ALTEN TRAINING COURSE CATALOGUE

2019 - 2020

ALTEN

About us

Our number one mission is to deliver the perfect course for you!

Education is a part of our DNA. We have delivered education to the largest companies in Sweden since the 90´s.
As many of our customers demand competence development in areas such as product development, system development and leadership, we today offer a range of scheduled courses and course packages at our own premises around the world.

However, the majority of our courses are tailor made and given on location, at our customers, wherever in the world the need arises. We also have our own premises that you can use for no extra cost.

Our long experience in a variety of industries enables us to be flexible and quickly adapt to your business needs.

At ALTEN, we not only deliver a course; We make sure the content is exactly what you request and we evaluate all our assignments for maximum impact.

www.altentraining.se
training@alten.se


ALTEN

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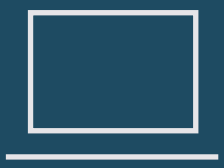

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ALTEN

Set up

As a customer to ALTEN you have the opportunity to decide the layout of your course.

We offer standard courses as you can read about in this catalogue, but generally we customize the courses based on our customer's needs.

We can customize everything from the content to the format of the course. You also have the opportunity to let us arrange the course either at your place or in one of our pleasant offices here at ALTEN, we also organize full day workshops, after work with teaching focus, coaching and support.

You decide – We organize!

Group courses

A senior consultant comes to you and holds a course tailered to your wishes.
This is a cost-effective way of educating a group of employees. Either we will arrange the course at one of our offices or on external premises. You can sign up for one of our standard courses or choose a customized option - all according to the requirements from you and your team.

Open classes

A cost-effective option for those who want to deepen their knowledge within the areas we offer through our standard courses. Suitable for 1-3 employees. At the moment, we offer courses on our offices in Stockholm and Gothenburg.
Please find current schedule on www.ALTENtraining.se.

Workshops

Want to save time and reduce the costs?
Then a workshop could be something for you!
This option suits you who wants to deepen your knowledge within a specific area.
Based on your particular requirements, we will provide a qualified teacher who will go through the course material with you and your employees during one or two working days.
This is an efficient way for you to obtain as much as possible from a course.

Webinar

Welcome to the future! By using our online platform Webinar you can easily access the course material worldwide, whether you are out having a coffee, are located by your desk at the office or are home laying on the couch.

Webinar requires no installation and are as efficient as a physical classroom since it allows a great support and an excellent communication. You use your own computer with your own licenses.
Additionally, Webinar is environmental friendly since it doesn't require any transportation or printed material.

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ISTQB Platinum Partner

Did you know that ALTEN is a Platinum Partner to ISTQB and was the first education supplier in Sweden to get accredited in Syllabus 2018?

Why should you choose an educator that are accredited by SSTB?

That an education supplier is ISTQB accredited means that the company has gone through an application process, which means that the national board of SSTB has approved the course and course material to assure that the course participant has the best possible chance to pass the examination to become ISTQB certified.

To be an accredited supplier of ISTQB courses, the teacher must be ISTQB certified as well. SSTB also validate the supplier quality.

With that said, if you would like an education in top class and increase your chances of passing the examination, then you should choose an education supplier that is accredited by SSTB.

Choose from our standard courses or contact us and we will help you with a tailored course of your choice.

ISTQB® Platinum Partner
International Software Testing Qualifications Board


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CAD

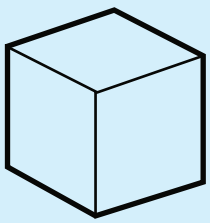
ALTEN is a supplier of education in both CATIA and CREO Parametric.

We are continuously developing new material. In the following chapter we present a sample of the courses we have to offer.

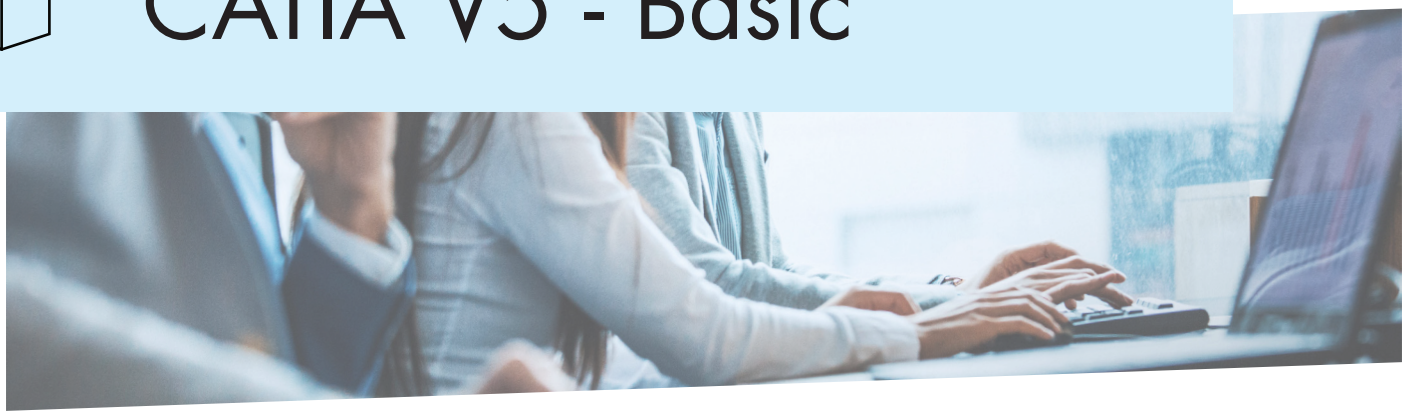
The course teachers bring their own construction experience from assignments outside the company. This means that we can always offer the latest knowledge.

Our CAD courses combines theory with practical examples and exercises to enable the participants to use efficient techniques and to build better models.

ALTEN offers courses at the beginner, advanced, methodology and application levels.



CATIA V5 - Basic



With our CATIA V5 Basic training you will master the fundamentals of the tool and be able to produce simple drawings.
By mastering the fundamentals you will also acquire a solid base to facilitate your learning path and work with the tool on a more advanced level.

16 900	5	20/80
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Use the CATIA V5 interface.
- Plan the construction of a part in order to convey its visual and functional aspects.
- Create simple parts in CATIA V5.
- Construct an assembly using the parts.
- Produce simple drawings and assembly layouts.

Audience:

Anyone who has not had previous experience in CATIA V5 and would like to learn it from the beginning. The course is suitable both for designers experienced in other CAD systems and for those who have never used a 3D CAD software before.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- CATIA V5 introduction
- Twist and turn an assembly
- Work with the Sketcher
- Create simple profiles and use these for more advanced profiles
- Solid exercises: Extrusion with options
- File management
- Chamfer and rounding exercises
- Drafts, Shell and Stiffener
- Revolved feature
- Rib – sweeping a profile along a guide
- Visualization tools
- Reference geometry
- Analysis tools
- Advanced methods – introduction to boolean operations with exercises
- CATDUA V5
- Solid modeling exercises with engine model and kinematics control
- Assembly design with chassis exercises and "design in context"
- Constraints
- Introduction to drawings
- Create drawings
- Set up views
- Dimensioning
- Geometric tolerances

Previous knowledge:

No previous knowledge is required.

Level:

Basic

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CATIA V5 - Solids

With our CATIA V5 Solids training you will be able to use the tool for tasks related to solid modeling. It will enable you to engage in a lean way of working with the tool.

7200	2	30/70
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Create a complex model in CATIA V5
- Create and manage a structured model.
- Create details in its context .i.e. towards other details in a multi-model environment.
- Reuse existing data to complete detail in a multi-model environment.
- Manage relations between features in a multi-model environment.
- Analyze solids' quality and rectify the defects.
- Create surfaces to use and affect upon the solid model.

Audience:

Designers who are new to CAD modeling with CATIA V5, need to View/Create/Modify CAD models and have followed the CATIA V5 Basic Training.

If you're looking to refresh your CAD skills, this course may also be of interest.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Handling of models that cannot be updated
- Multi-body: the complete guide to Surface in Solids
- More on drafts and rounds
- Multi section solids
- KBE – Knowledge-Based Engineering
- Inheritance of information from model to model a.k.a. skeleton modeling to build complex dependencies (e.g. casting, and link best practice)
- Final reflection about advanced problems in daily modeling at work

Previous knowledge:

Completed CATIA V5 Basic course, or equivalent knowledge.

Level:

Medium

CATIA V5 – Surface

With our CATIA V5 Surface training you will be able to use the tool for main tasks related to surface modeling. It will enable you to engage in a lean way of working with the tool.

7200	2	30/70
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Use the tools in the Generative Shape Design workbench.
- Create good quality curves based on a sound and improved geometry.
- Assemble, re-limit and connect the surfaces to get a topology.
- Analyze surface quality and rectify the defects.
- Manage surfaces in a multi-model environment.

Audience:

Designers who are new to Surface modeling with CATIA V5 and need to View/Create/Modify CAD models and have followed the CATIA V5 Basic Training.

If you're looking to refresh your CAD skills in CATIA V5 Surface modeling, this course may also be of interest.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Wireframe functions used for surface modeling
- Extrusion of a surface in one direction and around one axis
- Creating wireframe from other elements
- Sweep surface
- Analysis tools
- More on sweep surface
- Operation on surfaces
- Continuity of surface - "blend and fillets"
- More on analysis tools
- Strategy and best practice in surface modeling
- Advanced modeling exercises

Level:

Medium

Previous knowledge:

Completed CATIA V5 Basic course, or equivalent knowledge.

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CATIA V5 – Sheet Metal

With our CATIA V5 Generative Sheet Metal training you will be able to use the tool for main tasks related to Sheet Metal parts creation. It will enable you to engage in a lean way of working with the tool.

7200	2	40/60
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Understand the terminology and the design process for creating a sheet metal part.
- Define and manage the sheet metal part parameters.
- Design walls, bends and flanges.
- Add features such as cutouts, holes, corners and chamfers.
- Create standard and user-defined stamped features.
- Manage folded and unfolded views and export a finished flat pattern.

Audience:

Designers who are currently working or will work with sheet metal parts in CATIA V5.

If you're looking to refresh your CAD skills in CATIA V5 drafting, this course may also be of interest

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Introduction to sheet metal design
- Defining sheet metal parameters
- Sheet metal walls
- Bends and Unfolded mode
- Flanges
- Sheet metal features
- Part recognition
- Mapping and output
- Sheet metal standard files
- Transformation and duplication
- Multi-body methodology

Level:

Medium

Previous knowledge:

Completed CATIA V5 Basic course, or equivalent knowledge.

CATIA V5 3D Functional Tolerancing & Annotation

With our CATIA V5 3D FT&A training you will be able to use the tool for tasks related to tolerancing in a 3D environment. It will enable you to engage in a lean way of working with the tool.

8200	2	60/40
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Create and manage annotation planes and views.
- Manage and position annotations.
- Add 3D annotations to a part.
- Manage 3D geometry associated to the 3D annotations.

Audience:

Designers with basic experience in CAD modeling in CATIA V5 that need to View/Create/Modify models and take a step towards Model-based Definition (MBD).

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- The need for FT&A
- Basic FT&A concepts
- FT&A workbench
- ISO Standards rules
- Tolerancing Advisor
- Semantic and Non-semantic annotations
- Sectioned- and positioned views
- Transfer from 3D to 2D
- Assembly annotations

Level:

Medium

Previous knowledge:

CATIA user which has completed CATIA V5 Basic and Surface course, or equivalent knowledge.

CATIA V5 - Assembly

With our CATIA V5 Assembly training you will be able to use the tool for main tasks related to Assembly creation. It will enable you to engage in a lean way of working with the tool.

6600	1	30/70
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Create and manage complex products in CATIA V5.
- Create details in its context .i.e. towards other details in a multi model environment.
- Reuse existing data to complete detail in a multi model environment.
- Analyze constraints/links status and rectify the defects.
- Analyze and resolve clashes.

Audience:

Designers who need to view/create/modify assemblies in CATIA V5.

If you're looking to refresh your CAD skills in CATIA V5 drafting, this course may also be of interest

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Assembly structure
- Basic Assembly method, adding components
- Visualization Mode – CGR files
- Moving components – manipulation
- Assembly constraints
- Generate a CAT.Part from a CATP. Product
- Design in context
- Analyze clash and clearance
- Multi instantiation
- Re-use pattern
- Exploded view using Scene function

Previous knowledge:

Completed CATIA V5 Basic course, or equivalent knowledge.

Level:

Medium

CATIA V5 – Drafting

With our CATIA V5 Drafting training you will be able to use the tool for tasks related to drawing generation. It will enable you to engage in a lean way of working with the tool.

6600	1	30/70
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Use the tools in the Generative Drafting workbench.
- Create high quality, production ready drawings.
- Handle a Bill Of Materials, position balloons and other essential drawing data.
- Handle multi-sheet drawings and links.
- Dimension a drawing in an effective and productive way.
- Print your sheets.

Audience :

Designers who are new to CAD modeling with CATIA V5 and need to View/Create/Modify CAD drawings.

If you're looking to refresh your CAD skills in CATIA V5 drafting, this course may also be of interest.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Drafting tools
- Template drawings
- General views
- Section views and magnification
- Dimensioning and tolerances
- Text, symbols and reference lines
- Multi-sheet drawings and links
- Detail Sheets
- Assembly drawing
- Printing

Level:

Medium

Previous knowledge:

Completed CATIA V5 Basic course, or equivalent knowledge.

CATIA V5 – DMU Kinematics

With our CATIA V5 DMU Kinematic training you will master the fundamentals of the tool. It will enable you to engage in a lean way of working with the tool.

6600	1	40/60
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Understand the capabilities and the general process followed in DMU Kinematics workbench.
- Give the motion instructions to your mechanism and impart movement to the various components of your mechanism.
- Perform various analyses when the mechanism is getting simulated.
- Sequence multiple mechanisms and run them.

Audience:

Designers who have some experience in CAD modeling with CATIA V5 and need to be able to create, modify and simulate mechanisms.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Analyzing movements
- Recording and playing simulations
- How to check joint limits
- How to use Swept Volume tool
- Checking clashes
- How to measure speed and acceleration
- Sequencing mechanisms
- Plotting graphs and exporting results

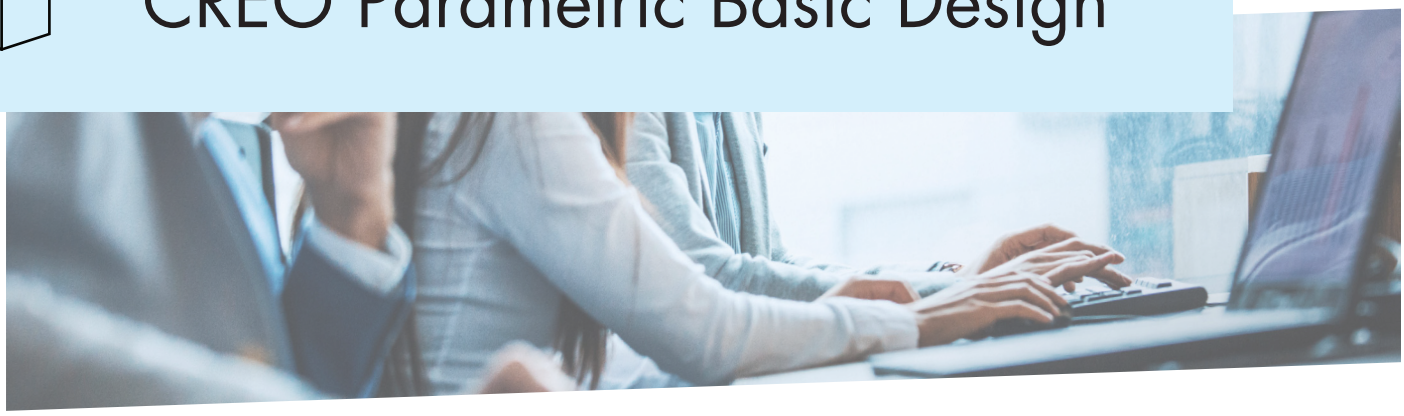
Level:

Medium

Previous knowledge:

CATIA users with basic knowledge in DMU and DMU Space Analyzes.

CREO Parametric Basic Design



Get started with CREO Parametric the right way.
As a new user, learning a complex software like CREO may be a challenge. During the course, we will help you to quickly and effectively get started and familiar with the program. Finishing this course will teach you all you need to make basic parts, assemblies and drawings in CREO Parametric.

15 000	5	30/70
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Understand and use the CREO interface.
- Make a detailed plan of how to model components with the purpose of presenting its visual and functional aspects.
- Create models and parts in CREO.
- Create assemblies from models/ parts.
- Create both assembly- and part drawings.

Audience:

Anyone who has not had previous experience in CREO Parametric and would like to learn it from the beginning.
The course is suitable both for designers experienced in other CAD systems and for those who have never used a 3D CAD software before.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- User Interface
- Direct Features
- Sketches
- Reference Geometry
- Patterns
- Sweeps
- Managing Parent Child Relationships
- Building Assemblies
- Create Drawings

Level:

Basic

Previous knowledge:

No previous knowledge is required.

CREO Parametric Advanced Modeling

CREO Parametic Advanced Modeling is a course for people who have been working for some time in CREO, but might not know all the ins and outs of the software.

Many engineers spend a lot of time on tasks that can be done in a more robust and simple way, because the lack of knowledge about the full range of available tools. Once they know one way of doing something, they stop learning and never discover that there are other, better ways of achieving the same thing. And sometimes they believe something cannot be done at all, when in fact there are tools available to help. If you are designing in CREO today, chances are good that this course will make you more effective and less frustrated in your daily work.

Do you know how to make a seed and boundary or a loop surface selection? Duplicate geometry with Copy-Paste Special? Use collision detection in mechanisms? Create simplification interchange assemblies or envelope parts to handle large assemblies? Use geometry patterns and regeneration options to speed up large patterns? If not, this might be the course for you.

10 500	3	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Use advanced functions.
- Use different modeling techniques.
- Own a design philosophy in the tool.
- Make use of a large amount of design examples.
- Solve errors when they arise in the model.
- Give advice on the tool functionalities Sketcher, Feature, Part and Assembly.

Audience:

Designers looking to increase their competence with the tool and want to learn:

- How to work faster.
- How to create more stable models.
- How to create more complex geometry.
- How to handle complex parts and assemblies to avoid long processing time by the computer.

Course content:

- Advanced Draft Features
- Advanced Round Features
- Shelling
- Ribs and Thin Wall Feature
- Splines and Conics
- Sweep and Blend Feature Review
- Swept Blend
- Variable Section Sweep
- Advanced Component Operations
- Mechanisms
- Advanced Simplified Representations

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Level:

Advanced

Previous knowledge:

Completed CREO Basic course, or equivalent knowledge.

CREO Parametric Surface Modeling

This course will teach you how to work with parametric surface modeling in CREO Parametric.

Working with surfaces is a powerful and flexible way of building models that can be difficult to construct using solid modeling techniques.

The techniques are useful for creating organic, ergonomic and aesthetically pleasing shapes, but many of the tools used can also be used to build better and more robust solid models. An understanding of surface modeling is a useful tool for most CAD designers.

10 500	3	30/70
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Create parts using a variety of surfacing techniques.
- Solidify the resulting geometry.
- Modify solid models through the use of surface features.

