

Government of Pakistan
National Vocational and Technical Training Commission

Prime Minister's Hunarmand Pakistan Program

"Skills for All"



Course Contents / Lesson Plan
Course Title: Game Development
Duration: 3 Months

Revised Edition

Trainer Name	
Course Title	Game Development
Objectives and Expectations	<p>Employable skills for Bachelor of Computer Science (BCS) / B.Sc (Computer Science) through an intensive course on Game Development & Modelling</p> <p>This is a special course designed to address unemployment in the youth. The course aims to achieve the above objective through hands on practical training delivery by a team of dedicated professionals having rich market/work experience. This course is therefore not just for developing a theoretical understanding/back ground of the trainees. Contrary to that it is primarily aimed at equipping the trainees to perform commercially in a market space in independent capacity or as a member of a team.</p> <p>The course therefore is designed to impart not only technical skills but also soft skills (i.e. interpersonal/communication skills; personal grooming of the trainees etc) as well as entrepreneurial skills (i.e. marketing skills; free lancing etc). The course also seeks to inculcate work ethics to foster better citizenship in general and improve the image of Pakistani work force in particular.</p> <p><u>Main Expectations:</u></p> <p>In short, the course under reference should be delivered by professional instructors in such a robust hands- on manner that the trainees are comfortably able to employ their skills for earning money (through wage/self-employment) at its conclusion.</p> <p>This course thus clearly goes beyond the domain of the traditional training practices in vogue and underscores an expectation that a Key Features of Training& Special Modules</p> <p>market centric approach will be adopted as the main driving force while delivering it. The instructors should therefore be experienced enough to be able to identify the training needs for the possible market roles available out there. Moreover, they should also know the strengths and weaknesses of each individual trainee to prepare them for such market roles during/after the training.</p> <p>i. Specially designed practical tasks to be performed by the trainees have been included in the Annexure-I to this document. The record of all tasks performed individually or in groups must be preserved by the management of the training Institute clearly labelling name, trade, session etc so that these are ready to be physically inspected/verified through monitoring visits from time to time. The weekly distribution of tasks has also been indicated in the weekly lesson plan given in this document.</p> <p>ii. In order to materialize the main expectations, a special module on Job Search & Entrepreneurial Skills has been included in the later part of this course (5th & 6th month) through which, the trainees will be made aware of the Job</p>

search techniques in the local as well as international job markets (Gulf countries). Awareness around the visa process and immigration laws of the most favoured labour destination countries also forms a part of this module. Moreover, the trainees would also be encouraged to venture into selfemployment and exposed to the main requirements in this regard. It is also expected that a sense of civic duties/roles and responsibilities will also be inculcated in the trainees to make them responsible citizens of the country.

Training Tools/ Methodology

iii. A module on Work Place Ethics has also been included to highlight the importance of good and positive behaviour at work place in the line with the best practices elsewhere in the world. An outline of such qualities has been given in the Appendix to this document. Its importance should be conveyed in a format that is attractive and interesting for the trainees such as through PPT slides +short video documentaries. Needless to say that if the training provider puts his heart and soul into these otherwise non-technical components, the image of Pakistani workforce would undergo a positive transformation in the local as well as international job markets.

In order to maintain interest and motivation of the trainees throughout the course, modern techniques such as:

- Motivational Lecture
- Success Stories
- Case Studies

These techniques would be employed as an additional training tool wherever possible (these are explained in the subsequent section on Training Methodology).

Lastly, evaluation of the competencies acquired by the trainees will be done objectively at various stages of the training and proper record of the same will be maintained. Suffice to say that for such evaluations, practical tasks would be designed by the training providers to gauge the problem solving abilities of the trainees.

(i) Motivational Lecture

The proposed methodology for the training under reference employs motivation as a tool. Hence besides the purely technical content, a trainer is required to include elements of motivation in his/her lecture to inspire the trainees to utilize the training opportunity to the full and strive towards professional excellence. Motivational lectures may also include general topics such as the importance of moral values and civic role & responsibilities as a Pakistani. A Motivational Lecture should be delivered with enough zeal to produce a deep impact on the trainees. It may comprise of the following:

- ☐ Clear Purpose to convey message to trainees effectively.
- ☐ Personal Story to quote as an example to follow.
- ☐ Trainees Fit so that the situation is actionable by trainees and not represent a just idealism.
- ☐ Ending Points to persuade the trainees on changing themselves.

A good Motivational Lecture should help drive creativity, curiosity and

spark the desire needed for trainees to want to learn more. Impact of a successful motivational strategy is amongst others commonly visible in increased class participation ratios. It increases the trainees' willingness to be engaged on the practical tasks for longer time without boredom and loss of interest because they can clearly see in their mind's eye where their hard work would take them in short (1-3 years); medium (3 -10 years) and long term (more than 10 years). As this tool is expected that the training providers would make arrangements for regular well planned Motivational Lecture(For further detail please see Page No: 4)s as part of a coordinated strategy interspersed throughout the training period as suggested in the weekly lesson plans in this document.

(ii) Success Stories

Another effective way of motivating the trainees is by means of Success Stories. Its inclusion in the weekly lesson plan at regular intervals has been recommended till the end of the training.

A success story may be disseminated orally, through a presentation or by means of a video/documentary of someone that has risen to fortune, acclaim, or brilliant achievement. A success story shows how a person achieved his goal through hard work, dedication and devotion. An inspiring success story contains compelling and significant facts articulated clearly and easily comprehensible words. Moreover, it is helpful if it is assumed that the reader/listener knows nothing of what is being revealed. Optimum impact is created when the story is revealed in the form of:-

- Directly in person (At least 2-3 cases must be arranged by the training institute)
- Through an audio/ videotaped message (2-3 high quality videos must be arranged by the training institute)

It is expected that the training provider would collect relevant high quality success stories for inclusion in the training as suggested in the weekly lesson plan given in this document.

Suggestive structure and sequence of a sample success story and its various shapes can be seen at annexure III.

(iii) Case Studies

Where a situation allows, case studies can also be presented to the trainees to widen their understanding of the real life specific problem/situation and to explore the solutions.

In simple terms, the case study method of teaching uses a real life case example/a typical case to demonstrate a phenomenon in action and explain theoretical as well as practical aspects of the knowledge related to the same. It is an effective way to help the trainees comprehend in depth both the theoretical and practical aspects of the complex phenomenon in depth with ease. Case teaching can also stimulate the trainees to participate in discussions and thereby boost their confidence. It also makes class room atmosphere interesting thus maintaining the trainee interest in training till the end of the course.

Depending on suitability to the trade, the weekly lesson plan in this document may suggest case studies to be presented to the trainees. The trainer may adopt a power point presentation or video format for such case studies whichever is deemed suitable but it's important that

	<p>only those cases are selected that are relevant and of a learning value. The Trainees should be required and supervised to carefully analyze the cases.</p> <p>For the purpose they must be encouraged to inquire and collect specific information / data, actively participate in the discussions and intended solutions of the problem / situation.</p> <p>Case studies can be implemented in the following ways:-</p> <ol style="list-style-type: none"> A good quality trade specific documentary (At least 2-3 documentaries must be arranged by the training institute). Health & Safety case studies (2 cases regarding safety and industrial accidents must be arranged by the training institute) Field visits (At least one visit to a trade specific major industry/ site must be arranged by the training institute)
Entry-level of trainees	<p>Since intake level is Bachelor of Computer Science (BCS) / B.Sc (Computer Science) so expectations of the trainees are:</p> <ul style="list-style-type: none"> To have knowledge of Programming Concepts To have studied languages such as C, C++, C# To have concept of Computer system
Learning Outcomes of the course	<p>After completion of this course, the trainees must be able to:</p> <ul style="list-style-type: none"> Determine the relative position of any objects or points on the earth. Determine the distance and angle between different objects. Prepare a map or plan to represent an area on a horizontal plan. Determine the required areas and volumes of land and materials needed during construction. Ensure that the construction takes place in the correct relative and absolute position on the ground. Record the final position of the construction, including any design changes. Provide permanent control points from which particularly important projects can be surveyed - such as regular monitoring of a construction to check for movement. Develop methods using the knowledge of modern science & technology and using them in the field. Solve measurement problems in an optimal way
Course Execution Plan	<p>The total duration of the course: 3 months (12 Weeks)</p> <p>Class hours: 4 hours per day</p> <p>Theory: 20%</p> <p>Practical: 80%</p> <p>Weekly hours: 20 hours per week</p> <p>Total contact hours: 260 hours</p>
Companies offering jobs in the respective trade	<p>Besides overseas employment, the following Pakistani companies/firms/Organizations are also offering jobs as well, with details as under:-</p> <ol style="list-style-type: none"> Freelancing (Fiverr, Upwork, Freelancers) Government Institutes Software Houses Crossover, TopTel etc

Job Opportunities	<p>All over the world there is a high demand in the Information Technology industry for developers in various fields such as game developers, gaming studios and game graphics modular's. With the help of this course, we will be able to give technical training of Information Technology to our youth. There are also opportunities for start-up entrepreneurship due to the high demand in the market in following designated jobs; Pakistan Industry reference</p> <p>A quick guide about salaries, opportunities and available jobs is listed below.</p> <p>i. A comparison of game developers in Pakistan, https://www.glassdoor.com/Salaries/pakistan-game-developerssalary-SRCH_IL.0,8_IN192_KO9,23.htm</p> <p>ii. List of jobs and titles available in the industry, https://www.mustakbil.com/companies/pakistan/computergames https://www.rozee.pk/job/jsearch/q/Game%20Developers</p>
No of Students	25
Learning Place	Classroom / Lab

MODULES

Schedu led Weeks	Module Title	Days	Hours	Learning Units	Home Assignment
Week 1	Introduction/in sallation of Unity	Day 1	Hour 1	Course Introduction and Expectations	•Task 1 <u>Details may be seen at Annexure-I</u>
			Hour 2	Motivational lectures	
			Hour 3	Job Market Overview	
			Hour 4	Work Ethics in Institute	
		Day 2	Hour 1	History of Gaming	
			Hour 2	Current State of gaming industry	
			Hour 3	Demand in Pakistan	
			Hour 4	Ethical Considerations in gaming	
		Day 3	Hour 1	Cheating in games	
			Hour 2	Game theory	
			Hour 3	Types of Games	
			Hour 4	Game genres	
		Day 4	Hour 1	Game developer	
			Hour 2	Market overview	

			Hour 3	Where to download	
			Hour 4	Version understanding	
		Day 5	Hour 1	Liscence registration	
			Hour 2	Understanding unity	
			Hour 3	Unity tabs and loadout	
			Hour 4	Understanding unity windows	
Week 2	Basics of C# and some basics of Animation	Day 1	Hour 1	Language principles	•Task 2 <u>Details may be seen at Annexure-I</u>
			Hour 2	Compiler	
			Hour 3	Memory management	
			Hour 4	sytanx	
		Day 2	Hour 1	variables	
			Hour 2	datatypes	
			Hour 3	Escape charaters	
			Hour 4	Characters	
		Day 3	Hour 1	If statement	
			Hour 2	If else in combination	

			Hour 3	Nested if else	
			Hour 4	Nested if else	
		Day 4	Hour 1	If else statement	
			Hour 2	Switch statements	
			Hour 3	Vectors	
			Hour 4	<ul style="list-style-type: none"> Institute/Work ethics 	
		Day 5	Hour 1	<ul style="list-style-type: none"> Adding 3D items to Hierarchy Window Arranging them in a scene view 	
			Hour 2	<ul style="list-style-type: none"> View them in-game view Setting up the camera 	
			Hour 3	<ul style="list-style-type: none"> Move The ball With Input Change the direction on Input Learn raycast to Know the ground 	
			Hour 4	<ul style="list-style-type: none"> Spawning the platform Randomly Spawning the collectible Collecting the collectible 	
Week 3	Refine animations and Single person	Day 1	Hour 1	<ul style="list-style-type: none"> Feedback of the previous Task Score System 	•Task 3

	game		Hour 2	<ul style="list-style-type: none">• Increase the ball speed with time• Game Over System	<u>Details may be seen at Annexure-I</u>
			Hour 3	<ul style="list-style-type: none">• Basic UI<ul style="list-style-type: none">• Start Menu• Game Over Menu• Buttons• Images	
			Hour 4	<ul style="list-style-type: none">• How to import assets to Unity• Setting up the textures	
			Day 2	Hour 1	
		Hour 2	<ul style="list-style-type: none">• Working in animator to animate a character• Working with blend trees		
		Hour 3	<ul style="list-style-type: none">• State machines• Making the player controller		
		Hour 4	<ul style="list-style-type: none">• Understanding a character controller• Understanding the physics system		
	Day 3	Hour 1	<ul style="list-style-type: none">• Ammo system• Picking up items		

			Hour 2	<ul style="list-style-type: none"> Understanding the basics of the terrain system Create a terrain 	
			Hour 3	<ul style="list-style-type: none"> Texture it Use rise tool to create mountains 	
			Hour 4	<ul style="list-style-type: none"> Understanding the basics of the terrain system Create a terrain 	
		Day 4	Hour 1	<ul style="list-style-type: none"> Add trees and grass Create a footpath 	
			Hour 2	<ul style="list-style-type: none"> Texture Mountains, footpath Ground with different textures 	
			Hour 3	<ul style="list-style-type: none"> Understand the basics of pro builder 	
			Hour 4	<ul style="list-style-type: none"> Design a level using a pro builder 	
		Day 5	Hour 1	<ul style="list-style-type: none"> Adjusting lights 	
			Hour 2	<ul style="list-style-type: none"> Written Assessment <i>MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)</i> 	
			Hour 3	<ul style="list-style-type: none"> Feedback of the previous Task Setup Autodesk Maya 	
			Hour 4	<ul style="list-style-type: none"> Learn how to get a free 	

