

Lean Improvement Apprenticeships



“Harness the best ideas and support the implementation through education”

Introducing CLS

Our People, Your People, Your Business....



Established in 2004, Complete Lean Solutions is a Lean training and Specialist support organisation providing services to clients across the globe. With offices in England and Australia and clients globally, CLS provides a standardised, well- proven model that enables our customers to significantly improve their operations. Our team of 35 Lean experts, all with first hand experience working at the home of Lean, Toyota, develop tailored Lean engagement programs to ensure maximum tangible benefits for our clients.



- Lean Manufacturing has been derived from the Toyota Production System.
- CLS only employs coaches who have “been there and done it,”
- Our coaches have extensive experience in implementing the Lean Tool Kit with people at all organisational levels, using a combination of simple examples, analogies, simulations and hands-on deployment, all done side-by-side with the process owner/operators.
- More importantly, our coaches understand how to communicate and reinforce the Lean mindset – the key to successful, sustainable improvement.

We take the time up front to understand Your Business

Before starting any training program we need to understand what is important to your business –

- **Your biggest challenges**
- **Your current understanding of business improvement / lean**
- **What good practice is already in place**
- **What lean tools are most applicable to yourselves**
- **What project areas we can focus on as part of the apprenticeship**
- **What the teams will look like**

It is important that we build on the good work you already have in place and keep a consistent message–

- **We can dual brand the training material with your company logo**
- **We contextualise the delivery to be relevant to your type of work**
- **We incorporate your material and wording wherever possible**
- **We use the program to re-enforce important company information**
- **We plan the delivery and support visits around your company needs**

You can chose if you want to work on a specific project or just take an area and implement Lean in that area utilising the training program

The aims of the Lean Training Programme?



- To Deliver Structured Business Improvement Training
- To Develop the people within your business
- To complete practical projects that support the business needs and goals

The projects may be generally implementing some lean foundation tools across the business, such as – Visual Factory, 5s , Standardised work OR they may go on to include specific challenges such as delivery on time, quality improvements or increased productivity

This programme is a hands on Learn by doing approach that minimises the time in the classroom and maximises the time carrying out the improvements at the workplace

The Level 2 qualification is aimed at embedding the knowledge required to operate the business in a Lean way . The level 3 qualification is aimed at building on this knowledge by leading larger improvement projects through the use of strategic problem solving tools and being able to present these projects to a wider audience while leading a team.

Apprenticeship Structure

The following pages describe how the program is typically delivered. HOWEVER the detail of the projects and make up of the training elements are tailored to the environment and needs of the trainees on the program.

1. Identify the business needs and potential improvement project subjects.
2. Decide who should go on the programme.(Minimum Co-hort of 20 -30 people - No Maximum)
3. Group the learners into project teams of 5 to 6 people in each team.
4. Look at production demands and potential holidays to confirm learner availability and agree the initial training dates.
5. The first 12 weeks are typically focused on the underpinning knowledge training and include the 4 – 6 days of classroom and interactive training that are required as part of the program.
6. The next 40 weeks are focused on project work at the workplace putting into practice the tools and techniques - This is supported by our coach spending time with the teams in the workplace.
7. Learners implement the improvements and gather evidence into a portfolio which we provide.
8. Week 52 the management and CLS coach confirm that the learner is ready to undertake an End Point assessment and a date is booked in for this to take place.
9. Week 54 onwards -The end point assessment takes place

Which Qualification?

Where possible – everyone should undertake the Level 2 qualification first to ensure that there is a common language and understanding across the business. Then some people may want to progress to the level 3 qualification.

For mixed groups (who are undertaking Level 2 and Level 3 – we would tailor the training delivery to accommodate the current understanding of Lean Improvement)

For learners that do not have a manufacturing related role then they would undertake the Level 3 programme

**Level 2 –
Lean
Operative**

Qualification	Who the qualification is aimed at / Duration	Goal of the programme
Level 2 Diploma - Lean Manufacturing Operative - Apprenticeship	Manufacturing Operators / Inspectors / Logistics (12-14 months)	To give as many shop floor people as possible a common understanding of lean tools and techniques - and the ability to demonstrate these through the improvement projects carried out during the program - working in teams of 5 or 6 learners
Level 3 Diploma - Improvement Technician - Apprenticeship (Level 3 specific)	Any job role - from office, through to manufacturing, IT etc. At any level (12-14 months)	To build on the knowledge gained from the level 2 programme by leading a team or owning an improvement project - using detailed Problem solving and analysis. If the learner has not completed a level 2 with CLS there may be a need to import elements of the level 2 program into the level 3 to ensure that they have the same understanding as those learners undertaking a level 2

**Level 3 –
Improvement
Technician**

How its delivered?

The first 12 weeks -



- The underpinning knowledge is delivered at your work place over the first 12 weeks.
- Class sizes are usually between 15 and 20
- There are 5 / 6 full training days spread over 12 weeks that are a combination of shop floor activity and interactive training – in between each training day there will be some tasks for the learners to complete
- We also have the ability to deliver these sessions remotely if required
- The level 3 Improvement technician has one extra training day if the learners have not already passed a level 2 with CLS

Level 2 – Lean Operative

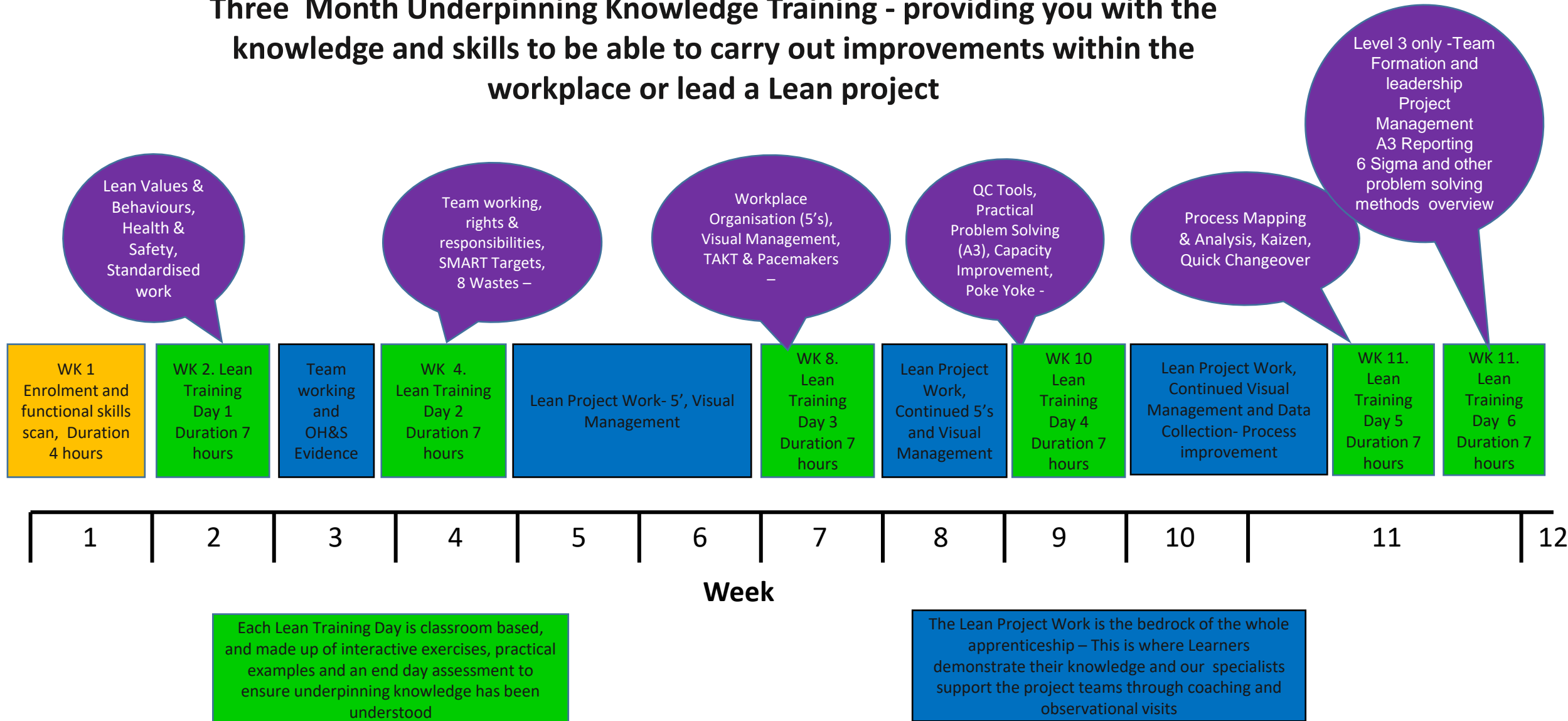
Enrolment & Induction	Training day 1 WK2	Training day 2 WK4	Training day 3 WK6	Training day 4 WK8	Training day 5 WK11	
3hrs	7hrs	7hrs	7hrs	7 hrs	5 hrs	
Induction to L2 Lean Manufacturing Standard Functional skills scan Initial vocational assessment	Lean values & behaviours Health & Safety Standardised work	Recap TD1, Communication Working effectively SMART Targets 8 Wastes	Recap TD2, Working relationships Rights & responsibilities Workplace Organisation (5's) Visual Management Takt & Pacemaker	Recap TD3 QC Tools Practical Problem solving Poke Yoke	Process mapping & analysis, Kaizen-Continuous Improvement, Capacity Improvement Quick Changeover (SMED)	

