Programme Title	BSc (Hons) Broadcast Engineering
Awarding Body	Ravensbourne University London
Teaching Institution	Ravensbourne University London
Final Award	Level 6 – BSc (Hons) Broadcast Engineering
Interim awards	Level 5 – Dip HE Level 4 – Cert HE
UCAS Code	
QAA Subject Benchmark	Engineering
PRSB reference	SkillSet, BKSTS (IMIS)
Mode of study	Taught, FT, 3 years
Date produced/amended	22/02/2018 – 14/07/2021
Course Leader	Audrey Aquilina

Distinctiveness

No other broadcasting educator at undergraduate level gives you a comparative level of creative and technical freedom to work with emerging technologies in collaboration with industry practitioners. Ravensbourne is a Society of Motion Picture and Television Engineers (SMPTE) Student Chapter. This provides you and teaching staff an opportunity to engage with a leading global organisation and its respected international members in a variety of collaborative ways. Ultimately, the Broadcast Engineering BSc (Hons) course prepares you for a career in the television and broadcasting industry. As a Technology and Engineering graduate you will be highly sought after due to the engineering skills gap we face in the UK. Female graduates in this field are particularly sought after, as only about 10% are currently employed in engineering industries in the UK.

Preparing you for your career is achieved by giving you professional skills and knowledge through involvement with real-world technical and creative projects, such as working with The Royal Shakespeare Company. The distinctiveness of Ravensbourne's television and broadcasting technology course is your involvement with practical work through a variety of technologies and applications: audio, systems, outside broadcasting, studios, IT, data networks, cloud computing (e.g. AWS), and multi-platform delivery (including satellite and streaming (e.g. Netflix)). In addition to the practical coursework, there are seminars, tutorials, and specialised taught workshops from visiting industry professionals.

You will be the only students in UK higher education that build and operate transmission systems conforming to OFCOM licensing for the annual Ravensbourne Degree Show. You will learn to apply relevant professional protocols and contemporary business practice that the television requires. In the Broadcast Engineering course the Final Major Project is an Engineering Project that lasts the whole academic year. Students must either produce hardware, software, an application, or undertake a research / proof-of-concept project. Previous student projects have won the prestigious Royal Television Society (RTS) Young Engineer of the Year Award.

The Broadcast Technology courses continue to be the only undergraduate degrees accredited by the BKSTS (British Kinematograph Sound and Television Society), now known as The International Moving Image Society (IMIS). In 2015 the Chief Engineers of Facilities

Forum (ChEFF) made a £5,000 fund available to BKSTS accredited courses. This fund will annually award a UK student £1,000 for their winning engineering project. Broadcast engineering students at Ravensbourne are currently the only students eligible to be assessed for this prestigious award.

The type of employment that you will be ready for includes:

• Technical operational roles covering vision, sound, and data
• Technology focussed roles covering acquisition (e.g. cameras), infrastructure (e.g. production), delivery (e.g. servers), and transmission (e.g. streaming)
• Engineering roles covering design, maintenance, monitoring, and installation
• You can typically be employed by:
• Sky
• ITV companies
• BBC
• British Telecom
• Bloomberg
• QVC
• Outside Broadcasting companies, especially sports
• Formula One TV

Your learning is characterised by 5 key Ravensbourne principles (please see next page)

Cultivate - BSc (Hons) Broadcast Engineering will prepare you for a variety of employment opportunities across the television and broadcasting industries. The course helps you develop traditional professional skills on professional equipment - camera, lighting, sound, recording and transmission used by a variety of television organisations such as broadcasters, manufacturers, outside events (sports), news, and streaming service providers. You will develop the key life-skills asked for by employers: the ability to work in teams and an ability to adapt to change. Although there is a balance of individual and group assessment, the course is focused upon team work and technology-based projects with individually assessed work.

Collaborate - BSc (Hons) Broadcast Engineering is a course that has a strong emphasis on collaboration. Developing and providing systems that allow programming and content creation is all about working in a team within your course and outside it. Projects on the courses are typically market led approaches to television production. Some projects might be more research or investigation focussed into new and emerging technologies. Ravensbourne is an exciting environment to study a technology & engineering course because of the close collaborative work with other courses, particularly Television Production, and with the television industry. You are encouraged to creatively explore and experiment with the technologies and engineering possibilities in Ravensbourne's impressive inter-disciplinary environment.

