Comp23420 Software Engineering

- **Overview**
    - The exam is in two parts. Part A is multiple choice and there are two questions in

        Part B where you have to answer only one.
    - Part B questions are mainly questions around scenarios and models

- **How To Prepare – Ideas**
    - Go through all the presentations?
    - Check workshops and answers
    - Go through your lab exercises
    - https://moodle.cs.man.ac.uk/course/view.php?id=238

- **Recent Past Papers**
    - **Sample Multiple Choice Questions**

https://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester2/sample-

mcq.pdf

    - **More sample multiple choice questions (with answers) can be found in this**

        folder (clickable): Sample-MCQ-I.txt

        (These were originally found here, but as screenshots, with the correct answer

        immediately visible. In a text file they are set out in such a way that questions come

        first, answers come later)

    - **11-12**

http://studentnet.cs.manchester.ac.uk/assessment/exam_papers/UG_sem1_2013/COM

P23420.pdf

    - **12-13**

http://studentnet.cs.manchester.ac.uk/assessment/exam_papers/UG_sem1_2012/COM

P23420sem1.pdf

       ○ **13-14**

● **Past Paper Discussion**

       ○ **11-12**

       ○ **12-13**

       ○ **13-14**

● **General Questions**

--What are functional requirements?

What the system should **do**

-A functional requirement for a milk carton would be "ability to contain fluid without leaking"

--What are non-functional requirements, software qualities?

What the system should **be**

-A non-functional requirement for a hard hat might be "must not break under pressure of less than 10,000 PSI"

--What is in a functional model?

Activity Diagram

Use Case Diagram

--What is in a structural model?

Domain Model

System Classes

--What is in a behavioural model?

Sequence Diagrams

Communication Diagrams

State Machine Diagrams

--What is in an activity diagram?

Only use activities in activity diagram

Has a control flow shows the sequence of execution

http://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester1/UML_Diagrams/activity-diagram.pdf

--What is a use case diagram?

Actors perform use cases upon a system and use cases are performed upon them

Use cases should reflect the activities in the activity diagram

http://moodle.cs.man.ac.uk/file.php/238/larman-ch6-applying-evolutionary-use-cases.pdf

Use cases should describe functional requirements (see above).

CRUD is a useful acronym to remember while creating use cases. It stands for:

- **C**reate
- **R**ead
- **U**pdate
- **D**elete

--What is a domain class diagram?

Realises use cases, each use case is realised by collaborating domain classes

Each actor is a class, and each use class has entities

The relations between classes indicate how they interact with one another.

Domain classes have attributes but not operations.

http://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester1/UML_Diagrams/class-diagram.pdf

(Refer to the ATM example at the link below)

--What is a system class diagram?

Domain classes represent entities and abstract concepts in the problem domain; system classes are software classes that will implement the corresponding domain classes in the implemented software system

System classes have both attributes and operations

Actors interact with each other through interfaces

http://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester1/UML_Diagrams/class-diagram.pdf

(Refer to the ATM example at the link below)

--What is a sequence diagram?

Interactions between system objects that collaborate to realise use cases

http://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester1/UML_Diagrams/sequence-diagram.pdf

--What is a communication diagram?

Models the same thing as the sequence diagram

Less complex

More difficult to see sequences of messages

Space efficient

But no standardised format

--What is state machine?

Shows the state of the system at a given time

Transitions between states are actions

http://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester1/UML_Diagrams/state-diagram_.pdf

--What else is there to know about?

Requirements gathering

Ethics in software engineering

Software development processes

Human computer interface engineering

--Are they going to ask about ethics stuff?

Don't think so, but obviously I don't know.

- **Useful links**
  - ○ ATM example, realizes all models

    http://moodle.cs.man.ac.uk/file.php/238/ImportantDocuments/Semester1/atm.pdf
  - ○ Links to Supporting material

    https://moodle.cs.man.ac.uk/mod/resource/view.php?id=9330