INFT3960 – Game Production

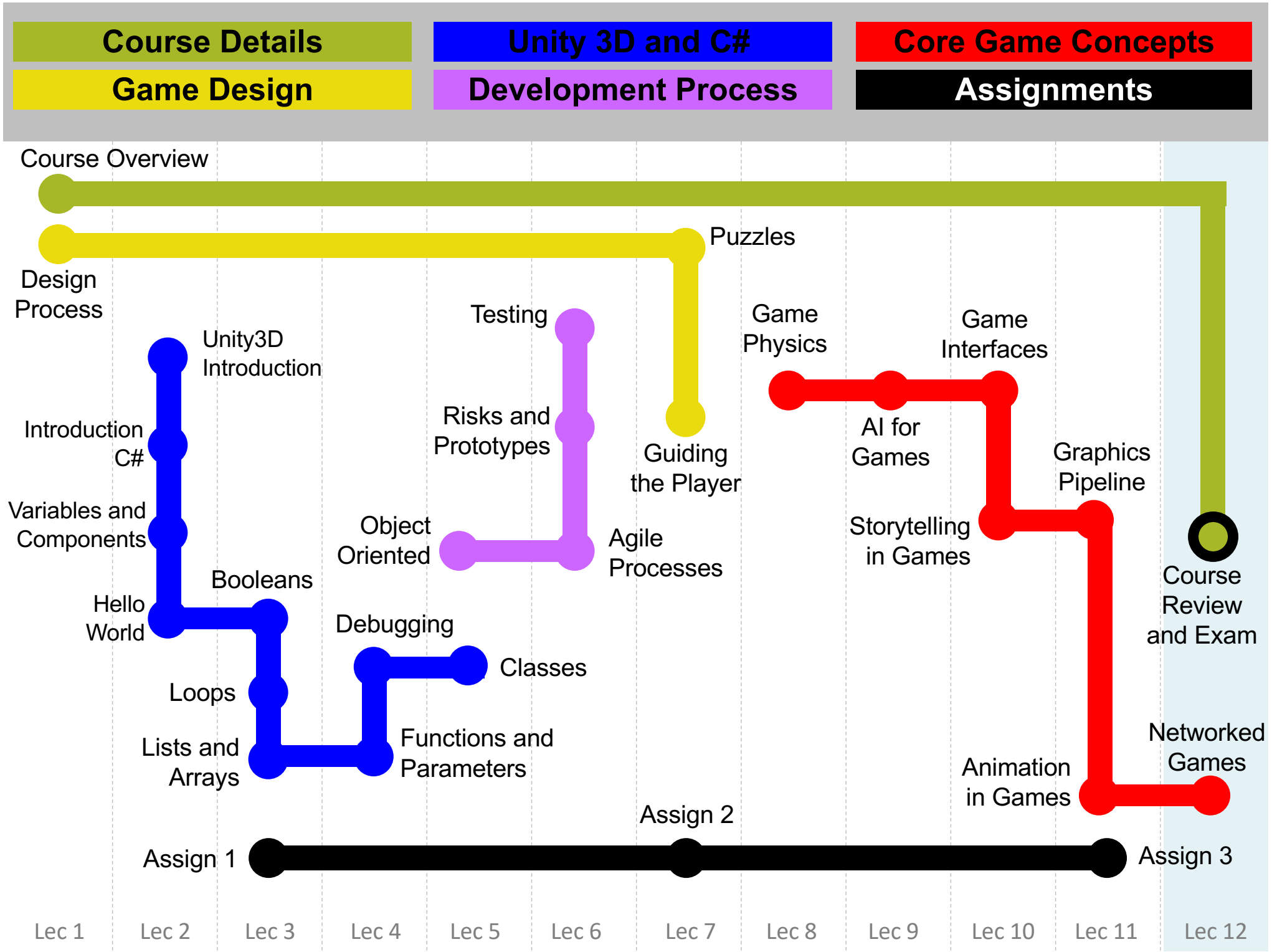
Week 12

Module 12.2

Course Review and Exam Notes

Course Overview

Lec	Start Week	Modules	Topics	Assignments
1	3 Aug	Mod 1.1, 1.2	Course Overview, Design Process	
2	10 Aug	Mod 2.1, 2.2, 2.3, 2.4	Unity3D Introduction, Introduction C#, Variables and Components, Hello World	
3	17 Aug	Mod 3.1, 3.2, 3.3	Booleans, Loops, Lists and Arrays	Assign 1 21 Aug, 11:00 pm
4	24 Aug	Mod 4.1, 4.2	Functions and Parameters, Debugging	
5	31 Aug	Mod 5.1, 5.2	Classes, Object Oriented	
6	7 Sep	Mod 6.1, 6.2, 6.3	Agile Processes, Risks and Prototypes, Testing	
7	14 Sep	Mod 7.1, 7.2	Puzzles, Guiding the Player	Assign 2 18 Sep, 11:00 pm
8	21 Sep	Mod 8.1	Game Physics	
9	12 Sep	Mod 9.1	AI for Games	
10	19 Oct	Mod 10.1, 10.2	Game Interface, Storytelling in Games	
11	26 Oct	Mod 11.1, 11.2	Graphics Pipeline, Animation in Games	Assign 3 1 Nov, 11:00pm
12	2 Nov	Mod 12.1, 12.2	Networked Games, Course Review	


Course Details
Unity 3D and C#
Core Game Concepts
Game Design
Development Process
Assignments
Course Overview
Design Process
Puzzles
Unity3D Introduction
Introduction C#
Variables and Components
Hello World
Booleans
Loops
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Debugging
Classes
Functions and Parameters
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Risks and Prototypes
Object Oriented
Agile Processes
Guiding the Player
Game Physics
AI for Games
Game Interfaces
Storytelling in Games
Graphics Pipeline
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Networked Games
Course Review and Exam
Assign 1
Assign 2
Assign 3
Lec 1
Lec 2
Lec 3
Lec 4
Lec 5
Lec 6
Lec 7
Lec 8
Lec 9