Integrate - The course is a balanced vocational course designed within an academic Honours degree framework which means you graduate prepared for academic study at a post-graduate level or for directly entering industry. Industry involvement is also embedded within our courses. Some of the staff on the course are from industry and we know what the industry is seeking for a graduate leaving University. Ravensbourne has the best facilities and equipment in the UK and has offered the best training in the country for

over 40 years. Whether you wish to work on video/audio systems or on streaming, you are given the fundamental skills and understanding that you need to move progress your career.

Advocate - Ravensbourne is embedded within the wider technological and engineering community, and Ravensbourne television graduates can be found working in companies across the UK and internationally. Broadcast Engineering promotes responsible application of technology. For this reason, the course teaches and promotes safe and project planning and techniques in the context of health and safety, and sustainable practices particularly with respect to energy consumption. You are encouraged to discuss and implement real world issues within your practice and within your work (climate change, social enterprise, interdependence, well-being and biodiversity).

Originate – As you progress through the course, you are asked to originate new ideas for industry-focused projects, and develop them in each year. In year 1, the focus is on developing skillsets and gaining experience working with different technologies. As you progress though the year 2 of Broadcast Engineering, you initiate self-directed ideas, develop your creativity and then produce innovative solutions, applications, or prototype products in year 3 in order to realise your ambitions.

The Mindsets and Skillsets Manifesto: Five Principles

Ravensbourne developed its Mindsets and Skillsets Manifesto as part of an institution-wide Portfolio Review. This was the culmination of a significant process that included a broad literature review; various outputs from national and international conferences and institutional visits; a 'Futures in the Making Symposium' attended by academic faculty - featuring an industry panel and a second panel of high profile external academics; a '20 / 20 / 20 Visiting Lecture Programme'; and market analysis of existing courses and the university's academic framework. The final Manifesto also drew from the institution's Strategic Plan and the Director's post-2018 vision document.

The Mindsets and Skillsets Manifesto consists of Five Principles that creates the basis of a vision that informs a new academic framework, its new curriculum, and all course level learning outcomes. This Manifesto underpins the validation and revalidation documents presented here, and is briefly articulated in the following way:

1. **Cultivate / where the individual thrives**

   • Holistic Education: beyond the discipline
   • Life Skills: resilience, self-efficacy, multiple intelligence

Extending the norms of skills-acquisition and competency-based approaches Cultivate nurtures the creative individual beyond the academy, embracing the holistic notion of educating the whole person.

Critical life-skills are investigated and multiple intelligences explored through a model that supports professional and personal development to create and support resilient and inclusive individuals prepared for work in the ever-changing creative industries and for living with wider societal and cultural flux in the 21st century.

2. **Collaborate / where disciplines evolve**

   • Blurring Disciplines: petri dish for new thinking and practice

- Shape-Shifters: new practice demands new practitioners

The Collaborate model enables students with discipline-specific knowledge to apply their own creative thinking, design and media practices and methodologies and production techniques to interdisciplinary and transdisciplinary projects.

Interdisciplinary project models integrate subject knowledge and working methods from a range of disciplines to create synthesis of practice, whilst the transdisciplinary model creates new and extended disciplinary modes through the unity of intellectual and practice-based frameworks to reach beyond single disciplinary perspectives.

3. **Integrate / where education engages industry**

- Professional Modes: education mirrors industry
- Depth and Breadth: specialists and generalists

A model that integrates academic delivery with industry practice; enabling subject-specific, interdisciplinary student teams to replicate modes of working found within relevant professional models; the Production House in Film and TV, the Design Studio in communication and media design, the Fashion House in fashion and textiles, the Advertising Agency in advertising and promotion and the Architecture Practice in architecture and interiors.

Typically, the Integrated Team, with each member assigned a specific role, works to a phased delivery that may include the Discover, Define, Develop and Deliver stages of the Design Double Diamond. Integrate challenges traditional constraints in the teaching of the solo practitioner and embraces the notion of disciplinary discovery and practice through team working.

