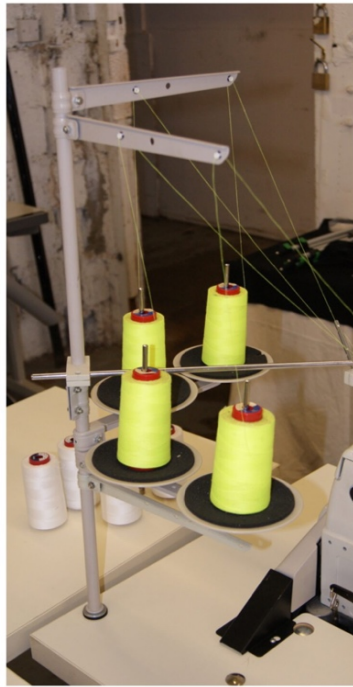


## COURSE 2

### Industrial Sewing Machines

COURSE 2 OF 7



## Course 2: Industrial Sewing Machines

Welcome to Course Two of the UKFT Production Sewing Machinist Programme. This course provides an overview of the industrial machines most used in the sewn product industry, with focus on the lockstitch machine

and overlocker. The course covers the purpose and features of each machine, how to thread, adjust and maintain them, appropriate work aids and choosing, inserting, and using machine needles.

The course consists of an introduction and twelve lessons as follows:

- 2.1 Working safely
- 2.2 Lockstitch Machine: Purpose and features
- 2.3 Lockstitch Machine: Threading
- 2.4 Lockstitch Machine: Settings & adjustments
- 2.5 Lockstitch Machine: Change needle
- 2.6 Lockstitch Machine: Maintenance
- 2.7 Overlocker: Purpose and features
- 2.8 Overlocker: Threading
- 2.9 Overlocker: Maintenance
- 2.10 Overlocker Change needle
- 2.11 Machine Needles
- 2.12 Work aid and attachments

**For more details on the content of this course watch the video below:**



<https://vimeo.com/580211637>

The table below lists the learning outcomes and assessment criteria.

The first column lists the learning outcomes. A learning outcome is the knowledge you will gain on course completion. The second column is the Assessment Criteria. Assessment Criteria is how you will demonstrate your learning by completion of the challenges within the course.

<b>Learning Outcomes</b> <b>On course completion you will...</b>	<b>Assessment Criteria</b> <b>On challenge completion you will show that you can...</b>
<b>1.</b> recognise and broadly describe the function of different industrial machines used across the sector	<b>1.1</b> identify different industrial machines <b>1.2</b> identify the function of each machine <b>1.3</b> recognise different work aids and attachments and know their uses
<b>2.</b> recognise and features of a lockstitch machine and an overlocker	<b>2.1</b> identify the key features of a lockstitch machine and their purpose <b>2.2</b> identify the key features of an overlocker and their purpose

<p><b>3.</b> be able to thread industrial machines correctly and recognise and fix stitch issues caused by incorrect threading</p>	<p><b>3.1</b> thread a lockstitch machine correctly  <b>3.2</b> thread an over locker correctly  <b>3.3</b> recognise and fix threading issues</p>
<p><b>4.</b> be able to identify the correct needle for the job in hand and be able to change the needle on an industrial sewing machine</p>	<p><b>4.1</b> identify the correct needle for different fabric types  <b>4.2</b> change the needle on a lockstitch machine correctly  <b>4.3</b> change the needle on an overlocker correctly  <b>4.4</b> be aware of needle procedures</p>
<p><b>5.</b> know and follow health and safety requirements when preparing and operating an industrial sewing machine</p>	<p><b>5.1</b> prepare to use an industrial sewing machine safely  <b>5.2</b> operate an industrial sewing machine safely including:</p> <ul style="list-style-type: none"> <li>• Chair and seating position</li> <li>• Machine guards Machine handling</li> </ul>
<p><b>6.</b> correct machine settings and make adjustment as required</p>	<p><b>6.1</b> identify lockstitch and overlocker machine settings</p> <ul style="list-style-type: none"> <li>• Stitch length</li> <li>• Tension</li> <li>• Pressure Speed</li> </ul>
<p><b>7.</b> know how and why to maintain industrial machines and understand limits of responsibility</p>	<p><b>7.1</b> describe the correct machine cleaning and maintenance procedure  <b>7.2</b> explain why machine maintenance is important  <b>7.3</b> describe the consequences of poor machine maintenance</p>



**The estimated learning time for this course is approx. 42 hours. This includes reading and absorbing the text, watching the videos, practising threading, cleaning, and maintaining the machines, following links, completing the knowledge challenges, completing the groundwork exercises, and putting what you have learnt into practice.**



## Your online workbook

As part of this course, you will be using an online workbook. The workbook will provide all the information you need to meet the learning outcomes and assessment criteria as listed in the

table above, and you will find the answers to the knowledge challenges within the workbook content.

