

SYMETRI

ADDNODE GROUP

**ACME INCORPORATED
SYMETRI TRAINING NEEDS ANALYSIS**

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Day Month Year

Attendees

Symetri:

Craig Snell

Acme:

Walter White, Robert Baratheon, Jon Snow, Edward Start, Peter Parker, Ramsey Bolton, Steve Rogers, Jamie Lannister, Bill Worcraft

Purpose

The purpose of this Training Needs Analysis is to provide an unbiased and accurate assessment of the active use of design software in order to recommend a training programme that will benefit Acme Inc. This will identify what training is required to ensure all employees can use their current design software competently to fulfil their role. It will also show which areas employees want to learn in the future.

Background

Acme have opened a new office in Newcastle, this office is primarily dealing with after work, and is working to CAD standards set by Acme Head Office. All employees are new to Acme, and have different levels of software knowledge, and many have used competing 3D applications. The aim is to make Acme Newcastle a centre of excellence for after work within the Acme group

Software

Acme currently use Autodesk Inventor and AutoCAD 2014, although there are plans to upgrade this software to the 2015 release this year. Acme also have access to Autodesk Vault, but do not currently use






Method

Symetri conducted interviews with users who will partake in the training programme, in these interviews their existing product knowledge (if any) was determined, and recommendations determined from information given within these interviews.



Results

Within this document, there will be a summary of each interview, and recommendations based upon the findings. There is also an overall summary of the current product knowledge of the whole Acme team; this will be displayed in table format with grading based upon a traffic light system as shown below, full results are also shown.

