COURSE CURRICULUM

Module Name	Credit Units
YEAR 1	
Level 1.1 (26.5 hours per week)	
Career & Professional Preparation I	1.5
Computer Programming	4
Electrical Technology	4
Engineering Mathematics 1	5
Engineering Mechanics	4
Video Editing	4
Innovation Toolkit 1 ^	2
Sports & Wellness ^	2
Level 1.2 (28 hours per week)	
Analogue Electronics & Applications	5
Audio Electronics & Electrical Practical Skills	4
Digital Electronics & Practice	2
Engineering Mathematics 2	5
Fundamentals of Audio & Acoustics	3
Music & Music Technology	3
Communication & Contemporary Issues ^	4
Innovation Toolkit 2 ^	2

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

IS Modules
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COURSE MODULES

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.

Computer Programming

This practice-oriented module equips students with the basic knowledge and skills in computer programming using C language. The main topics include basic computing concepts, fundamentals of C, branching, loops, and C functions. On completion of the module, students will be able to explain and write C programmes for simple engineering applications.

Electrical Technology

This module builds the necessary foundation for electrical circuit analysis covering electrical theorems and techniques for analysing and solving direct and alternating current circuit problems. Laboratory assignments include basic electrical measurement skills and concepts learnt in lectures and tutorials.

Engineering Mathematics 1

This module provides students with mathematical skills for solving basic engineering problems. Topics are organised to keep pace with applications in the engineering modules. They include algebra, trigonometry, logarithms, matrices and complex numbers. A Computer Algebra System will be used where appropriate.

Engineering Mechanics

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 and rotational motion in two dimensions will be covered. Topics include kinematics of linear and rotational motion, and kinetics of linear and rotational motion.

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.

LEVEL 1.2

Analogue Electronics & Applications

The aim of this module is to introduce the fundamental concepts of analogue electronic devices and circuits. It covers semiconductor physics as well as the devices' characteristics, operating principles and common applications of diodes and transistors. The module will equip students with a thorough understanding of transistor switching and DC biasing as well as AC operation of transistor amplifier circuits. This will be achieved through work examples, tutorials, laboratory sessions and e-learning material.

Audio Electronics & Electrical Practical Skills

This workshop-based module equips students with practical skills in 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 multimeter, oscilloscope and function generator.

Digital Electronics & Practice

This module covers basic principles of digital electronics. Topics include Number Systems and Codes, Logic Gates and Boolean Algebra, Combinational Logic Circuits, Counters, Flip-flops and Data Handling Circuits. Students will be able to explain and analyse the workings of digital circuits through hands-on experiments in the laboratory.

Engineering Mathematics 2

This module equips students with further mathematical skills to solve engineering problems. Topics include further trigonometry, trigonometric graphs, plane analytic geometry, differentiation with applications, and integration with applications.

Fundamentals of Audio & Acoustics

The module will cover introduction to the application and physics of sound, sound reproduction systems, followed by sound production systems. Audio electronics, electroacoustic devices, analogue versus digital sound, acoustics and psychoacoustics will be introduced, with tight integration to specific applications and platforms.

Music & Music Technology

The module will cover basic music theory and ear training, to build a foundation for music and audio production. This is followed by an introduction to MIDI and music synthesis, complete with projects applying sequencing techniques to produce sequenced music based on synthesised sound and audio loops.

COURSE CURRICULUM

Module Name	Credit Units
YEAR 2	
Level 2.1 (25 hours per week)	
Audio Technology	5
Career & Professional Preparation II	2
Digital Audio	3
Engineering Mathematics 3A	4
Music Production	4
Web & Creative Media Technology	2
PC Networking	3
Interdisciplinary Studies (IS) elective ^	2
Level 2.2 (23 hours per week)	
Audio Visual Mini Projects	3
Computer-Aided Drawing	2
Digital Photography & Graphics	3
Media Transmission Systems	5
Video Production	3
Video Technology	5
Interdisciplinary Studies (IS) elective ^	2
SOUND DESIGN ELECTIVE*	
Music Theory & Synthesis	3

MINOR IN BUSINESS MANAGEMENT

Module Name	Credit Units
YEAR 2	
Level 2.1 (27 hours per week)	
Audio Technology	5
Computer-Aided Drawing	2

Digital Audio	3
Engineering Mathematics 3A	4
Marketing Fundamentals	4
Music Production	4
PC Networking	3
Interdisciplinary Studies (IS) elective ^	2
Level 2.2 (25 hours per week)	
Audio Visual Mini Projects	3
Fundamentals of Financial Management	4
Media Transmission Systems	5
Video Editing	4
Video Technology	5
Web & Creative Media Technology	2
Interdisciplinary Studies (IS) elective ^	2

Notes:
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The Minor in Business Management has the same Year 1 curriculum.

COURSE MODULES

LEVEL 3.1

Audio Effect Processing
This workshop-based module offers intensive hands- on sessions, where students learn to create, edit and mix music and special sound effects onto multiple audio tracks. It also provides theoretical and practical training on digital audio effects techniques that convert 2-channel stereo audio track to 5.1 surround-soundtracks, the professional use of AC-3, redirection to speakers through digital Dolby and surround sound decoders, and spatial enhancement in theatre and audio entertainment application.

Live Sound Technology
This hands-on module teaches students the concepts and technical skills required for live event sound reinforcement. Topics include the operation of a basic sound system using interconnected components such as consoles, amplifiers, speakers, processors and microphones. Upon completion of this module, students will be able to apply the concepts of live sound reinforcement to set up and operate a small to medium-scale sound system for a live event, and to customise a recording set-up based on the ambience and multimedia requirements.

