**Course Project Ideas**

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**Requirements:**

1. Space
2. Planet
3. Meteorites around (at least 200 random floating rocks)
4. Multiple Space Vehicles near planet
5. Object loading
6. Transformation matrix
7. Lighting
8. Texture Mapping
9. Skybox
10. Shader
11. Interaction
12. The planet and the local space vehicles should do **self-rotation** all the time. (Make UFO)
13. The local space vehicles should move in the horizontal axis all the time.
14. Skybox
15. Keyboard interaction – Light Parameters
16. 3rd-person player view
17. Do **normal mapping** for the planet
18. Mouse. Use a mouse to control the rotation of the spacecraft. For example, if you move the mouse to the left, the head of the spacecraft will turn left.
19. **Up, down, left, right** or {WASD + Space/Shift for Up and Down}
20. Other Light sources
21. Other meaningful objects
22. Meaningful interactions (such as collision/shooting)

Scenes:

**Starting Scene (Where the Spaceship launches)**

**Play Scene**

**- Space**

**- Planet(s)**

**- Asteroid Ring**

**- Spaceship(Main)**

**- Enemy Spaceships**

**- Missiles**

**Radar Position**

**Anchored buttons (for pause menu) and Stats**

**Upgradable Stats**

- HP

- Energy

**Types of Upgrades**

- Refillable Shield

- Homing Missiles: Degree of Homing

- Explosion Radius

- Number of Missiles

**Player Input**

- Multi-input

**Enemy AI**

- Homing Missiles (Low degree of Homing)

- Illusion Spaceships (Fake clones)

- Shielding when attacked

- Mothership with high HP?

Collectables: For upgrading Spaceship

**Try to input sound? Voice lines and Text boxes (2D obj Textures for characters?)**