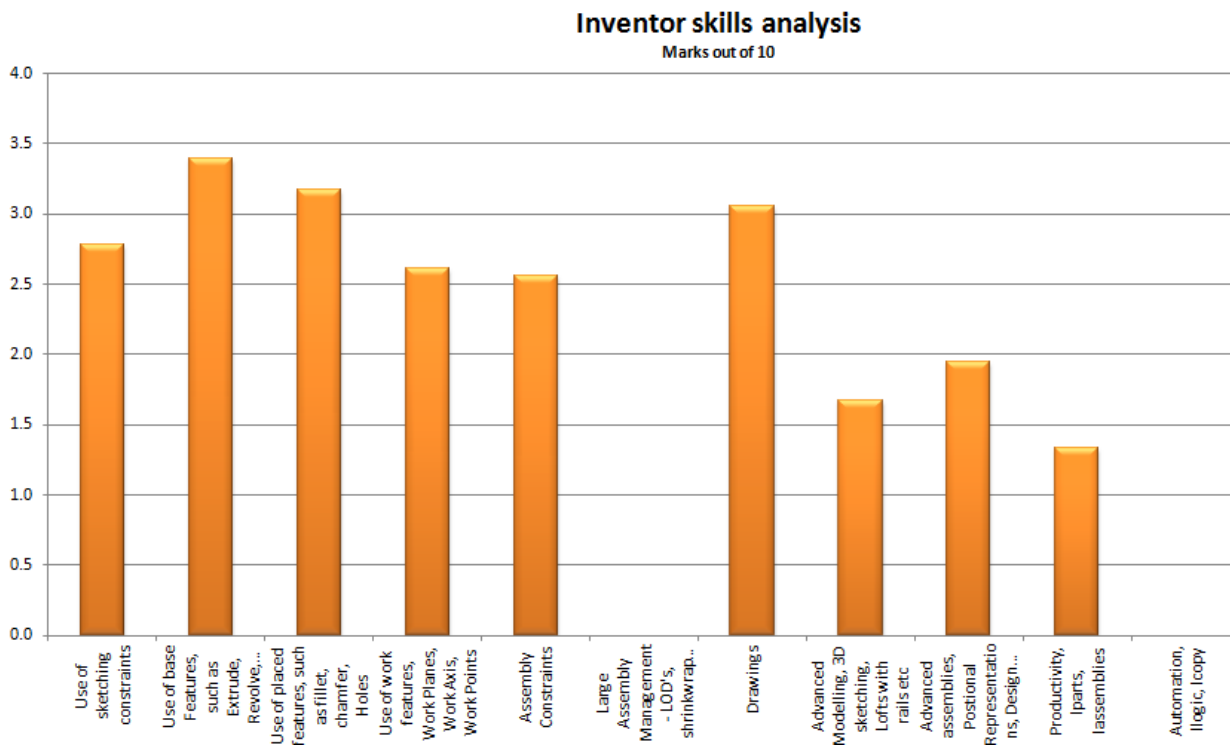
Grading System

Status	Score
Excellent product knowledge, no further training is required	
Good or above average product knowledge, Further training may be recommended to increase productivity, or to show how to manage a system	
Average product knowledge, Further training may be recommended to increase productivity	
Below average product knowledge, refresher training may be required, or a tailored programme may be recommended	
Little or no product knowledge, immediate action is required, typically an Essentials course	

Overall Grading

Status	Score
Autodesk Inventor	
AutoCAD	

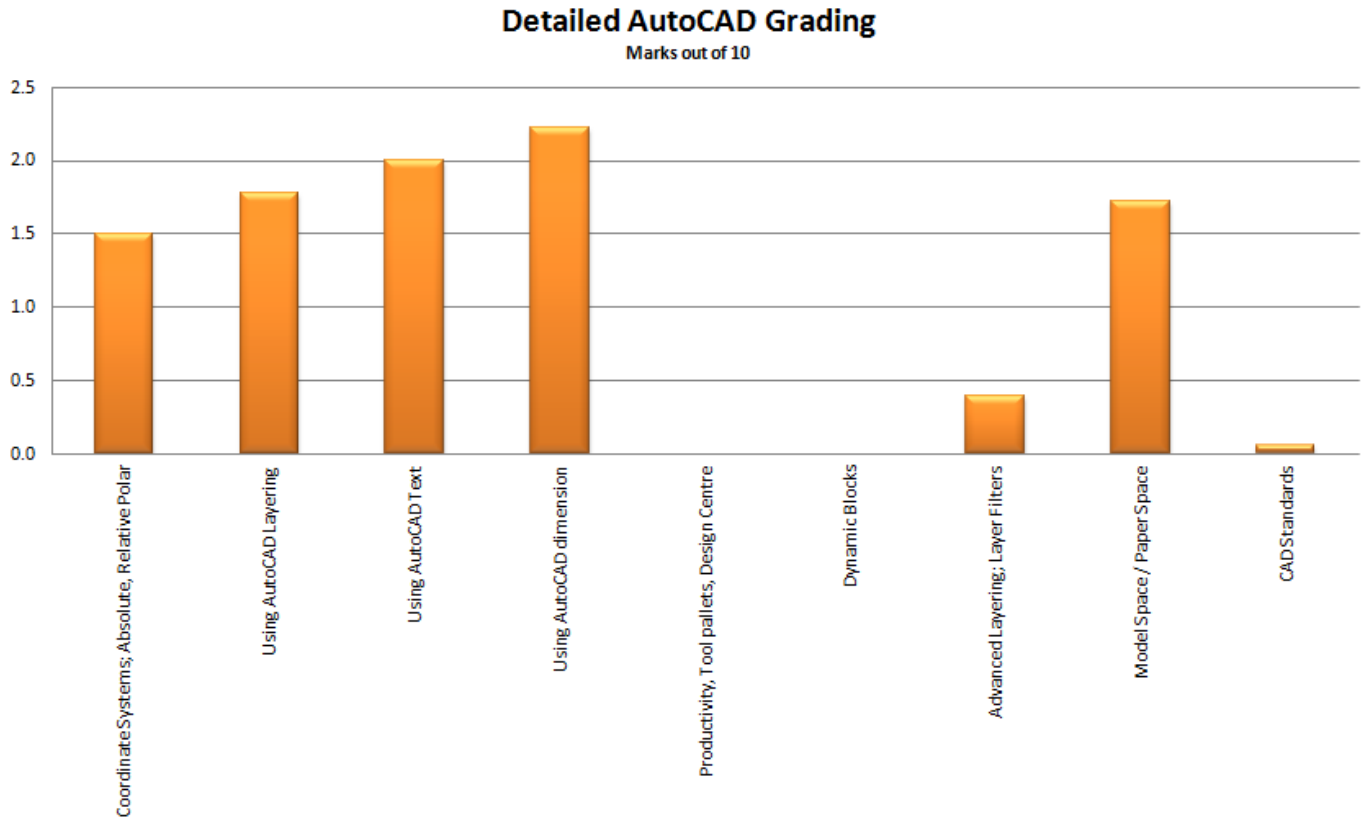
Detailed Inventor Grading



Explanation

Although most employees do not have direct Inventor knowledge, cumulatively they have many years of 3D experience albeit with competing packages to Inventor. Some refresher training is required, and some intermediate workshops to fill in knowledge gaps

Detailed AutoCAD Grading



Explanation

Acme Newcastle have a need to use AutoCAD to edit historic drawings which are issued from Head Office. Within Acme Newcastle there is a distinct lack of AutoCAD knowledge, which will add extra time to the editing of historic drawings. Some basic AutoCAD tutoring will be required and update training as the employees with AutoCAD skills these are from several years ago, and therefore they are not using the most update and productive technologies.

User Interviews

Walter White

Senior Design Specialist

Walter currently uses both AutoCAD and Inventor and has several years' experience of using Solid Edge.

Walter has received no official Autodesk training on either product, but has had internal training on Inventor from Acme Head Office. Walter uses AutoCAD to edit historic drawings from various parts of the Acme Group, but uses Inventor to create any new drawings/models.

Walter seems to have a good basic knowledge of Inventor and would benefit from some bespoke training to get to the next level of Inventor use; he does require basic skills training on AutoCAD.

The areas of Inventor which would be of use to Walter, would be Frame Generator, IPart and IAssembly creation, advanced modelling and assembly skills.

Walter has also expressed an interest of learning the Sheet Metal aspects of Autodesk Inventor

It may be possible for Walter to attain Autodesk Inventor Certification, after the training is complete.

Ramsey Bolton

Mechanical Engineer

Ramsey currently uses both AutoCAD and Inventor, he has 3D experience with a competing product, and some AutoCAD skills from previous employment, but this was based on a much earlier release. Ramsey has had no official Autodesk training but has had some internal Inventor training.

Ramsey feels comfortable using AutoCAD at present, but understands he is not using the most up to date tools and techniques. Ramsey would benefit from training which shows the differences between his current release, and the earlier versions he has used, he would also gain from some intermediate training to get the most out of his AutoCAD knowledge.

Ramsey requires a refresher on some of the basic Inventor skills such as sketching and assembly constraints, he would also benefit from reiterating some basic Inventor workflows, along with some intermediate training on frame generator and design accelerators such as the Bolted Connections. Ramsey would also gain from some tuition on IPart/IAssembly creation, advanced modelling and assembly techniques.

Ramsey has expressed an interest in learning some different aspects of the Inventor package, such as FEA and Stress Analysis and the Tube & Pipe Module.

It may be possible for Ramsey to attain both Autodesk Inventor and AutoCAD Certification, after the training is complete

Jon Snow

Engineer

Jon currently uses both AutoCAD and Inventor, he has previously attended a City & Guilds AutoCAD course, and has had internal training on Inventor. He was taught Solid Works at University.

Jon feels comfortable using both software packages, but would benefit from some intermediate Inventor training on frame generator and design accelerators such as the Bolted Connections. Jon would also gain from some tuition on IPart/IAssembly creation, advanced modelling and assembly techniques.

Jon would also benefit from some AutoCAD upgrade training, which will show the differences on his current version and also some advanced workflow techniques such as Tool Palettes

Jon has expressed an interest in learning some of the more advanced modules of Inventor namely FEA / Stress Analysis and sheet metal.

Jon seems to have good broad understanding of both packages, and although he has knowledge gaps, will be a valuable asset to Acme, and could be seen in time as a "Super User"

It may be possible for Jon to attain both Autodesk Inventor and AutoCAD Certification, after the training is complete

Robert Baratheon

Engineer

Robert currently uses both AutoCAD and Inventor, and has received no official or in house training on either product, although he has several years' experience on a competing 3D package.

Robert is comfortable with the basic use of Inventor, but does require some training on the Inventor workflow and a refresher on sketching techniques and work features. Steven would also benefit from intermediate training on Inventor Frame Generator and design accelerators along with IPart/IAssembly creation

Robert has limited AutoCAD knowledge, and although managing to edit some drawings does require basic AutoCAD tuition.

Robert has expressed an interest in learning the FEA/Stress Analysis module of Autodesk Inventor.

It may be possible for Robert to attain Autodesk Inventor Certification, after the training is complete.

Steve Rogers

Engineer

Steve is currently using both AutoCAD and Inventor, and has received no internal or official training on either product, although he has several years' experience in a competing 3D package.

Steve is comfortable with the basic use of Inventor, but does require some training on work features. Steve would also benefit from intermediate training on Inventor Frame Generator and design accelerators along with IPart/IAssembly creation

Steve has limited AutoCAD knowledge, and although is managing to edit some drawings does require basic AutoCAD tuition.

Steve has expressed an interest in learning the FEA/Stress Analysis and Sheet Metal module of Autodesk Inventor.

Steve has a keen interest in 3D modelling and is willing to learn as much as possible, and put this into practice. Over time Steve will be seen as an Inventor "Super User"

It may be possible for Steve to attain Autodesk Inventor Certification, after the training is complete

Edward Stark

Engineer

Edward currently uses both AutoCAD and Inventor, he has received no official training, but has had internal training from Acme Head Office. Edward feels he need more tuition on some of the more basic aspects of Inventor such as sketching and assembly constraints.

Edward does require essentials training on AutoCAD, but would also gain from some modular based Inventor training around using the frame generator, and IPart / IAssembly creation.

Edward has also expressed an interest in learning the FEA/Stress Analysis.

Due to Edward's learning style, Symetri feel a different approach to traditional classroom training would work better. Having time individually with an instructor, learning at the pace and level he wants to, would achieve optimum results.

Jamie Lannister

Design Engineer

Jamie currently uses AutoCAD and Inventor, and has received no internal or official training on the products. He has had several years' experience using Siemens NX, and had some basic AutoCAD training whilst at school.

Jamie has only been with Acme for just under 2 weeks, and does not fully understand what type of models and drawings he will be producing yet. Jamie's knowledge was very impressive in such a short time using Inventor, although he would benefit from some guidance in the typical Inventor workflow, along with some intermediate training on Frame Generator and IPart/IAssembly creation.

Although Jamie has had limited exposure to AutoCAD, Symetri do not feel an AutoCAD essentials course would be the best course of action, we would suggest he attend an upgrade / intermediate workshop, and then have one - one time with an instructor.

It may be possible for Jamie to attain Autodesk Inventor Certification after training completion.

Jamie appears to have an excellent understanding of 3D Parametric modelling, and is quickly turning his previous software experience into good Inventor practices. With the right guidance and tuition Jamie could become a "Super User"

Tony Stark

Design Specialist

Tony currently uses both Inventor and AutoCAD, and has received official training (many years ago) in both Mechanical Desktop and Inventor. He also has many years AutoCAD experience, but the last version of the software he used was AutoCAD 2000, and is using his current version in the same way

Tony seems to have good understanding of the basic use of Inventor, but would benefit with tuition in some higher functionality such as frame generator, and IPart / IAssembly creation.

Tony has expressed a desire to learn FEA / Stress Analysis and Tube & Pipe.

It may be possible for Tony to attain both Autodesk Inventor & AutoCAD Certification after training completion

Peter Parker

Engineer

Peter currently uses both Inventor and AutoCAD, with Inventor being the main application, he has received no official training, but has had internal Inventor training.

Peter appears to have a good understanding of the basic uses of Inventor, but may require a refresher on Assembly constraints and workflows. In addition to this, Symetri would recommend that Peter has instruction on Frame Generator, and IPart/IAssembly creation.

Peter will require some essentials training in AutoCAD, and has also expressed an interest in learning FEA / Stress Analysis and surfaces within Autodesk Inventor.

It may be possible for Peter to attain Autodesk Inventor Certification after training completion.

