



# West Midlands Regional Advanced Manufacturing & Engineering Training Plan

## Pathways to Progression



West Midlands  
Combined Authority



Information on career paths  
and progression opportunities  
for residents and employers  
of the West Midlands.

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# Introduction

The ambition of the regional manufacturing and engineering plan is to develop a regional offer for both sectors, that enables practical points of entry for those new to the sectors and provides a seamless workforce development career progression pathway.

The plan aims to move residents into critical roles in the region, heightened by the pandemic and will go some way to tackle the region's unemployment but also to raise awareness of the opportunities within these employment sectors.

Through a cohesive approach between training providers and the employers, it is envisaged that the training will truly meet the needs and specialities of the employers, whilst providing individuals with opportunities to grow and develop.

We are keen to amplify that exposure, by focusing on the career and professional development opportunities available to new entrants and for those already employed in the sector.

The highly prized manufacturing and engineering industries and jobs, envied the world over, are in fact located across some of the UK's most economically challenged regions and are vital to the economic health of local communities.

We are both at the heart of the UK economy and operating at the leading edge of a highly competitive global environment, which present commercial risks and opportunities as we build back better.

This regional plan mirrors our wider ambition for adult learning, by ensuring that provision will be flexible – whether full-time or part-time; on-the-job or off-the-job; a first ever job, career progression or a change of career.



# A healthier, fairer recovery<sup>1</sup>

After forging a position as the fastest-growing region outside London in the decade to 2019 and breaking through the £100 billion economic output mark, the region's industrial mix and demography meant we were hit particularly hard by the economic impact of the Covid pandemic and new trade frictions with the EU. These impacts are expected to be felt for many years, particularly in disadvantaged areas and among households in lower socio-economic groups.

Ensuring that residents in the West Midlands have the skills now to secure readily available jobs, as well as the opportunity to develop higher level skills for the jobs of the future, is crucial to ensuring our economic success. Getting this right will also help us to attract new businesses and industries to the region.

The [West Midlands Plan for Growth](#) sets the path to returning to a trajectory of clean and inclusive growth, spreading opportunity and jobs across the region and helping level-up the UK. It focuses on those economic clusters where the region can ignite above-forecast levels of growth, creating prosperity across the region. Alongside this, our wider efforts provide support for businesses in other critical sectors vital to the region's success and prosperity.

Our latest [Local Skills Report](#) sets out the skills strengths and needs of the region, providing a strategic steer to our use of AEB and wider skills funding. Within this, we have prioritised the advanced manufacturing and engineering (AME) sector for further investment, supporting residents to improve their employment prospects in the sector, whilst also providing a talent pipeline for local businesses.

## Size and Scale

£16.4bn of WMCA GVA can be attributed to AME, which is 15.6% of the whole economy.

## Jobs

209,400

## Overall Employment

11.3%

## Growth Since 2010

65%

<sup>1</sup> Data source in this section [Local Skills Report](#)

# What will we do?

## Increase the pathways and qualifications offered through our skills funding to match the jobs available

In 2021, WMCA spent £4.9m of its devolved Adult Education Budget on manufacturing and engineering training and qualifications. Nearly 30 colleges and providers across the region are currently involved in delivering this training, however, most deliver a limited range of qualifications, mainly in engineering. We want to extend the range of training to cover the breadth of available occupations in the sector. For example, mechanical engineers, biomedical engineers, welders.

Much of the current offer takes place on a full-time basis during the day, restricting participation mainly to younger adults who are not working or claiming benefits. As a result of the pandemic, more training is now being delivered on-line. We want to build on this to offer training in more flexible ways, with less on-site attendance, so that those in work or with family, caring or other responsibilities will be able to fit study around these commitments.

We will also be using new funding to support new engineering and manufacturing provision.

Through these funding streams, we are looking to:

- Increase the volume of level 3 training offered across the region to support more residents gain higher-level skills
- Introduce a new bootcamp offer that offers accelerated training routes for new entrants into the sector, supports the existing workforce with career progression, and responds to changing the skills needs of businesses as processes and technology evolve
- Increase the number of flexibly delivered training opportunities – part time, accelerated, blended to widen access
- Increase number of workers accessing training and qualifications that improve their pay and job prospects
- Increase the volume and breadth of Sector-based Work Academy Programmes (SWAPs) supporting more people to move into entry level roles and addressing the labour market and skills needs of businesses
- Introduce a region-wide leadership and management programme for SMEs in the sector, with a focus on improving productivity, sustainability, and tech adoption
- Increase business engagement with the NetZero agenda including through the delivery of NetZero, Energy Transition and Leadership and Management bootcamps, and by providing opportunity to shape future skills training in line with the evolving needs of the sector.



## Work with regional universities to increase pathways to higher education

We are seeking to work with providers across further and higher education to:

- Create more effective progression routes for residents to develop their skills and gain qualifications
- Introduce more part time opportunities at level 4 and 5 that meet the skills needs of the WM employers in the sector.

## Work with employers, Local Authorities and anchor networks to increase opportunities for disadvantaged groups

The West Midlands labour market was hit hard by the pandemic – in part because of its dependency on automotive, aerospace, manufacturing, leisure and hospitality sectors. Existing inequalities were exacerbated, resulting in higher levels of unemployment in areas such as East Birmingham and higher youth unemployment in places such as Wolverhampton. Young people and ethnic minorities were hit hardest – particularly those least qualified and living in areas with already high levels of unemployment and deprivation.

Since then, we have seen overall levels of employment rising, unemployment falling and record vacancies across the economy. But significant challenges remain. Many employers report significant labour and skills shortages, and while some parts of the region have bounced back, others are recovering much more slowly, with the risk that some people and places are left behind.

Addressing these challenges to create opportunities for all will involve working with a wide range of partners, including:

- Work with Job Centre Plus to offer all young people additional training to prepare them for jobs or apprenticeships
- Work with West Midlands training providers to align their delivery to the plan
- Increase the number of pre-employment training opportunities

## Priority groups

All of our work aims to address challenges such as comparatively lower pay and productivity for our West Midlands residents. However, our internal insight work and public facing documents such as the Local Skills Report highlights the need to focus on specific groups, based on long term trends and the impact of the pandemic. These are:

- Unemployed (4.6%), NEET young people (4.8% 18–24-year-olds), residents in low paid work (20%), those with lived experience; disabled people (22.3%); recently made redundant.



Pathways

Manufacturing/Advanced Manufacturing



Pharma (ABPI)



Aerospace and  
Defence (ADS)



Chemicals (CIA)

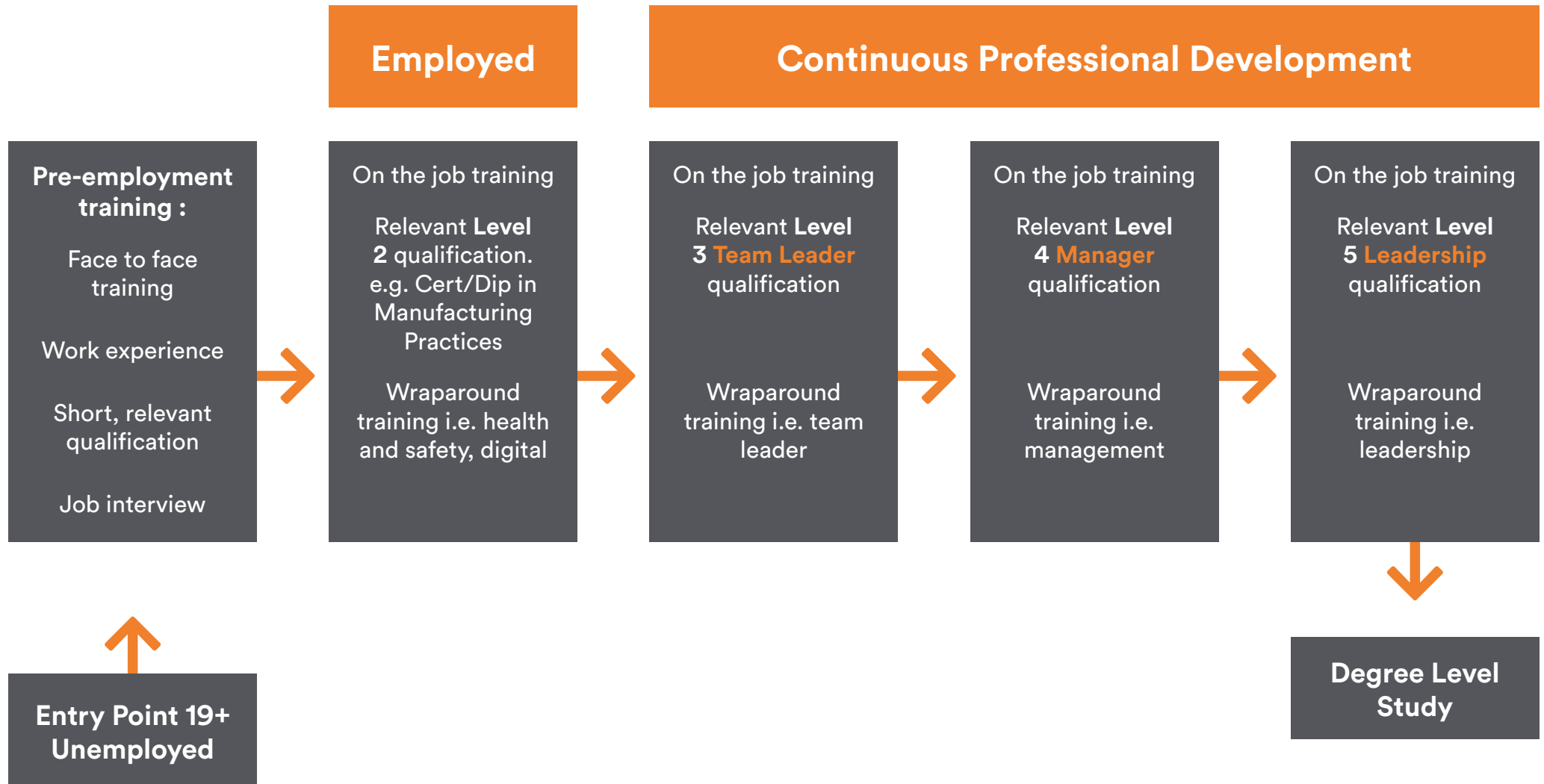


Food & Drink  
(FDF)



