



2024 Unit Outline Year 11		
Teacher(s)	Matthew Phillipps	
Course	Creative Computing - ANU	BSSS Course Code: 1638
Unit	Fundamentals of Creative Computing	BSSS Unit Code: 16591
Accreditation	H	
Unit Value	1.0 Point	
Assessment Period	2024 Y1: Terms 2, 3 and 4	

Fundamentals of Creative Computing

Unit Description

This unit will introduce design and computer programming in the context of creating music and interactive artwork with code. Topics covered may include the nature and history of creative computing, UI/UX design, data representation, program organisation, control structures, algorithms, 2D/3D graphics, and audio signal processing.

Specific Unit Goals

This unit should enable students to:

- understand design and computer programming in the context of creating music and art
- develop and apply design and product develop processes
- develop technical skills and computer languages skills to create art.

Content Descriptions

All knowledge, understanding and skills below must be delivered:

Design process

- design, construct, and debug small to medium-sized computer programs
- evaluate visual and UI/UX design (including input from mouse/ keyboard/ camera/ microphone/ sensor devices) in a web interface.

Strategies, Methodologies and Procedures

- design and implement various algorithms for generating art & music, for example Markov chains, context-free grammars, L-systems, genetic algorithms, cellular automata, or other algorithmic compositional techniques.

Theories, concepts and materials

- apply software engineering concepts in a high-level programming language to create code-based artworks
- create an original work of interactive code artworks by conceptualising, planning and executing.

Contexts

- critically analyse the representation of social groups in creative computing
- apply ethical practices when working in the field of creative computing
- synthesise creativity and the cultural and legal regulatory requirements surrounding authorship and appropriation in the context of creative computing.

Communication

- communicate accurately with others using correct terms in an appropriate format, both orally and in writing
- communicate ideas and insights in a range of appropriate mediums to a variety of audiences
- evaluate and apply teamwork strategies for creative collaboration in a networked computing environment
- justify ideas coherently using appropriate evidence and accurate referencing.

Reflection

- reflect on own learning style and performance, including planning and time management, to develop strategies to improve own learning
- reflect on learning and creative practices in a university context.

ASSESSMENT

Assessment Tasks

Task	Assessment Description	Weighting	Due Date
Creative Computing Process Blog	<i>audiovisual diary comprised of 6 submissions over term 1 and term 2</i>	30%	24 May – 20 September
Mini-project	<i>First creative computing project in response to a provocation</i>	30%	22 October
Final project	<i>Final creative artefact/performance</i>	40%	29 November

The unit score for each student will be calculated by summing the weighted raw scores to calculate a final raw score which will be scaled according to parameters agreed upon by the ANU and BSSS.

ANU scores and grades will be calculated using scaled raw scores.

Specific Unit Information

About Fundamentals of Creative Computing

In Creative Computing you will learn the fundamentals of computer programming through the creative process of making music and visual art.

The course caters to two types of students:

- Those with an interest in and aptitude for computer science (especially computer programming) who wish to apply and develop these skills in new and creative directions; and
- Students with an interest in and aptitude for the creative arts who are keen to incorporate technology in their creative practice.

Students will be introduced to design and computer programming in the context of creating music and interactive artwork with code. Topics covered may include the nature and history of creative computing, UI/UX design, data representation, program organisation, control structures, algorithms, 2D/3D graphics, and audio signal processing.

Other Information

Students will be required to be enrolled in courses in their home college or school. Whilst H courses are intended to provide challenging extension experiences, students enrolled in H courses do not necessarily have to be studying the same course in their home college. However, normally there will be co-requisite home college courses. Any co-requisite home college courses will be determined by the home college or school. To be offered a place in the course students must be successful in portfolio-based interviews held in Nov/Dec of each year. Students must achieve an overall passing grade in each unit before continuing to the next unit.

