COS20007: Object Oriented Programming

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Unit Overview

To learn fundamentals of Object Oriented Design, and apply these in practices

- There are many real-world systems leverage OODs, i.e, client-server systems, object-oriented database, real-time sensing system, simulation and modelling systems, and e-commerce, neuron networking, etc.

- Software design with Unified Modelling Language, a standardized language for documenting the artifacts of software and business modelling

- Software design patterns, indispensable tools to provide reusable solutions to recurring design challenges

- Software Testing with Unit testing to ensure individual software components of functions performs as expected

Learning Outcomes

- Explain the principles of the object oriented programming paradigm specifically including abstraction, encapsulation, inheritance and polymorphism
- Use an object oriented programming language, and associated class libraries, to develop object oriented programs
- Design, develop, test, and debug programs using object oriented principles in conjuncture with an integrated development environment
- Construct appropriate diagrams and textual descriptions to communicate the static structure and dynamic behaviour of an object oriented solution
- Describe and explain the factors that contribute to a good object oriented solution, reflecting on your own experiences and drawing upon accepted good practices.

Unit Schedule

Week	Topics	Assessment	Tasks included in Portfolio
1	Introducing Objects		1.1P and 1.2P
2	Framework Classes, Unit Testing, and UML Class Diagrams		2.1P, 2.2P, 2.3P, and 2.4P
3	Collaboration, Memory, and UML Sequence Diagram		3.1P, 3.2P, and 3.3P
4	Inheritance and Polymorphism		4.1P, 4.2P,
5	Interfaces and Exceptions		5.1P and 5.2P, and 5.3C
6	Responsibility Driven Design		6.1P and 6.2P, and 6.3D and 6.4D and 6,5HD, and 6.6HD
7	Common Mistakes and Test Preparation		7.1P
8	Principles of Good Design	**Hurdle Test (48-hours)**	
9	General Responsibility Assignment Software Patterns		9.1P, and 9.2C, and 9.3HD and 9.4HD
10	Design Patterns		10.1C
11	Other Object Oriented Languages		11.1P
12	Object Oriented Programming in a Nutshell		**Portfolio Submission and Assessment**

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Environment Setup

- We use C# to exercise Object Oriented Programming

- Microsoft Visual Studio IDE and SplashKit
  - Guideline
  - Instruction for Windows
  - Instruction for MacOS

  - Pseudocode

- Environment Test
  - Guideline
  - Step-by-step Demonstration

Lecture

- 2 hours per week

- Deliver mode:
  - 1-hour online lecture video to introduce concepts (**studied prior to the online live lecture**)