				student license <ul style="list-style-type: none"> Understanding the layout of the software 	
WEEK 4	3D Modelling and 2Dgame	Day 1	Hour 1	Feedback of previous week	•Task 4 <u>Details may be seen at Annexure-I</u>
			Hour 2	<ul style="list-style-type: none"> Creating a simple object 	
			Hour 3	<ul style="list-style-type: none"> Complex objects 	
			Hour 4	<ul style="list-style-type: none"> UV mapping 	
		Day 2	Hour 1	<ul style="list-style-type: none"> Learning Material 	
			Hour 2	<ul style="list-style-type: none"> Exporting Unity 	
			Hour 3	<ul style="list-style-type: none"> Tiled vs. Sprite Creating resources 	
			Hour 4	<ul style="list-style-type: none"> Setting up level Adding character 	
		Day 3	Hour 1	<ul style="list-style-type: none"> Controlling player Spawn enemies 	
			Hour 2	<ul style="list-style-type: none"> Collectables 	
			Hour 3	Hands-on Practice with Object Recognition and Tracking	
			Hour 4	Hands-on Practice with Object Recognition and Tracking	
		Day 4	Hour 1	Semantic Segmentation	

			Hour 2	Instance Segmentation	
			Hour 3	Hands-on Practice with Segmentation	
			Hour 4	Hands-on Practice with Segmentation	
		Day 5	Hour 1	<ul style="list-style-type: none">Exporting to unityDebudding an	
			Hour 2		
			Hour 3		
			Hour 4		

Week 5	Using AI and creating background	Day 1	Hour 1	Feedback of the previous Task	<div>• Task 5</div> <div><i><u>Details may be seen at Annexure-I</u></i></div>
			Hour 2	Setting up enemy	
			Hour 3	Animate it	
			Hour 4	Apply ragdoll animation	
		Day 2	Hour 1	Navmesh agent	
			Hour 2	Navmesh surface	
			Hour 3	Make the enemy find a path to the player	
			Hour 4	Attacking the player	
		Day 3	Hour 1	Health system both for player and enemy	

			Hour 2	The dying system both for player and enemy
			Hour 3	Animation events for attacking with a melee weapon
			Hour 4	<ul style="list-style-type: none"> MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)
		Day 4	Hour 1	<ul style="list-style-type: none"> Feedback of the previous Task Understanding the basics of the terrain system
			Hour 2	<ul style="list-style-type: none"> Create a terrain Texture it
			Hour 3	Texture it
			Hour 4	Use rise tool to create mountains
		Day 5	Hour 1	Use rise tool to create mountains
			Hour 2	Add trees and grass
			Hour 3	Create a footpath
			Hour 4	Texture Mountains, footpath Ground with different textures

Week 6	Using AR and designing Bird	Day 1	Hour 1	<ul style="list-style-type: none"> Feedback of the previous Task Introduction 	• Task 6 <i><u>Details may be seen at Annexure-I</u></i>
			Hour 2	<ul style="list-style-type: none"> Vuforia Engine Installing Creating a project 	
			Hour 3	<ul style="list-style-type: none"> Adding Digital scene 	
			Hour 4	<ul style="list-style-type: none"> Building and running app 	
		Day 2	Hour 1	Success story (For further detail please see Page No: 5 and Annexure-III at the end)	
			Hour 2	Written Assessment	
			Hour 3	MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)	
			Hour 4	Case Study (For further detail please see Annexure-III at the end)	
		Day 3	Hour 1	Feedback of the previous Task	
			Hour 2	Installing Photoshop	
			Hour 3	Installing illustrator	
			Hour 4	Learning basic tools	
		Day 4	Hour 1	Creating shapes	

			Hour 2	Splash screens	
			Hour 3	Icons	
			Hour 4	Written Assessment	
		Day 5	Hour 1	MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)	
			Hour 2	Splash screens	
			Hour 3	Icons	
			Hour 4	Written Assessment	
Week 7	Knowing unity input and sound & particles	Day 1	Hour 1	<ul style="list-style-type: none"> • Feedback of the previous Task • Basic input system 	•Task 7 <u>Details may be seen at Annexure-I</u>
			Hour 2	<ul style="list-style-type: none"> • Adding or changing input keys in editor 	
			Hour 3	<ul style="list-style-type: none"> • Understanding joystick inputs 	
			Hour 4	<ul style="list-style-type: none"> • Touch controls & Swipe input 	
		Day 2	Hour 1	<ul style="list-style-type: none"> • Axis to control the touch input 	
			Hour 2	<ul style="list-style-type: none"> • Creating touch joystick to control a ball 	
			Hour 3	Sound effects to Floppy bird	

