

## Apprenticeship Specification

Apprenticeship Summary Information		
1	<b>Apprenticeship Title</b>	Broadcast and Media Systems Engineer (Integrated Degree) Apprenticeship (ST0426)
2	<b>BCU Apprenticeship Course Code</b>	US0933
3	<b>Awarding Institution</b>	Apprenticeship Qualification is awarded by the End Point Assessment Organisation chosen by Employers: Birmingham City University  Birmingham City University, as the training provider, awards the mandatory academic qualification.
4	<b>Teaching Institution(s)</b>	Birmingham City University
5	<b>Professional Statutory or Regulatory Body (PSRB) accreditation</b> (if applicable within the Apprenticeship Standard)	Institute for Apprenticeships and Technical Education (IfATE) ST0426  Institution of Engineering and Technology

6	Apprenticeship Course Description
	<p>The Degree Apprenticeship in Broadcast and Media Systems Engineering at Birmingham City University offers a comprehensive and integrated educational path for aspiring broadcast and media systems engineers. This program uniquely blends academic learning with practical work experience, leading to a Bachelor of Engineering (Hons) in Broadcast and Communications Engineering. Here are the key features and benefits of this program:</p> <ul style="list-style-type: none"> <li> <b>Integration of Study and Work-Based Learning:</b>            As an apprentice, you gain hands-on experience in the broadcast industry while simultaneously pursuing academic studies. This approach ensures that you not only understand theoretical concepts but also know how to apply them in real-world settings.         </li> <li> <b>Involvement of Industry Leaders:</b>            The curriculum has been co-designed by prominent employers in the broadcast industry, including Arqiva, BBC, Creative Skillset, IABM, and others. This ensures that the skills and knowledge you acquire are directly relevant to industry needs.         </li> <li> <b>Curriculum Accredited by Institution of Engineering and Technology.</b>            Accredited by the institution of Engineering and Technology (IET), the programme provides a pathway to Chartered Engineer (CEng) status through further learning.         </li> <li> <b>End-Point Assessment (EPA):</b>            The apprenticeship includes an EPA, a comprehensive assessment of the knowledge, skills, and behaviours learned throughout the program. This assessment confirms that you meet the industry standards and are fully competent in your occupation.         </li> </ul>

- **Portfolio Development:**  
You are required to create a portfolio of evidence throughout the program. This portfolio serves as a record of your skills and knowledge and aids in reflecting on and managing your professional development.
- **Professional Practice Development Module:**  
In the final year, there is a specific focus on personal development and preparation for the Independent End-Point-Assessment. This module is integral to the degree and ties in with the EPA.
- **Comprehensive Course Content:**  
The BEng (Hons) course covers a wide range of relevant topics, including signal processing, media compression, production and distribution system architectures, and more. It addresses all aspects of TV and radio broadcasting, from content capture to distribution.
- **Diverse Career Opportunities:**  
Graduates are equipped for various roles in the broadcasting industry, such as supporting content capture, working on production processes, or managing content distribution across different networks.
- **Collaboration with Industry Leaders:**  
The course has been developed with inputs from the BBC and other industry partners, ensuring that it addresses the current skills gaps in the broadcasting industry.
- **Broad Skill Set:**  
The program covers four main themes: audio and video technologies, computing, networks, and electrical and electronic engineering, providing a well-rounded skill set for the broadcasting industry.

By combining university education with practical workplace experience, this Degree Apprenticeship prepares you for a successful career in broadcast and media systems engineering, ensuring that you are well-equipped to meet the challenges of the rapidly evolving broadcast industry.