Audience:

Designers who want to be able to create more complex, organic shapes, as well as any designers who want to expand their toolbox for part creation in CREO Parametric.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Introduction
- Basic Surfaces
- Construction Geometry
- Advanced Surfaces
- Merge Surfaces
- Offset, Solidify and Thicken
- Copy and Paste
- Trim and Extend
- Special Surface Features
- Geometry Analysis
- Imported Surfaces

Please note that the Style and Freestyle tools are not covered in this course.

Previous knowledge:

Completed CREO Basic course or equivalent knowledge.

Level:

Advanced

CREO Parametric Sheet Metal

The course will cover the sheet metal module of CREO Parametric. This module offers powerful tools which help students create sheet metal parts in a simple way that takes the production design into consideration.

During the course you will learn the methodology and tools necessary to create various common sheet metal designs. You will also learn how to prepare these designs for production- and drawing annotations.

7900	2	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Construct and design sheet metal parts in the module.
- Create and refine various sheet metal details and assemble everything into a finished product.
- Use the parameters and settings for the sheet metal module.
- Independently create sheet metal designs in CREO.
- Make the necessary preparations for production and drawing annotations.

Audience:

Designers who are currently working or will work with sheet metal parts in CREO Parametric.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- The user interface
- Primary walls
- Secondary walls
- Additional geometry (Extrude, Extend, Reliefs, Bending, Forming ...)
- Setup and information tools
- Creating drawings from sheetmetal parts
- Converting solid models to sheetmetal

Previous knowledge:

Completed CREO Basic course, or equivalent knowledge.

Level:

Medium

CREO Parametric Applied Design

This course is not about learning new functions and commands in CREO (though most users will walk away having learned a few new commands). Rather, it will focus on helping you develop a design philosophy in the software. Many designers will recognize the problems inherent in parametric modeling like unstable models that are difficult to edit, missing references with tedious design work trying to fix a broken model and bad models being copied over and over for use in new designs. It is important to recognize that most designers spend more time editing models and drawings than making new ones. Because of this, making stable models that are easy to edit should be a priority for anyone interested in cutting down on development time and having the designers spend more time designing and less time fighting the software.

This course will teach you how to handle references and construct your model with Design Intent to be able to handle changes in a predictable way. A lot of people can build models in CREO, but few can make good, intuitive and stable models that require little time to edit. A large emphasis of this class is put on the participant to independently create design examples based on drawings that are then discussed in class.

10 500	3	80/20
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Determine how different design solutions and modeling techniques will affect the quality of a model.
- Independently be able to apply this knowledge in the creation of your own models.

Audience:

Designers who want to deepen their knowledge in CREO Parametric and learn how to build robust and reusable models.

Course content:

Walk-through and discussion of:

- Planning of models and assemblies
- Building robust and reusable models
- Modeling techniques and design philosophy
- A large amount of design examples
- Solutions when errors arise in the model

Advice concerning:

- Sketches
- Features
- Parts
- Assemblys
- Drawings

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Previous knowledge:

Completed CREO Basic course (or equivalent knowledge) and at least six months experience in using CREO.

Level:

Medium

CREO Parametric Cabling

This course will teach you to use CREO Parametric's Cabling module to route cables and hoses. Using this module you will be able to define your cable paths, extract cable lengths, calculate weight and control bending radii. The course will cover manual cabling, modifying cables, cable properties, reference handling and failed cables, among other things.

Contact ALTEN Training	2	40/60
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Use the Cabling module in CREO Parametric to route cables between connectors.
- Calculate cable lengths and weights.
- Handle common problems and avoiding common mistakes.

Audience:

Designers who want to learn manual cable routing in CREO Parametric.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Setting up a cabling assembly
- Reference handling
- Manual cable routing
- Cable grouping and packing
- Modifying cable assemblies
- Handling failures
- Cable and connector properties
- Cosmetics

Please note that automatic routing via Networks and flattening of cables for drawings are not covered in this course.

Previous knowledge:

Completed CREO Basic course, or equivalent knowledge.

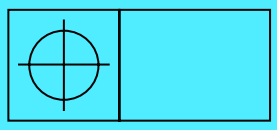
Level:

Advanced

Geometrical tolerances

ALTEN offer education in Geometrical tolerances to help companies reduce their costs caused by inaccurate assessment of drawings. Upon course completion, every participant will be able to create correct form and position itineraries.

- Geometrical tolerances/ Geometrical Product, p. 30 - 31



Geometrical tolerances/ Geometrical Product Specifications

Geometric Product Specifications (GPS) is an area that has grown in importance as producs have become increasingly detailed and complex, and measurement methods have grown increasingly advanced.
A drawing made according to old methods leaves a lot unspecified and implied. With geometric product specifications, a geometry can be specified in an unambiguous manner and complex shapes can be defined clearly and completely.

9500	2	80/20
Course fee (SEK)	Days	Theory/Practice

Objectives:

To be able to indicate and understand the meaning of all tools within the systems for tolerances on technical drawings. The training covers the rules for ±tolerances and geometrical tolerances according to the latest versions of the ISO standards.

Audience:

Design engineers, staff within production and quality functions and also staff within purchasing that want to have understanding of tolerance requirements on technical drawings.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

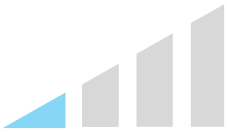
Course content:

- Basic principles of ISO8015
- Dimensions, features of size, and the problem with traditional dimensioning
- Datum references and systems
- Tolerance zones
- Tolerance symbols
- Special symbols and indications
- Edge tolerances
- Surface roughness
- General tolerances (ISO 2768)
- News in ISO 1101-2017

Previous knowledge:

Basic knowledge within technical drawings.

Level:



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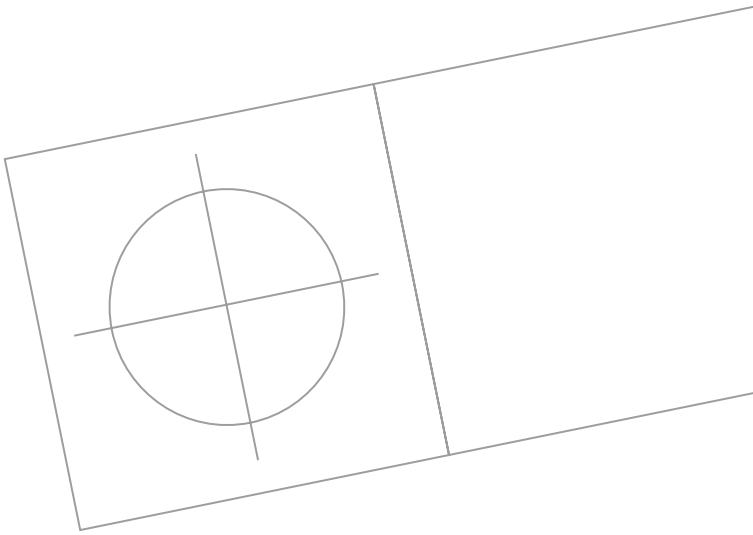


Test & Quality assurance

ALTEN offer fundamental and advanced courses within test and quality assurance.

In the following chapter we present a sample of the courses we have to offer. We are continuously developing new material, so if there is any course you need that we don´t have in our catalogue, just let us know.

ISTQB Foundation Level 2018

ALTEN Sweden are proud to be a platinum supplier of ISTQB and were the first company in Sweden to be accredited in Syllabus 2018.

The course ISTQB Foundation Level 2018 gives you basic knowledge in testing and after completed course there is an opportunity for examination for the ISTQB Software Testing Foundation Certificate.

In the development of systems and software, testing might be a major part of the total costs. There are opportunities to significantly reduce these costs but still achieve improved quality. A prerequisite for this is a well-structured testing process based on competence.

16 500	3	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

You should after finished the course have achieved knowledge and skills in:

- Basic knowledge in testing.
- Test methods and test tools.
- How to involve people in testing.

Audience:

Anyone who is involved in testing, whether it is test preparations, execution or test reporting.

The course is also relevant for project managers and software developers who needs an introduction to testing.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Usage of a common language for communication with other testers and project stakeholders.
- Ability to follow established testing concepts, processes, approaches and principles to support test objectives.
- Usage of established techniques to design test cases.
- Understanding the different review types and when they are applicable.
- Awareness of different types of tools that supports testing
- Understanding of testing throughout the software development lifecycle.
- Understanding management of the testing process.

ISTQB certification:

The ISTQB examination suits you who would like to raise your status as a tester or simply control your knowledge.
The test involves 40 questions and takes one hour.
If you would like to take the test you simply register when you apply for the course.
The examination fee is 2000 SEK and is not included in the course fee.

Previous knowledge:

A certain experience of programming, software development and testing is recommended.

Level:

Basic

ALTEN

ISTQB Agile Tester

Today's extremely high demands on fast deliveries, constant changes, high quality demands and increased transparency have led many companies to switch to agile development. This in turn requires the test organization to adapt to meet the test needs in the new context.

Testing in agile projects addresses this area. During two days, we will mix theory and exercises to present at the end some frameworks that can be used to ensure high testing quality in agile projects.

In the development of systems and software, testing might be a major part of the total costs. There are opportunities to significantly reduce these costs but still achieve improved quality. A prerequisite for this is a well-structured testing process based on competence.

12800	2	75/25
Course fee (SEK)	Days	Theory/Practice

Objectives:

After the course you will be able to:

- Collaborate in an agile team, being familiar with agile principles and practices.
- Adapt existing testing experience, knowledge, and best practice.
- Support the agile team in planning test related activities.
- Apply relevant test methods and techniques.
- Assist in test automation.
- Help business stakeholders define understandable and testable user stories and acceptance criteria.
- Work and share information with other team members.

Audience:

Those who participant in planning, implementation or monitoring of software development in agile projects. Others who want basic knowledge about software testing in agile projects.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Agile software development.
- Basic principles, working methods and processes for agile testing.
- Fundamental Agile testing principles, practices and processes.
- Agile testing methods, techniques and tools.
- Tools in Agile projects.