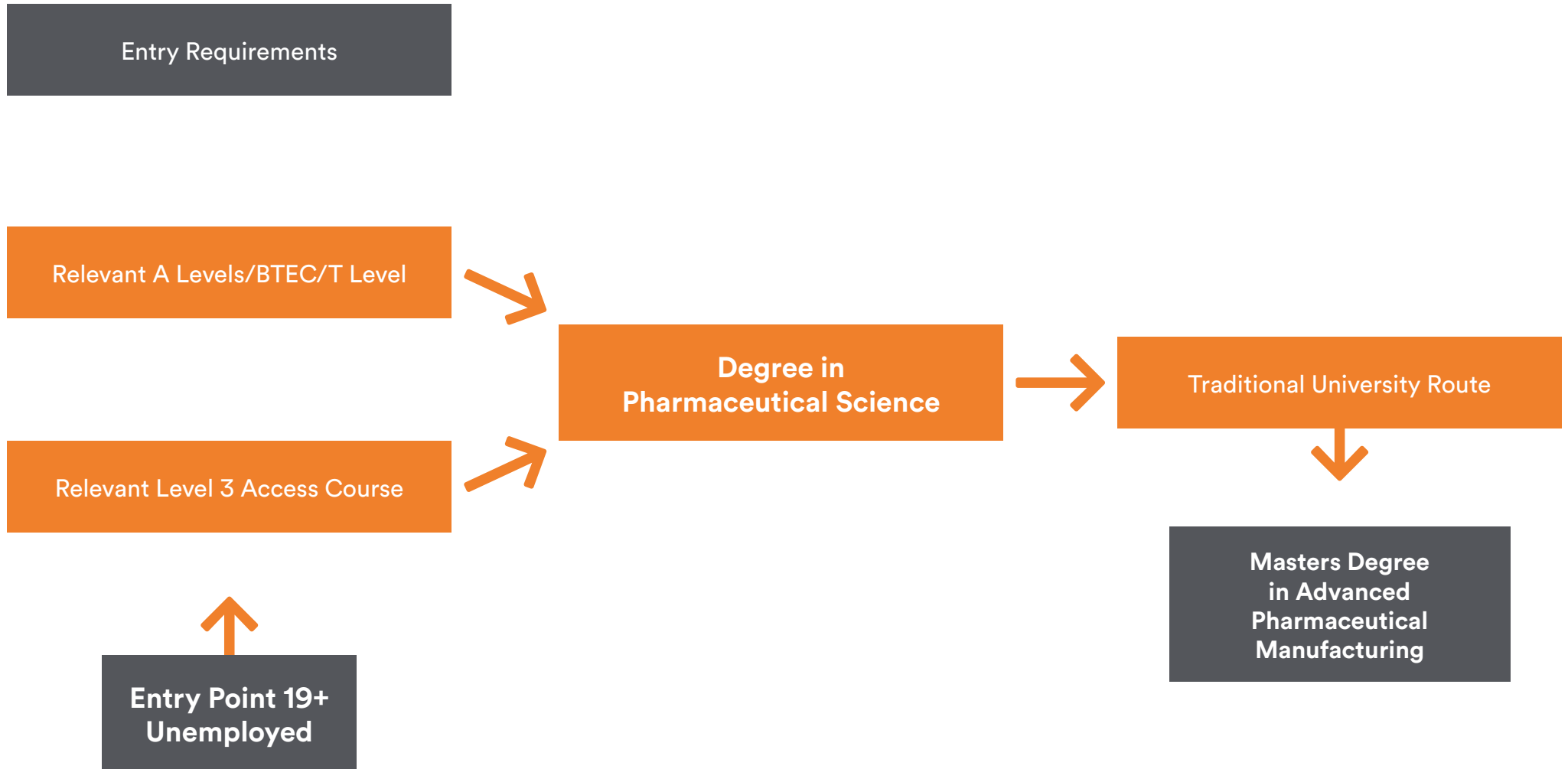
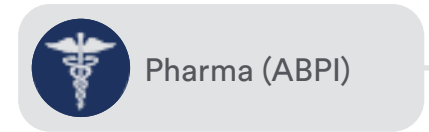
Automotive  
(SMMT)

# Production Operative: General (Vocational Route)





# Advanced Manufacturing: Pharmaceutical (Academic Route)



# ADVANCED MANUFACTURING: Aerospace and Defence (Vocational Route)



Aerospace and  
Defence (ADS)

**Employed**

**Continuous Professional Development**

**Pre-employment  
training :**

Face to face  
training

Work experience

Short, relevant  
qualification

Job interview

On the job training

Relevant **Level 2**  
qualification  
e.g. Certificate  
in Manufacturing  
Practices

Wraparound  
training i.e. health  
and safety, digital

On the job training

Relevant **Level 3**  
qualification  
e.g. Diploma  
in Aerospace  
Manufacturing

Wraparound  
training i.e. team  
leader

On the job training

Relevant **Level 4**  
qualification e.g.  
HNC in Aerospace  
Engineering

Wraparound  
training i.e.  
management

On the job training

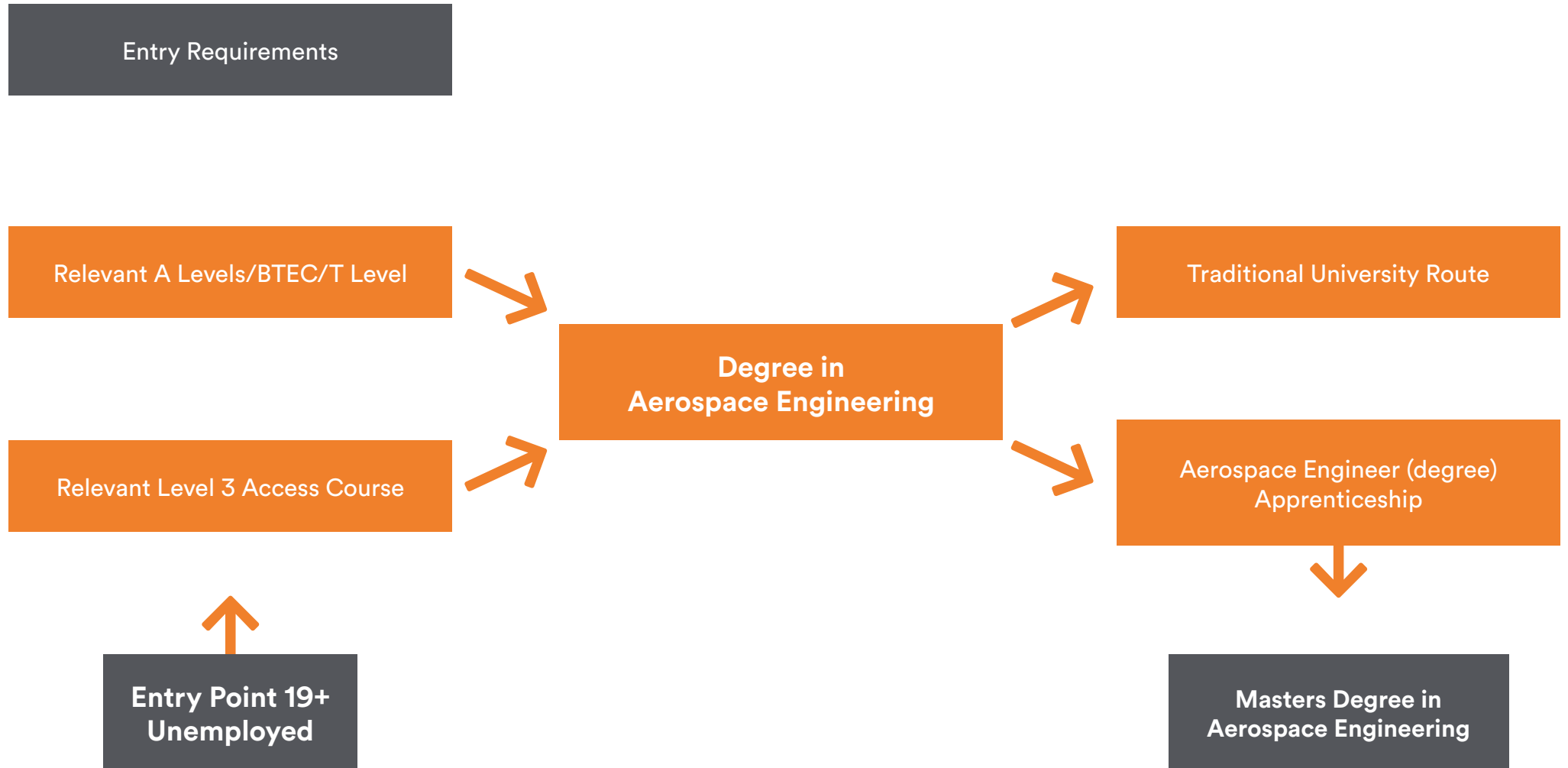
Relevant **Level 5**  
qualification  
e.g. Foundation  
Degree