<sup>1</sup> <https://www.instituteforapprenticeships.org/apprenticeship-standards/broadcast-and-media-systems-engineer-degree/>

<b>7 Apprentice Awards</b>			
<b>7a</b>	<b>Apprenticeship Final Award (awarded by End Point Assessment Organisation)</b>	<b>Level</b>	<b>Credits Awarded</b>
	Broadcast and Media Systems Engineer	6	n/a
<b>7b Mandatory Awards and Credits Awarded (where applicable)</b>			
	Bachelor of Engineering with Honours Broadcast and Communications Engineering	6	360

<b>7c University Awards and Credits Awarded (where applicable)</b>			
	Bachelor of Engineering with Honours Broadcast and Communications Engineering	6	360
<b>7d University Exit Awards and Credits Awarded (where applicable)</b>			
	Certificate of Higher Education Broadcast and Communications Engineering	4	120
	Diploma of Higher Education Broadcast and Communications Engineering	5	240
	Bachelor of Engineering Broadcast and Communications Engineering	6	300

<b>8 Variation from the University Regulations</b>	
	<p>Derogations from the University Regulations have been approved as a result of PSRB accreditation referenced in section 5.</p> <ol style="list-style-type: none"> <li>1. A maximum of 30 credits per course in a Bachelor's or Integrated Master's degree can be compensated. Compensation of Level 3 modules is not included in that limit</li> <li>2. A maximum volume of 20 credits per course in a Master's degree can be compensated</li> <li>3. Condonement of failed modules in levels 4 to 7 is not permitted</li> <li>4. A stage mean of at least 50% is required for students to progress from Bachelor's level (Level 6) on to the final stage of an Integrated Master's degree (Level 7), or to transfer course from a relevant Bachelor's degree to an Integrated Master's degree.</li> </ol> <p>Apprenticeships adhere to University academic regulations for University awards offered within apprenticeship training. Where Educations and Skills Funding Agency (ESFA) regulations specify an alternative requirement for apprenticeship training management, this takes precedence. This is a requirement of the University registration with the ESFA as an apprenticeship-training provider and receipt by the University of individual apprenticeship funding.</p>

<b>9 Delivery Patterns</b>			
<b>Mode(s) of Study</b>	<b>Location(s) of Study</b>	<b>Duration of Study</b>	<b>Code(s)</b>
ESFA funded Apprenticeship – block based, blended delivery	City Centre	33 months plus EPA	US0933
Employer-funded Apprenticeship - block based, blended delivery	City Centre	33 months plus EPA	US1041

10	Entry Requirements
<b>Typical Offers (UK students)</b>	
<p>At the point of application, you must have or be working towards GCSE at Grade 4 (C) or above in English Language and Mathematics. Please check the transferable skills document from Apprenticeship Certificates England to see if your qualifications meet the requirements for higher Apprenticeship (<a href="#">Apprenticeship standards English and maths list-Oct2022.ods (live.com)</a>)</p> <p>Plus, you must have achieved or be completing one of the following:</p>	
<b>UK Qualification</b>	<b>Requirements</b>
GCE A Level/ AS Level	BBC at A Level or 112 UCAS tariff points from A Level with a minimum of 2 A Levels and including A Level Maths at Grade C or above. Science or technology subjects desirable.
Access to Higher Education Diploma	60 credits overall. Minimum of 45 credits at level 3. Including 12 credits at Merit or Distinction with 9 in Mathematics and 3 in Science. Must already hold GCSE Mathematics and English Language Grade 4 (C) or higher or the equivalent at application point or currently taking.
BTEC National Diploma (12-units not including early years)/ Pearson BTEC Level 3 National Diploma	D*D* or combined with other level 3 qualifications to achieve a minimum total of 112 UCAS points. A Distinction in Mathematics for Technicians unit or a Merit in Further Mathematics for Technicians unit.
BTEC Extended Diploma (18-units not including early years)/ Pearson BTEC Level 3 National Extended Diploma	DMM - 112 UCAS points. A Distinction in Mathematics for Technicians unit or a Merit in Further Mathematics for Technicians unit.

<b>11</b>	<b>Apprenticeship Aims</b>
	The Degree Apprenticeship in Broadcast and Media Systems Engineering aims to equip apprentices with a blend of academic knowledge and practical industry experience, preparing them for successful careers in the evolving broadcast and media systems engineering sector.