Stage Lighting
This module enables students to learn the technical and creative aspects of stage lighting. Topics include basic design, colour and exposure theory, types of lighting instruments, power distribution, control, safety, proper hanging,

connection, focus, and control of instruments. Upon completion of this module, students will be able to perform creative lighting layout, install concert lighting, explain colour theory, integrate lighting control instrumentation, and set up a variety of motion lighting instruments.

Starting & Managing an Enterprise

In this module, students generate business ideas and propose how these ideas can be developed into a business plan incorporating operational and financial requirements and marketing strategies for a new enterprise. In addition, students will learn how the principles of management can be applied to organise and develop the enterprise. Topics covered include entrepreneurial concepts and issues, business entry and exit strategies, types of business ownership, sources of business financing, venture launch and management principles.

Video Conferencing & Streaming Technology

This module provides training in streaming technologies that include local network, internet audio and video streaming technology, webcasting and voice over IP (VoIP). Students will acquire knowledge of hardware configurations, transmitters and receivers, quality of service, routing, re-sequence, signal processing and streaming standards. The module also includes an overview of the MPEG-4 data compression mechanism; and issues related to shooting video for streaming, editing, quality control, and the formatting of streaming audio and video to fit various applications such as video conferencing, web-casting, pod-casting and mobile entertainment systems.

LEVEL 3.2

6-Month Local/Overseas Internship

In this module, students will have the opportunity to apply the skills and knowledge acquired in the classroom in a real-time environment. Students are given on-the-job training in actual companies to develop skills in problem-solving, interpersonal communications, project planning, industrial liaisons and character building. Participating companies will also have the opportunity to assess prospective employees and secure the services of these students in advance.

Project Design & Development

In this module, students are expected to integrate the knowledge they gained during the first two years of study and undertake a six-month long project in the field of AVT. They will also be required to develop a business proposal/plan which forms an integral part of the whole project

SOUND DESIGN ELECTIVES

Fundamentals of Sound Design

This module introduces applications of sound design and related tools. These include computer music sound scaping, theatrical sound design, jingles sound design (as an introduction to film/TV sound design), animation/ feature film Sound FX and animation/feature film music scoring. At the end of the module, students will be able to perform simple sound design based on a small video clip provided (which can be dramas, advertising videos or parts of MTV).

Sound Design for Live Performances

This module reinforces students' skills on sound design. The concepts and tools to apply sound design coupled with basic music composition are then used to create music masterpieces to support live performances. Students are given assignments to produce completed portfolios of work. These portfolios will enable students to showcase their skills and experience in sound design and basic music composition for not only live performances but also short advertisements and moving images, upon completing their studies.

BUSINESS MANAGEMENT ELECTIVES

Students are to choose *one* of the three electives below:

Managing Service Operations

This module introduces the operations in service organisations and the use of techniques for designing, planning, organising and controlling resources for the delivery of goods and services to meet customers' needs and organisational objectives. Concepts covered include service facility, managing facilitating goods, forecasting demand, managing waiting lines, process improvement, inventory management, service supply relationship and service quality.

Supply Chain Management
This module introduces students to the process of planning, implementing, and controlling the operations of the supply chain. It will cover the movement and storage of raw materials, work-in-process inventory and finished goods from point-of-origin to point-of-consumption. The module also emphasises the effect supply chain management has on the success and profitability of the organisation.

Understanding Buyer Behaviour
The module provides students with a basic understanding of buyer behaviour concepts. It explores various influencing factors that affect buyer decisions. Buyers could be consumers or corporate buyers. Topics covered include consumer decision-making processes, perceptions and attitudes, consumer demographics and lifestyles, and cultural and group influences.

DIPLOMA PLUS PROGRAMME

The Diploma Plus Programme (DPP) is designed to provide students with proficiency in a selected domain area, either to broaden or deepen their knowledge/skills in their main discipline of study, or to equip them with additional professional knowledge that would better prepare them for further study or increase their employability.

Students can select elective modules from a wide range of clusters to obtain their Diploma Plus Certificate. DPP is optional and it will not affect the graduating requirement for the award of a diploma. Students can choose the DPP clusters from the list below. The offer of a DPP cluster is subject to the condition that the minimum class size is met and based on available vacancies.

Engineering Clusters
- Applied Physics[#]
- Industrial Control (World Skills Singapore)
- Stage Management & Technology

Other available Diploma Plus Certificates
- Advanced Engineering Mathematics*
- Business**
- Innovation Management
- Foreign Languages

[#] The Applied Physics syllabus is aligned with the NTU's FE1012: Physics A module. NP students who obtain good grades in the Applied Physics modules will be granted exemption from the FE1012: Physics A module.

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COURSE CURRICULUM

Module Name	Credit Units
YEAR 3	
Level 3.1 (24 hours per week)	
Audio Effect Processing	5
Live Sound Technology	5
Stage Lighting	5
Video Conferencing & Streaming Technology	5
Interdisciplinary Studies (IS) elective ^	2
World Issues: A Singapore Perspective ^	2
Level 3.2 (24 hours per week)	
6-Month Local/Overseas Internship	22
or	
Project Design & Development	22
SOUND DESIGN ELECTIVES*	
Fundamentals of Sound Design	2
Sound Design for Live Performances	3

MINOR IN BUSINESS MANAGEMENT

Module Name	Credit Units
YEAR 3	
Level 3.1 (22 hours per week)	
Business Management Elective	4
Live Sound Technology	5
Stage Lighting	5
Starting & Managing an Enterprise	4
Interdisciplinary Studies (IS) elective ^	2
World Issues: A Singapore Perspective ^	2
Level 3.2 (22 hours per week)	
6-Month Local/Overseas Internship	22
or	
Project Design & Development	22

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* Denotes the Music Design Electives.

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