INFT3960 – Game Production

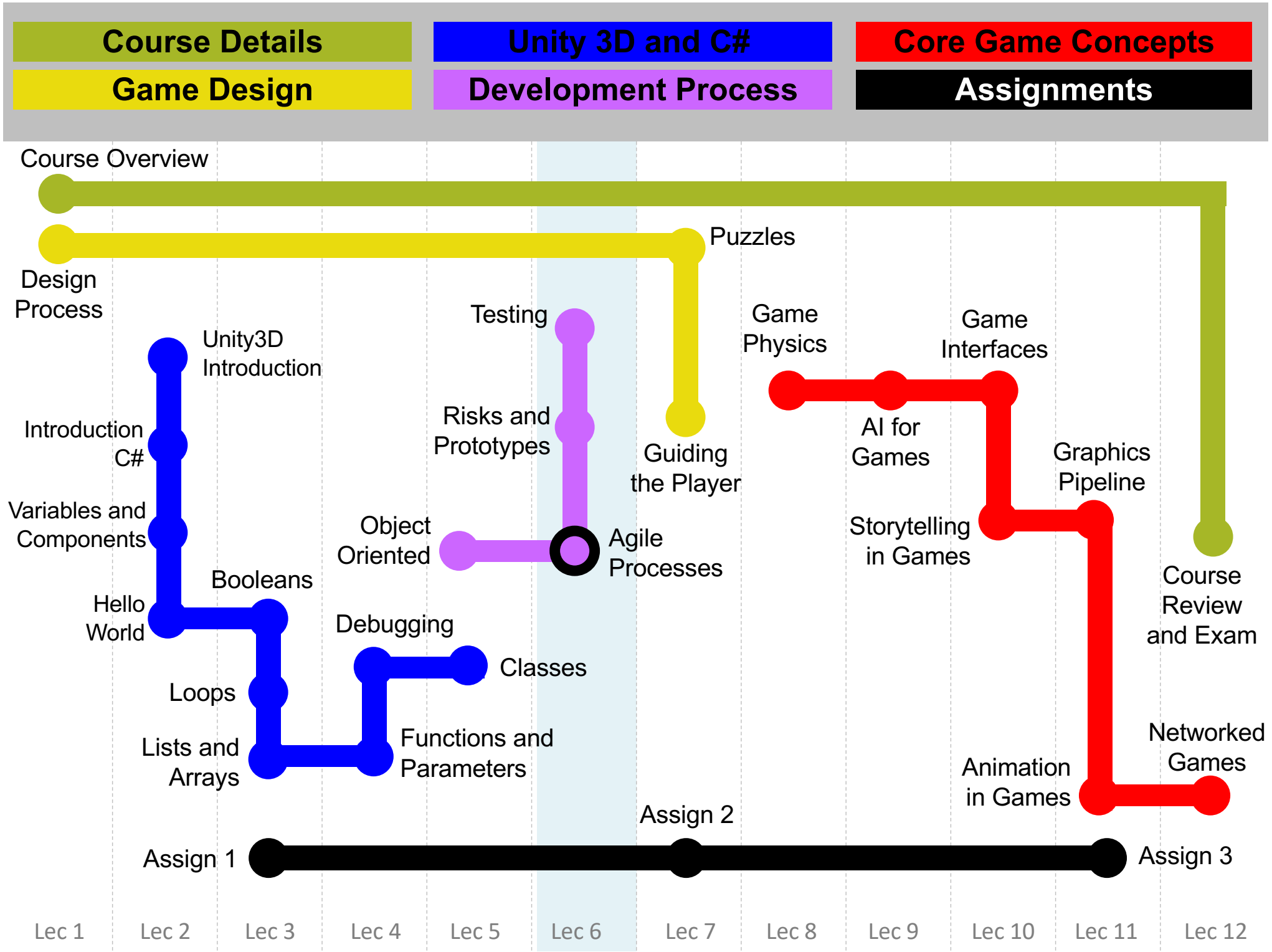
Week 06

Module 6.1

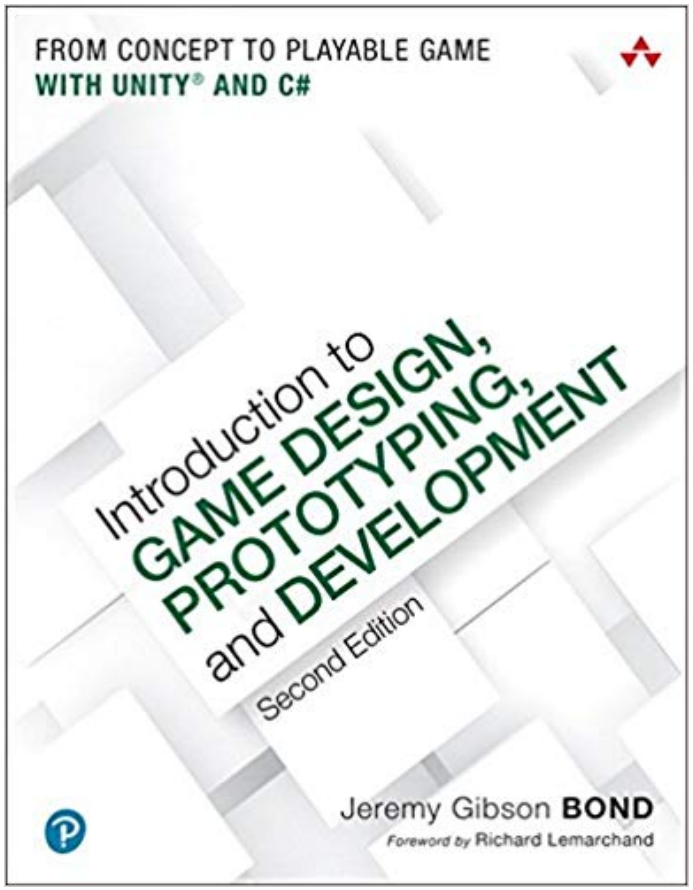
Agile Process

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
Puzzles
Design Process
Testing
Game Physics
Game Interfaces
Unity3D Introduction
Risks and Prototypes
Guiding the Player
AI for Games
Graphics Pipeline
Introduction C#
Variables and Components
Object Oriented
Agile Processes
Storytelling in Games
Course Review and Exam
Booleans
Hello World
Debugging
Classes
Loops
Functions and Parameters
Lists and Arrays
Networked Games
Animation in Games
Assign 2
Assign 1
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

Agile Process – (Chapter 28)



THE AGILE MENTALITY

Agile Processes – Topics

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

Why Use Agile & Scrum

It can be difficult to keep the game development process on track (true of most large software projects)

This is especially true of

- Long term projects
- Prototypes with lots of iteration
- Projects that evolve
- Projects with uncertain requirements

Agile and Scrum provide a method of project management that promotes

- Personal responsibility
- Adaptation to meet evolving needs
- Design iteration
- Deadline awareness
- Feature prioritization and focus

Why Use Agile & Scrum

Can also

- improve quality of games created by the students
- The level of completeness of the student projects
- The sensible scoping of student projects
- Student confidence in their development skills
- Promote personal responsibility for delivery

Agile (philosophy)

Scrum (methodology)

Agile Development

For many years, software projects were first specified and then implemented

- This was called the "waterfall method" - Designers would create a Design Document that was handed to engineers to implement exactly
- This doesn't work very well for games - Doesn't allow for design iteration- Prevents prototypes from being tested fast enough
- It didn't work very well for many kinds of creative software - Developers weren't able to creatively contribute to projects - The lack of iteration led to sub-par software

In 2001, several developers formed the Agile Alliance to address this issue - They collectively created the Manifesto for Agile Software Development

Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

Agile Mentality

In game development terms, these four core values become:

- **Following your individual design sense & continually asking questions** over following predefined rules
- **Making a simple prototype and iterating** over waiting until you have the perfect game idea
- **Bouncing your ideas off of other creative people** over worrying about who owns specific intellectual property
- **Listening to and reacting to playtesters' feedback** over following your original design vision

Agile Mentality

An Agile mentality keeps your game evolving as you develop it

But it's also important to keep the project on schedule (your projects have a due date!)