Wraparound  
training i.e.  
leadership

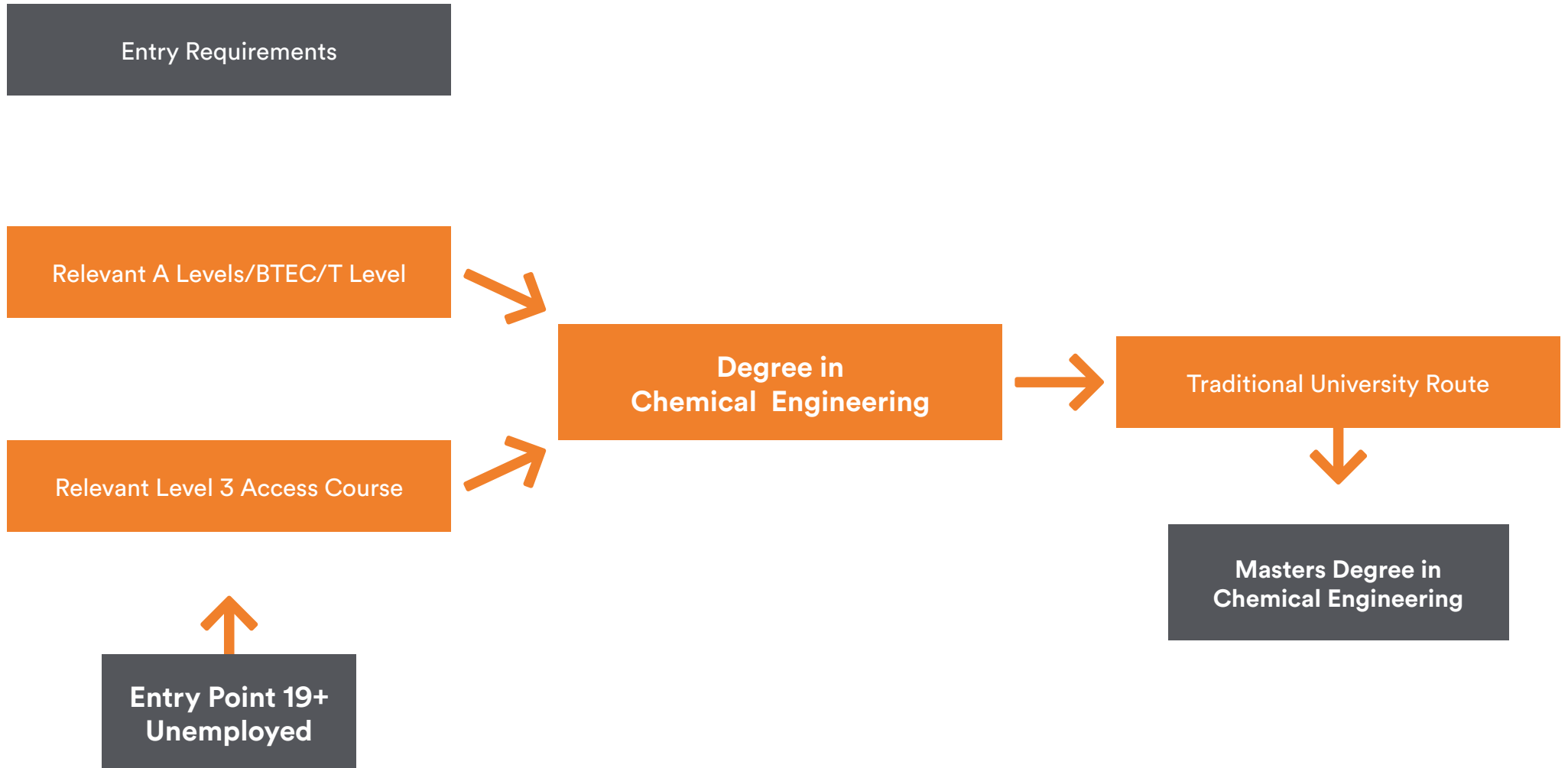
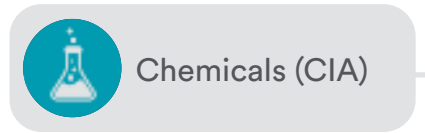
**Entry Point 19+  
Unemployed**

**Degree Level  
Study**

# Advanced Manufacturing: Aerospace and Defence (Academic Route)



# Advanced Manufacturing: Chemical (Academic Route)



# Advanced Manufacturing: Food (Vocational Route)



Food & Drink  
(FDF)

**Employed**

**Continuous Professional Development**

**Pre-employment training :**

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant **Level 2** qualification  
e.g. Certificate in Manufacturing Practices

Wraparound training i.e. health and safety, digital

On the job training

Relevant **Level 3** qualification e.g. Diploma in Food Technology

Wraparound training i.e. team leader

On the job training

Relevant **Level 4** qualification e.g. HNC in Manufacturing Engineering

Wraparound training i.e. management

On the job training

Relevant **Level 5** qualification e.g. Foundation Degree

Wraparound training i.e. leadership

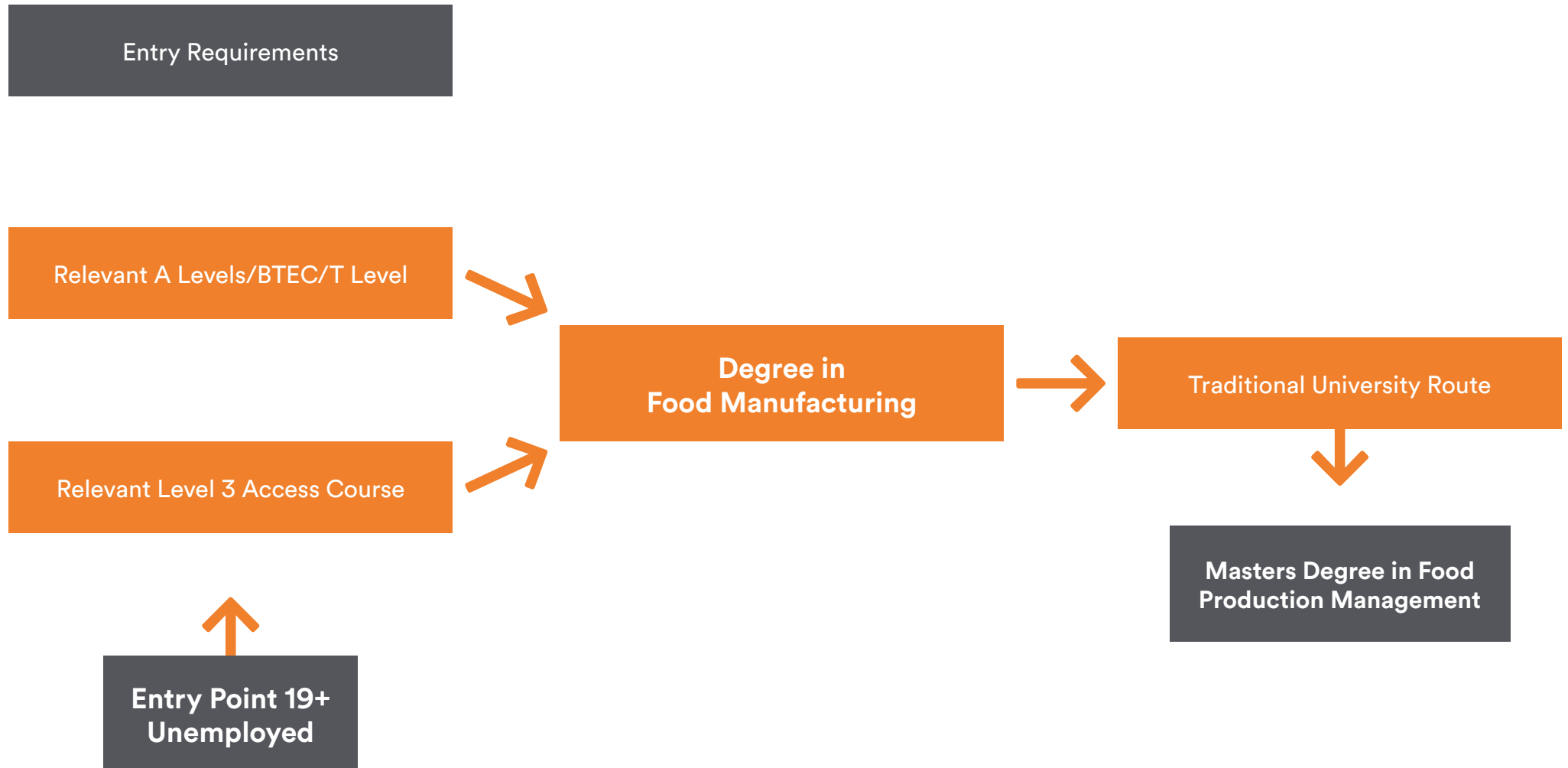
**Entry Point 19+ Unemployed**

**Degree Level Study**

# Advanced Manufacturing: Food (Academic Route)



Food & Drink  
(FDF)



# Advanced Manufacturing: Automotive (Vocational Route)



Automotive  
(SMMT)

**Employed**

**Continuous Professional Development**

**Pre-employment training :**

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant **Level 2** qualification  
e.g. Certificate in Manufacturing Practices