Bill Worcraft

Senior Engineer

Bill currently uses both AutoCAD and Inventor, with AutoCAD being the main application, he has received no official training but has had some internal Inventor training, Bill also has experience with a competing 3D package.

Although Bill is using AutoCAD on a daily basis, he does not feel comfortable with the product and is convinced he can work better and smarter with the product; he should attend an AutoCAD Essentials course.

Bill would also benefit from some higher level training in Inventor, focussing on some of the Design Accelerators, such as the bolted connections, Frame Generator and V Belt creation, this combined with the Engineers Notebook (showing calculations) this would be of great use for his position as Senior Engineer.

Bill has expressed an interest in learning the FEA / Stress Analysis aspects of Autodesk Inventor.

Symetri would suggest that Bill along with Tony Stark attend CAD Standards training (for AutoCAD).

Recommendations

1. AutoCAD Essentials Course - 3 Days

This is an essentials course, which can be tailored to incorporate Acme AutoCAD standards.

Suggested Attendees;

2. AutoCAD Upgrade / Intermediate Course - 1 Day

This is a course combining some of the new tools and functionality currently within AutoCAD 2014, tips and tricks and some more advanced functions which would benefit Acme. Upon investigation it was clear that existing AutoCAD users are using the software as they did several years ago.

Suggested Attendees;

3. Inventor Refresher & Workshop (Intermediate Level) - 2 Days

This course will teach specific functions as mentioned earlier in this document (e.g. Frame Generator), and will also provide a refresher or closer look into some aspects of the software where the users are not 100% comfortable in their use, for example, Sketch or Assembly Constraints

Suggested Attendees;

4. FEA / Stress Analysis Introduction - 1 Day

This course will introduce you to functionality of Stress, Modal and Frame Analysis. The main focus of the course will be learning from solving actual design problems. These design problems are from existing inventor simulation customers, and are universal, thus allowing the delegates to apply the knowledge quickly to own design problems with confidence.

Suggested Attendees;

5. Inventor Sheet Metal - 1 Day

This is a comprehensive introduction into the Sheet Metal module of Autodesk Inventor, using hands on exercises you will learn various sheet metal techniques.

Suggested Attendees;

6. Mentoring Programme - 12 Days

This programme will be onsite at Acme, A Symetri trainer will attend one day per month, to mentor each individual and ensure they are using best practices within AutoCAD and Inventor. This will also cover smaller topics that were requested in the Analysis, such as surfaces. Many of the users will benefit from one to one teaching at their own pace, ensuring that all users getting to the same level.

Suggested Attendees;

7. CAD Standards - 1/2 Day

This course will show the functionality that ensures that AutoCAD drawings are completed using the correct standards, for example making sure that the dimensions are on the correct layer, using the correct format etc. This could be embedded with Acme standards, allowing easier drawing checks

Suggested Attendees;

Return of Investment

Training ROI - Calculator



Survey results:

EXAMPLE: In a random sample survey of 1000 students 71% of respondents who completed the study recommendations reported **saving 1 hour** or more per week due to their improved software skills

Investment	Calculations	Notes	Benchmarks
Cost of course	£17,000.00	Prices given in quotation	
Number of students	9	Numbers given in quotation	
Cost per student	£1,888.89		
Return - Time Savings			
Average total cost of employee per year	£30,000.00	Salary, tax, other benefits, administration & management	
Average total cost per hour	£16.67		
Period of improved performance	24	Months	Estimated 12 - 24 months depending on course length and intensity
Value of time saved	£1,192.80	71% save 1+ hours per week according to survey	
Return - Staff Turnover Savings			
Average cost of recruitment & induction	£6,750.00		Weighted internal data 15-80% of first year salary depending on position, fees and specialisation
Average cost of other training & warm-up period	£5,625.00		Estimated ramp-up period to full productivity 3 months, linear from zero to 100% over period
Impact on staff turnover as proportion of all benefits	15%	From desired qualities of job / questionnaires / appraisals data	Benchmark 10%-40% depending on position, skills, prospects & other remuneration
Value of reduced staff turnover	£1,856.25		
Summary			
Total Investment per student	£1,888.89		
Total Return	£3,049.05		
ROI %	61%		