

GCE AS/A LEVEL



# WJEC GCE AS/A LEVEL in BUSINESS

Teaching topics in line with  
the AO's  
Lean production (1.5 hours)



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In the specifications:

<b>(WJEC Unit 2, Eduqas AS Component 2 &amp; Eduqas A Level Component 1)</b>	
Lean Production	<p>Explain what is meant by lean production.</p> <p>Explain the range of lean production techniques that are used to reduce waste and improve productivity including kaizen (continuous improvement), just-in-time, cell production, and time based management.</p> <p>Evaluate the importance and impact of lean production for businesses and its stakeholders.</p>

**Step 1 (before the lesson):**

Students research the lean production techniques before the lesson. This allows AO1 to be done independently which frees up more lesson time for AO2, AO3 and AO4.

**Example research:**

<b>Lean production definition</b>	<i>Waste saving techniques used in the production as a result of an increased productivity and reduced costs.</i>
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<b>Lean production techniques</b>	<b>Description (AO1)</b>
<b>Kaizen (continuous improvement)</b>	<i>Is where the organisational structure is turned on its head so groups of workers (usually at the bottom of the hierarchy) meet regularly with managers to discuss on improvements to the workplace and how to carry out job roles more productively. Improvements are usually made incrementally one small step at a time.</i>
<b>Just-in-time</b>	<i>When stock is delivered to arrive when it's ready to be used straight in the production process rather than ordering stock just in case and storing it.</i>
<b>Cell production</b>	<i>When production is divided into a smaller number of teams (cells), where employees are grouped together in related tasks allowing job rotation and team working and job enrichment.</i>
<b>Time based management</b>	<i>Focusing on time as the key resource. Speed of development, response, delivery to add value to the production process. Critical path analysis is an A Level topic that focuses on time based management, carrying out a number of tasks at once e.g. the design, production and marketing (simultaneous engineering) and prioritizing the tasks that takes the longest to complete so that the whole production is complete as quickly as possible.</i>

**Step 2 (10 minutes):**

Assess AO1 during the first few minutes of the lesson through questioning as a starter activity.

**Step 3 (15 minutes):**

Assess AO2 by giving students business scenarios/case studies to encourage application of knowledge.

**Example business scenario/case study:**

You are the operational manager of a tablet and phone making company that supplies products to well-known brands such as Google and Samsung. You want to implement lean production techniques into the production process to save waste and time. Can you apply how each of the lean production techniques can be directly applied to your tablet and phone making business?

If the scenario changed to a car manufacturing company and your answer still makes sense, you haven't applied your knowledge correctly.

**Example answer:**

<b>Lean production techniques</b>	<b>Application to a tablet/phone producer (AO2)</b>
Kaizen (continuous improvement)	Workers on the production line can meet regularly to discuss how to change their jobs to help improve productivity. For example a more efficient way of fitting the screen/buttons/speaker cable/camera to the phone or a quicker way of getting the large number of tiny parts needed for each phone from the delivery driver and to the production line as many small parts may break easily through this transportation.
Just-in-time	Order parts for the tablet and phone e.g. glass (screens), phone cameras and buttons just In time for when they are needed to be fitted to tablets and phones currently being produced.
Cell production	The production line could be split into different teams that focus on a certain element of the tablet/phone production. For example one cell that focuses on fitting the electrical components to the phone/tablet, e.g. speaker cable/battery /circuit board could use job rotation and job enrichment in the team by working together, changing roles to keep motivation and have a say in improvements in the team working roles, to improve productivity against other similar cells to win team bonuses.
Time based management	Using simultaneous engineering by reducing time between idea, design and launch to be the first business to release a new improved version phone/tablet ahead of rivals. E.g. all areas of production can be involved in different design aspects, order their own just-in-time stock requirements asap to create the new phone/tablet. The electrical specialists can work on the circuit board and electrical design of the phone, while the design specialists can work on the handset design and together get the designs and stock parts ordered quicker. This would be very suited to fast moving markets such as phones and tablets when new versions are released continually.

#### Step 4 (15 minutes):

Assess AO3 by asking students to explain the positive impact of these lean production techniques and three different stakeholders.