You may wish to create a hard file for reference, in which case you can download a PDF of each lesson to store with other work documents that may be relevant.

To make the most of your workbook and online learning experience it is important that you fully understand the structure and format of your online course.

This course consists of five lessons. and the workbook is made up of five key elements that include technical information and activities as detailed below:

1. **Course Introduction:** A brief introduction that explains the subject covered and how it relates to your job. (In text and video format). The introduction includes the overall aims of the unit and will tell you what you will know and be able to do when finished.

2. **Key words:** A set of key words and their meanings is provided at the beginning of the unit. These words are essential to your understanding of the subject area.
3. **Subject:** The bulk of the workbook is made up of technical information. The information is broken down into sections, each section contains, text, images and in some cases, videos.
4. **Knowledge and Skills Challenges:** These are short self- assessments designed to help you with your learning. They are scattered across each lesson to encourage bite size learning. These challenges need to be completed correctly to be awarded your UKFT certification and can be repeated as required.
5. **Groundwork:** These are recommended optional activities. Completing them will help you to better understand your role, your company, and internal processes and procedures. We recommend you create a folder to record and keep your groundwork activities in, this will provide you with a reference tool that will help inform your learning and job role responsibilities. Also, for those undertaking an apprenticeship these activities will help you gather information relevant to the End Point Assessment. Alternative groundwork activities suitable for independent learners, are also included.

Online learning is a very flexible way to study, it is important however to structure your learning, so you get the most out of it. **Think about the following:**

**Plan:** Set aside the time to study and try and get into a regular routine. Keep your sessions short and sharp (max 30 minutes).

**Set targets:** Set yourself realistic targets and stick to them.

**Where:** You need to be able to concentrate, find some where quiet where you won't be distracted.

**Prepare:** Organise your work area, have a pad and pen to hand for notes and keep a file for print outs.

**Be active:** Learning using this workbook does not simply mean reading content. You must be active in your study, watch the videos a few times, make notes, enjoy the activities, and apply your learning in the workplace.

**Keep going:** Don't be disheartened if you get the knowledge challenges incorrect, keep trying and remember the answers are in the content.

The estimated learning time for this course is 30 hours. This timing is for guidance only, it may take less or more depending on your individual learning style.

The learning activities include reading and absorbing text, watching videos, exploring links, completing knowledge and skills challenges, completing groundwork exercises, and putting what you have learnt into practice.

## Key words

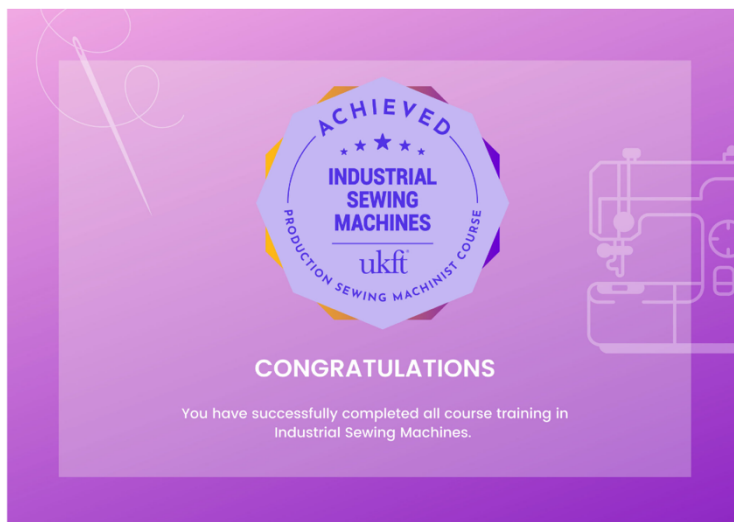
Here are some words (and their meanings) that you may come across within this unit. These are general words used across the subject area that you may not have heard them before. There are more specific words relevant to each section included within the unit.

Word/s	Meaning
Industrial sewing machines	Machines used in industry to produce sewn products, they are more robust, faster, and more powerful than domestic sewing machines used for home sewing
Machine Maintenance	The upkeep of the machine including cleaning, oiling, repairs, and servicing
Posture	The position of your body when working on an industrial sewing machine
Machine features	The functions of the industrial sewing machine
Threading	Inserting the thread through each feature of the machine to ensure a stitch can be formed
Top Thread	The thread that runs through each feature on the top of the machine before reaching the needle
Bottom thread	The thread that runs through the features underneath the bed of the machine i.e. bobbin, loopers on an overlocker

Thread tension	The balance of threads running through the machine functions/mechanism, if this is too loose or too tight the stitch is affected
Adjustments	Adjusting your machine to meet a sewing need such as stitch length or increasing tension
Downtime	Time in your working day when you have had to stop sewing due to circumstances beyond your control such as machine problems or lack of work
Work aid/attachment	Extra devices or parts which are attached to a standard sewing machine. To enable the machine to perform a certain job
Down time	Time in your working day when you have had to stop sewing due to circumstances beyond your control such as machine problems or lack of work

## UKFT Certification

Completion of this course will earn you an industry approved UKFT Certificate. This award is recognised by the sector and validates your newfound skills.