4. **Advocate / where purpose meets practice**

- Citizen Practitioners: tackling real-world problems
- Self to Selves: from the individual to the collective

Putting purpose first, Advocate recognises the responsibility for creative education to address the unprecedented environmental, social and economic challenges facing humankind; tomorrow's designers and media practitioners are increasingly aware of their responsibilities as global citizens to engage with complex ethical issues related to climate change, social justice, interdependence, wellbeing and biodiversity.

Advocate puts studio projects and commercial and charitable industry commissions at the centre of the educational experience enabling student's real-world opportunities to improve the communities in which they live and work and in turn begin to transform the wider world.

5. **Originate / where creativity meets technology**

- Mind-Sets + Skill-Sets: the dynamism of ideas + technology
- Applied Mastery: leveraging theory, practice and innovation

Sitting at the intersection of creativity and technology, Originate enables the merging of visionary mind-sets and skill-sets to provide provocative and challenging design and media approaches. The amalgamation of theory and practice, Originate embraces both integrated and agile design-thinking and design-doing practice and research methodologies to forge

dynamic technologically-savvy and creativity-driven responses and solutions to given and self-directed industry-leading projects.

Programme aims

- · To provide a deep understanding of technology used in television broadcasting
- · To develop broadcast engineering as a skill
- · To prepare students for a career in the television industry
- · To develop critical thinking skills in students
- · To engender professionalism appropriate to the television broadcasting industry
- · To develop hardware and software knowledge suitable for television broadcasting
- · To develop diagnostic and problem solving skills in a technology context
- · To collaborate with industry partners and other academic courses

Programme Learning Outcomes

The course provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

On completion of the course students will be able to:

LO 1 Research/Inspiration

Select and evaluate information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.

Related Principle: ORIGINATE

LO 2 Concept/Ideation

Critically appraise and evaluate appropriate research materials to generate workable concepts or strategic project themes that inform and underpin project development.

Related Principle: ORIGINATE

LO 3 Development/Prototyping

Investigate potential pathways that result in appropriate solutions, informed by a systematic understanding of the principles of the creative process.

Related Principle: INTEGRATE

LO 4 (Pre) Production
Demonstrate systematic working knowledge, production skills, selection, application and understanding of a selection of processes, materials and methods that inform creative and academic practice.

Related Principle: COLLABORATE

LO 5 Presentation /Storytelling for Influence

Communicate projects creatively and professionally, whether in visual, oral or written form. Methods of presentation are appropriate to the audience/client and the purpose of the work.

Related Principle: ADVOCATE
LO 6 Critical and creative mindsets
Evaluate a range of critical approaches in order to form an independent position
Related Principle: ORIGINATE
LO 7 Employability
Effectively employ professional transferrable and employability skills, including the ability to manage time and work to clear briefs and deadlines, respond to set goals, and communicate effectively.
Related Principle: CULTIVATE
LO 8 Professional Identity
Align your professional identity as a practitioner with a viable career context.
Related Principle: CULTIVATE

Learning and Teaching methods	Assessment Strategy
Broadcast Engineering is a BSc degree with project differentiated learning, allowing you to specialise within your learning of television and broadcasting. Your learning journey has four integrated learning journeys or pathway. One pathway provides the specialism, and is shown in the diagram on the following page (in yellow). Half of the total credits (180 of 360) are awarded with respect to project-based work, which provides the basis of your specialism. Specialisms can include: audio, systems & infrastructure, outside broadcasting, studios, computing, data networking, or streaming. Specialisms are supported through small-group tutorials. Teaching is undertaken by a teaching team, which comprises full-time tutors, and part-time specialist tutors and industry practitioners. The full-time tutors also have television industry experience. Teaching consists of the following methods: • Lectures • Seminars • Workshops • Masterclasses • Practical sessions	Assessment is a very important part of your course and your learning journey as you progress towards becoming a technologist or an engineer. The benefit of assessments on this course will enable you to practise and demonstrate the learning outcomes. The grades you receive in the final stages constitute your degree results. However, before that, feedback helps you to understand what is expected of your work at each level, analysing what you have achieved so far and indicating how you can improve your work in the future. Your work is graded through assessments that are defined in Project Briefs. Typical assessment methods are: • Presentation • Demonstration • Reports (Technical, Laboratory) • Article • Video, audio, and captioned media • Software Programme • Electronic Project • Engineering Project • Examination • Worksheets (course work)

The Quality Team — Version – July 2021 — Definitive Documents

- Tutorials

The teaching addresses the needs of a diverse range of students via a highly practical vocational technology and engineering course. We have adopted and developed a "blended learning" approach to teaching and learning. This means that you are provided with opportunities to apply and practice the theory in real television situations.