#### Examples:

##### **Positive impact on the business:**

- *Reduced costs*
- *Lower prices*
- *Quicker to market - USP*
- *Higher demand/sales/customer loyalty/profit*
- *Increased motivation levels amongst staff*
- *Lower labour turnover and fewer costs for recruitment and selection*

##### **Positive impact on different stakeholders:**

- *Shareholders: greater productivity levels, lower costs, higher profits can result in more dividends*
- *Customers: receive products quicker (shorter lead times); cost savings may be put into R&D for new products/services for customers or cheaper prices*
- *Employees: increased job satisfaction (motivation) and achieving bonuses for reduction in waste*

#### Step 5 (20 minutes):

Assess AO4 by asking students to weigh up these benefits against possible drawbacks so a final judgment can be made on the overall impact of lean production techniques.

#### Examples:

##### **Negative impact on the business:**

- *Just-time-requires trusting suppliers and late deliveries may have a significant impact on productivity levels and unit costs*
- *Increased costs for staff training*
- *Higher pollution levels due to increased number of smaller deliveries and more pressure on employees dealing with deliveries*
- *The majority of employees may resist changes to production processes resulting in demotivation and trade union issues*

##### **Negative impact on stakeholders:**

- *Shareholders: lower profits and dividends if suppliers are not trusting and do not deliver on time and if employees resist the changes*
- *Customers: may not get goods on time as advertised if there is an issue with suppliers, lower productivity levels due to JIT, or employee resistance may increase costs and prices*
- *Suppliers: more pressured to make deliveries*
- *Local communities: more pollution and road congestion due to more frequent deliveries*

##### **Whether lean production is beneficial to businesses and its stakeholders depends on:**

- *The reliability of suppliers*
- *Whether employees buy into the ideas or resist the change*
- *Net change on productivity (unit costs) and motivational levels*

**Step 6 (30 minutes):**

Classwork timed exam preparation.

**Case study:**

Eastleigh farm supplies dairy products such as milk and cheese to a number of retailers across the UK. Currently animal feed such as corn is ordered in bulk and stored in one of the on-site farm warehouses in which workers are employed to transport feed to the farms during feeding times. It is very difficult to speed up the time it takes for cheese to mature but the farm is well aware that lean production techniques can help productivity and motivation levels.

- 1. Describe how three different lean production techniques could be used in the production of cheese and/or milk at Eastleigh farm.**

**[6]**

AO1	AO2
<p><b>3 marks</b></p> <p>1 mark for each correct lean production technique described.</p>	<p><b>3 marks</b></p> <p>1 mark for each correct lean production technique applied directly to Eastleigh farm.</p> <p>If the answer still makes sense in another context then application cannot be awarded. The lean techniques must be applied to a farmer scenario that produces milk and cheese from dairy cows.</p>

**2. Evaluate whether the benefits of using lean production techniques outweigh its drawbacks. [8]**

	<b>AO3</b>	<b>AO4</b>
<b>4 Marks</b>	<p>Excellent detailed and well-balanced analysis of the impact of lean production. The key issues are discussed. Analysis shows a clear line of argument and includes an excellent understanding of the impact of lean production.</p>	<p>An excellent and well balanced evaluation of the impact of lean production. The focus is on the key issues. Both sides of the argument are evaluated. Clear judgements are made with supporting statements.</p>
<b>2 – 3 Marks</b>	<p>Good analysis of the impact of lean production. A number of key issues are discussed. The analysis is uneven, with some well-developed points and some where the development is more limited. The analysis will mainly focus on one-side of the argument.</p>	<p>A good evaluation of the impact of lean production. The evaluation includes most of the key issues. The evaluation is reasonably well balanced with some development on both sides of the argument. Valid judgements are made with some supporting comments.</p>
<b>1 Mark</b>	<p>Limited analysis of the impact of lean production. A limited number of issues are analysed. The analysis will focus on one side of the argument. Superficial discussion with undeveloped points.</p>	<p>Limited evaluation of the impact of lean production. The evaluation is one-sided. An awareness of the issues but little development. Judgements are superficial and unsupported.</p>

Extension/homework: Eduqas AS Component 2 June 2017 past paper question 5a & 5b