

# AUDIO ENGINEERING

## TRIMESTER 1 - Bachelor & Diploma units

### MIXING

→ Recording Studio Techniques

This unit introduces the concept of mixing multi-track recordings and applying effects. Focus is given to the fundamentals of signal flow and gain structure. In this subject, students will perform a simple mix of pre-recorded material. Exercises include using volume, pan and mute functions, and familiarity with general mixing concepts.

### BASIC ANALOGUE & PA MIXING

→ Live Sound Reinforcement

This subject introduces students to the basic elements common to all mixing consoles with a focus on signal flow throughout these components. Items of connectivity include speaker and monitor placement, microphone placement, microphone technique, and effects processing. Students also cover OH&S by learning about safe operating volumes & how to safely lift, carry, and load components in a variety of contexts.

### MIX WITH VIDEO

→ Post-Production

This unit will introduce fundamental items of putting sound to vision (post-production). It covers both hardware and software components with attention given to commonly used computer applications. Students will be required to use the DAW to carry out basic post-production tasks utilising elementary effects to modify sound to produce a final mix for supplied video.

## TRIMESTER 2 - Bachelor & Diploma units

### RECORDING FOUNDATIONS

→ Recording Studio Techniques

Students will complete a single musician recording project using recording, overdubbing, and mixing techniques. The subject focuses on the planning process using critical feedback and student dialogue to prepare the project. Students will also complete the Pro Tools 101 course as part of this unit.

### DIGITAL DESK & PA

→ Live Sound Reinforcement

This subject introduces students to more sophisticated concepts of signal flow and external processing. Students move from an analogue to a digital mixing console and are exposed to elements of signal flow and routing in the digital domain. Students practice stripping, packing up and reassembling an analogue PA system. The subject explores in more depth the workings of more sophisticated mid-sized PA systems and develops students' experience at mixing live music.

### VOICEOVERS, SOUND DESIGN & STUDIO ETIQUETTE

→ Post-Production

This subject introduces more advanced technology as well as concentrates on varied requirements of post-production. Components include voice-over recording, sound design utilising MIDI, atmosphere generation from natural and unnatural sources, and Foley recording. Students will become familiar with the industry concepts of post-production with a DAW, recording and synchronising voice-overs to a brief, more advanced automation techniques, and exporting completed mixes to standard stereo files and video.

### FUNDAMENTALS OF AUDIO & SOUND

→ Audio Theory

The content of this subject deals with the elementary nature of sound and how these principles are applied in audio production. Students are guided through quantitative skills such as calculations related to audio production - sound pressure, decibels and frequencies. Students are also introduced to structured listening and undertake ear training to recognise frequencies and level changes.

### CRITICAL THINKING

→ Industry Awareness

In this unit, students are introduced to critical thinking and communication skills. They will learn to activate their critical thinking skills by exploring modes of analysis, problem-solving, reflection, evaluation, and creation. Students will be presented with artistic works and industry issues to critically evaluate, embracing both analytic and synthetic thinking processes.

### AUDIO THEORY & HISTORY

→ Audio Theory

This subject explores the theory of recorded sound and its practical application, with particular emphasis on microphones. Tutorials will allow students to focus on applying knowledge presented in the lectures in the context of the recording studio. Themes shaping the unit content are: microphones and their use, as well as the history of recording over the last 100 or so years.

### CRITICAL SURVEY

→ Industry Awareness

In this subject, students will hear presentations by industry professionals that cover various roles and facets within the entertainment and content industries, and guest speakers will connect with students to share their experiences. Presentations will consider industry trends such as the impact of digitisation, the forces transforming the industry, and the functions of principal organisations within the industry.

### TRIMESTER 3 - Bachelor only units

#### SMALL GROUP RECORDING

→ Recording Studio Techniques

Students will complete a small band-recording project. Students gain access to control surface technology and develop more experience with advanced DAW platforms. Mixing techniques are covered intended for creating space, depth, and placement. Students will also complete the Pro Tools 110 course as part of this unit.

#### MEDIUM PA & WIRELESS SETUPS

→ Live Sound Reinforcement

In this unit, students continue using digital mixing consoles and are exposed to further elements of signal flow and routing in the digital domain. In addition, wireless considerations and In-Ear Monitors (IEM's) are introduced and mastered. More sophisticated concepts of external processing will be introduced along with separate fold back monitoring, as well as more advanced techniques of timing and tuning a larger system.

#### SOUND DESIGN FOR COMPUTER GAMES + ALTERNATIVE DAWS

→ Post-Production

This unit focuses on further uses of MIDI technology, sampling, and software instruments, in combination with recorded audio, to further enhance music production. Students learn how to utilise a variety of audio software to complete a production project. In carrying out this project, students will learn how to manage data between platforms, to develop their creative skills as music producers and production management. Students will also learn how to make their own sound libraries in this unit.

### TRIMESTER 4 - Bachelor only units

#### MASTERING

→ Recording Studio Techniques

This unit will focus on mastering - the final process of completing a project, quality, depth and dimension, and delivery. In this context, the content will focus on specific issues such as macro-dynamics, equalization, noise reduction, best practice in metering, monitoring, leveling practices, compression and limiting. Students will learn how to deliver final masters for duplication and online delivery.

#### LARGE SCALE PA DESIGN, IMPLEMENTATION & TUNING

→ Live Sound Reinforcement

This subject will focus on the integration of technologies, software, and hardware into projects focusing on large sound reinforcement systems. Integration content will cover advanced sound manipulation, mixing workflow and external devices. Apart from completing live sound for a performance, the subject focuses on the design and installation of PA systems for large venues.

