

AUDIO-VISUAL TECHNOLOGY COURSE MODULES

Want to put together amazing audio-visual shows at mega concerts? Or be involved in lighting up the billboards of the F1 Night Race in Singapore? You could very well do so, when you take on the Diploma in Audio-visual Technology [AVT]!

With AVT, you will gain the technical and creative skills you need to succeed in the arts and entertainment industries. You will learn to plan and set up audio-visual components and equipment for meetings, conventions, exhibitions and stage entertainment events. You will also pick up skills in producing and editing creative media content as well as synthesising and mixing audio files using the latest software and professional equipment. Finally, you will learn to design, plan and manage technical theatres, live shows and events.

If you're musically inclined, you can also learn to arrange and compose music, and design sound for live performances and advertisements with our elective modules in Music Theory & Synthesis, Fundamentals of Sound Design and Sound Design for Live Performances. AVT's strong emphasis on hands-on training also means that you will get to go on internships with industry players like Esplanade and Mediacorp from as early as your first year.

LEVEL 1.1

Career & Professional Preparation I

This module helps to give students a foundational introduction to their three-year diploma course curriculum and how it prepares them for industry. It will help them to embark on their three-year course with the end in mind, through guided reflection of their personal characteristics, and producing an overall game plan for their future education and career goals. The module aims to deepen students' commitment to the sector that the course prepares them for.

Electrical Engineering Fundamentals

This module provides a foundation in electricity covering basic concepts of electrical circuits and the methods used to analyse them. The module emphasises the understanding of the basic electrical circuit laws (Ohm's Law, Kirchhoff's Voltage and Current Laws) and network theorems, and their application to electrical network analysis. Topics covered include fundamentals of electricity, network theorems, capacitance, electromagnetic induction and inductance.

Engineering Mathematics 1

This module is designed to provide students with the fundamental skills in mathematics required to solve basic engineering problems. Topics are introduced in an order that is intended to keep abreast of the application requirements in engineering modules. The emphasis in each topic is on simple applications and problem solving. Topics include algebra, trigonometry, logarithms, plane analytic geometry, matrices and complex numbers. Throughout the module, there is appropriate use of a Computer Algebra System.

Mechanical Engineering Fundamentals

This module introduces students to the study of external forces in two dimensions and their effect on particles and rigid bodies that are at rest. Students learn the skills to analyse the forces acting on the bodies by drawing free-body diagrams and applying the conditions of equilibrium. Topics include forces and resultants, moments and couples, equilibrium and the concepts of plane friction. This module also aims to equip students with the skills to analyse problems of rigid bodies in motion. Only linear motion in two dimensions will be covered. Topics include kinematics and kinetics of linear motion.

Programming

This practice-oriented module equips students with basic knowledge and skills in computer programming using C language. The main topics include basic computer programming concepts, fundamentals of C programming including branching, loops, and functions.

Video Editing

This module equips students with practical skills in video editing using non-linear multimedia editing software. The content includes editing of stringing shots together, transition, video effects, picture in picture, voice over of original sound tracks, designing and inserting credits or actor list, and colour corrections. Students will also learn complex processes that include building layered effects and creating titles. Text motion graphics are taught to enhance the rich media presentation of video editing. Students will form teams to produce video clips as projects on topics of their choice.

Innovation Made Possible (IS Module)

This module aims to help students discover and hone their innate ability to think creatively and come up with innovations to tackle problems close to their hearts. Underpinned by the Design Thinking framework, students will be sensitized to the process of user-centric problem solving. They will be introduced to concepts such as empathy, problem-definition, ideation, prototyping and testing through a practical approach featuring engaging out-of-classroom activities, just-in-time master-classes and a hands-on, "learning by doing" delivery format. Ultimately, the module will help students recognize that innovation is attainable and fun and develop creative confidence to explore new ideas in their studies and beyond.

Sports and Wellness (IS Module)

This module helps you to learn a sport as a recreational activity to keep you fit and healthy. Team building and collaboration skills are developed as you network with other students. There are a total of 19 sports electives to choose from: Aerobics, Badminton, Basketball, Cheerleading, Dance Movement, Dancesport, Flag Football, Hip Hop, Life Saving / Swimming, Netball, Orienteering, Street Soccer, Soccer, Softball, Tennis, Touch Rugby, Volleyball, Wellness Programme and Yoga. Outstanding students are awarded a Pass with Merit.

LEVEL 1.2

Analogue Electronics & Applications

This module expounds the fundamental concepts of analogue electronic devices and circuits. It covers semiconductor physics as well as the device characteristics, operating principles and common applications of diodes and transistors. The module will equip students with a thorough understanding of DC biasing and AC operation of transistor amplifier circuits. This will be achieved through worked examples, tutorials, laboratory sessions and e-learning materials.

Audio Electronics and Electrical Practical Skills

This workshop-based module equips students with relevant practical skills such as electronic component identification, correct wiring methods, and the building and testing of audio electronic circuits on breadboards and printed circuit boards. Students will learn to use various test and measurement equipment such as the digital multi-meter, oscilloscope and function generator. Students will also receive hands-on practice in basic electrical wiring, installation and relay control systems.

Digital Electronics & Practices

This module aims to provide students the basic knowledge and fundamental principles in digital electronics. Topics include Number Systems and Codes, Logic Gates and Boolean Algebra, Combinational Logic Circuits, Counters, Flip-Flop and Data Handling Circuits. In this module, students will be able to explain and analyze the workings of digital circuits through hands-on experiments in the laboratory.

Engineering Mathematics 2

This module is designed to provide students with the fundamental skills in mathematics required to solve basic engineering problems. Topics are introduced in an order that is intended to keep abreast of the application requirements in engineering modules. The emphasis in each topic is on simple applications and problem solving.

Throughout the module, there is appropriate use of a Computer Algebra System. Topics include trigonometry, differentiation and simple integration with applications.

Fundamentals of Audio & Acoustics

The module covers the physics and applications of sound, sound reproduction systems, audio electronics, electro-acoustic devices, analog versus digital sound. It also includes acoustic and psychoacoustic with integration to specific applications and platforms

Music and Music Technology

The module covers basic music theory and ear training which are essential foundation for music and audio production. The students are also introduced to MIDI and music synthesis, coupled with projects applying sequencing techniques to produce sequenced music based on synthesized sound and audio loops.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 1	
Level 1.1 (25 hours per week)	
Career & Professional Preparation I	2
Electrical Engineering Fundamentals	3
Engineering Mathematics 1	4
Mechanical Engineering Fundamentals	3
Programming	4
Video Editing	4
Innovation Made Possible ^	3
Sports & Wellness ^	2
Level 1.2 (23 hours per week)	
Analogue Electronics & Applications	4
Audio Electronics & Electrical Practical Skills	4
Digital Electronics & Practices	2
Engineering Mathematics 2	4
Fundamentals of Audio & Acoustics	3
Music & Music Technology	3
Communication Essentials ^	3

Notes:

^ For more details on Interdisciplinary Studies (IS) electives, please log on to www.np.edu.sg/is/

IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students' competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.