Computer Graphics exam project descriptions

Version 1.0, 3rd May 2021.

To each registered team / student, a project will be assigned by the teachers of the course. The projects are listed in the attachment to this document, *which will be **published separately***. Beside the project topic, each team will be required to use a different coordinate space for writing their *Shaders*: world space, object space or camera space. The Shader space system will be assigned by the teachers as well.

Projects can be done in teams of one, two or three students. Each provided project title will be suggested for groups of different sizes: such numbers can be used as a guideline in specifying your preferences. If a teamwork is chosen, all team members will have to discuss it in the **same** exam date. *Exception will be possible only for **VERY MOTIVATED AND SPECIAL** circumstances*. Members will allowed to present their work remotely, even if the situation will allow to do project discussions in person (unless this will be prevented by new rules that will be given by the school). If you opt for a teamwork, you are responsible for following all the national and regional regulations about personal meeting that will be in place at the moment in which you will be working on your project.

A link to a Google form will be provided to register for the project: there you will be able also to specify your curriculum, your other team members, and select up to three preferred projects. *The **link** will be available **in the Beep page of the course***. We will do our best to assign you one among your choices, but keep in mind that the projects will be equally distributed. If you only select the most popular ones, there is the risk that none of them could be assigned to you, and a different one will be given.
Please keep in mind that for group projects, each member will have to register individually using the Google form.

Registration for the projects will be open until mid-January 2022. For the first few weeks, the results of the assignments will be shown on Beep using the Personal Code (8 digits, starting with 1) and regularly updated. Students who will register later will be contacted individually via mail using the official teacher-student communication channels. If you plan to register for the project after September 2021, please also send a note by email, because from October 2021, the results of the forms will be read only occasionally.

Each project must be done in HTML-5, using Web-GL 2.0, unless specifically discussed with the instructors. You are allowed to start from some of the example code / assignment given during the course. You can even start from sources publically available on the web: however, in this case, you will be required to know exactly what every line of that code does.

You are allowed to use third party libraries and helpers such as *TWGL.js*, but ***not** complete 3D engines*, such as *Three.js*, *Babilon.js* or *A-Frame*. Your code will need to have sections where: it explicitly loads the geometries and the textures, sets the shaders (which must be written by yourself), sets the vertex formats and the uniforms, and where draw-call are used to finally show the scene on screen.

Each project will require a set of 3D assets to be completed. Standard assets will be provided on the Beep page of the course to simplify your work. However, the use of different assets is encouraged and will be positively evaluated during the presentation.