Your learning is undertaken as an evolving journey starting in the first year (Level 4) at an introductory level, progressing through the second year (Level 5) at an intermediate level, and culminating in the third year (Level 6) at an advanced level.

Level 4 – skills, technology and principles.

At Level 4, your objective is to understand the television industry, its technologies, and the fundamentals principles needed for working in a technical capacity in the television industry. You will engage on a range of projects and investigate roles and technologies through research. Introductory equipment training is used to facilitate learning within the units.

Level 5 – ideas, development and exploration.

You will consolidate your technical knowledge, develop your engineering skills and experiment technically and creatively on increasingly challenging projects. You will also collaborate with other courses, and with industry, to facilitate the production and delivery of content and programmes.

Level 6 – independent professional working.

At the final level, the application of academic and industry research forms the core of your studies with the Dissertation and for analysis of emerging trends, technologies, and standards. The

Each unit will have one or more mixed assessments appropriate to the learning outcomes, knowledge, and skills. 15-credit units will typically have one assessment. 30-credit units will typically have two assessments. 60-credit units will have three or four assessments. In some units, you are marked holistically, which means that an overall grade is given for the unit, and not individual grades for each assessment element.

You will be presented with a Project Brief at the beginning of every unit. The Learning Outcomes, grading criteria, rationale of the brief, assessment methods, and submission deadlines will be discussed between tutors and you. There are two types of assessment feedback: formative and summative. Formative feedback is given to you so you can more successfully achieve the project learning outcomes. Formative assessments are not graded. Formative assessment can either be written or verbal or aural feedback. Summative assessment comes at the end of the unit along with a grade. Summative assessment allows you to reflect upon your achievements and performance, and provides guidance on how to improve. Summative assessment is generally written feedback, and will be available to you via the Virtual Learning Environment (VLE).

Engineering Project is the culmination of your learning and allows you to create something through self-initiated work, and experiment with ideas, and apply engineering solutions that prepare you for professional practice.

Learning journeys	Level 4	Level 5	Level 6
Specialism ("Pathway")	Intro to TV Practice Electronic Communications	Broadcast and Network Systems Computation and Electronics	Engineering Project
Pathway Underpinning	Mathematics	Elective 1 Event Technology	Emerging Technology
Collaborative Learning	Intro to Digital TV	Elective 2	
Contextual Studies	Contemporary Culture	Dissertation Proposal	Dissertation

Yellow indicates your units that are optimised for specialised project based teaching and learning.

Magenta indicates your units that underpin (support) your learning of technical topics and units.

Green indicates your units that have significant collaborative learning.

Cyan indicates your units that are taught by the Contextual Studies team and support your technology learning in a wider context.

Unit Code	Unit Title	Credits
Level 4		
	Induction	0
C18101	Themes in Contemporary Culture	15
DTP18102	Introduction to Digital Television	30
BENG18103	Fundamentals of Electronic Communications	30
BENG18104	Mathematics for technology and engineering	15
BENG18105	Introduction to Television Practice	30
Level 5		
C18201	Big ideas and philosophies / Dissertation Proposal	15
EBENG181 EBENG182	Cross-departmental Elective	15
CIE18200	Cross-Institutional Elective	15
BENG18202	Event Technology	15
BENG18203	Contemporary Broadcast and Network Systems	30
BENG18204	Broadcast Computation and Electronics	30
Level 6		
C18301	Dissertation	30
BENG18302	Emerging technologies and standards	30
BENG18303	Major Engineering Project	60
		360

Entry Requirements

Students will normally be expected to possess five GCSEs (grade C or above) or equivalent (including English) and also to hold at least one of the following or equivalent UK or international qualification:

- 2 A Levels (grades A-C) or 4 AS Levels (grades A-C)
- 2 vocational A Level (grades A-C)
- Level 3 Foundation Diploma or National Diploma
- Advanced Diploma (grades A-C)
- International Baccalaureate (28 points or above)

Where an applicant's first language is not English, proof of competence in English will be required. For undergraduate and postgraduate programmes, this will normally take the form of an approved English language test at B2 level in the Common European Framework of Reference. Any test for proficiency in English must have been achieved within 18 months preceding the date of entry. Individual programmes may have higher language requirements. Ravensbourne's international department will advise applicants on the language requirements for particular programmes.