Level 3 – Improvement Technician

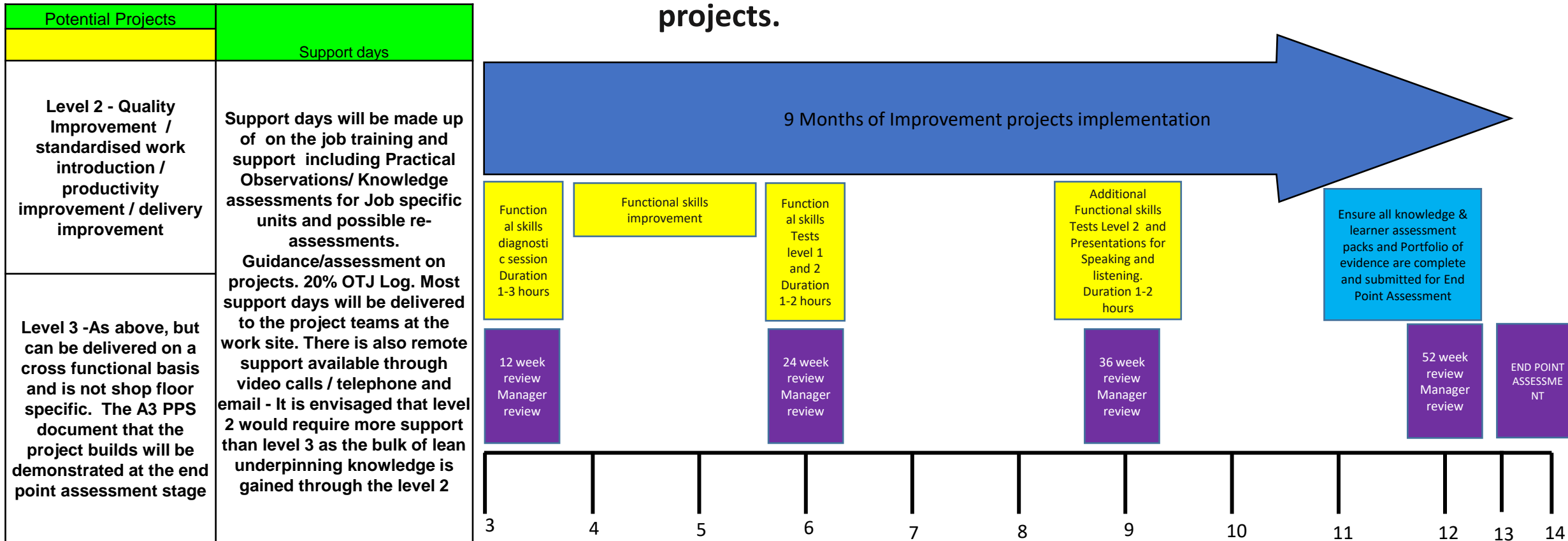
Enrolment & Induction	Training day 1 WK2	Training day 2 WK4	Training day 3 WK6	Training day 4 WK8	Training day 5 WK11	Training day 6 WK11
3hrs	7hrs	7hrs	7hrs	7 hrs	7 hrs	7 hrs
Induction to L3 Improvement Technician Standard Functional skills scan Initial vocational assessment	Lean values & behaviours Health & Safety Standardised work	Recap TD1, Communication Working effectively SMART Targets 8 Wastes	Recap TD2, Working relationships Rights & responsibilities Workplace Organisation (5's) Visual Management Takt & Pacemaker	Recap TD3 QC Tools Practical Problem solving Poke Yoke	Process mapping & analysis, Kaizen-Continuous Improvement, Capacity Improvement Quick Changeover (SMED) Full Value Stream Mapping	Team Formation and leadership Project Management A3 Reporting 6 Sigma and other problem solving methods overview Project Set up and start