  - 1-hour online live lecture to review concepts and put in actions

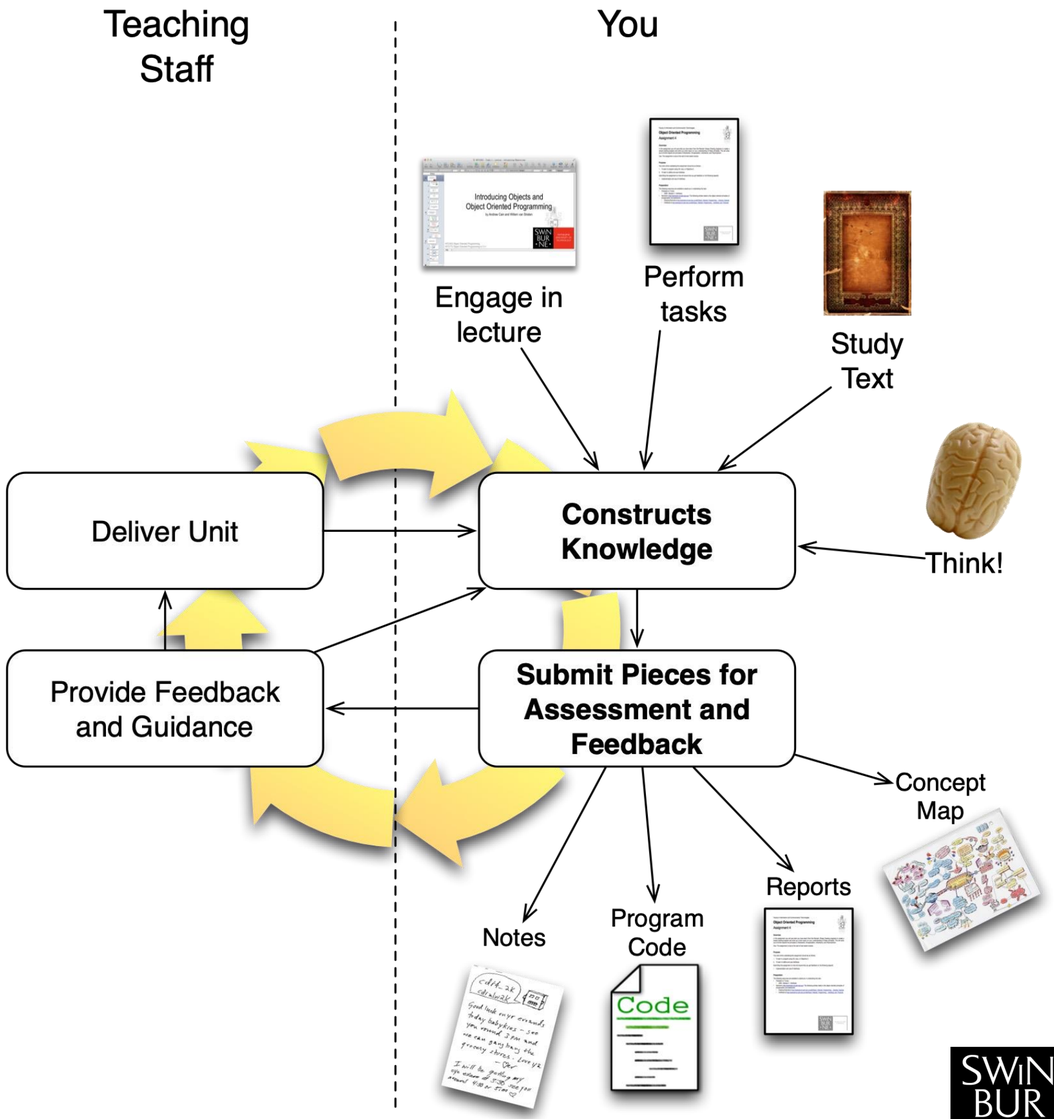
  - You can ask questions during the online live Lecture using:
    - On the Ed with #lecture (will be answered after each lecture) – might be the best choice so that all students can benefit from the answers

Labs

- 2 hours per week
- Labs: hands-on tasks, discussion, feedbacks, etc.
- You are expected to complete the weekly P/C/D/HD tasks to learn and build pieces for your portfolio

100% Portfolio Assessment

- Develop a portfolio that demonstrates you have achieved the **unit learning outcomes**
- Build pieces of work as evidence during the teaching period
- Receive, and incorporate, feedback each week to make sure you are on track to do well



100% Portfolio Assessment

Week	Tasks included in Portfolio	Due Date to receive feedback
1	1.1P and 1.2P	End of Week 2
2	2.1P **(Checked-in)**, 2.2P, 2.3P, and 2.4P	End of Week 3
3	3.1P, 3.2P, and 3.3P	End of Week 4
4	4.1P, 4.2P,	End of Week 5
5	5.1P **(Checked-in)**, and 5.2P, and 5.3C	End of Week 6
6	6.1P and 6.2P, and 6.3D and 6.4D and 6,5HD, and 6.6HD	End of Week 7
7	7.1P	End of Week 8
8	**Hurdle Tasks**	
9	9.1P **(Checked-in)**, and 9.2C, and 9.3HD and 9.4HD	End of Week 10
10	10.1C	End of Week 11
11	11.1P	End of Week 12
12	**Portfolio Submission**	**In week 13** **Portfolio Assessment with Interview Panel**

- Tasks due within 2 weeks to receive feedback.
- Checked-in tasks: must see your tutor to receive feedback
- Other tasks: can submit without seeing your tutors
- This **policy applies to all P/C/D/HD tasks.**

Task Feedback Eligibility

- For P tasks, **you are allowed 2 attempts to receive feedback.** F**or C/D/HD tasks, only 1 attempt is permitted**.
- After the due date of a task you are not eligible to receive more feedback
- If you have not attempted lower-level tasks, your advanced tasks will not receive feedback and will not be assessed.
- **You are entitled to feedback within a week of submitting a task if it is submitted** and before its deadline
- Custom programs and research projects will be assessed in Week 13
- **Don’t leave everything until the last minute**!