Indicative Assessment process:

1. **process blog:** process blog entries will be submitted as per the published schedule, and will contain examples of the student's own work and the work of others (with appropriate referencing) (30%)
2. **mini project:** students will submit a response to the mini project provocation through a code-based music/visual artwork and an accompanying rationale for assessment & feedback (30%)
3. **final project:** the student's final works will be performed/exhibited and assessed at an end-of-year exhibition (40%)

The ANU uses Turnitin to enhance student citation and referencing techniques, and to assess assignment submissions as a component of the University's approach to managing Academic Integrity. While the use of Turnitin is not mandatory, the ANU highly recommends Turnitin is used by both teaching staff and students. For additional information regarding Turnitin please visit the ANU Online website.

Workload

30x 2-hour in-person workshop sessions, plus 50 hours of self-study (110 hours total).

Requisite and Incompatibility

To enrol in this course, you must be studying a Bachelor of Studies. Students who take this course must be enrolled in either a course in the Information Technology Course Area or a course in the Arts framework, at T-level, at their home college.

Prescribed Texts

All material will be freely available on the EXTN1019 course website (based on content from the COMP1720 and COMP2710 course websites).

Preliminary Reading

The course content will be based on selected content from both COMP1720 (lectures, labs) and the COMP2710 Laptop Ensemble (workshop content).

Assumed Knowledge

Students are assumed to have completed all of the compulsory studies in the Arts and Digital Technologies in the Australian Curriculum.

Achievement Standards ANU H Course Creative Computing - Year 11

	<i>A student who achieves an A grade typically</i>	<i>A student who achieves a B grade typically</i>	<i>A student who achieves a C grade typically</i>	<i>A student who achieves a D grade typically</i>	<i>A student who achieves an E grade typically</i>
Knowledge and understanding	<p>critically analyses the design process and evaluates constraints and implications for decision making</p> <p>synthesises technology theories, concepts and principles and evaluates the properties of materials or data or systems to address a need, problem or challenge</p> <p>critically analyses technologies and evaluates ethical and sustainable application of technology</p> <p>thinks critically and creatively, drawing on data and information to solve complex problems</p>	<p>analyses the design process and explains constraints and implications for decision making</p> <p>analyses technology theories, concepts and principles and explains the properties of materials or data or systems to address a need, problem or challenge</p> <p>analyses technologies and explains ethical and sustainable application of technology</p> <p>thinks critically, drawing on data and information to solve complex problems</p>	<p>explains the design process and describes constraints and implications for decision making</p> <p>explains technology theories, concepts and principles and describes the properties of materials or data or systems to address a need, problem or challenge</p> <p>explains technologies and describes ethical and sustainable application of technology</p> <p>thinks critically, drawing on data and information to solve problems</p>	<p>describes the design process with some reference to constraints and implications for decision making</p> <p>describes technology theories, concepts and principles with some reference to properties of materials or data or systems to address a need, problem or challenge</p> <p>describes technologies with some reference to ethical and sustainable application of technology</p> <p>draws on data and information to solve problems and describes opportunities</p>	<p>identifies features of the design process with little or no reference to decision making</p> <p>identifies technology theories, concepts and principles with some reference to properties of materials or data or systems to address a need, problem or challenge</p> <p>identifies some features of technologies with little or no reference to ethical and sustainable application of technology</p> <p>applying limited use of information and data</p>
Skills	<p>applies technology concepts, strategies and methodologies with control and precision demonstrating understanding of the historical and cultural context and its impact</p> <p>creates innovative and high quality design solutions/products using techniques and approaches and justifies ideas coherently</p> <p>critically analyses potential prototypes and solutions evaluating their appropriateness and effectiveness via iterative improvement and review</p> <p>communicates complex ideas and insights effectively in a range of mediums to a variety of audiences using appropriate evidence, metalanguage and accurate referencing</p> <p>reflects with insight on their own thinking and that of others and evaluates inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively</p>	<p>applies technology concepts, strategies and methodologies with control demonstrating understanding of the historical and cultural context and its impact</p> <p>creates innovative and quality design solutions/products using techniques and approaches and justifies ideas coherently</p> <p>analyses potential prototypes and solutions explaining their appropriateness and effectiveness via iterative improvement and review</p> <p>communicates ideas effectively in a range of mediums to a variety of audiences using appropriate evidence, metalanguage and accurate referencing</p> <p>reflects on their own thinking and analyses inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively</p>	<p>applies technology concepts, strategies and methodologies with some control demonstrating understanding of context and its impact</p> <p>creates quality design solutions/ products using techniques and approaches and justifies ideas coherently</p> <p>explains potential prototypes and solutions describing their appropriateness and effectiveness via iterative improvement and review</p> <p>communicates ideas appropriately in a range of mediums to a variety of audiences using appropriate evidence, metalanguage and accurate referencing</p> <p>reflects on their own thinking and explains inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively</p>	<p>applies technology concepts, strategies and methodologies with minimal control demonstrating understanding of its impact</p> <p>creates design solutions/products using some techniques and approaches and explains ideas</p> <p>describes potential prototypes and solutions with some reference to their appropriateness and effectiveness via iterative improvement and review</p> <p>communicates ideas in mediums to a variety of audiences using some evidence, metalanguage and referencing</p> <p>reflects on their own thinking with some reference to inter and intrapersonal skills including planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively</p>	<p>applies technology concepts, strategies and methodologies with limited control demonstrating little evidence of understanding its impact</p> <p>plans design solutions/products using some techniques and approaches and describes ideas</p> <p>identifies potential prototypes and solutions with little or no reference to their appropriateness and effectiveness via iterative improvement and review</p> <p>communicates basic ideas in mediums to a variety of audiences using minimal evidence, metalanguage and some referencing</p> <p>reflects on their own thinking with little or no reference to planning, time management, use of appropriate techniques and strategies and capacity to work independently and collaboratively</p>

