Course Specification

Course Summary Information		
1	**Course Title**	BSc (Hons) Broadcast Engineering
2	**Course Code**	US1618 US1619 (PPY)
3	**Awarding Institution**	Birmingham City University
4	**Teaching Institution(s)** (if different from point 3)	Birmingham City University
5	**Professional Statutory or Regulatory Body (PSRB) accreditation** (if applicable)	

6	**Course Description**
	Developed and delivered in partnership with the BBC, our BSc (Hons) Broadcast Engineering course combines engineering, computing and media technologies to design, build and maintain the systems that power television, radio and online media services. Through a blend of theoretical study and industry-focused practical learning, you will acquire the technical and problem-solving skills needed to work in modern broadcast and media environments. You will explore the technologies behind television, radio, online streaming services and other digital media platforms, developing knowledge across audio and video, computing, IP networks, electrical and electronic principles, and communication technologies. This combination provides a broad foundation for a career in broadcast and media systems engineering. You will develop an understanding of the engineering principles that underpin modern broadcast systems and how they are applied in professional broadcast environments. You'll also benefit from opportunities to engage with industry-standard production environments and collaborate across engineering and creative disciplines, reflecting the multidisciplinary nature of modern broadcasting. Teaching will take place at BCU's City Centre Campus and, subject to final planning approval, at the BBC's new Midlands headquarters at the Tea Factory, located just a short walk away in Birmingham's creative quarter. **What's covered in this course?** The course covers a wide range of relevant technologies, systems and applications, including signal processing, media compression, production and distribution system architectures, broadcast and media workflows, networking and communication technologies, and the computing and electronic systems that underpin modern broadcast services. You will explore how these technologies work together across the broadcast workflow, from content capture and production through to processing, management, and distribution. The course is structured around five key technical themes: audio and video technologies,

	computing, communications, IP networking, and electrical and electronic engineering. You'll develop an understanding of how these disciplines work together within modern broadcast environments, while gaining practical experience of industry workflows, system design, testing and troubleshooting. Through industry-focused projects and collaborative activities, you'll explore how engineers support content creation, production, transmission and distribution across today's broadcast and media industries. You will have opportunities to apply your engineering knowledge through practical projects and industry-focused activities, developing your ability to work with broadcast technologies and interconnected technical systems. Through laboratory work and industry-focused projects, you will gain experience in system integration, testing, troubleshooting and technical problem-solving, building confidence in applying engineering principles within professional environments.

7	**Course Awards**		
7a	**Name of Final Award**	**Level**	**Credits Awarded**
	Bachelor of Science with Honours in Broadcast Engineering	*Level 6*	*360*
	Bachelor of Science with Honours in Broadcast Engineering with Professional Placement Year	*Level 6*	*480*
7b	**Exit Awards and Credits Awarded**		
	Certificate of Higher Education in Broadcast Engineering	*Level 4*	*120*
	Diploma of Higher Education in Broadcast Engineering	*Level 5*	*240*
	Bachelor of Science in Broadcast Engineering	*Level 6*	*300*

8	**Variation from the University Regulations**
	Not applicable

9	**Delivery Patterns**			
Mode(s) of Study		**Location(s) of Study**	**Duration of Study**	**Code(s)**
Full Time		City Centre	3 years	US1618
Full time With Professional Placement		City Centre	4 years	US1619

10	**Entry Requirements**	
	Home:	The admission requirements for this course are stated on the course page of the BCU website at https://www.bcu.ac.uk/ or may be found by searching for the course entry profile located on the UCAS website.
	EU:	
	International:	
	Access:	

11	Course Aims
	The BSc (Hons) Broadcast Engineering course aims to develop professional broadcast and media systems engineers who can design, analyse, implement and maintain the complex technologies and infrastructures that support modern broadcast and media services. The course provides students with a strong foundation in audio and video technologies, computing, communications, IP networks, and electrical and electronic principles, alongside the critical evaluation, diagnostic problem-solving and project management skills required to apply engineering solutions effectively in professional broadcast and media environments.