Certification will help to secure employment in the fashion and textiles industry or if you are already employed, honours for the skills and knowledge you have gained which can now be utilised in your role or help advance your career in the industry.

The certificate is digital and can be downloaded on course completion.

**It is now time to get started, work through your online workbook and complete the challenges, enjoy your learning!**



## Lesson 2: Industrial Sewing Machines



There are many different sewing machine models that cover various jobs, but most industrial models have a single function, for example, sewing straight seams, zigzag stitches, button attach, buttonholes etc. Attachments are often added to a machine to enable it to perform a certain function i.e., binding, ruffling, pleating.

However, the basics of the lockstitch and overlock machines have remained the same for many years and are unlikely to change. The focus of this unit will be on the functions, preparation, safe use, and maintenance of an overlocker and a lockstitch machine, the two machines that you will most likely be operating on as Production Sewing Machinist.


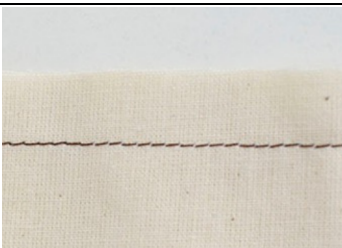

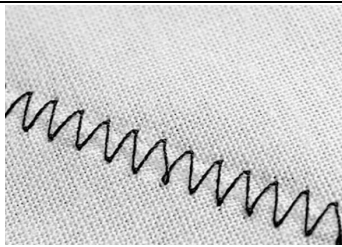


Industrial sewing machines are used in production across the world, and they are built to last. They are hardwearing, durable, and fast. Certain models stitch at the maximum speed of 8,500 revolutions per minute, which is higher than an engine for sports cars!





This unit provides a short overview of the key machines used in the industry, including manual, automatic and specialist machines that are designed to do a specific job.

There are many different machine models that cover various jobs, but most industrial models have a single function, for example a coverstitch will only produce a cover stitch, this stitch can be used to sew a butted seam or attach a ribbed collar, bottom band or cuff, a lockstitch (flatbed) will only sew a straight seam, a zig zag machine will only sew a zigzag stitch and a buttonholer will only sew and cut, buttonholes.

However, attachments can be added to a machine to enable it to perform a certain function i.e., binding, ruffling, pleating, most industrial sewing machines are manual and rely on a skilled machinist to operate them. There are also automatic machines that will do a job at the push of a button or computerised machines that are designed to perform complicated production processes.