Wraparound training i.e. health and safety, digital

On the job training

Relevant **Level 3** qualification  
e.g. Diploma in Automotive Engineering

Wraparound training i.e. team leader

On the job training

Relevant **Level 4** qualification  
e.g. HNC in Automotive Engineering

Wraparound training i.e. management

On the job training

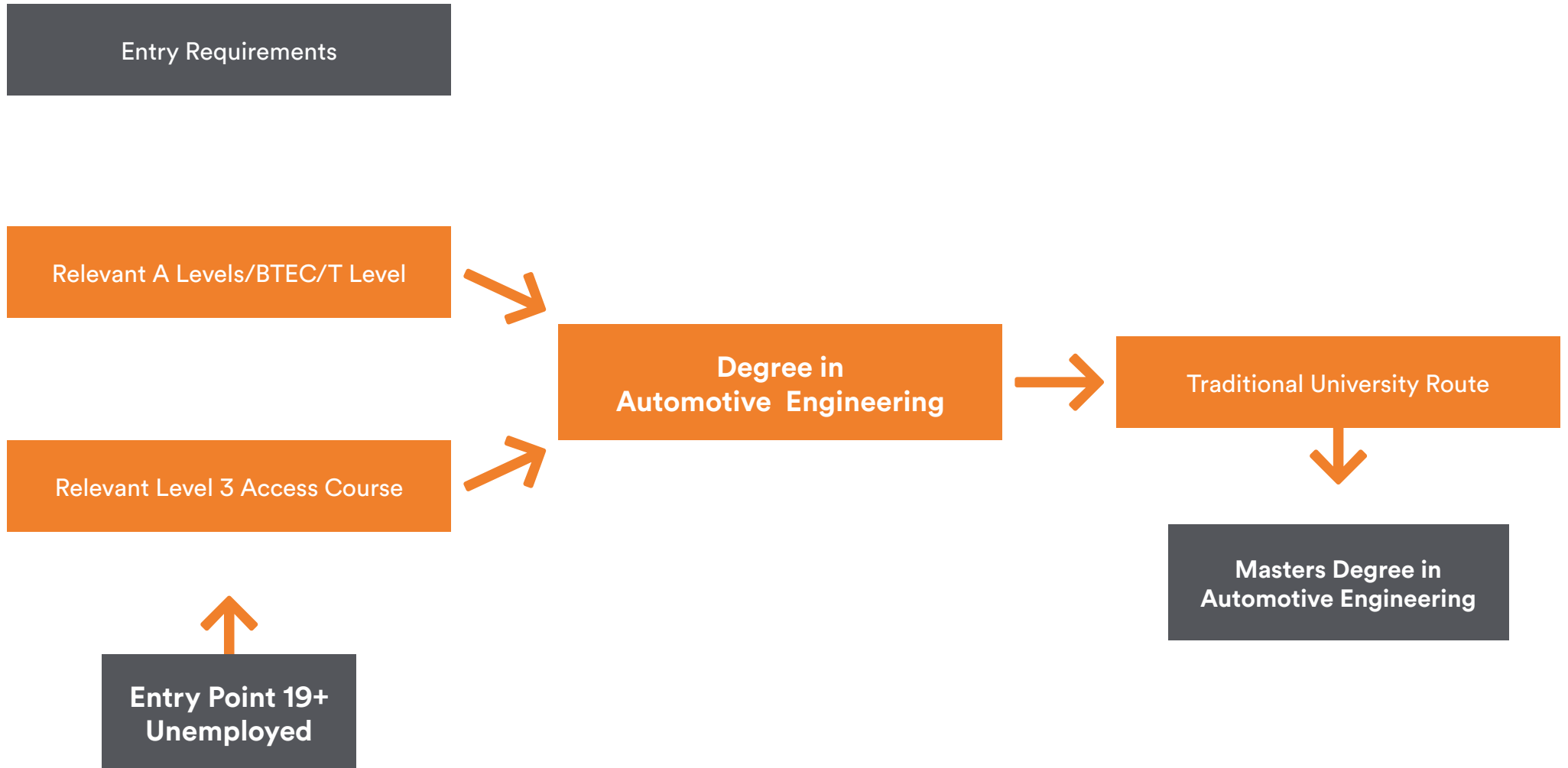
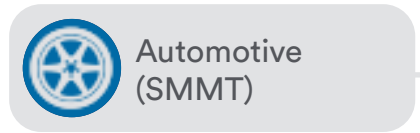
Relevant **Level 5** qualification  
e.g. Foundation Degree

Wraparound training i.e. leadership

**Entry Point 19+ Unemployed**

**Degree Level Study**

# Advanced Manufacturing: Automotive (Academic Route)





Pathways

Engineering



# Engineering: Mechanical (Vocational Route)



## Employed

## Continuous Professional Development

### Pre-employment training :

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant Level 2 qualification  
e.g. Diploma in Engineering

Wraparound training i.e. health and safety, digital

On the job training

Relevant Level 3 qualification  
e.g. Diploma in Mechanical Engineering

Wraparound training i.e. team leader

On the job training

Relevant Level 4 qualification  
e.g. HNC in Mechanical Engineering

Wraparound training i.e. management

On the job training

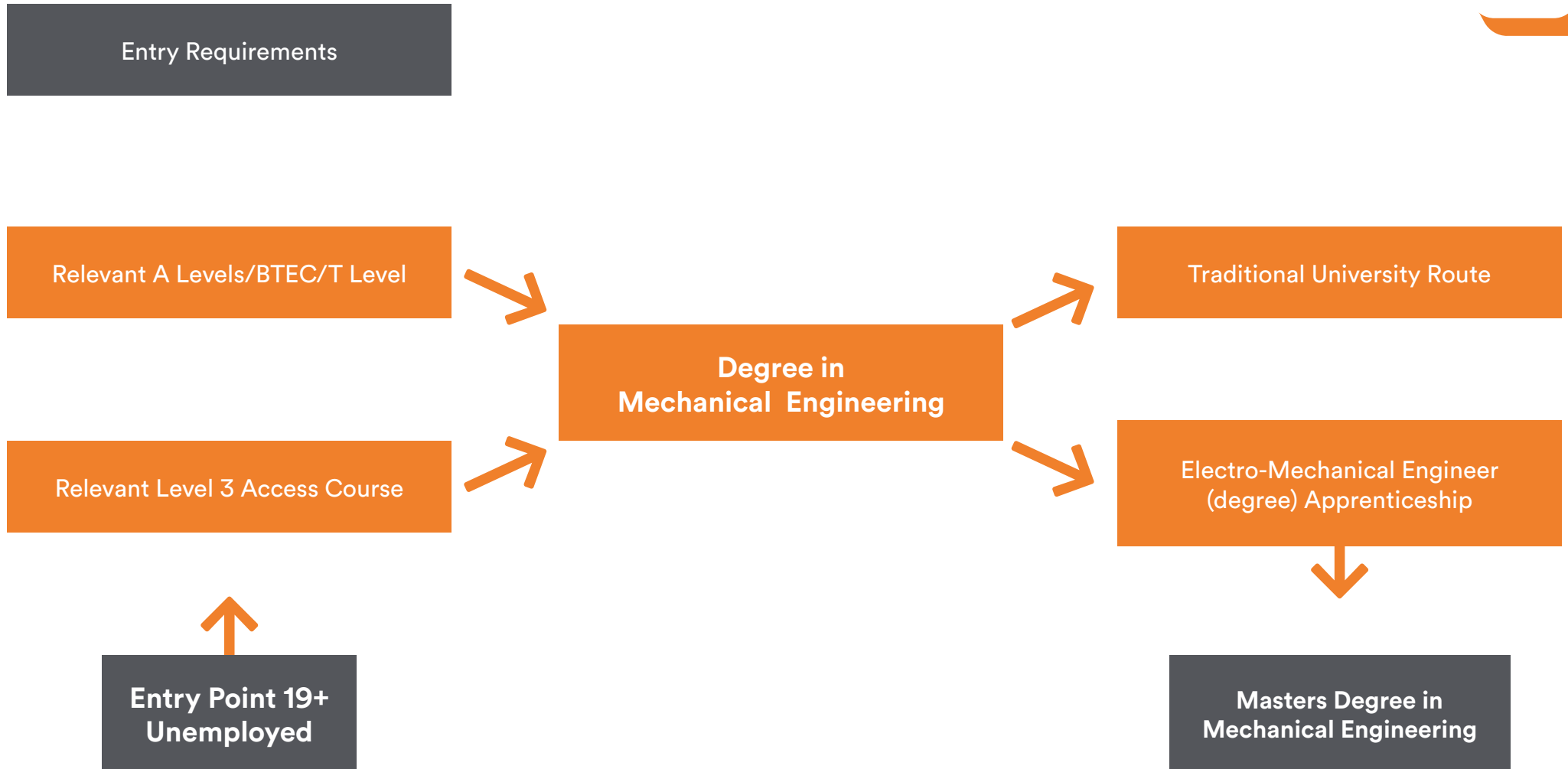
Relevant Level 5 qualification  
e.g. Foundation Degree

Wraparound training i.e. leadership

Entry Point 19+  
Unemployed

Degree Level  
Study

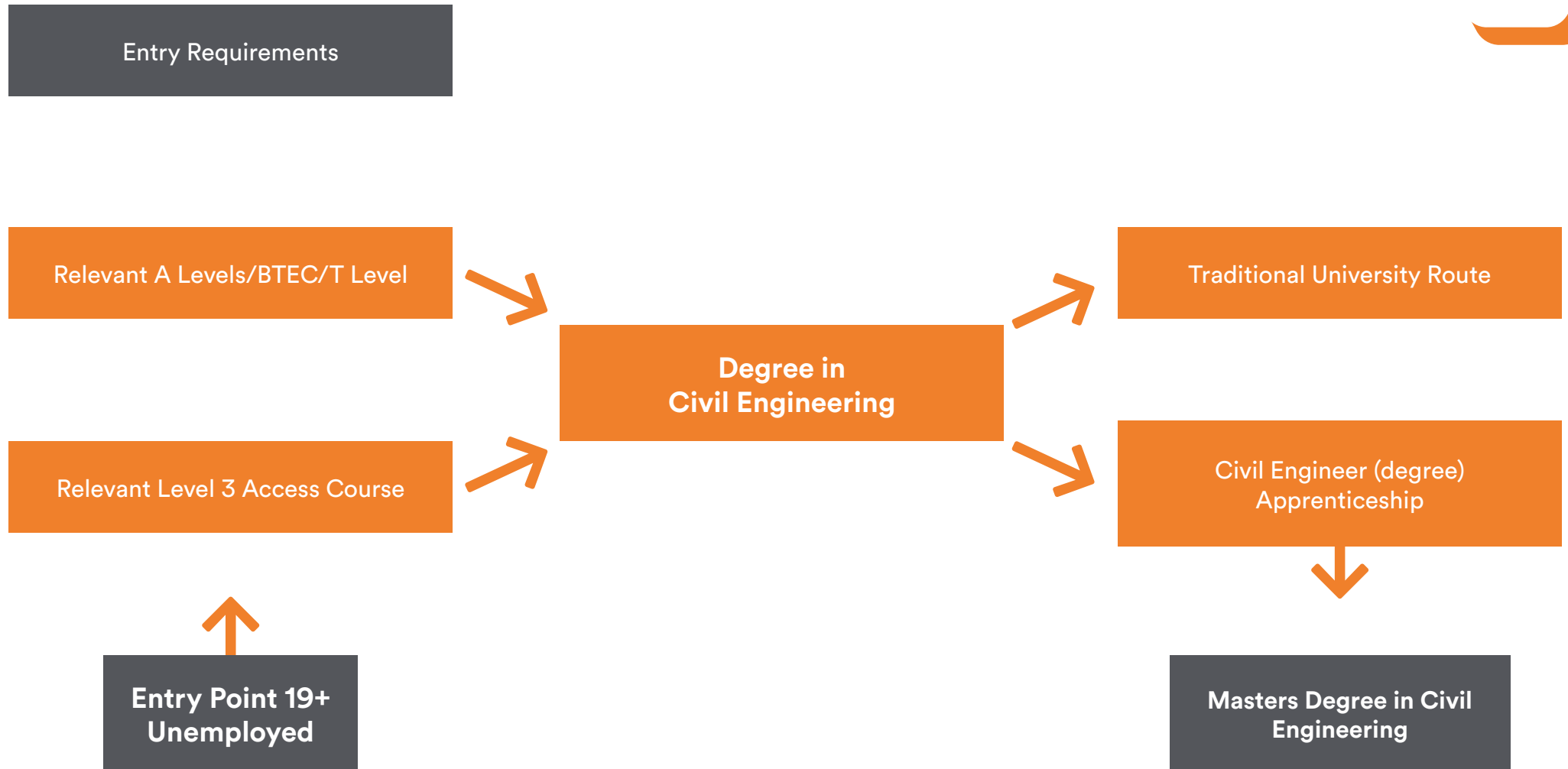
# Engineering: Mechanical (Academic Route)