#### FOLEY, ADR & AUDIO REPAIR / RECOVERY

→ Post-Production

This subject will focus on the complete workflow involved in all aspects of audio post-production required for a short TV show. Students will cover session setups derived from a Final Cut Pro video output and will tailor this to an industry-standard Pro Tools workflow. Aspects covered will be session/track layouts, noise reduction processes, foley recording, music editing to suit scene changes and industry-standard delivery requirements.

#### ACOUSTICS & CRITICAL LISTENING

→ Audio Theory

This subject focuses on acoustics and its application to audio production and spatial design. This subject revises and deepens the fundamental acoustic principles applying them to spatial design with emphasis on the typical spaces used by entertainment professionals such as performing venues, recording rooms, and critical listening environments. Students will learn to create their own convolution reverb and much more.

#### FUNDAMENTALS OF MUSIC PERFORMANCE

→ Industry Awareness

This subject is designed to give non-performance students an introduction to the academic appreciation, analysis and discussion of a range of musical styles and concepts. Students will learn key concepts to assist them in communicating with performing musicians. Students will engage in active listening, acquire appropriate language to describe musical concepts, and explore different styles of writing about music.

#### AUDIO ELECTRONICS

→ Audio Theory

This unit covers the basics of audio electronics commencing with fundamental electronics theory expanding to the specific applications to audio electronics. Students will create their own guitar pedal as part of the practical components of this unit. Specific content will cover electrical circuits: design and function, safety, basic RC circuits, components such as filters, diodes, power supplies - mains power, earthing, transistors and impedance.

#### ENTERTAINMENT INDUSTRY PRACTICES

→ Industry Awareness

This subject examines the entertainment industry structure. Students will learn strategies for monetising their work and protecting their interests, whilst exploring tools for the marketing, promotion, and distribution of their work. Students are introduced to areas such as music publishing, copyright, distribution, touring, promotions, publicity, sources of income, and fundraising, as well as the development of a strategic support network.

## TRIMESTER 5 - Bachelor only units

### LARGE TRACK COUNT RECORDING & OVERDUBS

→ Recording Studio Techniques

Students will complete a large-scale production with a focus on delivering a complex final mix. Students will undertake a large-scale recording project as the major assessment for this unit. This project will introduce the management of a much higher track count, and include cross-platform synchronization. Modern, advanced mixing and production techniques will be covered throughout this unit.

### LARGE SYSTEM ENGINEERING & TUNING

→ Live Sound Reinforcement

This unit will focus further on the integration of technologies, software, and hardware both existing and emerging. Integration content will cover sound distribution systems, mixing workflow, and communication protocols, touching on other concepts like lighting, cues and vision. In this unit, the students plan and practice the installation of a stage show requiring multiple wireless units, communication systems, multi-track playback and delivery systems.

### SURROUND PRODUCTION WORKFLOW & FORMATS

→ Post-Production

This unit introduces current surround sound formats and its uses, emerging technology within the field, calibration of monitoring systems for use with surround sound, and the transfer of stereo projects into surround projects. There is a thorough exploration of surround sound recording and mixing techniques, with particular reference to the film and television utilisation, and specifically, Dolby ATMOS.

## TRIMESTER 6 - Bachelor only units

### SELF-DIRECTED PROJECT 1

→ Recording Studio Techniques

This is the final of six units in studio recording techniques. Students will be required to plan, manage, and produce a self-directed recording project of at least 15 minutes. This project allows students to bring together knowledge and skills from all units of the course. Students will work with a staff mentor weekly to plan and discuss their approaches to projects and any other issues relevant to the unit.

### SELF-DIRECTED PROJECT - LIVE SOUND

→ Live Sound Reinforcement

This subject will focus on students utilising their knowledge of small and large PA systems and their workings. Students will plan and execute a live event. This could include staging a large outdoor festival to encompass numerous acts across multiple stages and be managed by multiple students working in unison or be combined with other cohorts to help stage a cross-discipline event.

### SELF-DIRECTED PROJECT 2

→ Post-Production

This unit will focus on the final steps involved in delivering multi-platform files and the requirements for the broadcast of Film and TV. Students will apply mastering techniques to projects following industry-standard delivery requirements, file formats, and conversion processes. They will also assemble their work into a showreel for distribution to employers.

### AUDIO SYSTEMS

→ Audio Theory

This subject will focus on audio systems both analogue and digital and integration with other media. Students will investigate modern digital audio distribution techniques and protocols, along with proprietary and historical formats to expose students to typical mixed system audio installations. It will deepen the understanding of current digital and analogue audio formats, encoding/decoding methods, data/audio compression technology such as Dolby Digital and surround sound formats and other multi-channel audio formats.

### GROUP PROJECT

→ Industry Awareness

In this unit, students work across degree programs and areas of specialization to plan and execute a collaborative project. They will work with a mentor who will provide guidance and advice as students propose, plan, and execute their project.

### NEW & EMERGING TECHNOLOGIES

→ Audio Theory

This unit will consider new and emerging audio technologies. It draws together the theoretical frameworks presented in earlier units and develops the student's research and critical assessment of audio components, software, and systems. This unit is designed to develop an ethos of self-development to best prepare the student for a professional environment that is regularly subject to technological innovation and change.

### INDUSTRY PLACEMENT

→ Industry Awareness

This subject is to be completed in the last trimester of every student's academic career at Collarts and aims to build on all skills and knowledge previously acquired throughout the course. While it is a stand-alone subject, it aims to provide students with practical experience that follows on from their previous studies. Students must apply for and successfully undertake a practical placement to complete this unit.