<b>12</b>	<b>Apprenticeship Course Learning Outcomes</b>
	<b>Knowledge &amp; Understanding</b>
<b>1</b>	Draw on a range of existing and emergent technologies and approaches in the development and justification of innovative broadcast engineering solutions.
<b>2</b>	Explore theory and practice of audio/visual acquisition and manipulation and their applications in Broadcast.
<b>3</b>	Relate the management, organisational, planning and business theories and techniques and their application to the Broadcast industry.
<b>4</b>	Demonstrate knowledge and understanding of relevant international regulatory and standards bodies and legislation relevant to the Broadcast Engineering.
	<b>Cognitive &amp; Intellectual Skills</b>
<b>5</b>	Assimilate, interpret and analyse information, construct effective arguments and express valid conclusions.
<b>6</b>	Create solutions, integrating technical knowledge and design principles, for broadcast applications and networks.
<b>7</b>	Apply appropriate management and organisational techniques to planning and implementing digital broadcast systems.
<b>8</b>	Make judgments about the merits of different viewpoints and perspectives on commercial, economic, legal, ethical and social issues relevant to the broadcast industry.
	<b>Practical &amp; Professional Skills</b>
<b>9</b>	Apply tools and techniques for the design, implementation, testing, trouble shooting and maintenance of digital broadcast systems.
<b>10</b>	Design or adapt a system, component or process to meet desired needs.
<b>11</b>	Demonstrate competence in management of engineering projects and the application of mathematical and engineering techniques, taking account of industrial and commercial constraints.
<b>12</b>	Select relevant test and measurement equipment and diagnostic software to analyse performance and ensure fitness for purpose.
<b>13</b>	Collect relevant information, assimilate knowledge, marshal a coherent and rational argument, and relate theory and practice.
<b>14</b>	Draw independent conclusions based on a rigorous, analytical and critical assessment of argument, opinion and data.
	<b>Key Transferable Skills</b>
<b>15</b>	Manage learning and self-development, including time management, prioritising workload and meeting deadlines.
<b>16</b>	Make effective use of information and communications technologies, including word, image and data processing packages, the internet, email and electronic information retrieval systems.
<b>17</b>	Communicate effectively in writing and presentations to specialist and non-specialist audiences.
<b>18</b>	Use numerical data, applying appropriate technique.

<b>13</b>	<b>Level Learning Outcomes</b>
	<b><i>Upon completion of Level 4 / the Certificate of Higher Education, learners will be able to:</i></b>
1	Recognise and implement responsibility for own learning
2	Communicate appropriately and with confidence to a specific audience
3	Explain and investigate key principles aligned with broadcast engineering
4	Create solutions to specified problems using acquired skills and knowledge
	<b><i>Upon completion of Level 5 / the Diploma of Higher Education, learners will be able to:</i></b>
1	Interpret information and demonstrate knowledge within broadcast engineering
2	Communicate effectively to specialist audiences
3	Compare and contrast information and present conclusions
4	Evaluate relevant subject-specific concepts and apply them to your own learning
5	Reflect on and apply strategies for development
	<b><i>Upon completion of Level 6 / the Bachelors Degree, learners will be able to:</i></b>
1	Critically review and apply subject knowledge to a range of academic or professional contexts
2	Communicate effectively to specialist and non-specialist audiences
3	Propose solutions to complex problems and make appropriate decisions using a range of sources
4	Construct an understanding of subject specialist information

<b>14</b>	<b>Apprenticeship Learning, Teaching and Assessment Strategy (<i>including off the job training</i>)</b>
	<p>Apprentices will develop their occupational knowledge, skills and behaviours by interacting with a wide range of on-the-job activities. Teaching sessions will establish core knowledge and skills that will be applied in your on-the-job surveying work setting. Over the duration of the apprenticeship these capabilities will be gradually built upon to enable you to have the competence and confidence to take on greater role responsibilities. In the workplace apprentices begin with joint working key skills learnt at university and work to taking the lead under observation. By the end of the apprenticeship all apprentices will be working independently in all areas of practice.</p> <p>Apprentice development will be jointly monitored between a dedicated University personal tutor and a workplace mentor via progress reviews every eight to twelve weeks. Progress will be tracked against on and off-the-job apprenticeship milestones. Regular development goals will be agreed to enhance each apprentice's individual capabilities with the aim of achieving the apprenticeship knowledge, skills, and behaviours.</p> <p>Each apprentice will complete an off-the-job log to evidence the scope and extent of their learning and independent study. Apprentices demonstrate how this learning links to the KSB's and highlight actions for further development. This engagement feeds into the progress reviews to facilitate professional discussion on key aspects of practice.</p> <p>All module assessments are mapped and linked to the development and achievement of the KSB's and evidence the apprentice's ability to meet the standard. These assessments offer the opportunity to gain direct experience with the delivery of those skills assessed in the End Point Assessment (EPA). All of these aspects must be achieved successfully to allow apprentices to progress through the gateway to the EPA. Two attempts per item of assessment are permitted to enable on course progression. Both tutors and mentors will offer feedback on</p>