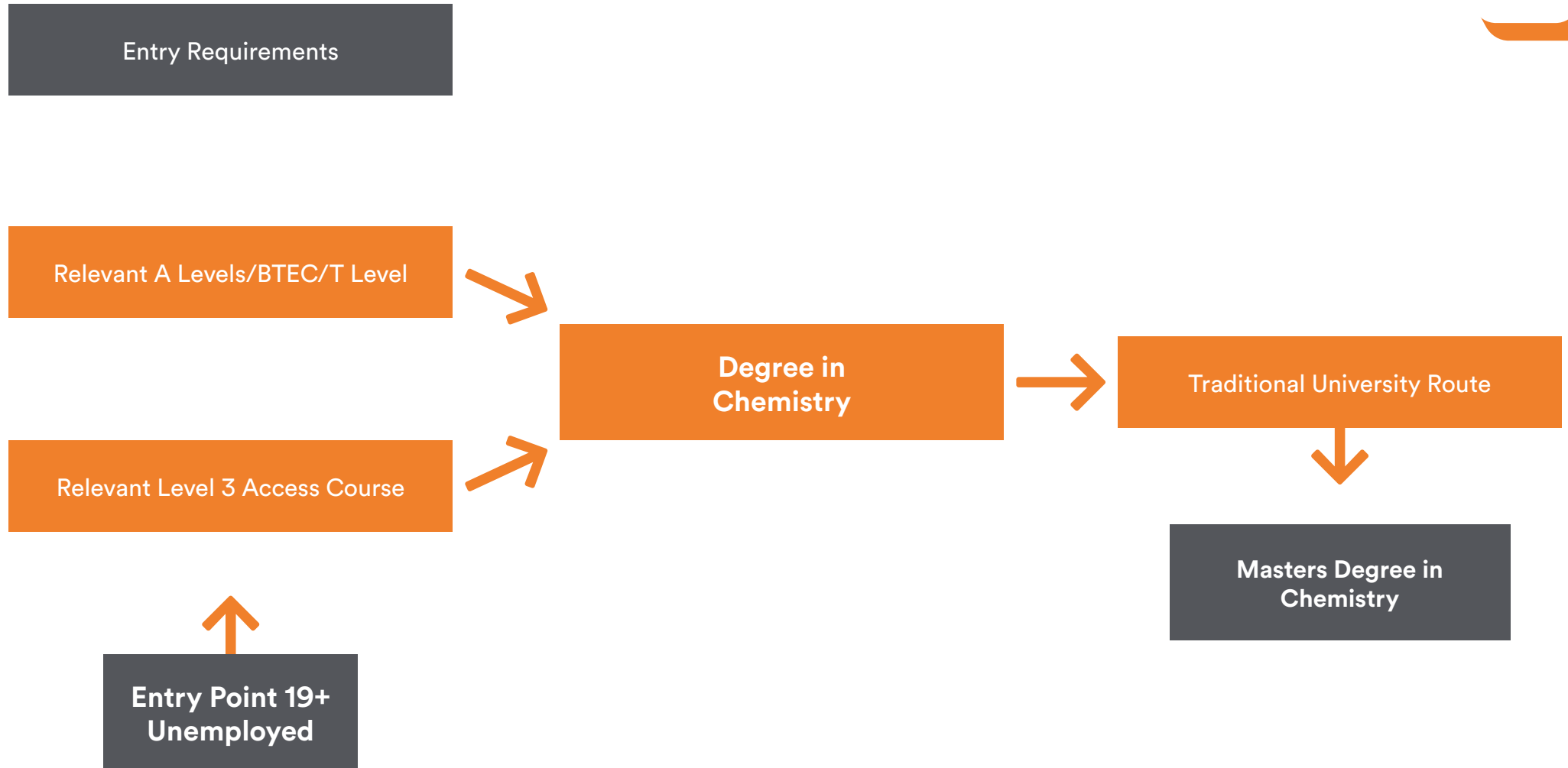
# Engineering: Civil (Vocational Route)



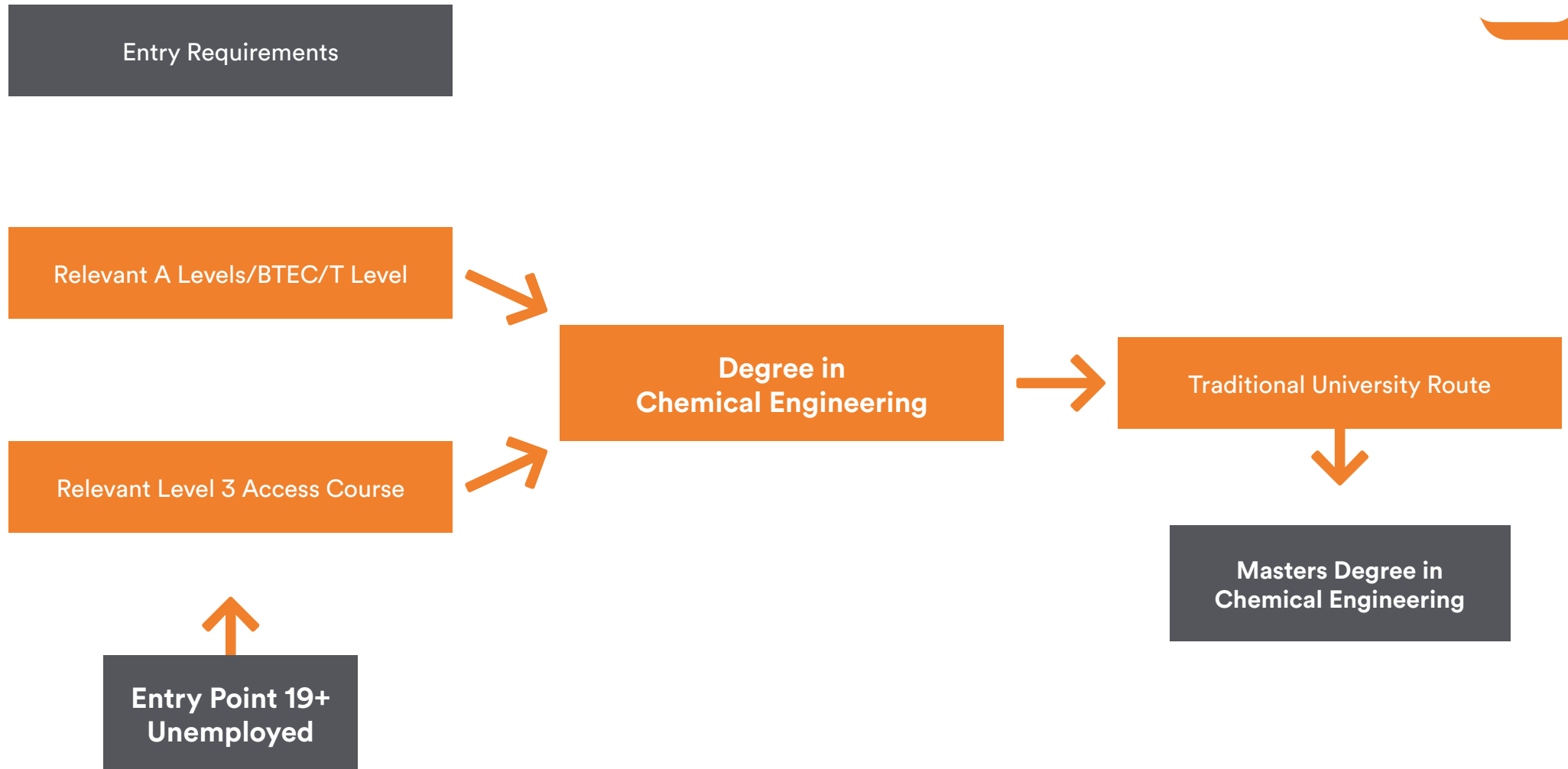
# Engineering: Civil (Academic Route)