Level:

Basic

Previous knowledge:

No formal previous knowledge is required, but it is recommended that you have at least one year's experience of testing or software development.

ALTEN

SAFe Product Owner/ Product Manager

The SAFe 4 Product Owner/Product Manager (POPM) is a course that will provide you with needed skills to deliver value in a Lean enterprise. This course will teach you to manage backlogs and programs by using different tools, activities and mechanics. The concept of Agile Release Train (ART) will be explained to make an understanding of how to deliver value in an effective way.

You will also learn how to apply Lean thinking in large projects and then break them down in smaller fragments of Stories and Features. Other parts of the course is execution iteration and planning, Continuous Delivery Pipeline, DevOps culture, as well as Program Increment planning. The course will provide an understanding of how to improve the ART by become an effective Product Owner and Product Manager.

14 995	2	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

To be able to receive a certificate in SAFe Product Owner/Product Manager, the following criteria should be fulfilled:

- Be able to apply SAFe in a Lean Enterprise.
- Be able to apply the PO/PM roles to the values and principles of the SAFe Lean-Agile.
- Perform Lean Portfolio Management collaboration.
- Explore and execute Program Increment Planning to create value.
- Define the roles of the PO/PM.
- Be able to create action plans.

Audience:

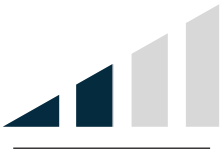
This course could be beneficial for both Product, and Product line managers, Product Owners, Business owners as well as Business analysts. Architects within Solution, System and Enterprise could also benefit, as well as Program Managers, Solution Managers, Portfolio Managers, Process Leads and PMO Personnel.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Lean Enterprise within a SAFe environment.
- Make Product Owners and Product Managers adopt a Lean-Agile mindset.
- Lean Portfolio Management collaboration.
- Program Increment execution.
- How to explore the needs of the customers.
- Action plan creation for the Product Owner and Product Manager.
- Roles and responsibilities for the Product Owner and Product Manager.

Level:



Medium

Previous Knowledge:

It is recommended to have knowledge within the following fields to gain full understanding of the SAFe 4 Product Owner/Product Manager (POPM).

- Working experience from a SAFe environment.
- Knowledge of the concepts of Lean and Agile.
- Previously attended a course in Leading SAFe.

ALTEN

Leading SAFe

Leading SAFe is a course which will provide information in how to lead a Lean-Agile enterprise in an Scaled Agile Framework (SAFe). The course will also provide knowledge in system thinking, development of products, product development flow, Lean principles and Agile development, as well as DevOps. Coordination of multiple Agile Release Trains (ARTs), executing and supporting PI Planning Events and discussing the five principles of Lean will also be a part of the course.

Leading a Lean-Agile transformation as well as understanding an Lean-Agile mindset and its impact in today's environment will be discussed. You will also gain an understanding on constructing Agile teams working in a DevPort culture, building a Continuous Delivery Pipeline and empower a lean portfolio. As the participants receives the certificate for SAFe Agilist (SA) they will have developed skills to be able to succeed in a disruptive market. This course will allow preparation for the SAFe Agilist (SA) exam which will then lead to a certificate.

14 995	2	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

To be able to receive a certificate in SAFe Agilist, the following criteria should be fulfilled:

- Understand the Lean-Agile Mindset values and principles.
- Understand the Lean Enterprise and its Five Core Competences.
- Become a manager with a Lean thinking mind.
- Be able to Drive Release on Demand with the Continuous Delivery Pipeline.
- Lean Portfolio Management and establish strategic themes.
- Be able to apply SAFe´s Lean and Agile principles.
- Support PI Planning.
- Create high-performing Teams.
- Manage the SAFe Implementation Roadmap.
- Handle and coordinate Agile Release Trains and Solution Train.

Audience:

This course could be beneficial for both Executives and Leader, CIOs, VPs, Managers and Directors. Managers within Infrastructure, Program and Projects, Products and Product line and Portfolio Managers. PMO, Process Lead managers as well as Development, QA and Enterprise-, System and Solution Architects can benefit from this course.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Scaled Agile Framework (SAFe) introduction.
- How to become a leader in a Lean-Agile environment.
- Insight in Program Increment (PI) planning.
- How to establish Teams and Technical Agility.
- Leading Transformation.
- How to create Business Solution and Lean Systems.
- How to implement Lean Portfolio Management.
- DevOps and demand.

Participation in the course includes:

- Preparation for the SAFe 4 Agile exam.
- Membership on the SAFe community platform for one year.
- A workbook.
- Certificate of completed course.

To be qualified for examination, both course days needs to be attended.

Certification

Following the course, you will get the opportunity to recive a certification for Scaled Agil Platform. Compleate certification includes on year membership with information about SAFe Framework.

Previous Knowledge:

It is recommended to have knowledge within the following fields to gain full understanding of the SAFe 4 Agilist (SA):

- Scrum experience.
- 5 year or more experience within software development, business analysis, product, or product management, as well as testing.

Level:

Basic

ALTEN

SAFe Scrum Master

SAFe Scrum Master is a course that will teach you to understand how the role of Scrum Master works in a SAFe enterprise. This course has a focus on the Scrum Master´s role within the entire company contrary to the traditional focus as a Scrum Master at a team-level. You will receive information in how to successfully plan and execute the Program Increment (PI) which include facilitation of Scrum through all of the enterprise, executing Iteration Planning and understanding the different components of scale development in an Agile environment.

How to create Agile teams with different roles as coach and servant leader and how to lead these teams to deliver at a high level of performance will also be covered in the course. By earning a SAFe 4 Scrum Master (SSM) certification you will be prepared as the role of Scrum Master in a SAFe environment, increasing the value of the teams within the enterprise.

14 995	2	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Give a description of Scrum in a SAFe enterprise.
- Facilitate different Scrum events.
- Facilitate Iteration execution effectively.
- Coach agile teams and reach high results.
- Support and implement DevOps.
- Support Program Increment execution.
- Support improvements.

Audience:

This course could be beneficial for both new and experienced Scrum Masters as well as team leaders. New Scrum Masters could benefit by get an insight in how to act in the role while experienced Scrum Masters could extend their knowledge and gain understanding of the role within a SAFe enterprise. Team leaders could benefit from understanding the role of the Scrum Master.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- How to introduce Scrum in SAFe.
- The role of the Scrum Master.
- Program Increment planning.
- How to facilitate Iteration execution.
- Agile team coaching.
- How to finish Program Increment.

Participations in the course includes:

- Preparation to be able to take the exam of SAFe 4 Scrum Master (SSM).
- Membership in the SAFe Community platform for 1 year.
- Workbook.
- A course certificate upon completion of the course.

Both days must be attended to qualify for the exam.

Certification

Following the course, you will get the opportunity to recive a certification for Scaled Agil Platform. Compleate certification includes on year membership with information about SAFe Framework.

Previous Knowledge:

It is recommended to have knowledge within the following fields to gain full understanding of the SAFe Scrum Master (SSM):

- Knowledge about the Agile concepts and principles.
- Be aware of Kanban, Scrum and eXtreme Programming (XP).
- Knowledge of development within software and hardware processes.

Level:

Basic

SAFe DEvOps

The course SAFe DEVOps is a course where you will understand the values in the Continuous Delivery Pipeline and how the DevOps competencies is used to improve the speed of the throughput. By mapping the current value stream the participants will understand how to identify bottlenecks and find solutions in how to improve the flow.

This course will have a focus of the complete flow of value, and will therefore include Continuous Exploration, Continuous Integration, Continuous Deployment, and Release and Demand. The SAFe CALMR concept will be explained and how to relate it to DevOps. By applying this approach in an organization it will help align people, processes and technology to become faster and reach an culture with shared responsibility.

By attending this course you will have an understanding of how to implement and improve their delivery pipeline, as well as have an understanding of the needed tools and how to support the plan. By attending this course, you will be prepared for the exam of SAFe 4 DevOps Practitioner (SDP) certification.

14 995	2	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Understand and explain the CALMR approach within DevOps.
- Understand and apply Continuous Integration and Continuous Testing.
- Apply Continuous Security.
- Improve different processes of release, developing, building, integrating continuously and exploring customer needs.
- Enhance and improve Continuous Deploying in staging and production.
- Map and measure delivery pipeline flows and measure the current value.
- Identify different gaps and delays that occurs in the flow.
- Manage and implement DevOps transformation action plan.

Audience:

This course could be beneficial for several different people including all members of Agile Release Train, Development-, Engineering-, Configuration-, and Release Managers. Also Developers, Development Leads, UI/UX Developers, and Infrastructure and System Architects could gain knowledge from this course. Product Managers, Product Owners, System administrators, InfoSec, DBAs, Testers, QA Managers, Release Train Engineers and Scrum Masters are other function that could benefit from a certificate in this course.

Course content:

- Introduction to the concept of DevOps.
- Continuous Delivery Pipeline mapping.
- Continuous Exploration and how to gain alignment.
- Continuous Integration and building quality.
- Continuous Deployment and how to reduce time-to-market.
- Release and Demand and how to deliver business value.
- How to take action.

Participations in the course includes:

- Preparation to be able to take the exam of SAFe DevOps.
- Membership in the SAFe Community platform for 1 year.
- Workbook.
- A course certificate upon completion of the course.

Both days must be attended to qualify for the exam.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Previous Knowledge:

Regardless of previous knowledge, everybody is welcome to participate in the course.

Level:

Basic

SAFe Agile Software Engineering

SAFe Agile Software Engineering is a workshop-oriented course where you will learn new skills and understanding of Lean-Agile and DevOps principles as well as insight in how to reach software-centric solutions faster with high quality.

You will learn different principles of Agile Software Engineering from how to deliver continuous flows of value and building quality to Behavioral-Driven Development (BDD), and Test-Driven Development (TDD). The SAFe Continuous Deliver Pipeline will be presented and how to manage and act within the pipeline will be explained. Create Code Quality, like intentional programming, encapsulation and abstraction, as well as Design Quality, like SOLID and Design patterns will also be explained. This course will show Software Engineering in a bigger picture and explain how it relates to Intentional Architecture and DevOps.

19 995	3	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

To be able to receive a certificate in SAFe 4 Agile Software Engineer, the following criteria should be fulfilled:

- Define the concept of Agile Software Engineering.
- Be able to apply the Test-first principle.
- Reach Code and Design quality in applications.
- Agile Software Engineering plan generation.
- Flow of value optimization by applying Lean-Agile principles.
- Automated testing and utilization of the test infrastructure.
- Agile modeling communication.
- Behavior-Driven Development (BDD) and create shared understanding.
- Intentional architecture and emergent design collaboration.
- Be able to design from testability.

Audience:

Developers and testers as technical members of the Agile Team is the main targets for this course, but other people like Scrum Masters, Managers, Product Owners could also benefit from this course.
As the course gives an understanding of the development process and team collaboration also people with less technical background could benefit from taking the course.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course Content:

- Agile Software Engineering introduction.
- How to accelerate Flow.
- Different Connecting Principles and how to build in quality.
- How to apply Intentional Architecture.
- Applying a test-first thinking.
- How to discover Story Details.
- Behavior-Driven Development (BDD) and how to create shared understanding.
- How to build systems with Code quality and Design Quality.
- Quality implementation.
- How to communicate with model.

Participations in the course includes:

- Preparation to be able to take the exam of SAFe 4 Agile Software Engineer.
- Membership in the SAFe Community platform for 1 year.
- Workbook.
- A course certificate upon completion of the course.

All three days must be attended to qualify for the exam.

Certification

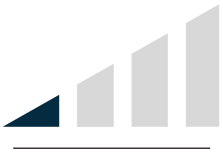
Following the course, you will get the opportunity to recive a certification for Scaled Agil Platform. Compleate certification includes on year membership with information about SAFe Framework.

Previous Knowledge:

It is recommended to have knowledge within the following fields to gain full understanding of SAFe Agile Software Engineering.

- Have a background within development, managing development, quality assurance or engineering.
- Understand teams in a SAFe environment.

Level:



Basic

ALTEN

Safer C – Les Hatton

After any investment in the development of a new software system, a company will generally spend twice as much time and money on maintenance after the first release of the software. Studies have shown that 40% of all software failures could have been avoided even before the source code was compiled. Approximately 10% of all the code supplied to test and integration projects from development projects is not even testable! Software failure is currently responsible for a great deal of unnecessary expense, most of which can be avoided through the application of simple rules and methods.

15 850	2	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

After completing this course, you will be able to:

- Understanding of how various categories of software failure occur.
- Provide a solid, stable foundation for the development of systems on which high demands are placed in terms of availability, fault tolerance and stability.
- Highlight how the most common errors can be prevented.

Audience:

Programmers, system designers, project managers and technical directors in all fields in which a high demand is placed on stability, fault tolerance, availability and safety.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

The course is fully illustrated with examples taken from real systems, and offers many surprising facts and important clues on how to create more reliable software. The significance of the new C standards C9x, C11x and the MISRA C standards for developers are assessed. The principles are taught using numerous workshops.

Professor Les Hatton

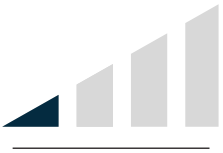
Professor Les Hatton is well-known internationally for his many contributions to Safer Software Engineering. He started his scientific career as a geophysicist and was awarded the 1987 Conrad Schlumberger Prize for computational geophysics. Since switching careers in 1990, he has published many technical papers in IEEE TSE, IEEE Computational Science and Engineering, Nature, IEEE Software, IEEE Computer and others. In 1995, he published the widely cited book "Safer C: Developing Software in High-Integrity and Safer-Critical Systems", which helped influence the use of safer programming methods in embedded control systems around the world. More than 6,000 engineers have attended the course based on this in the last 15 years. His latest book appeared in 2011 and is entitled "Email Forensics: Eliminating Spam, Scams and Phishing".

He has been listed in the leading scholars of Software Systems Engineering by the Journal of Systems and Software and is currently Professor of Forensic Software Engineering at Kingston University, London. He is on the editorial board of IEEE Software and along with Michiel van Genuchten, co-edits the popular Software Impact column. http://www.leshatton.org/)

Previous knowledge:

Some experience in C programming is needed.

Level:



Basic

Testing in Agile projects

Today's extremely high demands on fast deliveries, constant changes, high quality demands and increased transparency have led many companies to switch to agile development. This in turn requires the test organization to adapt to meet the test needs in the new context.

Testing in agile projects addresses this area. The course mix theory and exercises to present different frameworks that can be used to ensure high testing quality in agile projects.

Contact ALTEN Training	75/25
Course fee (SEK)	Theory/Practice

Objectives:

After the course you will be able to:

- Understand agile software development.
- Understand basic principles, working methods and processes for agile testing.
- Apply methods, techniques and tools for agile testing.
- Understand how we build "High Performing Teams".
- Understand how to perform a Test Dojo.

Audience:

Those who participant in planning, implementation or monitoring of software development in agile projects. Others who want basic knowledge about software testing in agile projects.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Agile software development.
- Basic principles, working methods and processes for agile testing.
- Methods, techniques and tools for agile testing.
- How do we build “High Performing Teams”.
- Review
- Test Dojo

Level:

Basic

Previous knowledge:

No formal previous knowledge is required, but it is recommended that you have at least one year’s experience of testing or software development.

5S- A structured approach

Theory and workshop in a production environment or in an office. Arrangement and order in the business where everything is organized in a structured way to minimize different types of waste.

Contact ALTEN Training
Course fee (SEK)

50/50
Theory/Practice

Objectives:

After the course, participants must have gained understanding and insight of how the 5S concept can help effectively streamline the business of a company.

The participants will also have the knowledge to run 5S activities.

Audience:

People with little or no knowledge of Lean Production. All in one business and at all levels of the organization. Everyone from the top line to the lowest execution level.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

This course is 4 – 8 hours depending on the size of the activity where practical training takes place in a real environment. In an office environment 4 hours can be right. In a larger production environment, usually 1 full day is needed where the theory and practice in a real environment are mixed.

Morning 4 hours

- Theoretical review of the method.
- Review of the tools used.
- Review of checklists and methods for follow-up of 5S work.
- Practical exercise in 5S.

Afternoon 4 hours

- Practical training in a real production environment.
- An action plan for introducing 5S is presented.

Previous knowledge:

Previous knowledge is not required.

Level:

Basic

Programming

ALTEN offer courses within several of the biggest programming languages, such as Java, C and C++. These courses stretch from basic programming courses to more advanced courses which includes built-in system and efficient coding.

Go Fundamentals

In this course, we start from the beginning and get to know the fundamentals of Go (also known as GoLang) and we will also have time to cover some of the more advanced topics and uses for the language. The course will give you a solid foundation to stand on so you can begin to use the language.

12 000	3	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

The goal of this cource is to give you a solid bas in the programming language Go. Go is relatively easy to learn for a person with some experience with other programming languages.

Audience:

Software developers or anyone interested in gaining an understanding for this interesting and useful language.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

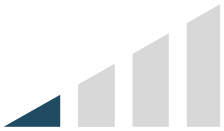
Course content:

- Introduction to Go.
- Understand and use the control structures of the language (selections and iterations).
- Variables, types and casting.
- Functions
- Structs
- Operators
- Arrays and slices.
- Maps
- Interfaces
- Reading and writing files.

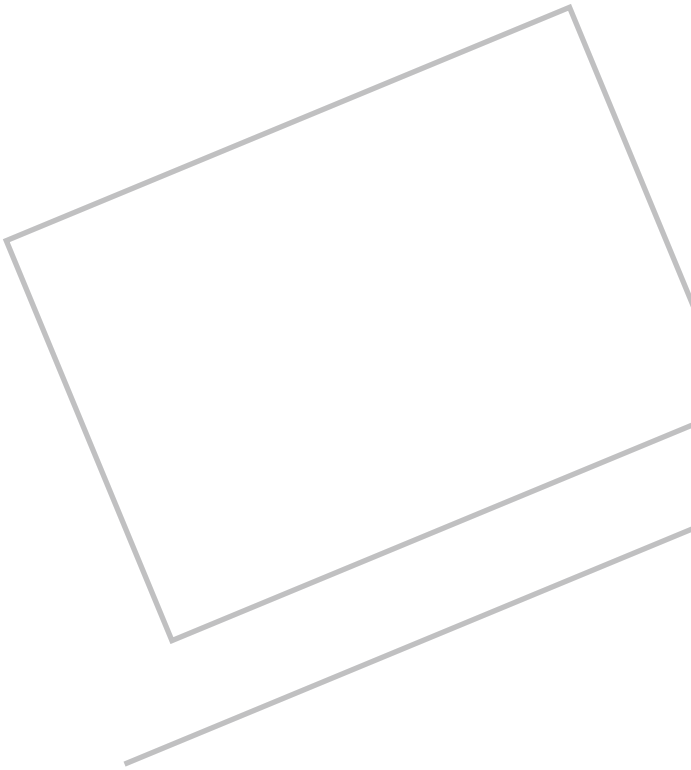
Previous knowledge:

It is an advantage if the participant has some prior experience of programming.

Level:



Basic



Java SE -Fundamentals

Java SE is a widely used platform for development and deployment of portable code for desktop and server environments. It is also the number one choice for developing native applications on the Android operating system.

This Java SE Fundamentals course introduces you to object-oriented programming using the Java language. Through hands on training, you'll begin to build a baseline of knowledge to start your Java carrier.