12	Course Learning Outcomes
	Knowledge and Understanding
1	Critically evaluate and apply a range of existing and emergent technologies and approaches in the development and justification of innovative broadcast engineering solutions.
2	Demonstrate knowledge and understanding of the theory and practice of audio/visual acquisition and manipulation and their applications in Broadcast.
3	Apply management, organisational, planning and business theories and techniques within the broadcast industry.
4	Demonstrate knowledge and understanding of relevant international regulatory and standards bodies, legislation and standards applicable to broadcast engineering.
	Cognitive and Intellectual Skills
5	Assimilate, interpret and analyse information, construct effective arguments and express valid conclusions.
6	Design secure solutions, integrating technical knowledge, network security protocols, and system design principles, for broadcast applications and IP infrastructures.
7	Apply appropriate management and organisational techniques to planning and implementing digital broadcast systems.
8	Make judgments about the merits of different viewpoints and perspectives on commercial, economic, legal, ethical, social, and environmental sustainability issues relevant to the broadcast industry.
	Practical and Professional Skills
9	Apply tools and techniques for the design, implementation, testing, troubleshooting and maintenance of digital broadcast systems
10	Design or adapt a system, component or process to meet desired needs.
11	Demonstrate competence in management of engineering projects and the application of mathematical and engineering techniques, taking account of industrial and commercial constraints.
12	Select relevant test and measurement equipment and diagnostic software to analyse performance and ensure fitness for purpose.
	Key Transferable Skills
13	Manage learning and self-development, including time management, prioritising workload and meeting deadlines.
14	Use appropriate information and communication technologies and digital tools to support learning, professional practice and the management and presentation of information.
15	Communicate effectively in writing and presentations to specialist and non-specialist audiences
16	Use numerical data and appropriate mathematical techniques to support analysis and decision-making in engineering contexts.

13	**Level Learning Outcomes**
	Upon completion of Level 4 / the Certificate of Higher Education, students will be able to:
1	Apply core mathematical, scientific, and computing principles to model, explain, and solve fundamental engineering problems in broadcast and communication systems.
2	Select and operate standard test and measurement instruments to capture, inspect, and evaluate audio/visual signals safely in laboratory environments.
3	Describe the fundamental operational principles, signal flows, and technical standards governing basic AV acquisition and broadcast technologies.
4	Demonstrate workplace safety awareness, perform standard electrical risk assessments, and take personal responsibility in managing self-directed study.
	Upon completion of Level 5 / the Diploma of Higher Education, students will be able to:
5	Analyse signal processing mechanisms and network architectures across multi-stage media workflows, applying appropriate engineering principles to broadcast applications.
6	Apply programming techniques and networking protocols to configure, automate, and secure media infrastructures.
7	Appraise live studio production and distribution workflows while accounting for operational budgets, commercial constraints, service level agreements, and cybersecurity risks.
8	Diagnose technical faults within networked environments and contribute effectively to collaborative engineering solutions
	Upon completion of 60 credits at Level 6 / the Bachelors Degree, students will be able to:
9	Critically evaluate emerging technologies including content distribution networks and software-defined architectures to design innovative, future-ready engineering solutions.
10	Synthesize research, design principles, and rigorous testing methodologies to execute a major independent engineering project.
11	Appraise the legal, regulatory, ethical, economic, and environmental sustainability factors that govern professional engineering decisions
12	Justify complex engineering decisions, system specifications, and independent research findings to both technical specialists and non-technical stakeholders.

14	**Course Learning, Teaching and Assessment Strategy**
	The course takes an industry-informed and practical approach to learning, teaching and assessment. It is designed to develop students' technical knowledge, practical skills and professional capabilities for careers in broadcast engineering and related areas. Teaching sessions will establish core knowledge and skills that prepare learners directly for the demands of the modern broadcast engineering industry. Over the duration of the degree, these capabilities will be gradually developed to enable students to build the competence and confidence to take on increasing levels of responsibility. At Level 4, students will develop foundational knowledge and skills through structured and supported learning. At Level 5, these capabilities will be developed through increasing application, analysis and engagement with complex technical problems. At Level 6, students will be expected to demonstrate greater autonomy, critical evaluation and independent engineering judgement. While early study levels provide structured guidance, Level 6 demands self-directed learning. Students are expected to take ownership of their project management, navigate complex and unpredictable technical scenarios, and independently research emerging broadcast technologies. This strategy culminates in an independent Final Year Honours Capstone Project co-formulated with or supported by industry partners, requiring students to demonstrate research-led synthesis and sound engineering judgment. A key highlight of this course is that the curriculum has been developed in partnership with the BBC. Delivered at BCU and the BBC Academy, this partnership features industry-led workshops, masterclasses, and foundational introductions to the broadcast ecosystem. These activities immerse students in real-world operational environments, exposing them to multidisciplinary technical roles, studio engineering workflows, and hands-on system hardware.