Lec 10
Lec 11
Lec 12

Course Review and Exam – Topics

- Course Review
- Exam Notes

Course Outline – Description

Course Description

Introduction to game development (a bit of game design)

Best way to learn how to make games is to make games

You will prototype your own games using Unity3d using C#

12 Lectures – Applied Skills - Design, Coding, (weeks 1-7)
- Theory -Core Concepts (weeks 8-12)

11 Tutorials – Focused on making your game


Course Details
Course Overview (Lec 1)
Course Review and Exam (Lec 12)
Game Design
Design Process (Lec 1)
Puzzles (Lec 7)
Guiding the Player (Lec 7)
Unity 3D and C#
Unity3D Introduction (Lec 2)
Introduction C# (Lec 2)
Variables and Components (Lec 2)
Hello World (Lec 2)
Booleans (Lec 3)
Loops (Lec 3)
Lists and Arrays (Lec 3)
Functions and Parameters (Lec 4)
Debugging (Lec 4)
Classes (Lec 5)
Development Process
Object Oriented (Lec 5)
Agile Processes (Lec 6)
Risks and Prototypes (Lec 6)
Testing (Lec 6)
Core Game Concepts
Game Physics (Lec 8)
AI for Games (Lec 9)
Game Interfaces (Lec 10)
Storytelling in Games (Lec 10)
Graphics Pipeline (Lec 11)
Animation in Games (Lec 11)
Networked Games (Lec 12)

Course Overview - Topics

- Course Description
- Assessments
- Unity
- C#

Design Process – Topics

- The Iterative Process of Design
  - Analysis
  - Design
  - Implementation
  - Testing
  - Iteration
- Innovation
- Brainstorming and Ideation
- Changing Your Mind
- Professional Development Phases
- Scoping

Unity3d Introduction – Topics

- Downloading Unity
- Why Choose Unity?
- Why Choose C#?
- Running Unity for the First Time
- Setting Up the Unity Window Layout
- Understanding the Unity Window Panes