# Chemist (Academic Route)



# Engineering: Chemical (Academic Route)

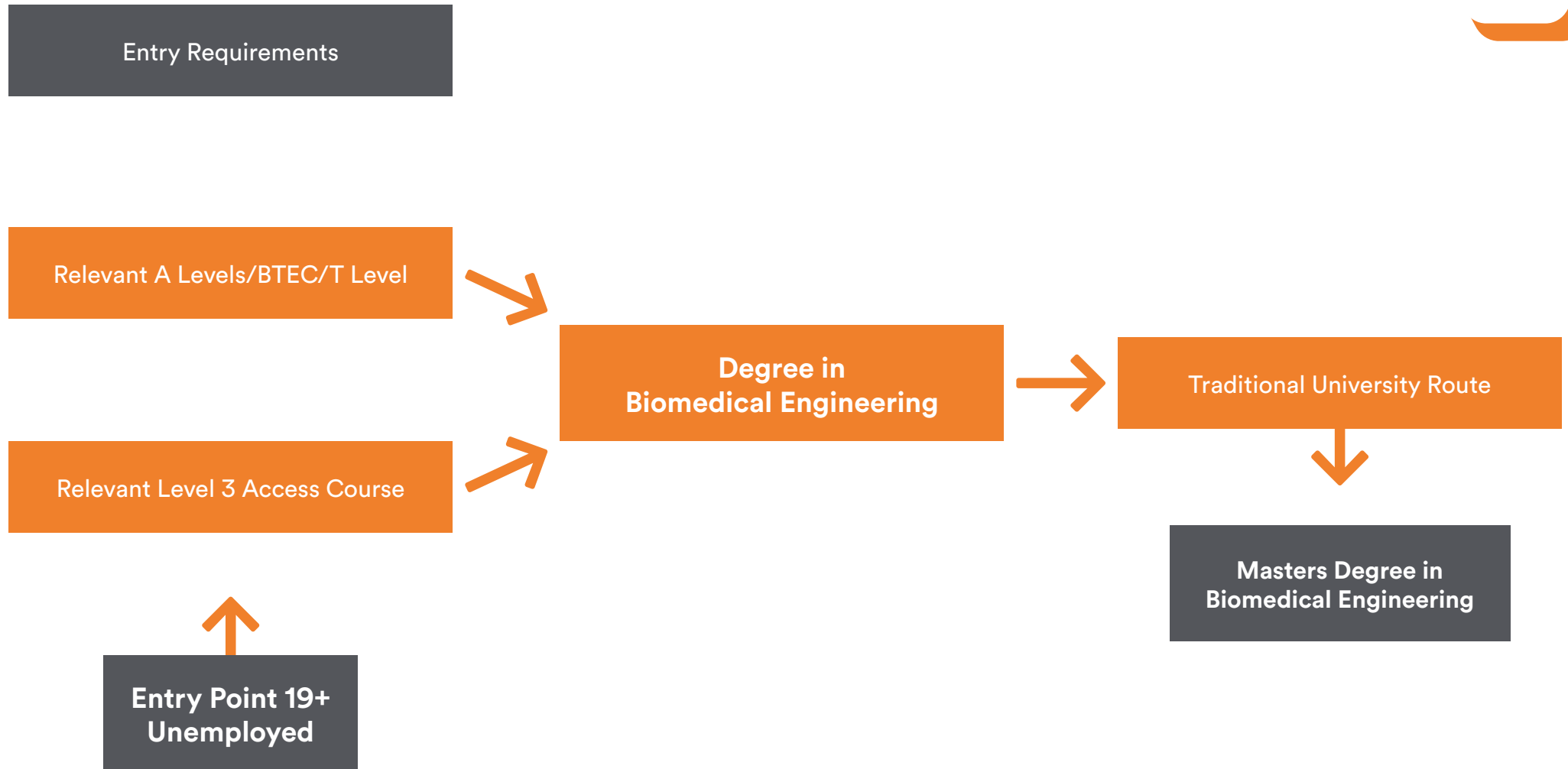


# Engineering: Biomedical (Vocational Route)





# Engineering: Biomedical (Academic Route)



# Engineering: Electrical (Vocational Route)



## Employed

## Continuous Professional Development

### Pre-employment training :

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant Level 2 qualification  
e.g. Diploma in Engineering

Wraparound training i.e. health and safety, digital

On the job training

Relevant Level 3 qualification  
e.g. Diploma in Electrical and Electronic Engineering

Wraparound training i.e. team leader

On the job training

Relevant Level 4 qualification e.g. HNC in Electrical and Electronic Engineering

Wraparound training i.e. management

On the job training

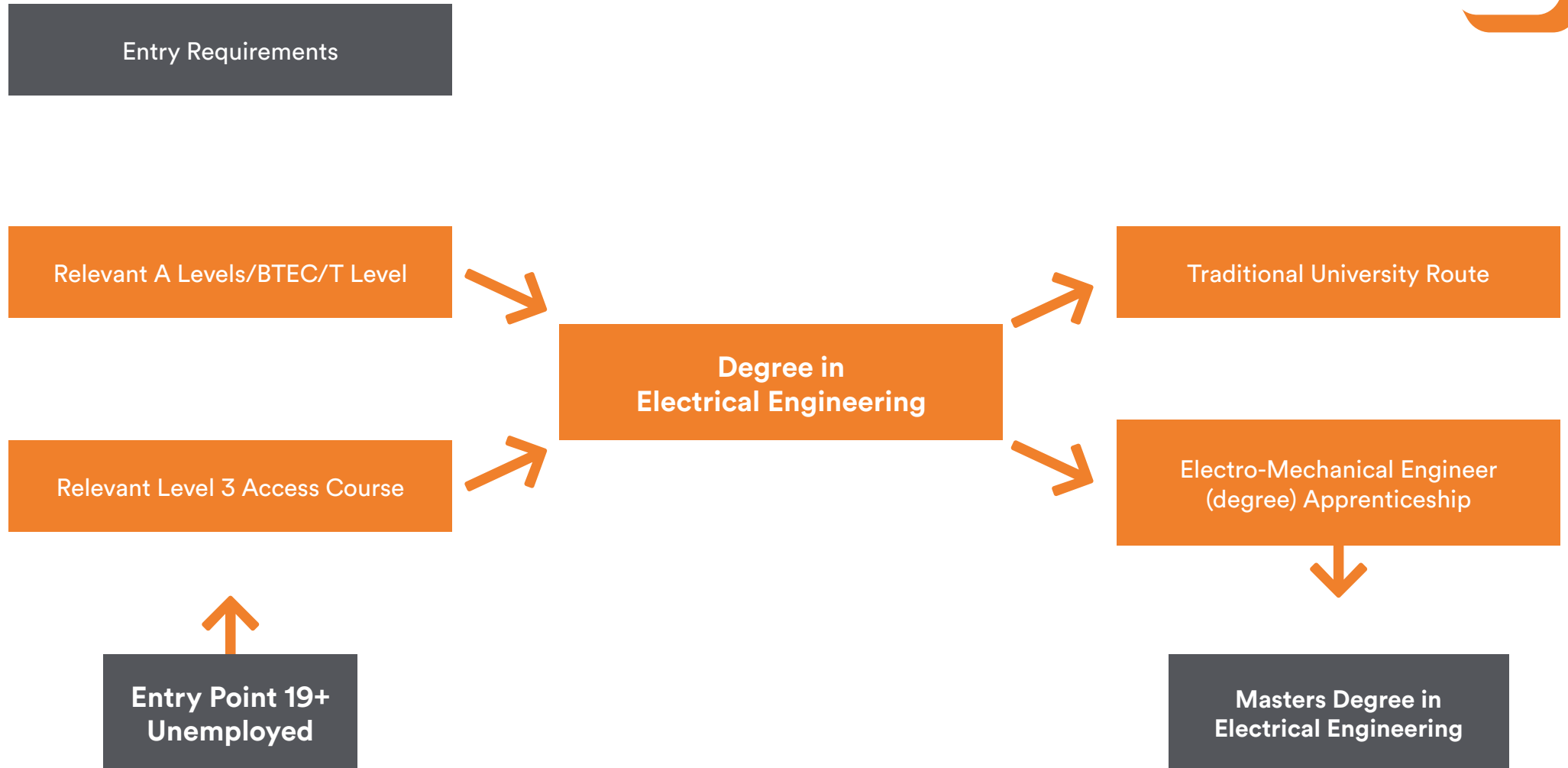
Relevant Level 5 qualification  
e.g. Foundation Degree

Wraparound training i.e. leadership

Entry Point 19+  
Unemployed

Degree Level Study

# Engineering: Electrical (Academic Route)



# Engineering: Maintenance (Vocational Route)



## Employed

## Continuous Professional Development

### Pre-employment training :

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant Level 2 qualification  
e.g. Diploma in Engineering

Wraparound training i.e. health and safety, digital

On the job training

Relevant Level 3 qualification  
e.g. Diploma in Engineering Maintenance

Wraparound training i.e. team leader

On the job training

Relevant Level 4 qualification  
e.g. HNC in Engineering

Wraparound training i.e. management

On the job training

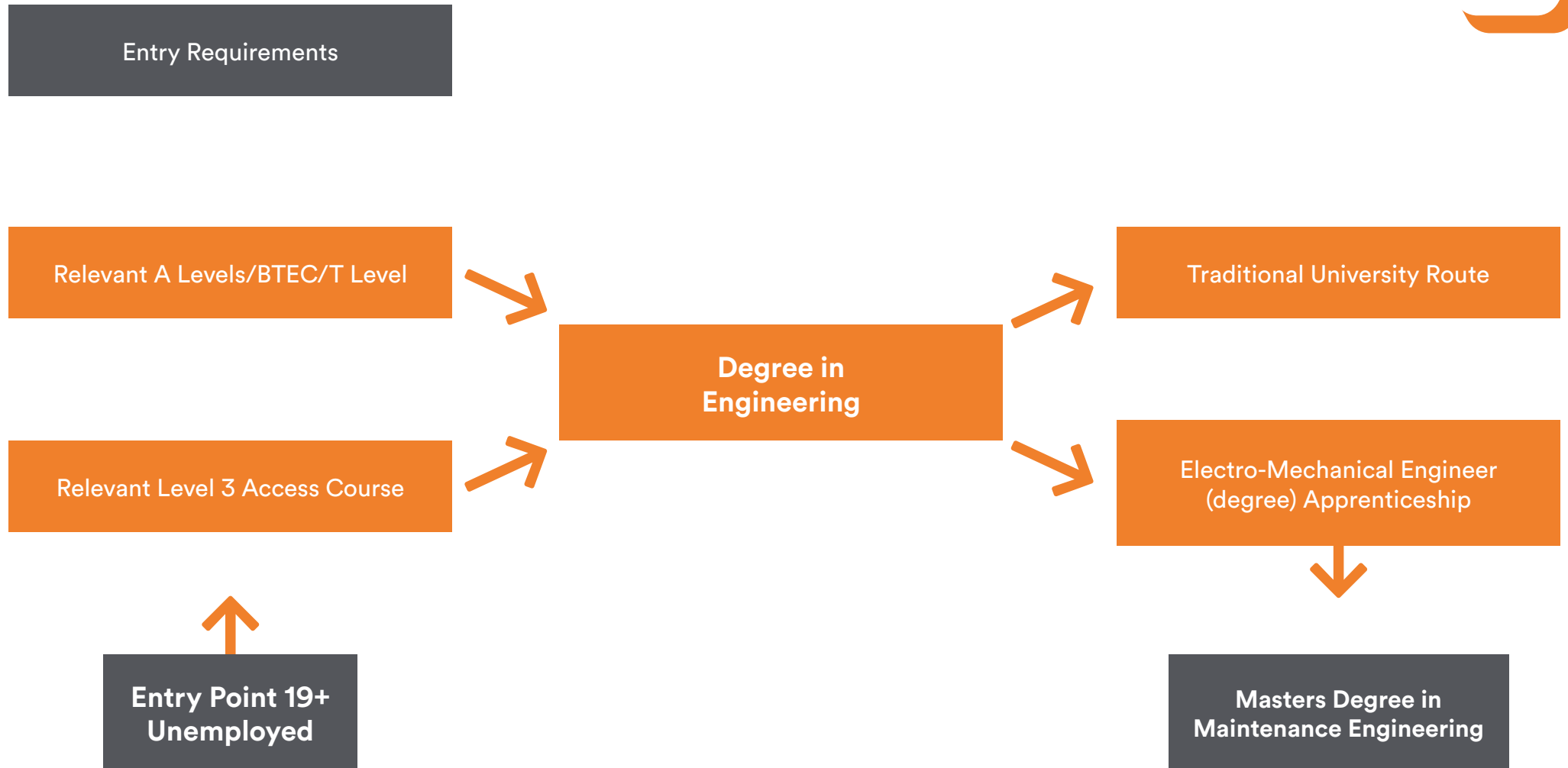
Relevant Level 5 qualification  
e.g. Foundation Degree