	<p>written and practical work to identify good practice and specific areas for individual development.</p> <p>Personal development themes including Prevent (a UK government strategy for preventing extremism), British Values (democracy, rule of law, individual liberty, mutual respect, and tolerance for those with different faiths and beliefs), and safeguarding (protecting students from harm) are woven into the curriculum where these themes are relevant. During the work-based learning aspect of the apprenticeship, students can observe and practice these values in a real-world setting. This exposure allows them to understand how principles like safeguarding and ethical practices are implemented in the workplace. Employers play a crucial role in this aspect, providing real-life examples and scenarios where apprentices can see the application of these principles.</p> <p>The curriculum is designed to meet industry standards, emphasising practical skills, hands-on experiences, with opportunities for direct contributions to students' professional development. Additionally, apprentices have access to career counselling services, guiding students in career planning, resume building, interview skills, and job search strategies. This dual approach ensures students gain both theoretical knowledge and practical support, enhancing their readiness for success in their chosen careers.</p> <p>Diagnostic testing will assess the progression of apprentice's abilities in English and Maths. Individual and group support is given on course to enable improvement in these areas. For example, apprentices receive guidance on academic writing, formative feedback on samples of written work and formal feed forward on assessed work.</p>
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<b>15</b>	<b>Apprenticeship Course Requirements</b>																
<b>15a</b>	<p><b>Level 4:</b></p> <p><i>To complete this apprenticeship a learner must successfully complete all the following CORE modules (totalling 120 credits):</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Module Code</th> <th style="width: 60%;">Module Name</th> <th style="width: 15%;">Credit Value</th> </tr> </thead> <tbody> <tr> <td>DIG4142</td> <td>AV Acquisition and Presentation</td> <td style="text-align: center;">20</td> </tr> <tr> <td>DIG4143</td> <td>Broadcast Technology</td> <td style="text-align: center;">20</td> </tr> <tr> <td>CMP4267</td> <td>Computer Systems</td> <td style="text-align: center;">20</td> </tr> <tr> <td>CMP4286</td> <td>Computer Networks</td> <td style="text-align: center;">20</td> </tr> </tbody> </table>		Module Code	Module Name	Credit Value	DIG4142	AV Acquisition and Presentation	20	DIG4143	Broadcast Technology	20	CMP4267	Computer Systems	20	CMP4286	Computer Networks	20
Module Code	Module Name	Credit Value															
DIG4142	AV Acquisition and Presentation	20															
DIG4143	Broadcast Technology	20															
CMP4267	Computer Systems	20															
CMP4286	Computer Networks	20															

ENG4099	Engineering Mathematics	20
ENG4098	Electrical and Electronic Principles	20

**Level 5:**

**To complete this apprenticeship a learner must successfully complete all the following CORE modules (totalling 120 credits):**

Module Code	Module Name	Credit Value
DIG5130	Audio and Video Processing	20
CMP5347	Computer Programming for Engineers	20
CMP5348	Database Technology	20
CMP5346	Computer Networks and IP Distribution 1	20
CMP5345	Computer Networks and IP Distribution 2	20
ENG5139	Principles of Communications Engineering	20

**Level 6:**

**To complete this apprenticeship a learner must successfully complete all the following CORE modules (totalling 120 credits):**

Module Code	Module Name	Credit Value
DIG6202	Individual Honours Project	40
DIG6203	Professional Practice Development	20
DIG6204	Broadcast Workflow and Distribution Systems	20
CMP6195	Quality of Service	20
DIG6206	Broadcast Communications	20

**End Point Assessment requirements:**

The assessment of the apprenticeship includes on programme assessments and a synoptic end point assessment.

