Subject Description Form

Subject Code	EIE1D02 (CAR STE Subject)
Subject Title	Electronic Music: The Impact of Technology on Digital Lifestyle
Credit Value	3
Level	1
Pre-requisite/Co-requisite/Exclusion	Nil
Objectives	This subject aims at introducing to students the influence of electronic and digital technologies on production, storage, and distribution of music; and the impact of these technologies on the development and adoption of digital lifestyle.
Intended Subject Learning Outcomes	**Upon completion of the subject, students will be able to:** 1. Describe the scientific basics of sound, music, and hearing perception 2. Describe the impact of electronic music on the development of digital lifestyle and human's expression of emotion through music 3. Apply what s/he has learnt in using electronic and digital technologies to make/play music
Subject Synopsis/ Indicative Syllabus	**Syllabus:** 1. Scientific Basics of Sound, Music and Hearing Perception Students will learn the scientific basics about music such as frequency, spectrum, intensity, phase and overtones. They will also learn the perception of hearing such as pitch, loudness, timbre, and tone color. These elements are the "palette" available to musicians to express their feelings. 2. Music in Digital lifestyle Students will explore the roles electronic music plays in shaping digital lifestyle. They will study various ways music are represented, stored, and shared. 3. Generation of Electronic Music Students will study different approaches to generating electronic and digital music into a computer: by the use of electronic circuits, and by synthesizing music with computer. 4. Processing of Electronic Music In this section, the common processing techniques of electronic music will be discussed. Such techniques include additive and subtractive synthesis, special effects, waveform editing, sequencing of MIDI codes, and multi-tracking. The students will do a project to produce a piece of music by applying all the techniques thus learnt. 5. Applications and Impact With electronic music becoming more portable (due to their small size), sharable (due to the standardized method of distribution over the Internet), more accessible (due to availability of low-cost equipment), and more expressive (due to the freedom from musical instrument requirement), the impact on human expression, intellectual property rights ownership and management, healthy lifestyle will be explored. The theme "everybody can make/play music" will be introduced.

Teaching/ Learning Methodology

Teaching and Learning Method	Intended Subject Learning Outcome	Remarks
Lectures	1, 2	Lectures will be used to deliver the knowledge of the subject matters. Demonstration will also be given in lectures. Interactivity will be emphasized so that students will also participate in discussions during lectures.
Tutorials	1, 2	Tutorials will be used to strengthen students' thinking and understanding. Worksheets and quizzes will be given to students to let them practice what they have learnt. Feedback will be given to help students improve their learning.
Assignments/ Quizzes	1, 2, 3	Students will do assignments/quizzes to reinforce the knowledge taught in lectures, to extend the knowledge by further reading and critical thinking and to apply the knowledge.
Project	3	Students will do a project to put all they have learnt in this subject into practice. They will write a report.

Alignment of Assessment and Intended Subject Learning Outcomes

Specific Assessment Methods/Tasks	% Weighting	Intended Subject Learning Outcomes to be Assessed (Please tick as appropriate)		
		1	2	3
Continuous Assessment (Total: 100%)				
• Assignments/Quizzes	40%	✓	✓	✓
• Tests	25%	✓	✓	
• Project	35%			✓
Total	100%	✓	✓	✓

The continuous assessment will consist of assignments, tests, and a project. The assignment will enable the students to demonstrate their knowledge and understanding about the topics taught. The tests will test the students' understanding about the taught materials and the extension of such knowledge. The project will require the students to produce a piece of short music with application of related technologies. Students will report their experience, understanding, design, approaches, and results in a project report.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Specific Assessment Methods/Tasks	Remark
Quizzes and tests	These are effective in assessing students' assimilation of knowledge. Open-ended questions with design element and scenario-based problems test students' ability in extending and applying the learned knowledge.
Assignments and Project	The project will require the students to produce a piece of music by applying what he/she has learnt in this subject. For example, students will remix or composite music over multiple tracks with the use of prerecorded musical phrases. This will be effective in assessing students' ability in applying the learnt knowledge.

Student Study Effort Expected

Class contact (time-tabled):	
• Lecture/Tutorial	21 Hours
• Practice classes for project	18 hours
Other student study effort:	
• Lecture: preview/review of notes; homework/assignment; preparation for test/quizzes	36 Hours
• Tutorial/Laboratory/Practice Classes: preview of materials, revision and/or reports writing	30 Hours
Total student study effort:	**105 Hours**

Reading List and References

Textbooks:

A set of self-contained lecture notes will be given to the students.

Reference Books/Papers:

1. Ikutarō Kakehashi, *An age without samples,* Roland Coporation, 2017
2. *The Oxford handbook of computer music*, Oxford University Press, 2011
3. Thom Holmes, *Electronic and experimental music: technology, music, and culture*, New York : Routledge, 2008
4. Simon Cann, *How to Make a Noise: a comprehensive guide to synthesizer programming,* available for free download at http://noiseculpture.com/
5. Susanne Boll et. al., "Digital Lifestyle 2020", *IEEE Computer Society Magazine*, April-June 2008, pp. 4 – 7.
6. Huber, David Miles, *The MIDI Manual: A Practical Guide to MIDI in the Project Studio, Focal, 3rd ed., 2007*
7. Miller Puckette, *The theory and technique of electronic music*, Singapore : World Scientific, 2007.
8. J. Anthony Allen, *Music theory for electronic music producers: the producer's guide to harmony, chord progressions, and song structure in the MIDI Grid,* Minneapolis, MN. : Slam Academy, 2018
9. Nahmani, David, *Logic Pro X 10.5*, Peachpit Press ; 2021

Classics Papers

10. Electronic Music: New Ways to Play, IEEE Spectrum, Dec 1997, pp. 18-30.
11. Earle L. Kent, "Electronic Music – Past, Present and Future," *Trans. IRE-PGA*, 1953
12. Hugh Le Caine, "Electronic Music", *Proc. IRE*, pp. 457-478, April 1956

	Reading requirements: Students will be required to read References 9-11 to gain an in-depth understanding of the historical development of electronic music. They will also be required to read user manuals (e.g. User Manual of Audacity, Logic Pro X), technical references (e.g. MIDI standard) when they are doing their projects. They will also be recommended to read selected chapters from the reference books in order to gain a firm understanding of the subject.
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