Wraparound training i.e. leadership

Entry Point 19+  
Unemployed

Degree Level  
Study

# Engineering: Maintenance (Academic Route)



# Engineering: Railway (Vocational Route)



## Employed

## Continuous Professional Development

### Pre-employment training :

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant **Level 2** qualification  
e.g. Diploma in Engineering

Wraparound training i.e. health and safety, digital

On the job training

Relevant **Level 3** qualification  
e.g. Diploma in Engineering

Wraparound training i.e. team leader

On the job training

Relevant **Level 4** qualification e.g. HNC in Railway Engineering

Wraparound training i.e. management

On the job training

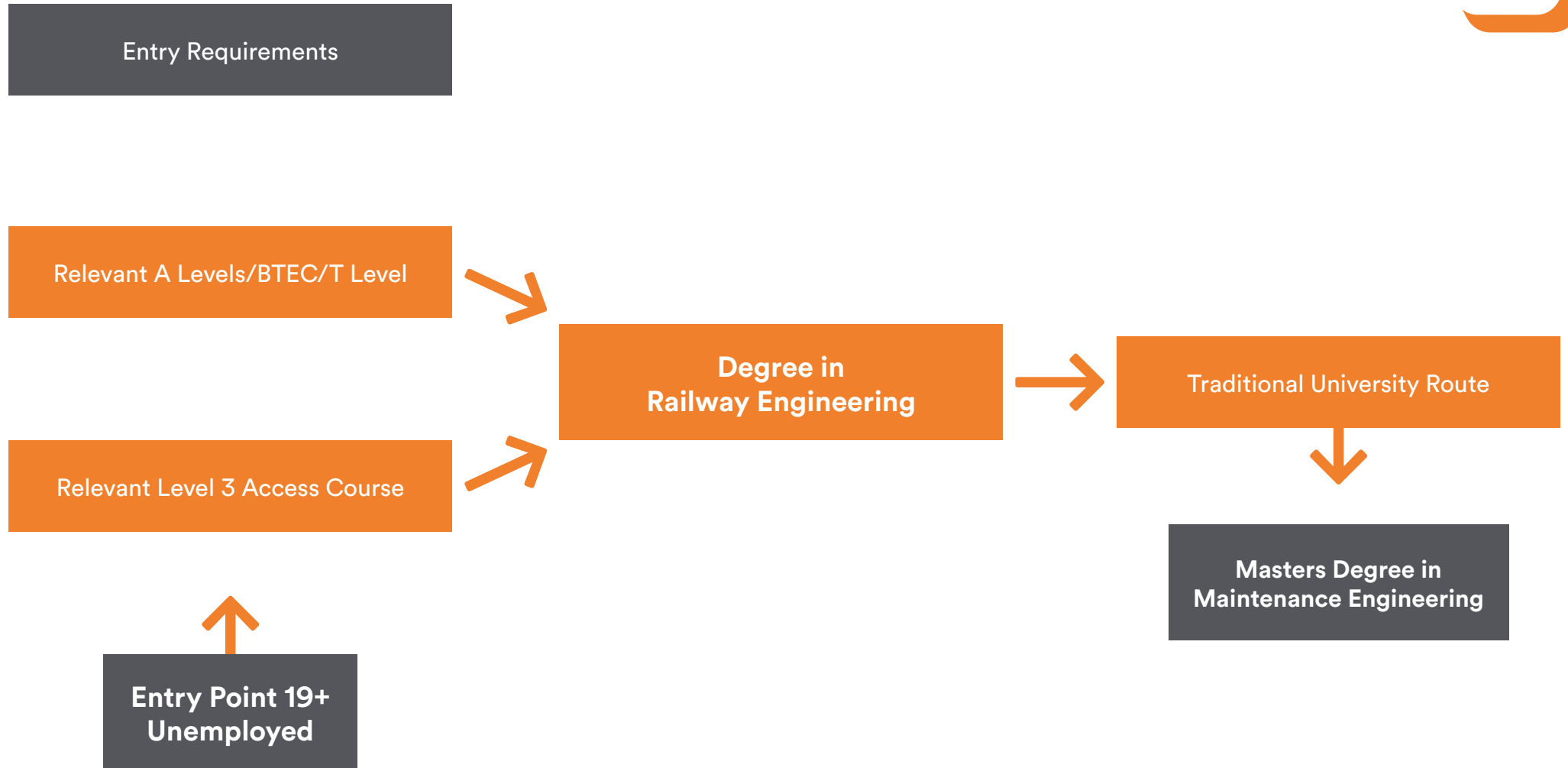
Relevant **Level 5** qualification  
e.g. Foundation Degree