The Scrum Methodology

The Scrum Methodology works very well to keep Agile projects on time and on budget

The goal of Scrum is to get to a playable game as quickly as possible while allowing design flexibility

Features of Scrum

- The Scrum Team
- Feature List
- Releases and Sprints
- The Scrum Meeting
- The Burndown Chart

Scrum – the Scrum Team

Product Owner

- The voice of the client / players
- Wants all the coolest features to make it into the game
- Responsible for understanding the gestalt vision of the game

Scrum Master

- The voice of reason
- Wants to make sure everyone is on-task without being overworked
- Responsible for keeping the project on schedule and cutting if necessary
- Runs the daily Scrum Meeting

The Product Owner and Scrum Master are natural foils

Scrum – the Scrum Team

Development Team

- Everyone who is actively working on the project
- Assigned daily tasks at the Scrum Meeting
- Often also includes the Product Owner and Scrum Master

Scrum – Backlog / Feature List

A list of all the features that the team/client wants in the game

Some start vague but increase in specificity

Eventually broken down into tasks

No individual task should be estimated to take longer than 8h (hours)

Scrum – Releases & Sprints

Product cycle is broken into Releases and Sprints

A Release is a known time when the game will be shown to people outside the team (e.g., client, investors, playtesters)

A Sprint is a version of the game along the way to a release

- Usually a Sprint lasts 1-4 weeks
- The game must be playable and bug-free at the end of each sprint
- In the best case, the game should be playable at end of each day

Each Sprint has its own Sprint Backlog of features that will be complete by the end of the Sprint

Scrum – Meeting

A Scrum Meeting occurs every morning during a Sprint

It is a 15-minute stand-up meeting to keep everyone on track

Literally everyone stands through the entire meeting to keep it short

The meeting is run by the Scrum Master

Scrum – Meeting

Scrum Master asks each person on the team 3 questions:

- What did you accomplish since yesterday?
- What do you plan to accomplish today?
- What obstacles might get in your way?

Ensures everyone on the team is aware of overall progress

Also enforces personal responsibility for tasks

Any questions that come up are recorded and tabled for discussion after the meeting

All progress is tracked on a shared Burndown Chart

Scrum – Burndown Chart

Tracks team progress towards a Sprint deadline

Compares total estimated time for tasks against daily progress (the Burndown Rate)

Uses this information to predict whether or not the team will complete the project on time