12 000	3	80/20
Course fee (SEK)	Days	Theory/Practice

Objectives:

The objectives of this course are to introduce Java as a programming language. During the course, we mix theoretical briefings with practical exercises so you can try out the topics we cover to gain a better understand of them.

Audience:

Software developers who have no or very little experience of Java but some programming experience.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

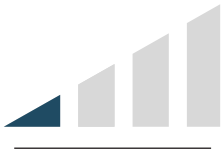
Course content:

- Primitive Datatypes
- Code blocks, methods and scope
- Control structures
- Built-in data structures
- Object orientation, classes, constructors and inheritance
- Object orientation, composition, encapsulation and polymorphism
- Basic exception handling
- I/O Streams (byte streams, character streams, buffered streams, data streams and object streams
- File handling

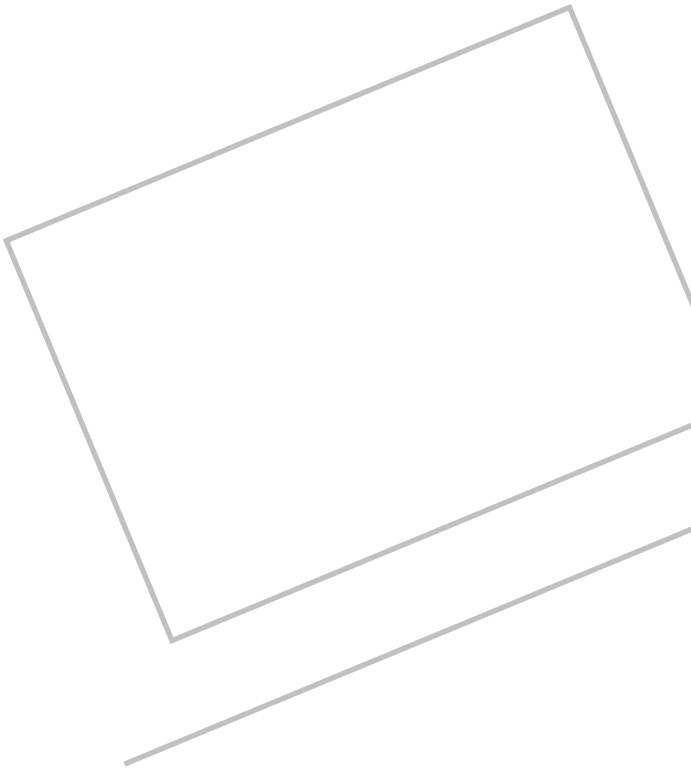
Previous knowledge:

Some prior experience of programming in any programming language.
You should understand concepts like variables, functions, selection using if statements and repetition with for, do and while.

Level:



Basic



Advanced Java

In this course, we focus on four different areas of Java programming. Object-oriented techniques will be covered in depth and we learn about the concepts of OOP and how they can be implemented in Java. We will also see how object-orientation can be used to separate the business logic from other layers in an application. The last two modules will cover exception handling and file handling. In both these modules we get an understanding of the different types that exist and how to work with them.

12000	3	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

The objectives for this course are to give you a better understanding and improve your work with Java.
The course will mix theoretical and practical sessions so you immediately can try the topics covered to gain a better understanding.

Audience:

Software developers with some Java experience who need to take their knowledge one step further.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

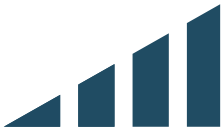
Course content:

- Classes and Objects
- Methods and Fields
- Inheritance
- Abstract Classes
- Polymorphism
- Separating Program Logic (different approaches like state manager and Business Object Model).
- Fundamentals of Exception Handling
- Exception Categories (checked, runtime, and errors).
- The Exception Hierarchy
- Exception Methods
- I/O Streams (byte streams, character streams, buffered streams, data streams, and object streams).
- File Handling

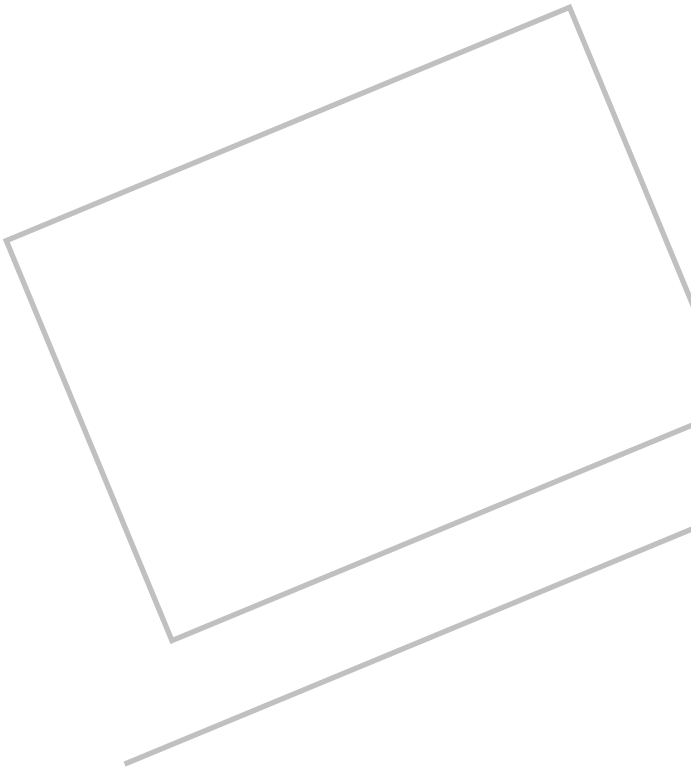
Previous knowledge:

Some experience of Java programming.

Level:



Advanced



ALTEN

C# Fundamentals

C# can be used to create client applications, games and mobile applications. During this course, we will get to know C# and the .NET framework.
We will cover the core concepts of the language and see how they interact with the .NET framework.

12 000	3	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

The aim of the course is to give the participants a deep understanding and confidence to use the programming language with full power.

Audience:

Software developers or anyone interested in gaining an understanding for this interesting and useful language.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

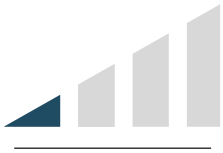
Course content:

- Introduction and history of C#.
- C#, the .NET Framework and Windows Runtime.
- Memory management and garbage collection.
- Creating a console and a rich desktop application.
- Introduction to web applications.
- Language fundamentals such as the C# syntax, identifier naming conventions and using documentation.
- Working with variables and built-in data types.
- Managing application flow.
- Exception handling and debugging.
- Working with collections of data.
- Object-Oriented concepts like defining classes, working with fields and public properties and overriding methods.
- Advanced Object-Oriented concepts such as inheritance and polymorphism.
- Visual programming and event handling.

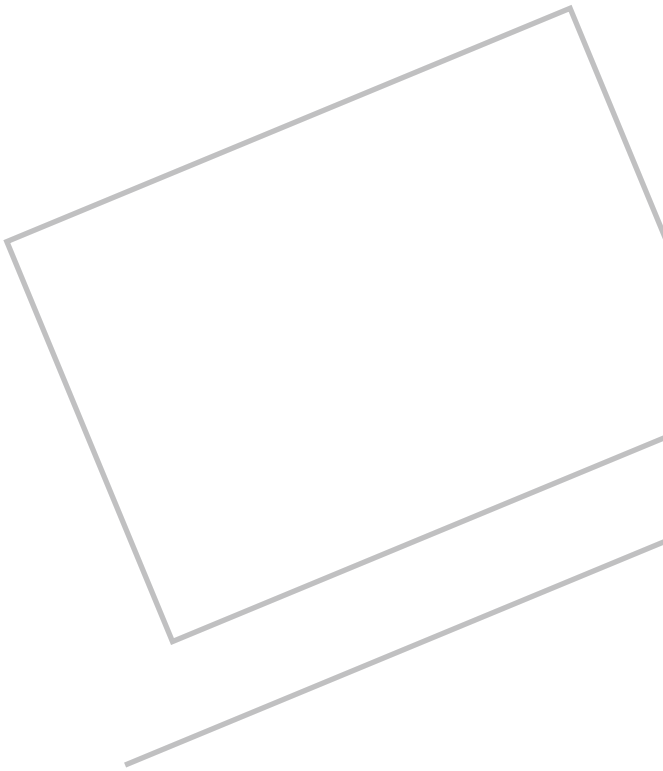
Previous knowledge:

Some experience of programming in any language other than C#.

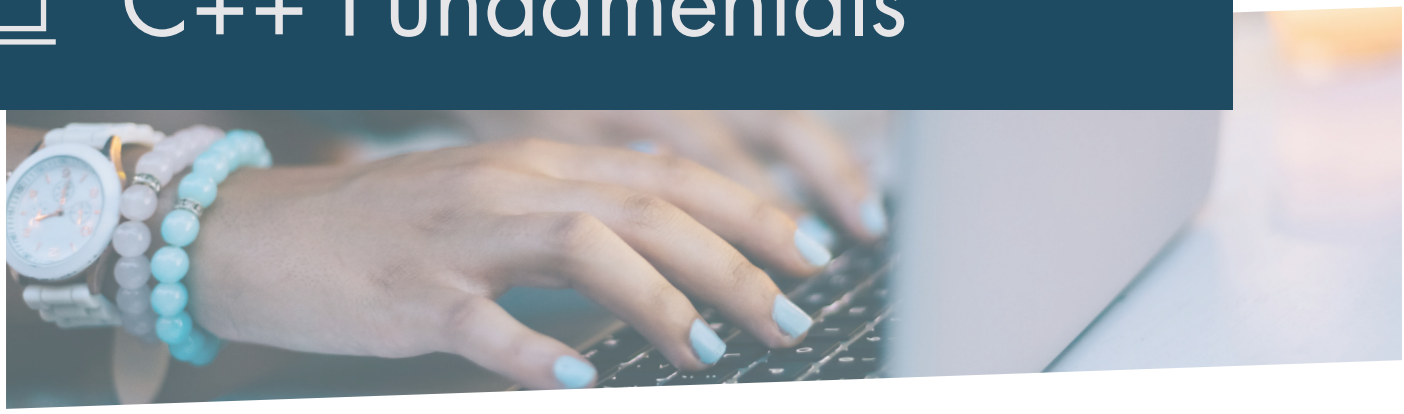
Level:



Basic



C++ Fundamentals



C++ is undoubtedly the most widely-used programming language for implementing object-oriented systems. The C++ language is based on the popular C language. However, the demand for the language has expanded beyond C programmers looking to upgrade to C++, and several C programming practices and features are not required, or are seen as detrimental, in C++ programs.