Wraparound training i.e. leadership

Entry Point 19+  
Unemployed

Degree Level  
Study

# Engineering: Railway (Academic Route)



# Engineering: Welder (Vocational Route)



## Employed

## Continuous Professional Development

### Pre-employment training :

Face to face training

Work experience

Short, relevant qualification

Job interview

On the job training

Relevant Level 2 qualification  
e.g. Diploma in Fabrication and Welding

Wraparound training i.e. health and safety, digital

On the job training

Relevant Level 3 qualification  
e.g. Diploma in Fabrication and Welding

Wraparound training i.e. team leader, advanced welding skills

On the job training

Relevant Level 4 qualification  
e.g. HNC in Engineering

Wraparound training i.e. management, welding specifics

On the job training

Relevant ongoing career enhancing training e.g. welding inspection

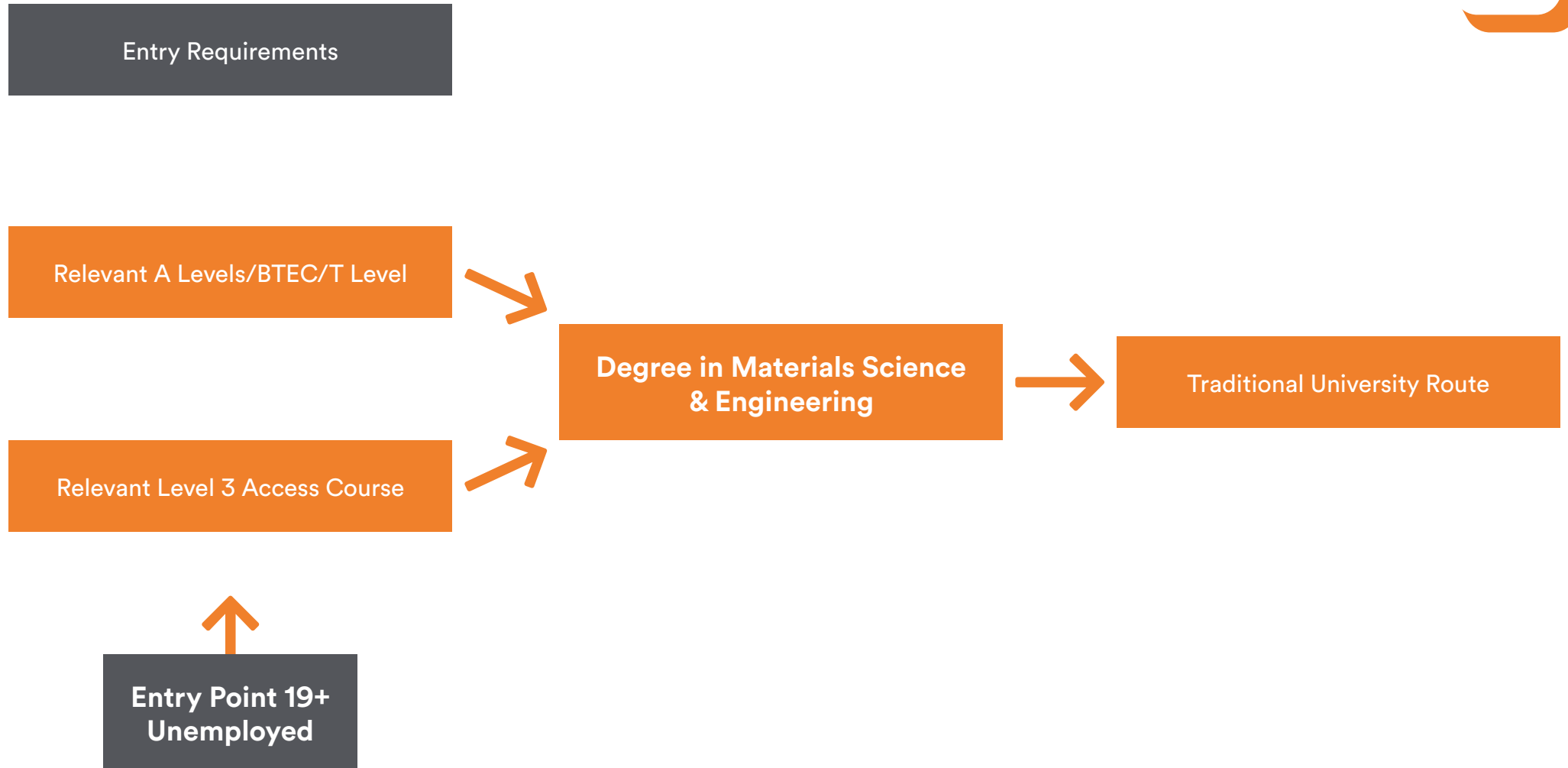
Wraparound training i.e. leadership

Entry Point 19+  
Unemployed

Degree Level  
Study



# Engineering: Metallurgist (Academic Route)



## Regional Manufacturing Training Offer (Colleges, Independent Training Providers & Universities)

	East Birmingham Community Forum	BCTG	Noth Warwickshire & south leicestershire College	Birmingham Metropolitan College	Telford College	Coventry Local Authority	Staffordshire University	Dudley College	University College Birmingham	Keele University	Aston University	Walsall College	Solihull College	Heart of Worcester College	University of Birmingham	Coventry University	Birmingham City University	Wolverhampton University	University of Warwick	Harper Adams University
<b>GENERAL Vocational Route</b>																				
SWAP	✓	✓		✓		✓		✓				✓								
Level 2 Manufacturing	✓	✓	✓	✓				✓	✓											
Level 3 Team Leader		✓	✓			✓		✓	✓											
Level 4 Manager		✓				✓		✓	✓											
Level 5 Leadership		✓				✓		✓	✓					✓						
<b>PHARMACEUTICAL Academic Route</b>																				
Level 3 Access Course/ Foundation Year										✓									✓	
Degree in Pharmaceutical Science										✓									✓	
Masters Degree in Pharmaceutical Science										✓									✓	
<b>AEROSPACE &amp; DEFENCE Vocational Route</b>																				
SWAP		✓																		
Level 2 Manufacturing		✓											✓							
Level 3 Aerospace Manufacturing													✓							
Level 4 Aerospace Manufacturing													✓							
Relevant Level 5		✓											✓							
<b>AEROSPACE &amp; DEFENCE Academic Route</b>																				
Level 3 Access Course/ Foundation Year					✓		✓								✓	✓		✓		
Degree in Aerospace Engineering							✓					✓		✓	✓		✓			
Masters Degree in Aerospace Engineering							✓							✓	✓					
<b>CHEMICAL Academic Route</b>																				
Level 3 Access Course/ Foundation Year															✓			✓		
Degree in Chemical Engineering											✓				✓			✓		
Masters Degree in Chemical Engineering											✓				✓					
<b>FOOD Vocational Route</b>																				
SWAP	✓	✓		✓																
Level 2 Manufacturing	✓	✓		✓					✓											
Level 3 Food Technology									✓											
Level 4 Manufacturing Engineering									✓											
Relevant Level 5		✓							✓											
<b>FOOD Academic Route</b>																				
Level 3 Access Course/ Foundation Year									✓											
Degree in Food Manufacturing									✓							✓				
Masters Degree in Food Production Management									✓							✓				
<b>AUTOMOTIVE Vocational Route</b>																				
SWAP	✓	✓		✓																
Level 2 Manufacturing	✓	✓	✓	✓				✓												
Level 3 Automotive Engineering		✓	✓	✓				✓												
Level 4 Automotive Engineering				✓																
Relevant Level 5		✓		✓																
<b>AUTOMOTIVE Academic Route</b>																				
Level 3 Access Course/ Foundation Year							✓								✓	✓	✓	✓		
Degree in Automotive Engineering							✓								✓	✓	✓	✓	✓	✓
Masters Degree in Automotive Engineering							✓								✓	✓	✓		✓	✓

## Regional Engineering Training Offer (Colleges, Independent Training Providers and Universities)

	South Staffordshire College	Walsall College	BCTG	City of Wolverhampton College	North Warwickshire & South Leicestershire College	Coventry University	Momentum Group	Birmingham Metropolitan College	Telford College	Staffordshire University	Dudley College	University College Birmingham	Keele University	Aston University	University of Birmingham	Birmingham Ccoty University	Wolverhampton University	University of Warwick	Harper Adams University	NCATI	Halesowen College	Solihull College	South & City College Birmingham	Heart of Worcester College	Sandwell College	Coventry College
<b>MECHANICAL Vocational Route</b>																										
SWAP	✓		✓	✓	✓						✓															
Level 2 Engineering	✓	✓	✓	✓	✓				✓		✓											✓		✓		
Level 3 Mechanical Engineering	✓		✓	✓	✓				✓		✓	✓										✓	✓	✓		
Level 4 Mechanical Engineering	✓		✓	✓					✓		✓	✓										✓	✓	✓		
Relevant level 5	✓		✓	✓		✓			✓													✓		✓		
<b>MECHANICAL Academic Route</b>																										
Level 3 Access Course/ Foundation Year	✓					✓			✓	✓	✓	✓	✓	✓	✓	✓				✓						
Degree in Mechanical Engineering						✓				✓		✓	✓	✓	✓	✓	✓	✓	✓			✓				
Electro-Mechanical Engineer (degree) Apprenticeship						✓						✓						✓				✓				
Embedded Electronic Systems Design Development Engineer Apprenticeship Level 6										✓						✓										
Masters Degree Mechanical Engineering						✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
<b>CIVIL Vocational Route</b>																										
SWAP				✓				✓																		
Level 2 Engineering				✓				✓				✓														
Level 3 Civil Engineering								✓			✓	✓										✓				
Level 4 Civil Engineering						✓					✓	✓							✓		✓	✓	✓			
Relevant Level 5												✓							✓		✓					
<b>CIVIL Academic Route</b>																										
Level 3 Access Course/ Foundation Year						✓					✓	✓	✓						✓		✓					
Degree in Civil Engineering						✓					✓	✓	✓		✓	✓						✓				
Civil Engineer (degree) Apprenticeship											✓															
Masters Degree in Civil Engineering						✓					✓	✓	✓		✓	✓										
<b>CHEMIST Academic Route</b>																										
Level 3 Access Course/ Foundation Year		✓										✓	✓	✓					✓					✓	✓	✓
Degree in Chemistry												✓	✓	✓				✓								
Masters Degree in Chemistry												✓	✓		✓	✓										
<b>CHEMICAL Academic Route</b>																										
Level 3 Access Course/ Foundation Year												✓	✓		✓				✓							
Degree in Chemical Engineering												✓	✓		✓											
Masters Degree in Chemical Engineering												✓	✓													
<b>BIOMEDICAL Vocational Route</b>																										
Level 2 Engineering											✓													✓		
Level 3 Engineering											✓												✓	✓		
Level 4 Engineering																			✓							
Relevant Level 5																			✓							
<b>BIOMEDICAL Academic Route</b>																										
Level 3 Access Course/ Foundation Year						✓						✓	✓						✓							
Degree in Biomedical Engineering						✓						✓	✓					✓								
Masters Degree in Biomedical Engineering												✓	✓					✓								
<b>ELECTRICAL Vocational Route</b>																										
SWAP								✓																		
Level 2 Engineering	✓		✓	✓	✓			✓			✓											✓				
Level 3 Electrical & Electronic Engineering	✓		✓	✓	✓			✓			✓	✓										✓		✓		
Level 4 Electrical & Electronic Engineering	✓		✓	✓				✓			✓	✓										✓	✓	✓		
Relevant Level 5	✓		✓									✓										✓	✓	✓		
<b>ELECTRICAL Academic Route</b>																										
Level 3 Access Course/ Foundation Year	✓					✓				✓	✓	✓	✓						✓							
Degree in Electrical Engineering						✓				✓	✓	✓	✓					✓				✓				
Electro-Mechanical Engineer (degree) Apprenticeship											✓											✓				
Embedded Electronic Systems Design Development Engineer Apprenticeship Level 6										✓						✓										
Masters Degree in Electrical Engineering						✓				✓	✓	✓	✓					✓								
<b>MAINTENANCE Vocational Route</b>																										
SWAP			✓	✓							✓															
Level 2 Engineering	✓		✓	✓	✓			✓			✓											✓				
Level 3 Engineering Maintenance	✓		✓	✓	✓			✓			✓	✓										✓				
Level 4 Engineering	✓			✓	✓							✓										✓				
Relevant Level 5	✓		✓	✓								✓										✓				
<b>MAINTENANCE Academic Route</b>																										
Level 3 Access Course/ Foundation Year	✓											✓								✓						
Degree in Engineering												✓						✓				✓				
Electro-Mechanical Engineer (degree) Apprenticeship												✓										✓				
Masters Degree in Engineering Maintenance												✓						✓								
<b>RAILWAY Vocational Route</b>																										
SWAP				✓				✓																		
Level 2 Engineering				✓				✓											✓							
Level 3 Engineering				✓				✓																	✓	
Level 4 Railway Engineering				✓																		✓				
Relevant Level 5																						✓				
<b>RAILWAY Academic Route</b>																										
Level 3 Access Course/ Foundation Year															✓						✓					
Degree in Railway Engineering															✓						✓					
Masters Degree in Civil & Railway Engineering															✓											
<b>WELDER Vocational Route</b>																										
SWAP/Entry		✓	✓																						✓	
Level 2 Fabrication & Welding	✓	✓	✓	✓	✓		✓	✓			✓															
Level 3 Fabrication & Welding	✓		✓					✓			✓															
Level 4 Engineering					✓																	✓				
Relevant Level 5			✓																			✓				
<b>METALLURGIST Academic Route</b>																										
Level 3 Access Course/ Foundation Year															✓						✓					
Degree in Materials Science & Engineering															✓											