Introduction C# – Topics

- The Features of C#
- C# is a Compiled Language
- C# is Managed Code
- C# is Strongly Typed
- C# is Function Based
- C# is Object-Oriented
- Reading and Understanding C# Syntax

Variables and Components - Topics

- Declaring and defining variables
- Important C# Variable Types
- Naming Conventions
- Important Unity Variable Types
- Unity GameObject Components

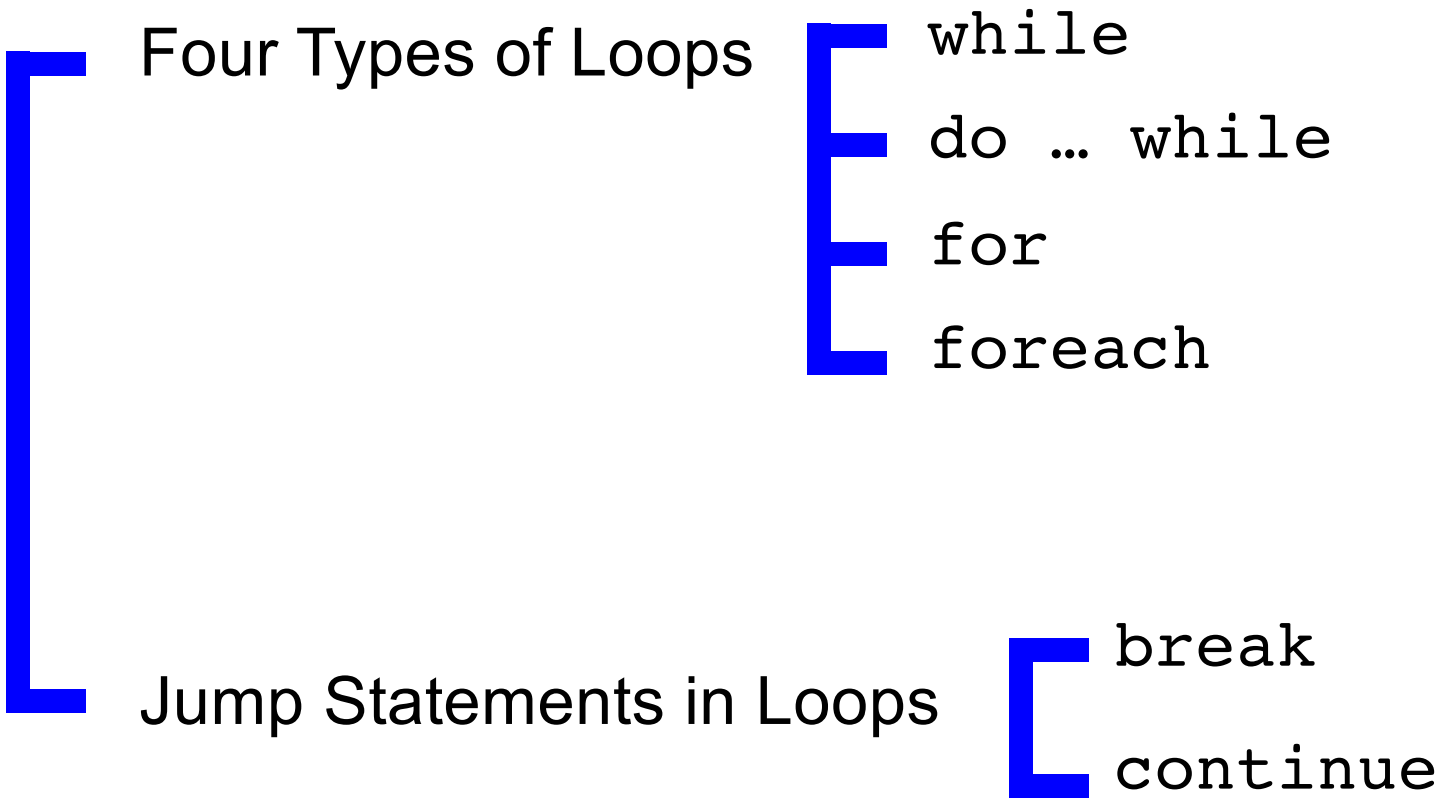
Hello World - Topics

- Hello World?
- Creating a Unity Project
  - The Unity Project Folder
- MonoDevelop: Unity's Code Editor
- Attaching Scripts to GameObjects
- Start() and Update()
- GameObject Prefabs and Instantiation
- The HelloWorld Project

Booleans – Topics

- Boolean Operations
  - Shorting vs. Non-Shorting
  - Combination of Boolean Operations
  - Order of Operations
- Comparison Operators
- Conditional Statements
  - `if`
  - `if…else if…else`
  - `switch`

Loops – Topics



Lists and Arrays – Topics

- C# Collections
- List
- Array
- Multidimensional Arrays
- Jagged Lists & Arrays
- foreach and Collections
- When to Use List or Array
- Other Collection Types

Functions & Parameters – Topics

- Definition of a Function
- Function Parameters and Arguments
- Returning Values
- Returning void
- Naming Conventions
- Function Overloading
- Optional Parameters
- The params Keyword
- Recursive Functions

Debugging – Topics

- Getting Started with Debugging
- Types of Bugs
  - Compile-Time Bugs
  - Bugs Attaching Scripts
  - Runtime Errors
- Stepping Through Code with the Debugger
  - Attaching the Debugger to Unity
- Watching Variables in the Debugger

Classes – Topics

- Understanding Classes
  - The Anatomy of a Class
- Class Inheritance
  - Superclasses and Subclasses
  - Virtual and Override

Object Oriented – Topics

- The Object-Oriented Metaphor
- Object-Oriented Flocks of Birds
- Modularity

Agile Processes – Topics

- Why Use Agile and Scrum?
- Agile Development
- Scrum Methodology
- The Burndown Chart

Risks and Prototypes – Topics

- Development Cycle
- Why Project Fail
- Risk Management
- Development Team
- Development Processes
- Risk Management
- Prototyping
- Development Environments / Tools

Testing – Topics

- Why Playtest?
- Being a Great Playtester
- Circles of Playtesters
- Methods of Playtesting
  - Informal Individual Testing
  - Formal Group Testing
  - Formal Individual Testing
  - Online Playtesting
- Other Types of Game Testing

Puzzles – Topics

- Puzzles Are Almost Everywhere
- What is a Puzzle?
- Genres of Puzzles
- Four Major Reasons People Play Puzzles
- Modes of Thought Required by Puzzles
- Eight Steps of Digital Puzzle Design
- Seven Goals of Effective Puzzle Design
- Puzzle Examples in Action Games

Guiding the Player - Topics

- Guiding the Player
- Direct Guidance - Overt instruction
- Indirect Guidance - Covert instruction
- Teaching New Skills and Concepts

Game Physics – Topics

- What is Physics?
- Some History
- Simple Motion
- Collision Detection
- Complex Simulations

AI for Games– Topics

- AI for Games
- Game Agents
- Common AI Techniques
- Advanced AI

Game Interfaces – Topics

- User Interfaces
- Perception, Action, Cognition
- Design Principles

Storytelling in Games – Topics

- Interactive Stories
- Narrative Events
- The Storytelling Engine
- Linear and Nonlinear
- Conversations

Graphics Pipeline – Topics

- The Graphics Pipeline
- Model Transformation
- Lighting
- View Transformation
- Projection Transformation
- Clipping
- Texturing
- Rasterisation
- Display

Animation in Games – Topics

- Frame rates
- 2D Animation
- Tiling
- 3D Animation
- Motion Capture
- Morphing
- Skeletal Animation

Networked Games – Topics

- Online Games
- Technology
- Network Architectures
- Security Issues

Course Outline - Assessments

	Assessment Name	Due Date	Weighting
1	Assignment 1 – Game Design Report	21 Aug, 11:00 pm	10%
2	Assignment 2 – First Game Challenge Prototype	18 Sep, 11:00 pm	20%
3	Assignment 3 – Final Game Prototype	1 Nov, 11:00 pm	30%
4	Final Exam	Exam Period	40%

Notes:
You need to attend tutorials to complete most of these assessment items (1-3). Detailed feedback will be also be provided during tutorials.

You must be available for full exam period (including supplementary period)

Assessment 4

Final Exam

WEIGHT 40%

DUE: Formal Exam Period – online exam

FEEDBACK:
NO feedback provided.
Final Mark on Grade Release

Exam

School of Electrical Engineering & Computing

EXAMINATION

Semester 2, 2020

INFT3960 Games Production

This paper is for CALLAGHAN students.

Examination Duration: 120 minutes (60 minutes for Part A and 60 minutes for Part B)

This exam has 36 questions

This is a TIMED EXAM (Fixed Start)

Exam

This is a TIMED EXAM (Fixed Start)

This is an OPEN book examination - While there are no restrictions placed on resources available to you, the University's academic integrity rules, including those relating to assistance from other people, will apply.

After you have attempted this exam, you may be required to take part in a viva (or oral exam) for quality assurance purposes. A viva will consist of an interview with one or perhaps two staff conducted via Zoom, and will last approximately 10 minutes. During this time, you will be asked questions about the answers you have provided in the exam.

Special Instructions:

Complete the Multiple Choice Questions (60 min) before commencing the Short Answer Questions (60 min)

Exam

Section A: 30 multiple-choice questions, each worth 1.5 marks.

45 Marks - 45% - Exam mark

Section B: Six (6) short-answer questions, whose marks are worth 55 marks in total. Marks for each question are shown.

55 Marks - 55% - Exam mark

Exam – Multiple Choice

Covers :

- Unity
- C#
- Theory

(lectures week 1-12)

Exam – Short Answer

Short paragraphs (3-4 points) – dot points are fine (best) – different marks a part

These are related to lectures on core game concepts (weeks 8-12)

e.g. Describe how “texture mapping” is used to improve the realism of a game without slowing down the frame rate.

e.g. The graphics pipeline contains many steps that are important for rendering. Describe the purpose of the per-vertex lighting step in the rendering process.

Viva

After you have attempted this exam, you may be required to take part in a viva (or oral exam) for quality assurance purposes.

A viva will consist of an interview with one or perhaps two staff conducted via Zoom, and will last approximately 10 minutes.

During this time, you will be asked questions about the answers you have provided in the exam.

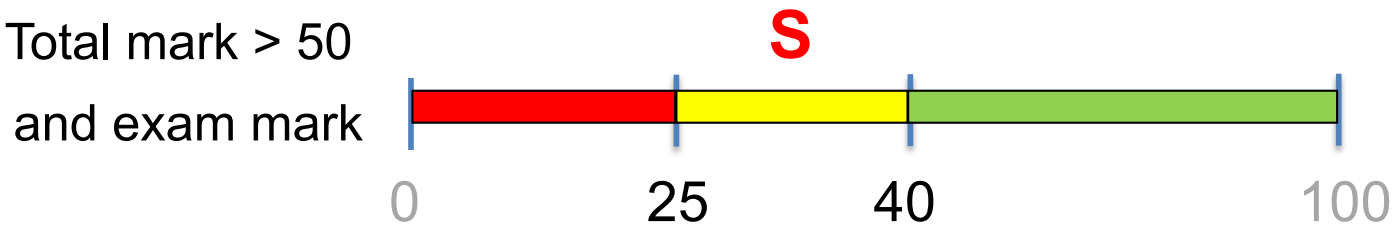
(Check you student mail – even after exams)

Supplementary Exam

Formal Examination: Minimum Grade / Mark Requirement –

Students must obtain a specified minimum grade / mark in this assessment item to pass the course. Students whose overall mark in the course is 50% or more, but who score less than 40% in the compulsory item and thus fail to demonstrate the required proficiency, will be awarded a Criterion Fail grade which will show as FF on their formal transcript.

However, students in this position who have scored at least 25% in the compulsory assessment item will be allowed to undertake a supplementary 'capped' assessment in which they can score at most 50% of the possible mark for that item.



You must be available for full exam period **(including supplementary period)**


GAME OVER