STEM AND TECHNOLOGICAL INNOVATION
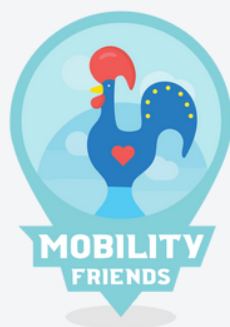
3D Modeling and Printing

AUTOCAD: INTRODUCTION TO 2D AND 3D DRAFTING

Your Mobility Partner

PIC Number: 948037649 | **Organisation ID:** E10207576

COURSE OVERVIEW

This course offers a hands-on introduction to AutoCAD, one of the most widely used software tools for computer-aided drafting and design. Participants will learn how to create, edit, and manage precise 2D drawings and basic 3D models. Through step-by-step instructions and practical exercises, learners will develop the skills needed to navigate the interface, use fundamental drawing tools, and produce technical drawings suitable for engineering, architecture, and design applications. By the end of the course, participants will have completed basic projects and gained the confidence to apply AutoCAD skills to real-world tasks.

TARGET AUDIENCE

This course is designed for individuals who want to learn the fundamentals of computer-aided design (CAD) using AutoCAD. It is ideal for beginners from various fields such as engineering, architecture, construction, and design who wish to acquire essential drafting skills. The course is suitable for students, professionals, and hobbyists seeking to create precise 2D and introductory 3D drawings for personal, academic, or professional projects.

REQUIREMENTS

To take part in the course, participants must meet the following requirements:
- Have at least a B1 level of English (independent user);
- Complete and submit the registration form before the start of the training;
- Bring a laptop or tablet to use during the sessions;
- Commit to active participation and attend at least 80% of the course.

COURSE OBJECTIVES

The objectives of the course are:
- Understand the AutoCAD interface and basic navigation tools.
- Use fundamental drawing commands to create accurate 2D designs.
- Edit and modify drawings using essential editing tools.
- Organize drawings using layers and annotation features.
- Apply basic dimensioning and text annotation to drawings.
- Create simple 3D models and visualise designs in three dimensions.
- Export and print drawings in common file formats.
- Develop basic technical drawings applicable to engineering, architecture, and design projects.

CONTACTS AND REGISTRATION

For registrations, additional information, or budget requests, please contact our team by email at trainingcourses@mobilityfriends.org or visit our website at www.mobilityfriends.org .

LEARNING OUTCOMES

Upon successful completion of this course, learners will be able to:

1. Navigate confidently within the AutoCAD interface.
2. Create and edit 2D drawings using key commands and tools.
3. Manage layers and organize drawing elements effectively.
4. Add dimensions, annotations, and text to technical drawings.
5. Use basic editing functions such as trim, extend, move, and copy.
6. Construct simple 3D models and switch between 2D and 3D views.
7. Save, export, and print drawings in various formats.
8. Complete a basic drafting project demonstrating core AutoCAD skills.

METHODOLOGY

The course is structured around a rigorous methodology that combines theoretical exposition, practical work, and applied demonstrations. This approach ensures a thorough understanding of the subject matter and its direct application in real-world contexts.

Theoretical sessions provide essential foundations, while practical work and demonstrations facilitate the development of technical skills and familiarity with the specific tools and procedures relevant to the course.

Continuous monitoring through individualized feedback allows for tracking learners' progress and ensures the achievement of the set objectives, preparing participants to face professional challenges with competence and precision.

ASSESSMENT

Assessment is carried out continuously throughout the course, using a holistic and learner-centered approach that reflects both participation and performance. Each participant is evaluated based on their overall engagement, regular attendance, punctuality, interest in the topics covered, ability to apply knowledge during practical tasks, and interaction with peers in individual and group activities.

The evaluation process includes a variety of classroom-based tasks (oral and written), short daily assignments, role-plays, and simulations. Trainers provide ongoing, individualized feedback to support progress and encourage active learning.

A Certificate of Participation is awarded to participants who attend at least 80% of the sessions and demonstrate consistent involvement and commitment during the training.

DURATION

The standard duration of our course is 20 hours (5 days), designed to ensure comprehensive and effective learning. However, this duration can be adjusted, in specific cases, to meet the particular needs of each group, in order to optimize outcomes and better suit the training context.

For further details or to discuss a customized schedule, please get in touch with us.

PRICE AND FUNDING

Each quotation is personalized and depends on several factors, such as the number of participants, the number of training hours, the location of the course, and any additional services requested (accommodation, transport, meals, cultural activities, etc.).

To receive a tailored quotation for your group, please get in touch with us.

The training can be funded through programs such as Erasmus+ (KA1 – Learning Mobility), among other European support mechanisms. For more information about funding, participants should contact their sending organization or their country's National Agency directly.

LOCATION AND COURSE LANGUAGE

We have training rooms in several cities in Mainland Portugal, such as Barcelos (headquarters), Braga, Póvoa de Varzim, and Porto. We also have spaces in the islands of Madeira (Funchal) and the Azores (Ponta Delgada). Additionally, we have facilities in Valencia, Spain.

The course is delivered in English.

CERTIFICATION

A Certificate of Participation is awarded to participants who attend at least 80% of the sessions and demonstrate consistent engagement and commitment throughout the training. Upon completion of the course, a formal certification ceremony will take place, during which the certificates will be presented to the participants.

OTHER SERVICES

To enrich the training experience, Mobility Friends offers a range of additional services, subject to availability and additional cost, which can be arranged for individual participants or groups.

Services include:

- Accommodation in partner residences or hotels
- Meals (lunch and/or dinner)
- Transfers between the accommodation and the training room
- Airport transfers
- Cultural visits

All services are subject to availability and must be requested in advance. For more information and personalised quotes, please contact our team.

COURSE CONTENTS

MODULE 1: INTRODUCTION TO AUTOCAD AND CAD FUNDAMENTALS

- Overview of AutoCAD and its industry applications.
- Understanding computer-aided design (CAD) principles.
- Exploring the AutoCAD interface: ribbons, toolbars, command line, and workspace.
- Efficient navigation techniques: zoom, pan, and view controls.

MODULE 2: ESSENTIAL 2D DRAWING TECHNIQUES

- Creating precise 2D geometry: lines, polylines, circles, arcs, rectangles, and polygons.
- Utilizing object snaps, grids, and guides for accuracy.
- Leveraging drawing aids: ortho mode, polar tracking, and snap settings.

MODULE 3: EDITING AND REFINING DRAWINGS

- Mastering core editing commands: move, copy, rotate, scale, trim, extend, offset, and mirror.
- Utilizing grips and selection methods for efficient modifications.
- Undo, redo, and command history for error correction.

MODULE 4: DRAWING ORGANIZATION AND LAYER MANAGEMENT

- Creating and managing layers to structure drawings.
- Assigning properties: colours, linetypes, lineweights, and transparency.
- Controlling layer visibility, locking, and isolating elements for clarity.

MODULE 5: ANNOTATIONS AND DIMENSIONING

- Adding and formatting text annotations and labels.
- Applying dimensions with appropriate styles and scales.
- Using leaders and multileaders to clarify design intent.

*Please note that program content may be subject to change based on input from our trainers.

COURSE CONTENTS

MODULE 6: INTRODUCTION TO 3D MODELING IN AUTOCAD

- Basics of 3D modeling concepts and workspace.
- Creating and editing simple 3D solids and surfaces.
- Navigating 3D views: perspective, isometric, and orthographic.
- Applying basic 3D editing tools and visual styles.

MODULE 7: PRINTING, PLOTTING, AND EXPORTING

- Setting up layouts and viewports for presentation-quality prints.
- Configuring plot styles and print settings.
- Exporting drawings to various formats: PDF, DWG, DXF, and image files.

MODULE 8: CAPSTONE PROJECT

- Integrating 2D drafting and 3D modeling skills in a practical project.
- Developing a complete technical drawing or design.
- Presentation, review, and refinement of the project.

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