ASSESSMENT POLICIES

Late Submission of Assessment Tasks (Non-Test Tasks)

Students are encouraged to submit work on time as this is a valuable organisational skill and a key tenet of assessment condition standardization. Students are also encouraged to complete work, even if it is late, as soon as possible after the due date. The following policy is to ensure equity for **all** students:

- All assessment tasks are expected to be submitted by the specified due time and date. Unless otherwise stipulated, the due time is 4.00pm for the physical submission of assessment and 11:59pm for the digital submission of assessment, on the due date.
- Unless there are exceptional circumstances, students must apply for an extension to the specified due date in advance, providing due cause and adequate documentary evidence for late submission.
- Where marks are awarded for assessment tasks, a late penalty will apply unless an extension is granted. The penalty for late submission is 5% of possible marks per calendar day late, including weekends and public holidays, until a penalty of 35% or the notional zero is reached. If an item is more than 7 days late, it receives the notional zero score (Refer to 4.3.11 Notional Zeros). Submission on weekends or public holidays may not be acceptable if a physical submission is required. This should be clearly stipulated to students.
- Where marks are not awarded, and a grade only is given for an assessment task, teachers will take into account the extent to which students have demonstrated their ability to complete and submit the task by the due date (taking into account any extensions granted) in awarding the grade.
- It may not be possible to grade or score work submitted late after marked work in a unit has been returned to other students. Work not submitted by the time marked work is returned to other students may be declared as 'Not submitted'. Students should be made aware in writing
- if this will be less than 7 days after the due date and any granted extensions.

Assessment Tasks: If an absence from an assessment task is unavoidable, the teacher concerned should be told as soon as possible prior to the task being due. Absence from a test requires the presentation of a medical certificate or other acceptable explanation. Tests must be taken on the scheduled day except in the case of illness, where the student is required to supply a letter from a parent/ guardian or a doctor's certificate. All extenuating circumstances will be given due consideration. (Conditions for special consideration may apply)

Completion of Assessment: A student will be awarded a V grade in a unit where she/he, fails to submit items of assessment worth at least 70% of the assessable work without a satisfactory explanation. This will be recorded with the ANU as a NCN grade.