The course provides thorough practical and theoretical coverage of the C++ language for the experienced application programmer who has little or no recent C++ experience. It helps eliminate misconceptions and poor programming practices that can cause so many problems, by focusing on features of the language and standard library that enforce good practice and encourage clear and robust code.

12 000	3	80/20
Course fee (SEK)	Days	Theory/Practice

Objectives:

The objectives of this course are to give a solid understanding of C++ and give the participant confidence to use the powers of the language.

Audience:

Software developers who have no or very little experience of C++ but some programming experience.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

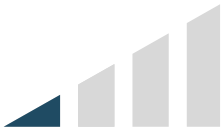
Course content:

- Understand the key concepts and vocabulary of object orientation.
- Use fundamental and composite data types.
- Define and use classes.
- Write class member functions.
- Use pointers and dynamic memory.
- Use constructors and destructors.
- Write code that is efficient and robust.
- Build new classes from other classes using aggregation and association.
- Inheritance
- Use container classes, including template classes.
- Use operator overloading.
- Design and write code with polymorphic behavior.

Previous knowledge:

The participants need some experience of programming in any language other than C++.

Level:



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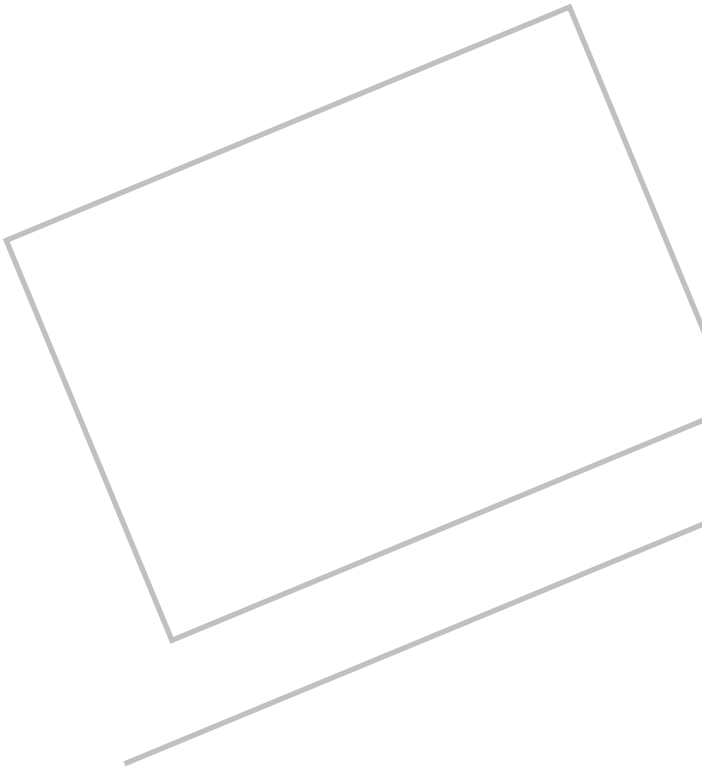


ALTEN

Modern C++

In this course we take a closer look at the more important news in C++. The new standards have drastically modernized the language.

12 000	3	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

The objectives for this course is to get you up and running with the latest exciting news in the C++ language. We will cover the more important aspects of the standards.

Audience:

Software developers who have some C++ experience and need to brush up the skills with the latest addition in the C++11/14/17 standards.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

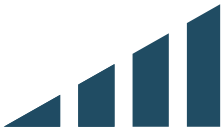
Course content:

- Smaller but important changes like; Range-Based loops, Strongly Typed Enums, nullptr, Digit Separators.
- Uniform Initialization
- Auto and decltype.
- rvalue, lvalue, rvalue reference and lvalue reference.
- Type deduction rules.
- Move Semantics and Perfect Forwarding.
- Smart Pointers.
- Lambda Expressions.
- Generic Lambdas.
- Initialized Lambda Captures.
- STL Algorithms.
- The Multithreading Library.
- [[fallthrough]], [[nodiscard]], [[maybe_unused]] attributes.
- Constexpr lambdas.
- Generalizing range-based for loops.
- Capturing *this in lambdas.
- Hexadecimal float point literals.

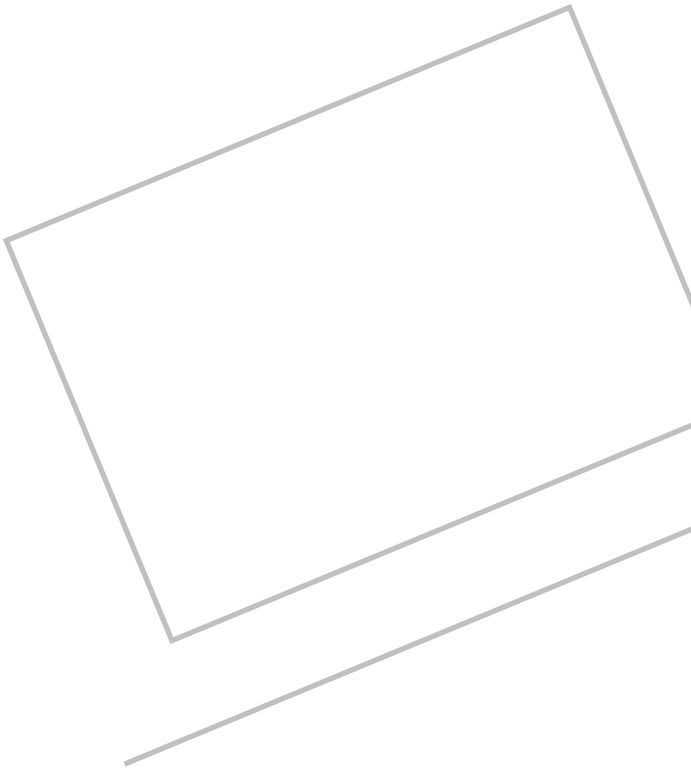
Previous knowledge:

Some experience of C++ programming.

Level:



Advanced



ALTEN

Advanced C++

In this course, we dive into various advanced topics of C++ and object oriented programming. We take a closer look at C++11/14/17 to understand the news of the new standard and take a closer look at some more advanced programming patterns and best use cases.

12000	3	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

The goal of the course is to give the participant in-depth knowledge of C++ and insight on how the standards have changed.

Audience:

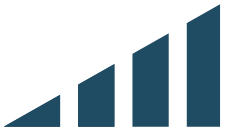
Software developers who have some C++ experience and need to take their knowledge one step further.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

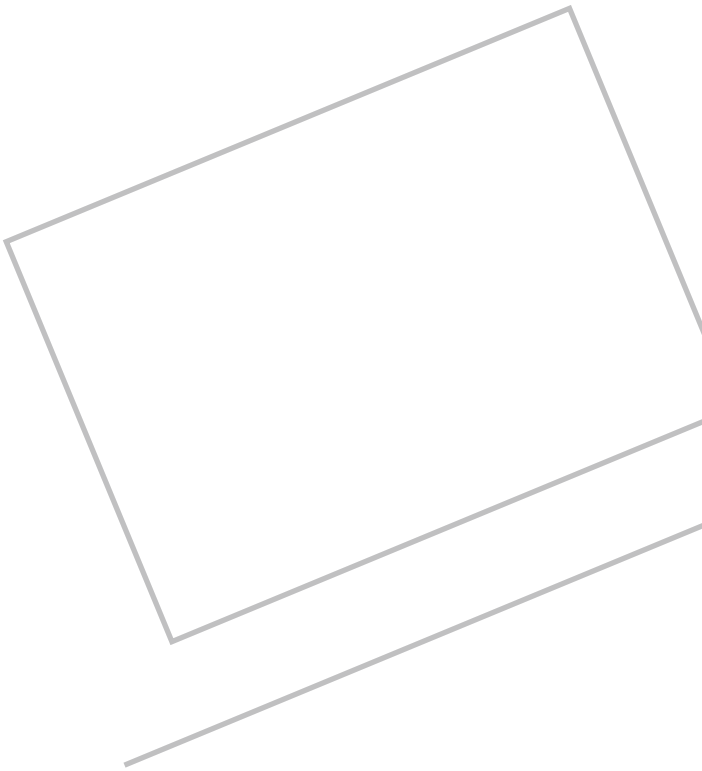
Course content:

- C++ and object-oriented concepts refresher.
- What is new to the language (C++11/14/17).
- Copying and Conversions.
- Scope
- Template Functions.
- Template Classes.
- Iterators and Algorithms.
- Exception Handling.
- Functional Abstraction.
- Multi-Threading.
- [[fallthrough]], [[nodiscard]], [[maybe_unused]] attributes.
- constexpr lambdas.
- Generalizing range-based for loops.
- Capturing *this in lambdas.
- Hexadecimal float point literals.

