- For this coursework you must also upload a single **ZIP** file containing supporting evidence.
- There are limits on the file size (see the relevant course Moodle page).
- Make sure that any files you upload are virus-free and not protected by a password or corrupted otherwise they will be treated as null submissions.
- Your work will not be printed in colour. Please ensure that any pages with colour are acceptable when printed in Black and White.
- You must NOT submit a paper copy of this coursework.
- All courseworks must be submitted as above. Under no circumstances can they be accepted by academic staff

The University website has details of the current Coursework Regulations, including details of penalties for late submission, procedures for Extenuating Circumstances, and penalties for Assessment Offences. See http://www2.gre.ac.uk/current-students/regs

Specification

You are to create a Three.js based web page which displays an interactive scene, built using 3D graphics techniques, containing a robot.

The scene should be comprised of meshes built from Three.js geometry primitives (e.g. cubes, spheres, cylinders). Objects in the scene should include material properties or textures and the scene should also include one or more light sources.

The scene should also include a variety of user interaction via the mouse and the keyboard. The scene may also include a limited amount of animation (for example moving spotlights).

Extra marks are available for imaginative use of shape, lighting and, in particular, interaction.

You must start with the coursework template project which will be available to download when the coursework is released. You may copy additional asset files (such as images) into the project, but only copy assets which you are actually using in the scene – you may lose marks if there are an excess of unused assets.

You should not use any external source for code (such as books or the internet) but you may use code from any of the examples given in the course without referencing it, as well as advanced options from the example libraries (such as keypress.js). However, your mark is likely to be badly impacted if you do not write any of your own code and rely solely on assembling code taken directly from the course examples.

You may use Three.js plug-in controllers such as OrbitControls.js, TrackballControls.js, FirstPersonControls.js & FlyControls.js, if you think that they enhance the scene, but **no marks will be awarded for their use**, so make sure that you develop some interactive features of your own.

You **MUST NOT** use externally generated models (e.g. .obj, .mtl, .dae files). If in doubt, please ask.

You **MUST NOT** use video files in your project as they are generally too large to be uploaded on the coursework upload system and can slow down the server (especially near the deadline). **If you copy asset files from the weekly examples into your coursework project DO NOT copy in the movie.**

The finished JavaScript/HTML code should be well structured, properly indented (use Alt+Shift+F) and clearly commented, with meaningful names for both variables and methods.

Finally you should write a short report in Word (no more than four sides of A4 **excluding** the appendices & feedback sheet) containing the following sections:

- **Feedback sheet: YOU MUST PASTE THE LAST PAGE OF THIS DOCUMENT (COMP1685 Feedback Sheet) AS THE <u>FIRST</u> PAGE OF YOUR REPORT. Fill in your name at the top of the Feedback Sheet but do not fill in anything else – this is for your tutor's feedback.**
- An account of how the scene was designed
- A clear description of the user interaction
- A critical analysis of any difficulties you encountered and how you solved them (you should also document those you did not solve – extra marks **could** be awarded for a constructive discussion of an insurmountable problem)
- Two appendices:
    - **screen shots** of the scene (no more than 10) demonstrating its features
    - a **scene-graph** of your code laid out as per the examples in the course [NB if your scene contains a large number of objects in multiple levels, you may summarise it by just presenting the top few levels – if in doubt, please ask]

Final deliverables

The following two files must be uploaded, via the Moodle page for the course, by 23:55 on the deadline date:

- A **pdf** copy of the **report** structured as described above.
- A **zip** file containing your entire **NetBeans project**.

NOTE THAT THE SERVER IS OFTEN BUSY CLOSE TO THE DEADLINE AND ANY UPLOADS AFTER 22:00 ARE AT YOUR OWN RISK.

Grading Criteria

70-100% : All deliverables present and correct. A well-designed and implemented scene, using interaction, together with an excellent or outstanding accompanying report, which shows an excellent understanding of 3D graphics concepts and demonstrates some imaginative uses of 3D graphics techniques.

60-69% : All deliverables present and correct. A well-designed and implemented scene using interaction, together with a good or very good accompanying report, which shows a good understanding of 3D graphics concepts and demonstrates typical uses of 3D graphics techniques.

50-59% : Deliverables mostly present and correct. A reasonably well-designed and implemented scene, using interaction, together with a sound accompanying report, which shows a sound understanding of 3D graphics concepts and demonstrates some uses of 3D graphics techniques. The code may contain an error, but most features will work. The report may not be structured correctly, but most of the information will be present.

40-49% : Deliverables mostly present and correct. A poorly implemented scene, using interaction, together with an acceptable accompanying report, which shows an acceptable understanding of 3D graphics concepts and demonstrates limited uses of 3D graphics techniques. The code may contain some errors, but some features will work. The report may be missing a section.

0-39% : A poorly implemented scene, possibly using some interaction, together with an accompanying report, which barely shows any understanding of 3D graphics concepts and/or only demonstrates very basic uses of 3D graphics techniques. The code may contain several errors. The report may be missing several sections.

COMP1685 Feedback Sheet

The following is to help assess your work and give feedback for the individual components. However, the grading criteria override it – so a report which is missing a section will not be awarded more than 49%, even if the marks from the marking scheme indicate a higher mark.

Name: **Overall Mark:**

Marking scheme	achieved well	partially achieved	not achieved
Report & deliverables (approx 40%)			
deliverables uploaded as required, report laid out correctly and appendices as requested			
an account of how the scene was designed			
a clear description of the user interaction			
an informative critical analysis			
a scene-graph of the code (approx 15%)			
Visual design of the scene (approx 15%)			
good use of shape			
good use of lighting			
good use of materials			
Interaction design of the scene (approx 15%)			
effective interaction via the keyboard			
effective interaction via the mouse (including the GUI)			
Coding (approx 10%)			
well designed & efficient code (e.g. loops, methods)			
clear commenting			
Imaginative use of 3D graphics techniques (approx 20%)			
via interaction			
via other features			

Feedback: