Unity 3d course overview. Final presentations are slightly different

Chapter 1 . Unity basics

* Coordinates
* Vectors
* Cameras
* Shaders
* Materials
* Assets
* GameObject
* Resources
* Components
* Scenes
* Interface – All Window types -> Profile windows, Console windows, Animator, Inspector ..only basics for all
* MonoBehaviour - Script basics, -> Start, Update, Awake. Unity scripting API page…

Lab:

Make simple game, Simple scene. Show all of above mentioned things. You can use the already prepared game. More detailed notes can be found in the power point presentation. Make one cube and add it script that makes the cube rotates around itself. Add a timer that is counting down before the cube starts rotating (Show Fixed Update usage). Later make the camera follow using the LateUpdate. Later on simply make the camera child. Show the change in scale and position depending on the gameobject hierarchy. Show the students how to choose platform and build games to .exe.

Homework:

Make a scene were a capsule object goes through all the rooms like a demo of level. Attach the camera to the object and make few more cubes behind the object to follow it (not using trajectory) .. show them Transform.LookAt();

Chapter 2. Scripting basics + GameObject

* Inspector
* Gameobject hierarchy
* Tags
* Prefabs
* Instantiate
* Import setting, Import Models
* Attaching Components, Attaching scripts
* Pre- Load in scene vs Resource. Load
* IO scripting – Mouse, Touch, Keyboard, Unity Console, Accelerometer
* Transform, Gameobject – Properties, Methods, Examples, Get Components…
* Simple Collision /Trigger script.

Lab:

Move Object with keyboard. Show how to detect touches and gestures. Show Debug. Console. Demonstrate most of the Transform properties and methods. Same for GameObject. More detailed notes can be found in the power point presentation. Show how to instantiate a lot of objects in a loop. Students will make cannon that will be driven with mouse and will shoot spheres that needs to hit a horizontally oscillating target. On hit the launched ball should change color.

Homework:

Make FPS game scene where there is few static objects that are shooting at you. There is already created character controller in Unity, but it will be better to make your own. It’s not necessary to have separate rooms. You can also use the terrain editor. Check and try most of the methods and properties available at the scripting reference for Transform and Gameobject.

Chapter 3. Physics & Rigidbody

* Rigidbody
* Physic Material
* Joint
* Add Force
* Add torque
* Raycast
* Collision Detection types and properties. Collider types.

Lab:

Demonstrate all important properties and methods for rigidbody and collision detection types. Move with rigidbody vs move with transform. Add all new things to game project. Show Raycast, Joint, physics materials… More detailed notes can be found in the power point presentation.

Homework:

Add rigidbody to the previous homework. Add jump functionality. Add opening and closing doors. Add GameObject to the environment that will be your enemy and will shoot at you. They may be static or moving.

Chapter 4. GUI

* **GuiTexture**
* **GuiButton**
* **OnGUI**
* **GUISkin**
* **GUIStyle**
* **GuiLabel**
* **Textarea**
* **UI Canvas**
* **UI Button**
* **UI Image**
* **UI Text**
* **UI Events and Triggers**
* **UI Slider**
* **UI Transitions**
* **UI Scroll Rect**
* **UI Scrollbar**
* **UI Mask**

Lab:

Add GUI the game project with all needed buttons and add before that some class that will be inherited and will contain click method with params. Follow all power point slides and demonstrate the content. More detailed notes can be found in the power point presentation. Open NewUIScene in example project. Show fill image option too.

Chapter 5. 2D & Particles

* 2D mode
* 2D Sprites
* Sprite Editor
* Layers
* 2D physics
* 2d Rigidbody
* ***2d Joints***
* 2d character controller-Combination of two colliders and rigidbody
* ***Particles – Add one and demonstrate all thing and properties***
* ***Particle Emitter***
* ***Particle animator***

Lab:

Make simple 2d scene or game showing all the things mentioned above. More detailed notes can be found in the power point presentation.

Chapter 6.Advanced Scripting & Audio & Animations

* Animations
* Manage animations scripting
* Animation Controller
* Animation Events
* Avatar Masks
* Animation import types and setting
* Animation Properties
* Blend Trees
* Transitions
* Audio sources
* Audio listeners
* Manage Audio from code
* Enumerator and Coroutine
* WWW
* Customize Editor menus
* Performance optimizations in scripting and overall
* Building Settings
* Platform Compile scripting
* Asset store

Lab :

That chapter is divided into two presentations. Follow the slides and demonstrate all things. Use the already made game for art or help. More detailed notes can be found in the power point presentations.