Class Attendance and V grade Policy: It is expected that students will attend all scheduled classes/contact time/ structured learning activities for the units in which they are enrolled, unless there is due cause and adequate documentary evidence is provided. A student may be awarded a V/NCN grade in a unit where she/he misses more than 6 scheduled classes in a 2 Point unit (or 3 in a 1 Point unit) **or similarly is more than 10 mins late in 6 scheduled classes in a 2 point (or 3 in a 1 point unit) without a satisfactory explanation.**

Plagiarism

Plagiarism is the copying, paraphrasing or summarizing of work, in any form, without acknowledgement of sources, and presenting this as a student's own work.

Examples of plagiarism could include, but are not limited to:

- submitting all or part of another person's work with/without that person's knowledge
- submitting all or part of a paper from a source text without proper acknowledgement
- copying part of another person's work from a source text, supplying proper documentation, but leaving out quotation marks
- submitting materials which paraphrase or summarize another person's work or ideas without appropriate documentation
- submitting a digital image, sound, design, photograph or animation, altered or unaltered, without proper acknowledgement of the source.

Unit Grades: A to E unit grades for H course units will be awarded by the university, based on the Achievement Standards in BSSS Frameworks. These will be recorded on the student's Senior Secondary Certificate.

Grades are awarded on the proviso that the assessment requirements have been met. Teachers will consider, when allocating grades, the degree to which students have demonstrated their ability to complete and submit tasks within a specified time frame.

Academic Appeals

There are a number of steps available to students who wish to appeal their assessment results.

Preliminary Procedures

It is the responsibility of the student to check the marking of each assessment task.

A student may request a review of the marking of a task by first discussing the matter with the class teacher. The class teacher may confer with another teacher if marking was shared or moderated.

If the matter is unresolved the student should alert the H Course Coordinator. The H Course Coordinator will then discuss the matter with the appropriate ANU representative (usually the Head of Department or Associate Director, Education) in an attempt to resolve the assessment issue.

Formal Academic Appeals

The Academic Appeals Committee

If the assessment matter is not resolved a formal appeal will commence. The student will lodge a written appeal with the college principal attached to the ANU EX Program that clearly states the grounds on which the appeal is being made.

The appeal must include appropriate information and documentation to support the matter of the appeal. This information should include the appellant's desired outcome.

Grounds for Appeal

Students may formally appeal on one or more of the following grounds:

- the published procedures used to calculate a unit grade or score or course score have not been followed, or have been applied unfairly or incorrectly
- an inappropriate penalty has been imposed for a breach of discipline in relation to assessment, including the severity of the penalty or denial of the breach of discipline, and/or
- the published appeal procedures, which are available for public inspection, have not been followed or have been applied unfairly or incorrectly.

The Principal attached to the ANU EX Program will form and chair an Academic Appeals Committee. The student and other relevant parties will be notified of the date, time and place of the appeal hearing by the chair.

The Academic Appeals Committee will include:

- An expert teacher of the discipline from outside the ANU EX
- an ANU representative
- the principal attached to the ANU EX Program or nominee where conflict of interest could be of concern

The Academic Appeals Committee may reject or accept the appeal.

During the proceedings, the student may be accompanied and/ or represented by an advocate. The student/ advocate and other relevant parties will have the right to make an uninterrupted statement to the Academic Appeals Committee and may be separately subject to questioning from the Committee members.

The student and other relevant parties will not be present during the deliberations of the Appeals Committee or at the time of its decision.

The upholding of an individual student appeal may result in a change to that student's marks and grades but will not affect the results of other students.

The Chair of the Academic Appeals Committee will be responsible for recording the appeals process and will provide a decision in writing to the student and the H Course Coordinator.

The Academic Appeals Review Committee

If the appeal matter remains unresolved the student may request a review of the decision with the Academic Appeals Review Committee. A written request for review stating the reasons for dissatisfaction with the first appeal must be lodged within 7 days of the date of receipt of the written decision from the Appeals Committee. The request for review must be lodged with the Dean of the course area.

The Dean of the course area will form and chair an Academic Appeals Review Committee. The student and other relevant parties will be notified of the date, time and place of the appeal hearing by the chair.

The Academic Appeals Review Committee will include:

- the Convenor of the course area
- a BSSS representative
- an ETD Director with responsibility for the ANU EX

The Academic Appeals Review Committee will have access to all evidence presented to the Appeals Committee.

The Academic Appeals Review Committee may seek further information from relevant parties to come to a decision.

The Academic Appeals Review Committee may reject or accept the appeal.

All material and evidence relating to the appeal will be kept confidential and used only in the deliberations of the Academic Appeals Review Committee.

The decision of this body will be final.

The upholding of an individual student appeal may result in a change to that student's marks and grades but will not affect the results of other students.

The Chair of the Committee will be responsible for recording the appeals process and will provide a decision in writing to

the student, the H Course Coordinator and the principal attached to the ANU EX Program.

GENERAL MODERATION PROCEDURES

Unit results: Since there is only one class per course in each year level, moderation will be achieved by having the same teacher mark all student work within an item.

Course Score Generation: ANU EX courses are treated by the BSSS as stand-alone minor. The course score is calculated using 1 x best unit score + 0.6 x second best score.



Australian
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University

Creative Computing

UNIT PLANNER Year 11 2024

ANU Extension

Fundamentals of Creative Computing (1.0 Point)

Week	Term 2	Term 3	Term 4
Week 1	29 Apr – 03 May No Class: Orientation Week	22 Jul –26 Jul Code music: oscillating objects <i>Blog 3 Due</i>	14 Oct – 18 Oct Project development
Week 2	06 May – 10 May Code art: tools	29 Jul – 02 Aug Code music: drones <i>Blog 4 Assigned</i>	21 Oct - 25 Oct Project finalisation <i>Mini Project Due</i>
Week 3	13 May – 17 May Code art: interpretation	05 Aug – 09 Aug Code music: harmony <i>Blog 4 Due</i>	28 Oct - 01 Nov Project ideation <i>Final Project Assigned</i>
Week 4	20 May – 24 May Code art: representation <i>Blog 1 Assigned</i>	12 Aug – 16 Aug Code music: sequences	04 Nov – 08 Nov Project space exploration
Week 5	27 May – 31 May Code art: animation <i>Blog 1 Due</i>	19 Aug – 23 Aug Code music: rhythm <i>Blog 5 Assigned</i>	11 Nov – 15 Nov Project documentation
Week 6	03 Jun – 07 Jun Code art: interaction	26 Aug – 30 Aug Code music: algorithmic composition I <i>Blog 5 Due</i>	18 Nov – 22 Nov Project development
Week 7	10 Jun – 14 Jun Code art: time will tell <i>Blog 2 Assigned</i>	02 Sep – 06 Sep Code music: samples	25 Nov –29 Nov <i>Final projects due</i>
Week 8	17 Jun – 21 Jun Code art: repetition <i>Blog 2 Due</i>	09 Sep – 13 Sep Code music: algorithmic composition II <i>Blog 6 Assigned</i>	02 Dec –06 Dec Exhibition/Performance Preparation
Week 9	24 Jun – 28 Jun Code art: patterns	16 Sep – 20 Sep Code music: soundscapes Mini Project Assigned <i>Blog 6 Due</i>	09 Dec – 13 Dec Exhibition / Performance Week
Week 10	01 Jul – 05 Jul Code art: data visualisation <i>Blog 3 Assigned</i>	23 Sep – 27 Sep Project ideation	Celebration!