On programme assessment will be used to monitor progress in the acquisition of knowledge, skills and experience and will include the following:

- The range of modules identified here and studied by either traditional face to face teaching, e learning or a blended learning approach delivered by the University and covering the breadth and depth of the standard. Assessment will include assignments and exams.
- The approach will build upon the established practice of the University. Individual modules will be assessed and must be passed in accordance with standard university regulations.
- Completion of a Portfolio of Evidence.



- Regular reviews of competence by University and Employer

#### End-point Assessment Gateway

The Employer must be satisfied the apprentice is consistently working at, or above, the level of the occupational standard.

Apprentices must have:

- achieved English/mathematics Level 2
- completed all modules of the BEng (Hons) Broadcast and Communications Engineering except for DIG6203 Professional Practice Development which will include the graded outcome of the EPA as a percentage of the overall module mark.
- completed a portfolio of evidence

#### End Point Assessment

Assessment Method 1: Online Knowledge Test

Assessment Method 2: Presentation of DIG6202 Individual Hours Project

Assessment Method 3: Professional Discussion (underpinned by a Portfolio of Evidence)

Full details of the Gateway and End Point Assessment requirements can be found at [Broadcast and Media Systems Engineer \(instituteofapprenticeships.org\)](http://instituteofapprenticeships.org)

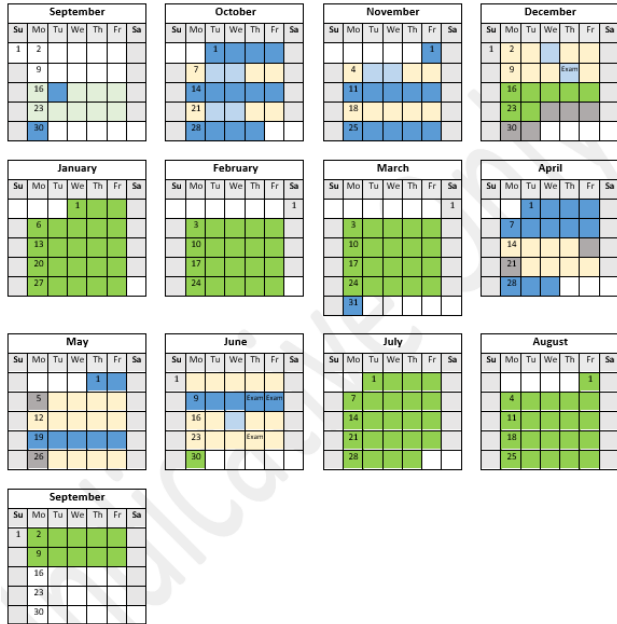
**15b Structure Diagram**

Theme	Audio and Video	Computing	Computer Networks	Electrical and Electronic Engineering
Semester	<b>Level 4</b>			
1	<b>AV Acquisition and Presentation</b> 20 Credits	<b>Computer Systems</b> 20 Credits		<b>Engineering Mathematics</b> 20 Credits
2	<b>Broadcast Technology</b> 20 Credits		<b>Computer Networks</b> 20 Credits	<b>Electrical and Electronic Principles</b> 20 Credits
	<b>Level 5</b>			
1		<b>Computer Programming for Engineers</b> 20 Credits	<b>Computer Networks and IP Distribution 1</b> 20 Credits	<b>Principles of Communications Engineering</b> 20 Credits
2	<b>Audio and Video Processing</b> 20 Credits	<b>Database Technology</b> 20 Credits	<b>Computer Networks and IP Distribution 2</b> 20 Credits	
	<b>Level 6</b>			
1	<b>Broadcast Workflow and Distribution Systems</b> 20 Credits	<b>Professional Practice Development</b> 20 Credits	<b>Quality of Service</b> 20 Credits	<b>Broadcast Communications</b> 20 Credits
2	<b>Individual Honours Project</b> 40 Credits			