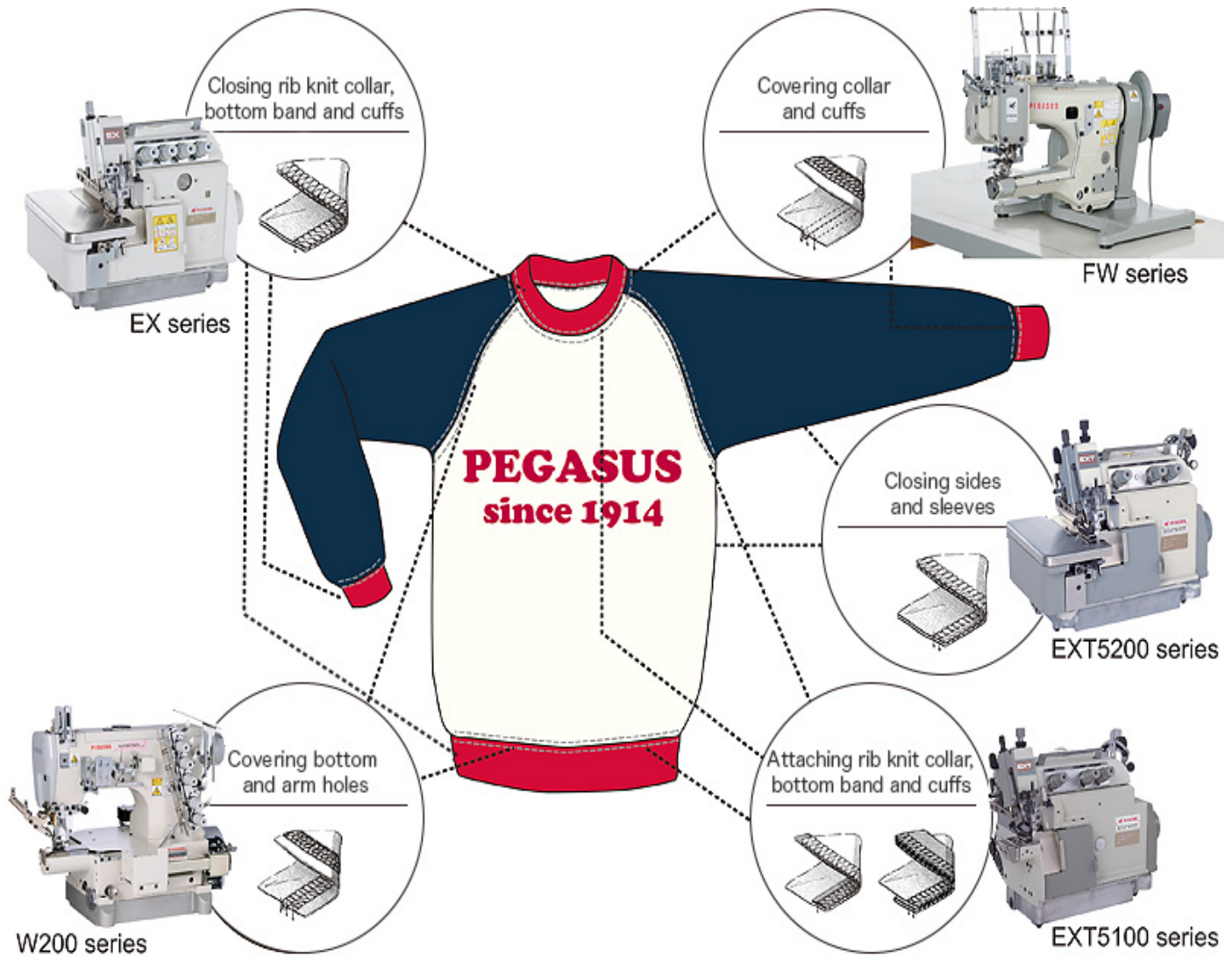
See the list below of five the most used machines and their function:

Machine		Stitch
	Lockstitch (flatbed) used for straight seams/top stitching	
	Zigzag stitch used for stretchy knits, finishing edges	
	Overlocker cuts and finishes seams in one process	

	<p>Cover stitch used for flat seam construction</p>	
	<p>Automatic buttonholer used for buttonholes</p>	

In addition to those shown in the table there are many other machines and variations used in the industry today, with new ones being continually introduced. A good example of this is demonstrated below, this shows five different machines used when producing a basic sweatshirt.





## Next is the first knowledge challenge of the course.

These are short self- assessments designed to help you remember the lesson content and aid your learning.

- Each challenge contains one or more questions. They can be single or multiple choice, fill in the blanks or sorting questions.
- You need to complete each challenge correctly before you can go onto the next one.
- You can repeat the challenges as many times as you need to.
- The table at the end of each lesson indicates the challenges you have completed.





## Knowledge Challenge 2.1

1. From the list of machines below, draw a line to match the machine to the stitch it makes.

Lockstitch (Flatbed)			
Buttonholer			
Overlocker			
Cover stitch			
Zigzag Machine			

## Knowledge Challenge 2.2

1. What machine would you use to neaten and trim a seam?
  - Lockstitch Flatbed
  - Overlocker
  - Cover stitch
  
2. What machine would you use to attach and neaten a ribbed bottom band and cuffs?
  - Overlocker
  - Zig zag machine
  - Cover stitch
  
3. What machine would you use to sew a straight seam?

- Overlocker
- Lockstitch (flatbed)
- Zig zag machine



**GROUNDWORK:** Completing this groundwork is an option, it will help you to gain better knowledge of the processes and machines used to make a product. For those undertaking an apprenticeship these activities will help you gather information relevant to the End Point Assessment.

**Note:** For those learners, who are independent and not yet working as an employed production sewing machinist, alternative recommendations are included.

## Check out the machines in your workplace

There will be various industrial machines used to make the products in your workplace, you may not use them all, but it is useful to know what they do and where they fit into the production process.

To complete this groundwork, check out all the machines used in your workplace and create and complete a table as in the example below. If possible, attach a small sample of the stitch/process. If you are working independently, review a typical man's shirt and identify the machines used in the shirt production.

## Example table

Machine	Manual/automatic?	Process
Lockstitch (flatbed)	Manual	Straight sewing
Blind hemmer	Manual	Hemming process
Overlocker	Manual	Neatens raw edges
Buttonholer	Automatic	Makes buttonhole
Button attach	Automatic	Attached buttons