Selection Criteria

Ravensbourne will use a number of methods to assess an applicant's suitability for their course of choice. Primarily applicants are selected on the basis of:

· an applicant's prior academic achievement/qualifications and/or previous employment/life experience;
· assessment of the applicant's ability and aptitude to succeed on the course for which s/he has applied.

Students will be selected according to the generic criteria set out below:

Personal attributes

· shows commitment, enthusiasm and interest in the subject area
· initiative and problem solving
· ability to communicate

Creative process

· can generate ideas and use external sources to develop them
· ability to research an idea and follow it through to a finished product

Study skills

· can understand and organise information clearly
· can investigate and analyse information
· shows reasoning and intellectual curiosity

Professional skills

· has shown they can initiate and deliver projects
· can work in a team and with people with different skills
· has shown confidence with IT

Career aspirations

· understands the relevance of the course to her/his career ambitions
· understands current debates within industry

Accreditation of Prior Learning

Applications are welcomed from those who may not possess formal entry qualifications, mature students, those with work experience or with qualifications other than those listed above. Such applicants should demonstrate sufficient aptitude and potential to complete the course successfully. Applicants will be assessed at interview in accordance with Ravensbourne's Accreditation of Prior Learning Policy and Procedure.

Student Support	https://ravensbourne.sharepoint.com/sites/studentservices
Assessment Regulations	https://www.ravensbourne.ac.uk/media/7990/ravensbourne-assessment-regulations-1819.pdf

Course LOs	DTP18102	BENG181 03	BENG181 04	BENG181 05	BENG182 02	BENG182 03	BENG182 04	BENG183 02	BENG183 03
	Level 4				**Level 5**			**Level 6**	
LO1		x					x		x
LO2	x					x	x		x
LO3		x	x				x		x
LO4		x	x			x		x	
LO5				x	x			x	
LO6	x			x	x			x	
LO7				x	x				x
LO8	x					x		x	x

Description of the Course

Broadcast Engineering is a course aimed at students aspiring to work in the world's television and broadcasting industry. This course teaches students the more technical side of television so that employment in technical operations, technology deployment and broadcast engineering is possible. Students develop an understanding of: technical roles within television, technologies in use in television and broadcasting, and fundamental principles of broadcast engineering.

Students acquire these skills via project-based learning across a variety of disciplines that include: sound, acoustics, cameras, outside broadcasting, events, studio production, satellites, networking, streaming, and new emerging technologies.

Ravensbourne students are uniquely placed with opportunities to apply their skills whilst studying with respected industry clients and partners, which include The Royal Shakespeare Company. Furthermore, Ravensbourne students graduate into extremely exciting job roles within the global television community that include working on Winter and Summer Olympics.

Academic Framework – Course Diagram

Level 4 120 credits	Induction *(Inc. contribution from Theory)* 0 credits		Theory Unit – Themes in Contemporary Culture 15 credits
	BENG18105 Introduction to Television Practice 30 credits		
	DTP18102 Introduction to Digital Television 30 credits	BENG18103 Fundamentals of Electronic Communications 30 credits	
	BENG18104 Mathematics for technology and engineering 15 credits		

Level 5 120 credits	C18201 Part 1 *Big Ideas and Philosophies* *(7.5 out of 15 credits)*		C18201 Part 2 *Dissertation Proposal* *(remaining 7.5 out of 15 credits)*
	EBENG181, EBENG182 *Cross Departmental Elective* *15 credits*	CIE18200 *Cross-Institutional Elective* 15 credits	
		BENG18202 Event Technology 15 credits	
	BENG18203 Contemporary Broadcast & Network Systems 30 credits		
	BENG18204 Broadcast Computation and Electronics 30 credits		

Level 6 120 credits	Dissertation 30 credits		
		BENG18302 Emerging technologies and standards 30 credits	
	BENG18303 Major Engineering Project 60 credits		