## Indicative Delivery

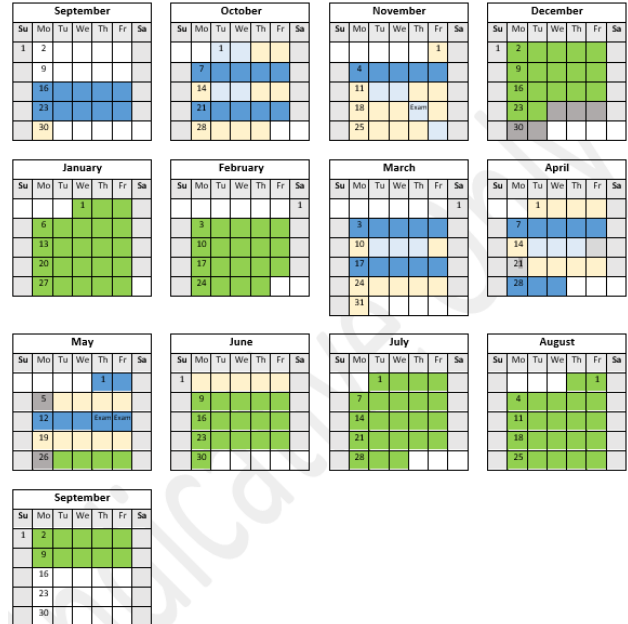
Year 1 Broadcast and Media Systems Engineer DRAFT 2024/2025

On-Campus On-line Private Study Work



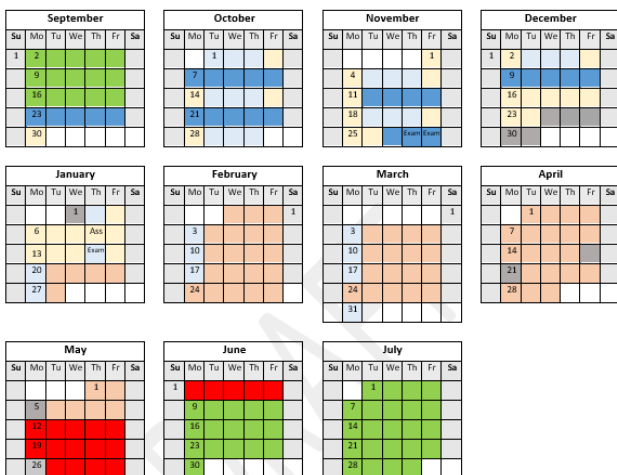
Year2 Broadcast and Media Systems Engineer DRAFT 2024/2025

On-Campus On-line Private Study Work



Year 3 Broadcast and Media Systems Engineer DRAFT 2024/2025

On-Campus On-line Private Study Industry Based Project EPA



<b>16</b>	<b>Overall Learner Workload and Balance of Assessment (including off the job training)</b>
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Overall learner *workload* consists of class contact hours, independent learning and assessment activity, with each credit taken equating to a total study time of around 10 hours. While actual contact hours may depend on the optional modules selected, the following information gives an indication of how much time students will need to allocate to different activities at each level of the course.

- *Scheduled Learning* includes lectures, practical classes and workshops, contact time specified in timetable
- *Directed Learning* includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning
- *Private Study* includes preparation for exams

The *balance of assessment* by mode of assessment (e.g. coursework, exam and in-person) depends to on the optional modules, available to learners. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

#### Level 4

##### Workload

##### % time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled In-person Learning	288
Directed Learning	216
Private Study	696
<b>Total Hours</b>	<b>1200</b>

##### Balance of Assessment

Assessment Mode	Percentage
Coursework	50%
Exam	50%
In-Person	0

#### Level 5

##### Workload

##### % time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	288
Directed Learning	216
Private Study	696
<b>Total Hours</b>	<b>1200</b>

##### Balance of Assessment

Assessment Mode	Percentage
Coursework	50%
Exam	50%

In-Person	0%
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**Level 6**
**Workload**
**% time spent in timetabled teaching and learning activity**

<b>Activity</b>	<b>Number of Hours</b>
Scheduled Learning	192
Directed Learning	156
Private Study	852
<b>Total Hours</b>	<b>1200</b>

**Balance of Assessment**

<b>Assessment Mode</b>	<b>Percentage</b>
Coursework	67
Exam	33%
In-Person	0%