Your own deadline management

- If you get behind, focus on the **pass tasks** first, then the credit and higher grade tasks once you catch back up.
- You must submit the tasks within 2 weeks of their announcement to receive feedback
- Failure to show up for the check-in tasks, special consideration, e.g., a medical certificate, should be sent to the convenor for approval within two weeks of the task announcement.
- **Failure to show up and fail to provide special consideration, your portfolio will not be eligible for assessment.**
- We stated this requirement in each of your assignment module.

Hurdle tasks in week 8

- 48-hour window during week 8 to complete.
- Available: **will be announced later.**

- If you receive a **Complete** grade, you pass the hurdle
- If you receive a **Fix** grade, you must correct all issues during the semester **within the two weeks**. Failure to do this will result in an overall fail grade of the unit.
- ~~If you receive a **Redo** grade, you must attend a re-sit test~~

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Portfolio Submission

- Portfolios due 11:59pm (Hanoi time) on Tues, 5 Aug (Interviews week 13)

- Failure to submit the Learning Summary Report will result in failing the unit even you have submitted the weekly P/C/D/HD tasks.

University means self-directed learning

- You are responsible for taking ownership of your own learning
- During semester **we are here to help you**
- End of semester, **we will assess your work to see how well you have learnt the material**

Grades are based on clear criteria

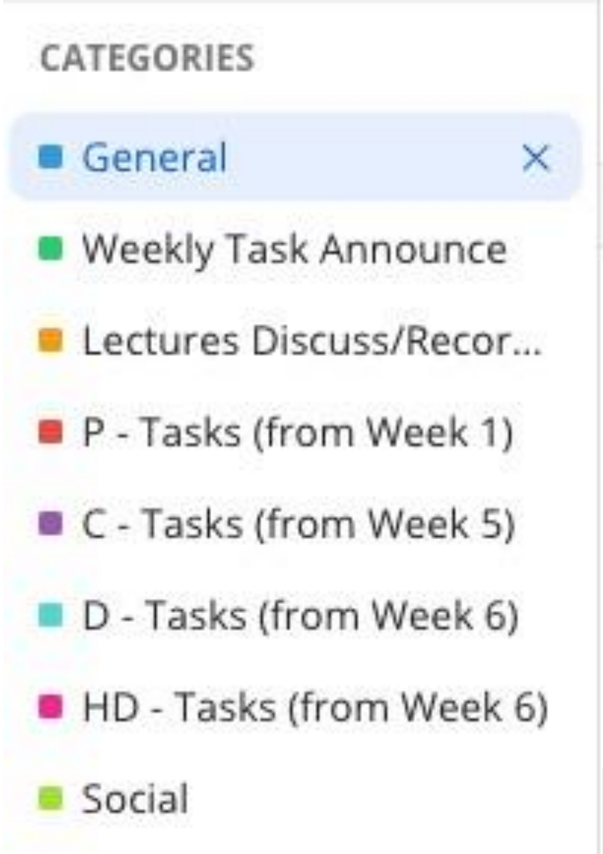
- See “Portfolio Format and Assessment Criteria” document from Canvas
- You **must** submit your Portfolio Report during week 12 to be assessed in week 13
- Pass = Pass Tasks
- Credit = Pass + Credit tasks
- Distinction = Credit + Custom Program
- High Distinction…
  - Low HD (80-89) = Credit + HD level (fancier) custom program
  - High HD (90-100) = Low HD + research project

Academic Integrity

- Turnitin to check for plagiarism in each submission. Check Turnitin guideline to know how to use it
- Tutors exchange your work with other tutors to detect plagiarism.
- Students with the same answers will be given a first warning.
- The second warning will result in an interview
- Failure in the interview will result in a **50% deduction** from your final grade

Ed Forum Discussion

- The best choice for topic-oriented discussion so that all students can benefit from the answers of the teaching team and also from your peers.



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