**GUI Programming 2015 – Year 2**

**Labwork 10: (5% - or 50 points out of 500 points for labwork this semester)**

**NOTE: ALL LABS TO BE COMPLETED USING TEXTPAD. NO COPYING PERMITTED AND ZERO MARKS WILL APPLY TO COPIED WORK.**

**ALL WORK SUBMITTED TO MOODLE BY DATE SPECIFIED (2 LABS SUBMISSIONS OF FIVE LABS THROUGHOUT THE SEMESTER)**

**Part 1 – Draw lines (10 points)**

Create a class called **Lab10Part1**. Create a JFrame that draws your initials using the **drawLine** functions in the 2D Graphics API (use at least two initials and make the size of the lines large enough to be easily seen on the screen). You cannot use any other method to draw the initials to the screen. YOU MAY NEED TO DRAW MANY LINES TO ACHIEVE THIS.

* Create the JFrame with the paint method (2 points)
* Use draw line function for first initial (4 points)
* Use draw line function for second initial (4 points)

**Part 2 – Draw ovals\circles (10 points)**

Create a Java program called **Lab10Part2**. Create a JFrame that draws ten circles in a circle pattern on the JFrame using the **drawOval** method in the 2D Graphics API. Marks will be awarded for the use of a method to modularize the code and reduce repetition.

* Create the JFrame with the paint method (2 points)
* Use **drawOval** to draw circle (2 points)
* Repeat drawing of circles so they form a circle of circles (2 points)
* Use of iteration to repeat the drawings (2 points)
* Use of method(s) to modularize code and reduce repetition (2 points)

**Part 3 – Draw filled shapes (10 points)**

Create a JFrame class called **Lab10Part3**. Create a JFrame that draws two cars to the screen (make one red and one black – not overlapping) using the 2D Graphics API. The cars can be quite basic but must use **fill** functions, e.g. **fillRect** and **fillOval** etc. Marks will be awarded for the use of user defined method(s) to reduce the repetition and increase the modularity of the code. [You may use **fill polygon** if you wish also]

* Create the JFrame with the paint method (2 points)
* Use **fill** draw methods for appropriate sections (4 points)
* Two cars of different colours (must look like cars and identical!!) (2 points)
* Use of method(s) to modularize code and reduce repetition (2 points)

**Part 4 – Draw a complex 2D shape using Java 2D Graphics API (20 points)**

Create a Java program called **Lab10Part2**. Create a JFrame that draws a snowman using the 2D Graphics API functions. The snowman must include: Head, Eyes, Mouth, Nose, Arms, Legs, Torso with Buttons on the belly!

* Create the JFrame with the paint method (2 points)
* Draw Head (2 points)
* Draw Eyes (2 points)
* Draw Arms (2 points)
* Draw Legs (2 points)
* Draw Nose and Mouth (2 points)
* Draw Torso with buttons on the belly (at least three buttons) (4 points)
* Quality of the drawing of the snowman (looks like snowman) (2 points)
* Use of colour (at least black and white) (2 points)