Unit Title	Emerging technologies and standards
FHEQ Level	6
Unit Code	DTT18302
Credit Value	30
Unit Type	Compulsory: Taught

Learning Hours

Staff – Student Contact Hours		Independent Study Hours	
Classes	60	Independent Study	105
Supervised access to resources	0	Preparation for Assessment	90
	(60)	Unsupervised Access to Resources	45
Total			300

Unit Description

This unit prepares you to enter industry with an understanding of the most recent technologies and standards that will be encountered in the television broadcasting industry. This unit continues your underpinning learning within the programme and builds principles encountered at a practical level during the 2nd year.

You will be taught about the role and scope of standards bodies and organisations, current and emerging standards, current and emerging technologies, how to create technology roadmaps, and concepts around convergence. You will select a project that reflects the culmination of your learning with respect to technologies deployed within the global television broadcasting industry. The blended learning approach in this unit combines theoretical topics, including: the underlying principles within standards, with practical skills sessions related to creating roadmaps. This unit will operate alongside Major Engineering Project to provide you with a comprehensive and correlated understanding of contemporary broadcast practice.

The Five Principles underpin the Mindsets and Skillsets Manifesto and are the foundation upon which all course curriculum frameworks and unit specifications are based. The relevant Principles as stated below have been mapped against the Learning Outcomes relevant to each course unit and at each level (see Programme Specifications for full description of the Five Principles):

1. Cultivate / Where the individual thrives.
2. Collaborate / Where disciplines evolve.
3. Integrate / Where education engages industry.
4. Advocate / Where purpose meets practice.
5. Originate / creativity meets technology.

Unit Indicative Content

- To review and investigate current and emerging technologies related to television broadcasting such as higher resolutions and frame rates, data networking, cellular bonding, and next-generation audio
- To understand the role and scope of standards bodies and their specific relevance to broadcast industry
- To research and understand the standards that have recently been or about to be introduced to the broadcast industry
- To have an appreciation of standards and technologies that have been developed in other industries and applied to broadcasting, for example, cellular technology from the mobile communications industry sector
- To anticipate future technologies that may be needed within television broadcasting

Unit Aims

1. To provide a deep understanding of technology used in television broadcasting (course aim)

2. To collaborate with industry partners and other academic courses (course aim)

3. To investigate the principles, structures, development and management of broadcast related standards and standards organisations

4. To develop skills related to identifying and applying technologies and standards appropriately to the broadcast industry

5. To provide students with skills to analyse the most up-to-date technologies and standards relevant to employment within the television broadcasting industry

6. To allow students to critically evaluate the most up-to-date technologies and standards relevant to employment within the television broadcasting industry

Unit Learning Outcomes

LO4: **(Pre) Production**

Demonstrate systematic working knowledge, technical skills, selection, application and understanding of a selection of processes, materials and methods that inform engineering and academic practice.

Based on **COLLABORATE** principle.

LO5: **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.

Based on **ADVOCATE** principle.

LO6: **Critical and creative mindsets**

Evaluate a range of critical approaches in order to form an independent position.

Based on **ORIGINATE** principle.

LO8: **Professional Identity**

Align your professional identity as a practitioner with a viable career context.

Based on **CULTIVATE** principle.

Learning and Teaching Methods

- Project briefings – in order to prepare students for the aims, content, delivery, learning outcomes, and assessments
- Seminars (including guest lecturers)
- VLE activities such as design tools for roadmaps
- Individual and small group work
- Autonomous study
- Continual individual and small group formative feedback
- Summative assessment at end of unit that demonstrates degree to which learning outcomes have been met

Assessment methods and tasks

Brief description of assessment methods

Assessment tasks	Weighting (%) *(one grade or multi-grade unit)*
1. Individual presentation of a technology roadmap (10 minutes, plus 5 minutes Q&A)	50%
2. Individual report on a student selected standard that describes, summarises, analyses, and applies to a broadcast requirement (1500 words)	50%

Indicative Assessment Criteria

Assessment criteria are the basis on which the judgment of the adequacy of the work is made. A more detailed assessment criteria will be specified in the brief.

Assessment 1 is an individual presentation of a technology roadmap pertaining to the actual or theoretical deployment of technologies and standards relevant to the television broadcasting industry. The duration of the presentation is ten minutes, with up to 5 minutes of Q&A. The student chooses the nature of the roadmap. The presentation will be assessed through the following criteria:

1. Evidence of advanced explanations of technology developments through the use of a theoretical or an actual technology roadmap. **LO8**
2. Evidence of the evaluation of how different technologies and standards converge, interface, coalesce, or integrate to create broadcast systems. **LO6**
3. Articulate the justification of selected outcome for the roadmap based on the evaluated technologies and standards. **LO4**
4. Evidence of advanced explanations and comparisons of the selected technologies

and standards. **LO5**

Assessment 2 is an individual report that describes, summarises, analyses, and applies a relevant standard or emerging technology to a broadcast requirement (1500 words). The student chooses the standard. The report will be assessed through the following criteria:

5. Understanding of how the work of standards organisations work within the context of the global television industry. **LO8**
6. Evidence of advanced explanation of underlying engineering and scientific principles in the chosen standard or technology. **LO6**
7. Evidence of collaboration through enquiry and dialogue with industry partners and organisations with respect to standards and technologies that are being deployed or evaluated. **LO8**
8. Evidence of how chosen standard or technology is applied in order to meet television broadcasting requirements. **LO4**

Essential Reading list

1. Moehrle M., Isenmann R., Phaal R., 2013. Technology Roadmapping for Strategy and Innovation: Charting the Route to Success, Springer
2. Tozer E. P. J., 2012. Broadcast Engineer's Reference Book, CRC Press.
3. Weiss S.M. 2017. Issues in Advanced Television Technology, Taylor & Francis

URLs

1. https://www.smpte.org/
2. https://www.iso.org/home.html
3. https://www.itu.int/en/Pages/default.aspx
4. https://www.ebu.ch/home
5. http://www.aes.org/
6. https://mpeg.chiariglione.org/
7. http://www.iec.ch/
8. https://www.dvb.org/
9. https://www.atsc.org/
10. https://www.ietf.org/
11. http://www.videoservicesforum.org/
12. http://aspen-community.com/
13. http://aimsalliance.org/
14. https://www.gsma.com/
15. http://dtg.org.uk/