Scrum – Burndown Chart

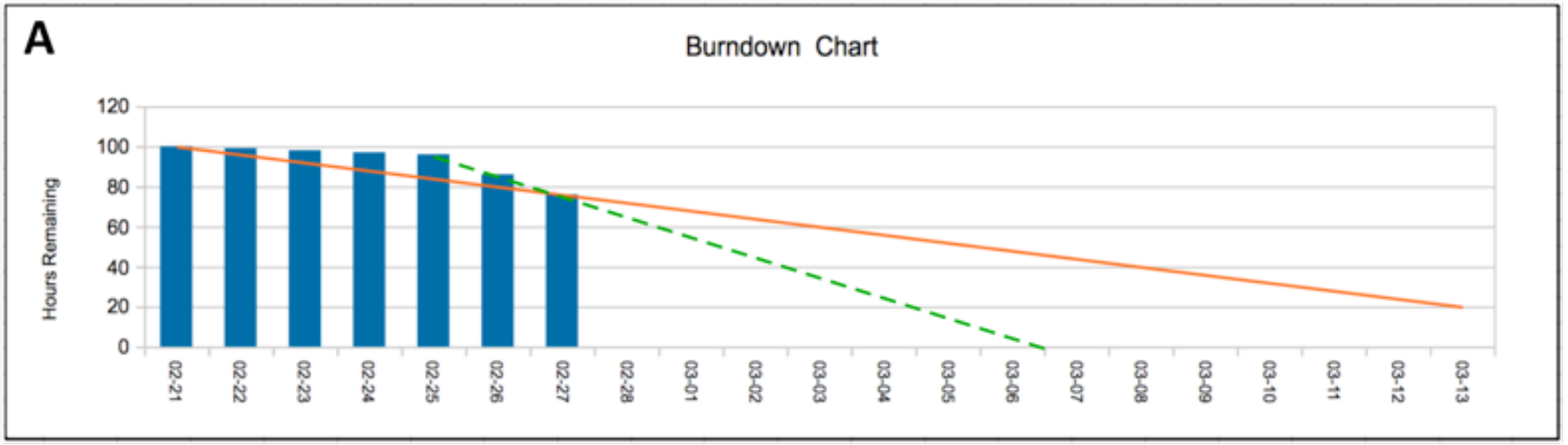
Most useful on 1-4 week Sprints

Also most useful for teams that do about the same amount of work each day

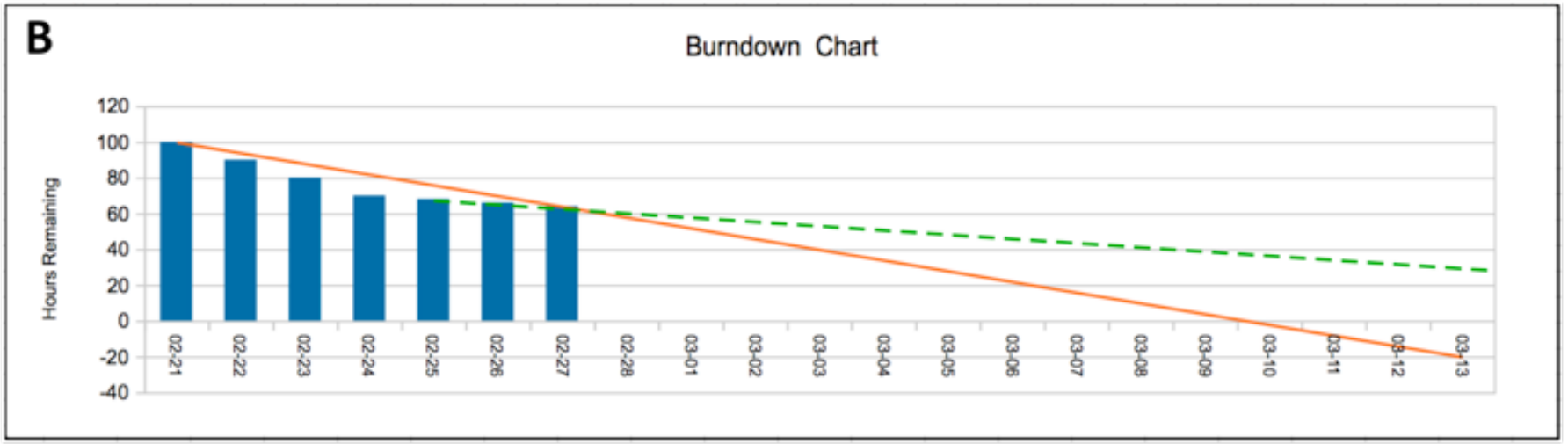
If the team changes their rate of work drastically, the Burndown Chart will not adjust to reflect this

This is only an issue for teams that make drastic changes to their work per day

Scrum – Burndown Chart



Burndown velocity predicts a false late delivery



Burndown velocity predicts a false ontime delivery

Summary

The Agile mentality and Scrum are fantastic tools for developers of games and game prototypes (works well with Research projects as well)

At large companies, they are generally used in the Preproduction phase of game development

Switch to a more "waterfall" approach for Production phase once the core gameplay and design have been discovered through Agile and Scrum