	Furthermore, cross-disciplinary collaboration is also structurally embedded into the curriculum through a STEAM-focused learning approach. Shared modules delivered in partnership with BCU's English and Media Department allow engineering students to collaborate directly with creative media teams, applying technical principles within professional TV studios and production sound galleries to solve real-world production challenges. Module assessments are balanced across coursework, examinations, and practical laboratory sessions to evaluate both theoretical understanding and applied technical knowledge. Assessment methods are designed to reflect the range of practical and professional skills developed across the course. The assessment strategy incorporates continuous feedback and actionable feed forward, ensuring that lessons learned from initial assignments actively inform and enhance performance in subsequent modules and projects. Students are expected to uphold professional engineering ethics and integrate environmental sustainability such as cloud infrastructure efficiency and green broadcast workflows into their technical evaluations and system design decisions. Additionally, students have access to career counselling services, supporting career planning, CV building, interview skills, and job search strategies. Together, these experiences help students develop the technical, practical and transferable skills needed to progress into broadcast engineering and related areas of the media industry.

15	**Course Requirements**

15a

Level 4:

In order to complete this course a student must successfully complete all the following CORE modules (totalling 120 credits):

Module Code	Module Name	Credit Value
CMP4316	Applied Maths for Broadcast Engineering	30
CMP4317	Computer Systems	30
CMP4318	AV Acquisition and Broadcast Technologies	30
CMP4319	Electrical and Electronic Principles	30

Level 5:

In order to complete this course a student must successfully complete all the following CORE modules (totalling 120 credits):

Module Code	Module Name	Credit Value
CMP5409	Computer Programming	30
CMP5412	Network Protocols and Switching	30
CMP5411	AV Processing	30
CMP5410	Broadcast Workflow and Studio Production	30

In order to qualify for the award of BSc (Hons) with Honours Broadcast Engineering with Professional Placement Year a student must successfully complete the following module:

Module Code	Module Name	Credit Value
PPY5010	Professional Placement Year	120

Level 6:

In order to complete this course a student must successfully complete all the following CORE modules (totalling 120 credits):

Module Code	Module Name	Credit Value
CMP6257	Broadcast Communications	30
CMP6258	Network Services and Routing	30
CMP6259	Professional Practice	30
CMP6260	Final Major Project	30

15b	Structure Diagram

Level 4

SEMESTER ONE	SEMESTER TWO
Core **Applied Maths for Broadcast Engineering** (30 credits)	Core **AV Acquisition and Broadcast Technologies** (30 credits)
Core **Computer Systems (**30 credits)	Core **Electrical and Electronics Principles (**30 credits)

Level 5

Core **Computer Programming (**30 credits)	Core **Audio and Video Processing** (30 credits)
Core **Broadcast Workflow and Studio Production** (30 credits)	Core **Network Protocols and Switching** (30 credits)

Level 5

PPY5010 (120cr) Professional Placement Year (if taken)

Level 6

Core **Broadcast Communications (**30 credits)	Core **Professional Practice** (30 credits)
Core **Network Services and Routing** (30 credits)	Core **Final Major Project** (30 credits)

16 Overall Student Workload and Balance of Assessment

Overall student *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 some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

Level 4

Workload

24% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	288
Directed Learning	248
Private Study	664
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	87.5%
Exam	12.5%
In-Person	0%

Level 5

Workload

20% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	245.5
Directed Learning	320
Private Study	634.5
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	57.5%
Exam	35%
In-Person	7.5%

Level 6

Workload

16% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	193.5
Directed Learning	204
Private Study	752.5
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	42.5%
Exam	32.5%
In-Person	25%