The first 12 weeks -

Three Month Underpinning Knowledge Training - providing you with the knowledge and skills to be able to carry out improvements within the workplace or lead a Lean project



You will work in teams on the projects that give the most benefit to you and the business. The CLS coach will support and guide you throughout your projects.



Potential Projects	Support days
<p>Level 2 - Quality Improvement / standardised work introduction / productivity improvement / delivery improvement</p>	<p>Support days will be made up of on the job training and support including Practical Observations/ Knowledge assessments for Job specific units and possible re-assessments. Guidance/assessment on projects. 20% OTJ Log. Most support days will be delivered to the project teams at the work site. There is also remote support available through video calls / telephone and email - It is envisaged that level 2 would require more support than level 3 as the bulk of lean underpinning knowledge is gained through the level 2</p>
<p>Level 3 -As above, but can be delivered on a cross functional basis and is not shop floor specific. The A3 PPS document that the project builds will be demonstrated at the end point assessment stage</p>	

Functional Skills Maths (Level 1 or 2) English (Level 1 or 2)

Where required you will complete Functional Skills in Maths and English. The initial assessment on the induction day will determine your current level, in month 3 you will undertake an on-line diagnostics assessment to identify support required and a learning programme will be developed to suit your particular needs. Assessments are designed to measure the competent application of skills within real life scenarios. The final exams can be completed on site around week 26, these include reading, writing, speaking & listening assessment & Maths . **Completion of functional skills may not be required where evidence of a current transferable skill exists, such as Maths or English GCSE certificates.**

The Lean Project Work is the bedrock of the whole apprenticeship – This is where Learners demonstrate their knowledge and our specialists support the project teams through coaching and observational visits

Assessment Gateway - Preparing for the End Point Assessment

At around week 52 the Learner / Trainer and Manager will confirm that the Apprentice is ready to undertake the end point assessment. This is to confirm that the learner has understood and completed the tasks to achieve the Level 2 Diploma in Manufacturing and their portfolio is complete. Or the Level 3 Learner had completed their A3 project report and have gained the knowledge required to go forward to the end point assessment. Level 2 Learners without Level 1 (or equivalent) in English and maths must have passed Level 1 and taken the test for Level 2 prior to taking the end-point assessment. (There is no need to pass the level 2 qualifications, as long as they have taken the test). Level 3 learners must have passed the level 2 qualification in English and Maths

The End Point Assessment – (Must be completed within 12 weeks of the apprentice meeting all the requirements of the assessment gateway)

Once the Learner , Trainer and Manager are confident that the End point assessment can go ahead then a date will be arranged for the End point Assessment organisation to come to the workplace to carry out the assessment. The End Point Assessment Company will be assigned during the program. CLS can support the facilitation of this or the EPA can be assigned by the client. The EPA will have knowledge of the programme that has been delivered and will ask general questions to confirm that the learner has completed all of the evidence required and has gained the knowledge and skills to continue to deliver improvements after the course has completed.

	End Point Assessment activity	Evidence Required to show the end point assessor
<p>Level 2 – Lean Operative</p>	<p><u>Total Maximum of 2hrs 40mins</u> - 2 hours of observing the operator in their role following written job instructions. 40 minutes professional discussion around the portfolio of evidence that has been collected during the program</p>	<p>Functional skills certificates in Level 1 English and Level 1 Maths (or equivalent) Portfolio of evidence collected during the project work</p>
<p>Level 3 – Improvement Technician</p>	<p><u>Total Maximum time of 2hrs 25 mins</u> - Multiple choice examination – to assess knowledge elements of the standard 40 minutes Project report, presentation & questioning – to holistically assess knowledge, skills and behaviours (KSBs) in the standard 75 minutes Professional discussion underpinned by log – to holistically assess KSBs across the standard 40 Minutes</p>	<p>Functional skills certificates in Level 2 English and Level 2 Maths (or equivalent) A3 Project report</p>

What Does The Program Cost?

