Creating a Dense Cloud
3 Topics | [Collapse](#)

Lesson Content | 33% COMPLETE | 1/3 Steps

- Creating a Dense Cloud
- The Project Panel
- Dense Cloud Advanced Settings

Creating the Mesh
6 Topics | 1 Quiz | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/6 Steps

- Creating a Mesh
- Mesh Advanced Settings
- The Textured Mesh
- Creating a Textured Mesh
- Textured Mesh Advanced Settings
- Optimising Camera Overlap
- Quiz Time - Dense Cloud & Mesh

Zephyr Workflow - Selecting & Editing

Transformation Tools
2 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/2 Steps

- Setting the Z Axis
- 3D Transformation Tools

Selection Tools
7 Topics | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/7 Steps

- Using the Volume of Interest
- By Hand
- By Colour
- By Plane
- Selecting Points
- Selecting Triangles
- Selecting Cameras

Editing the Dense Cloud and Mesh
1 Topic | [Collapse](#)

Lesson Content | 0% COMPLETE | 0/1 Steps

- Editing the Dense Cloud & Mesh

1 OF 2 >

Edit

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Photogrammetry in the UK

Photogrammetry Course Update - Working with Model Blocks