Level:



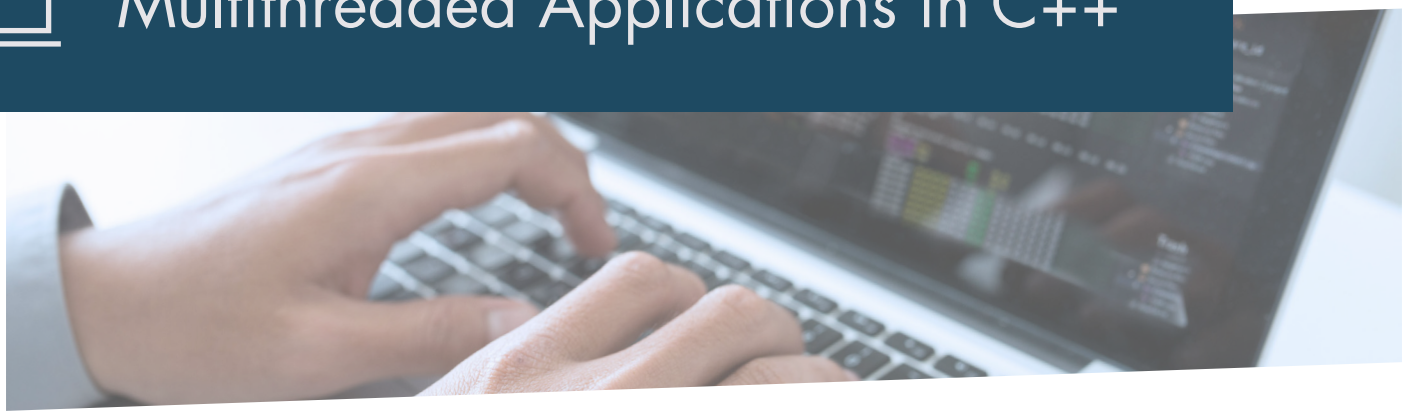
Advanced



Previous knowledge:

Some C++ programming experience.

Multithreaded Applications in C++



In this interactive presentation session, we will cover the ins and outs of multithreaded development in C++. This can be taken as either a half day (4 hour) session that will cover the basic aspects of multithreaded development or a full day presentation that cover the more advanced parts.

2000-4000	½ - 1	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

C++ now has concurrency as a part of its standard and developers will no longer rely on third party libraries.

This presentation will give you an overview of what's in the standard and will give you a good start for developing your own multithreaded applications.

Audience:

Software developers who have some C++ experience and need to get an understanding of the concurrency capabilities of C++.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

Course content:

- Introduction to concurrency.
- Managing threads.
- Sharing data between threads.
- Synchronizing concurrent operations.
- The C++ memory model and operations on atomic types.

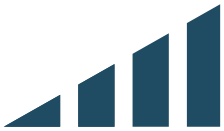
During the full day presentation we will also cover:

- Designing lock-based concurrent data structures.
- Designing lock-free concurrent data structures.
- Designing concurrent code.
- Advanced thread management.
- Testing and debugging multithreaded applications.

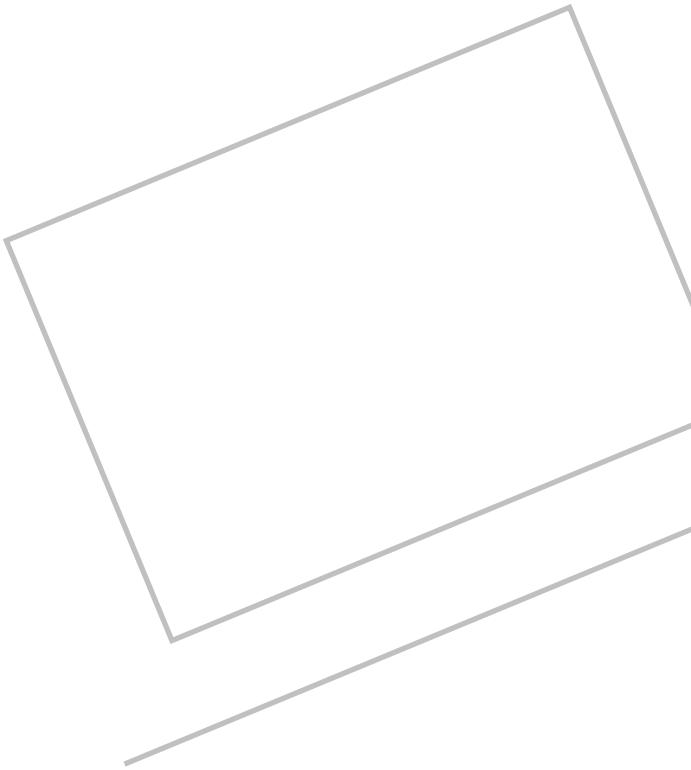
Previous knowledge:

Some C++ programming experience.

Level:



Advanced



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Python Fundamentals

In this course, we start from the beginning and get to know the fundamentals of Python. We will also have time to cover some of the more advanced topics and uses for the language. The course will give you a solid foundation to stand on so you can begin to use the language.

12 000	3	70/30
Course fee (SEK)	Days	Theory/Practice

Objectives:

Python is a dynamic object-oriented general purpose programming language. The goal of the course is to give the participants the best tools and conditions to use the streangt of Phyton as a programming language.

Audience:

Software developers, software testers, or anyone interested in gaining an understanding for this interesting and useful language.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

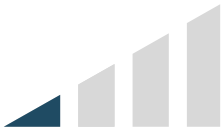
Course content:

- Get an understanding of the basic structure of a Python program.
- Control structures of the language (selections and iterations).
- Variables and Data Types.
- Functions
- Data structures such as dictionaries and tuples.
- A basic understanding of object-oriented characteristics and the benefits of using them.
- File handling.
- Overview of some of the more important modules in Python.
- GUI programs in Python using Tkinter.
- Testing and error handling.

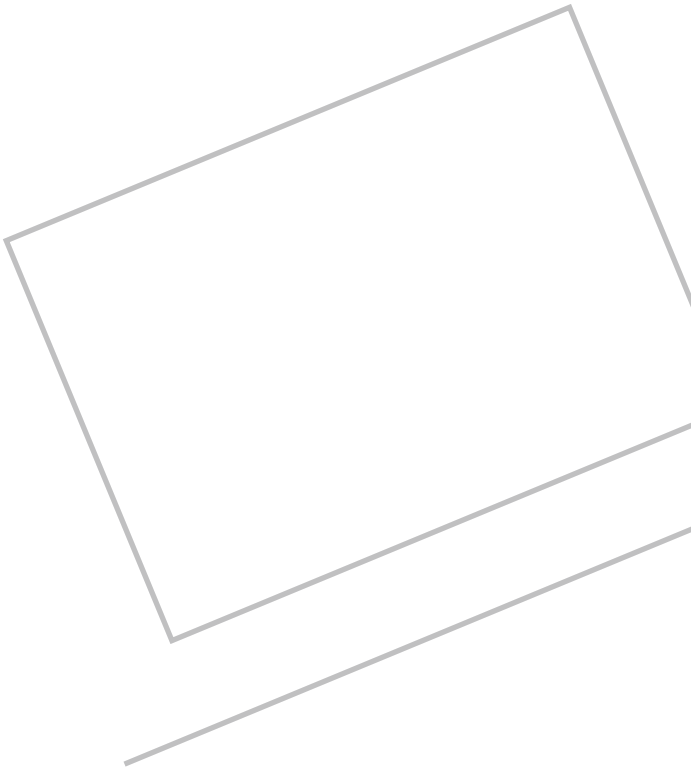
Previous knowledge:

It is an advantage if the participant has some prior experience of programming.

Level:



Basic



Advanced Python 3

In this course, we dive into various advanced topics of Python and object-oriented programming. After this course, the true powers of the language can be unleashed.

12 000	3	50/50
Course fee (SEK)	Days	Theory/Practice

Objectives:

The goal with the course is to give the participants the best conditions to use the streangts of the language. This will leed to higher productivity, more maintenance-friendly code and produced code that has higher quality.

Audience:

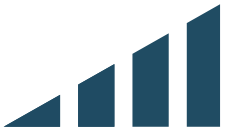
Software developers who have some Python experience and need to take their knowledge one step further.

Please note that all our courses can be tailored to your needs. Contact training@alten.se for more information.

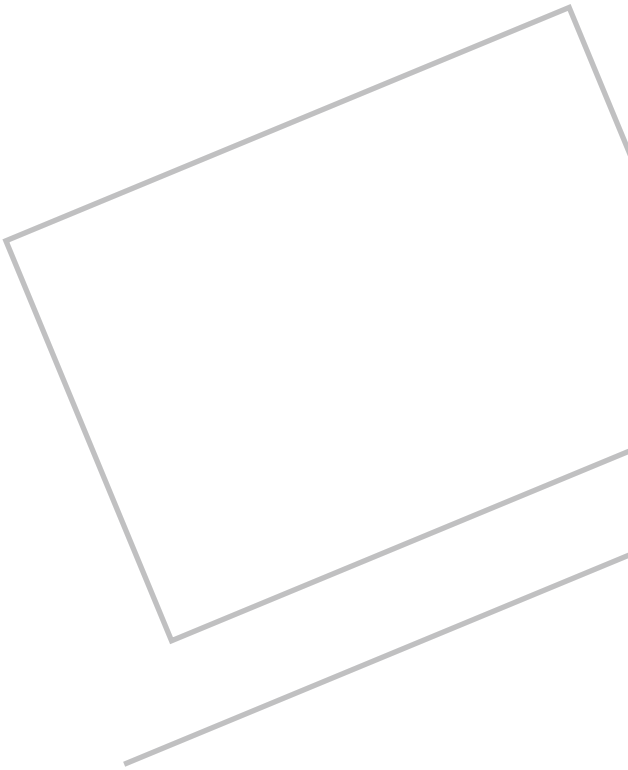
Course content:

- Create classes and use existing Python classes.
- Understand and use the Object Oriented paradigm in Python programs.
- Use the Python Regular Expression capabilities for data verification.
- Network Programming in Python.
- Differentiate between the proper use of Python collection classes.
- Become proficient in the use of bit variables.
- Lambdas
- Advanced Data structures.
- Generators
- Decorators
- Context Managers.

Level:



Advanced



Previous knowledge:

At least a basic understanding of Python.

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