**Level 2 –
Lean
Operative**

**Level 3 –
Improvement
Technician**

Cost	
	The company would pay a maximum of 5% (£300) towards any shortfall in their levy pot -If end point assessment re-sits are required then the company would be liable for these - however before the end point assessment takes place management and the trainer would confirm the learner is ready to undertake the end point assessment
	The company would pay a maximum of 5% (£200) towards any shortfall in their levy pot -If end point assessment re-sits are required then the company would be liable for these - however before the end point assessment takes place management and the trainer would confirm the learner is ready to undertake the end point assessment

What Is the commitment required from you?

Throughout the programme, 20% of the apprentices time should be spent training, working on projects or using the tools and techniques that they are learning as part of this apprenticeship.

This time must be directly relevant to the apprenticeship framework or standard and could include, but not limited to, the following;

- The teaching of theory (for example lectures, role play, simulation exercises online learning or job specific training)
- Practical training such as shadowing, mentoring (receiving and providing) and coaching sessions
- Improvement Project work (this is working on the improvement projects in their own areas and using the tools and techniques they are learning)
- Documenting improvements and re training of improved processes

Example of improvements made during one of our Improvement Programmes

These cost savings were made by an engineering company of around 100 employees



Project	Area	Detail	Savings (one off)	Savings (ongoing)
5S	Soft Machining	Excess Benches & Tooling	£1,478.00	
		Tooling replacement reduction		£2,000.00
		5% setting reduction		£4,400.00
	Flute Grinding	Tooling and materials returned to store	£192.00	
		Time saving from using new Setting Trolleys on the Bramac & ITM		£5,500.00
		Time saving from organising projections from a pile to a filing cabinet		£3,940.00
	Blank Finishing	Shortened setups due to not having to look for setting tools		£583.00
Thread Grinding	Obsolete inventory sold as scrap metal		£900.00	
Standardised Work	Soft Machining	5% reduction in Set Ups		£4,400.00
	Blank Finishing	11 min reduction time in set-up time		£1,283.00
7 Wastes	Soft Machining	Staggered lunch breaks		£17,600.00
		Spare set of Swarf bins - downtime reduction		£5,700.00
		M35 C8 Steel Rationalisation	£16,779.00	
	Flute Grinding	Transport of tools to store - trolley put in place & end of transport		£6,500.00
		pre-rough of grinding wheel off machine - reduce set-up time		£13,800.00
	Blank Finishing	5S WIP(reduction) & visual factory highlighting excess labour - redistributed		£69,160.00
		Grinding Wheel rationalisation & control - 17 reduction	£1,170.00	£350.00
	Heat Treatment	Inventory (WIP) reduced through implementation of a managed buffer	£45,448.00	£4,545.00
		Parts were being scrapped due to degreasing to early - rusting		£1,200.00
	Thread Grinding	Time saved by eliminating need for operators to calculate from imperial to metric - downtime reduction		£22,500.00
Visual Factory	Heat Treatment	5s, target setting & managed buffer - 20% increase in throughput		£36,800.00

Example of improvements made during an LLA

These cost savings were made by an engineering company of around 100 employees



Capacity Improvement	Thread Grinding	Uptime increased by 27% through implementation of a visible & audio andon		£104,320.00	
Smart Changeover	Soft Machining	22% reduction in setup time on Miyano		£9,600.00	
	Flute Grinding	Wheel changeover - externalisation of prep tasks & standardisation = 26min/set-up		£9,660.00	
	Blank Finishing	Reduction in set-up time through externalisation of tasks and removal of need for manual crane		£1,166.00	
	Thread Grinding	Set-up time reduction of 34 minutes by externalisation of tasks		£41,328.00	
TPM	Soft Machining	25% Fewer breakdowns in section. Machine down for an average of 4 hours		£7,680.00	
A3 Reports	Conveyance	Walkway between plant 1 & 3 - reduce motion, inventory, scrap and heating	£75,000.00	£6,600.00	
	Flute Grinding	Purchase of additional grinding wheel spindles to aid smart changeover - reduced time		£7,300.00	
	Thread Grinding	Purchase of spare motors for the Drakes - loss in downtime		£25,390.00	
Value Stream Mapping	Drills	Lead time in Black Magic Drills reduced by 9 days - WIP saving & improved IFOT	£21,743.00	£2,174.00	
	Taps	Highlighted build up of inventory at inspection - new layout will almost eliminate buffer WIP reduction (17,606 components @ average cost £8.05 per tap)	£141,728.00	£1,473.00	
Training Matrix	Soft Machining	1 shift per month the Miyano doesn't run due to lack of skills coverage		£7,680.00	
	Blank Finishing	Skills coverage improvement freeing up 1 shift / week		£13,125.00	
PPS	Soft Machining	Band-aid identified for broken centres - scrap reduced by 0.1		£2,880.00	
	Thread Grinding	Scrap reduction through implementation of new flute to square measurement method		£2,186.00	
Pull System	Tips	Kanban re-ordering for Tips - Reduction in stock	£400.00		
	Grinding Wheels	Kanban re-ordering for wheels - reduction in emergency trips to Bunnings		£735.00	
		Kanban re-ordering for wheels - reduction in downtime		£12,864.00	
Poka Yoke	Thread Grinding	Poka Yoke implemented to prevent blowing of light on inspection kit - reduce downtime while using plant 1 kit		£1,368.00	Total
			£303,938.00	£458,690.00	£762,628.00

What Does The Company Get From The Program?

Employees that have a common understanding of how business improvement works and the steps to take to solve problems

A clear cost benefit to the company through the projects that have been implemented

A legacy framework to operate the business in a Lean way

Access to world class business improvement specialists – who get their hands dirty and pass their knowledge on by getting involved

What Do The Apprentices Get From The Program?

A nationally recognized Apprenticeship Certificate

An opportunity to carry out improvement projects that directly affect themselves in their own workplace

A structured platform to showcase to management their achievements

12- 14 months of access to world class business improvement specialists, who are real people and have “been there” and implemented lean activities in different environments all over the world

To Summarize



Tangible Improvements - Practical projects are carried out in teams at the workplace based around your needs and priorities.



Flexible delivery – We fit in around the demands of your business and schedule the visits and / or remote contact accordingly.



Learn by doing – Only 5.5 / 6.5 days in a classroom (or learning with a tutor remotely x 9 sessions of 3hours) over the 60 weeks of the program. The rest of the training and support is carried out by our coach in the workplace supporting and assessing the implementation of the projects either in person or remotely. For a cohort of 30 people our contact is 1 day per week on average



Level 2 / 3 accredited apprenticeship – The learners receive accreditation and recognition for the effort they put in to improving the business.



Cost Effective – For Levy paying companies the maximum you will be invoiced for is £300 / apprentice. (Level 2) and £200 / apprentice (Level 3) – And this is only if your levy pot is empty fry the whole duration of the programme

CLS offers the very best in Lean training, specialist support and Apprenticeships in Improving Operational Performance.

We are experts in removing waste from business that leads to reduced costs, shorter lead times, better quality and increased productivity. These processes can now be undertaken within the ‘Lean Manufacturing Operative’ Apprenticeship.

We work as a team through upskilling learners from your business, to ensure that the knowledge, understanding and skill set is improved, so your company can experience the benefits of the programme through increased productivity, efficiencies and continuous improvement.

We believe through communicating, engaging, enabling and educating, the learners will succeed!



Next Steps

Select a minimum of 30 people to start a program and pass their details to CLS (Name, Postcode, Date of Birth) – There is no maximum number. The more people involved the better!



Agree Start date



Apprentices undertake Enrolment and skills scan day – CLS are on site to explain the course to the apprentices and carry out an initial assessment of functional skills for anyone who does not hold a GCSE level E certificate or higher to confirm that they are eligible to undertake a level 2/3 apprenticeship. There is then some Health and Safety basic training



One week after the enrolment day we commence the lean training

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