			Hour 4	Visual effect	
			Day 3	Hour 1	
				Hour 2	
				Hour 3	
		Day 4	Hour 4	Building for Mobile	
			Hour 1	Publishing to Play Store	
			Hour 2	Motivational	
			Hour 3	Freelancing (<i>Get some small projects of Game Development / General Topics</i>)	
		Day 5	Hour 4	Written Assessment	
			Hour 1	MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)	
			Hour 2	Publishing to Play Store	
			Hour 3	Motivational	
			Hour 4	Freelancing (<i>Get some small projects of Game Development / General Topics</i>)	
Week 8	Game networking	Day 1	Hour 1	Feedback of previous	•Task 8

			Hour 2	UNET vs Photon	<u>Details may be seen at Annexure-I</u>
			Hour 3	<ul style="list-style-type: none"> Setting up photon 	
			Hour 4	Photon Instantiation	
		Day 2	Hour 1	Cached events	
			Hour 2	Create a level	
			Hour 3	Setting up the networking	
			Hour 4	Spawning character	
		Day 3	Hour 1	Smoothing networking	
			Hour 2	Setting up character animations	
			Hour 3	Networking the animations	
			Hour 4	Using PRCs	
		Day 4	Hour 1	User interface	
			Hour 2	Shooting System	
			Hour 3	Gun fx	
			Hour 4	Health System	
		Day 5	Hour 1	Respawning	

			Hour 2	Tweaking	
			Hour 3	Written Assessment	
			Hour 4	MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)	
Week 9	How to start making a Game	Day 1	Hour 1	Where to start to develop a game	•Task 9 <u>Details may be seen at Annexure-I</u>
			Hour 2	How to collect references	
			Hour 3	Rough Sketches	
			Hour 4	Creating Blueprint	
		Day 2	Hour 1	Writing a story for your game	
			Hour 2	Gathering requirements	
			Hour 3	Making a list of all the assets required	
			Hour 4	Dividing the work into a team	
		Day 3	Hour 1	Case study For further detail please see Page No: 5 and Annexure-III at the end)	
			Hour 2	Written Assessment	
			Hour 3	MCQ Type having 30 questions with maximum 4 options per question (Time Allowed: 40 Minutes)	

			Hour 4	Freelancing (Get more small projects of Game Development / General Topics)				
		Day 4	Hour 1	Character creating				
			Hour 2	Rigging				
			Hour 3	Animating				
			Hour 4	Setup animations in unity				
		Day 5	Hour 1	Character control				
			Hour 2	Shooting system				
			Hour 3	Physics collision				
			Hour 4	Spawning				
		Week 10	Continuation of previous weeks with extra pactice	Day 1		Hour 1	Health system	•Task 10 <u>Details may be seen at Annexure-I</u>
						Hour 2	Creating UI	
						Hour 3	Object Tracking	
Hour 4	Attack system							
Day 2	Hour 1			Picking up items				
	Hour 2			Session on Self-Employment				

			Hour 3	How to start a Business.	
			Hour 4	Requirements (Capital, Physical etc)	
		Day 3	Hour 1	Benefits/Advantages of self-employment	
			Hour 2		
			Hour 3	Freelancing (Get more	
			Hour 4	Written Assessment	
		Day 4	Hour 1	Video Understanding	
			Hour 2	Optical Flow	
			Hour 3	Action Recognition	
			Hour 4	Action Recognition	
		Day 5	Hour 1	3D Computer Vision	
			Hour 2	Monocular Depth Estimation	
			Hour 3	RGB-D Reconstruction	
			Hour 4	Complete topic revision	
Week 11	Deep Reinforcement Learning	Day 1	Hour 1	Motivational Lecture(For further detail ple ase see Page No: 4)	•Task 11 <u>Details may be seen at</u>

			Hour 2	Generate Game idea	<u>Annexure-I</u>
			Hour 3	Gather Requirements	
			Hour 4	List of systems to be used	
		Day 2	Hour 1	Gather reference images	
			Hour 2	Communicate with gamers what they like in games	
			Hour 3	Do your paperwork before starting a project	
			Hour 4	Start from creating modules	
		Day 3	Hour 1	Model required 3d assets	
			Hour 2	Player control	
			Hour 3	Another system according to your game	
			Hour 4	Case Study (For further detail please see Page No: 4)	
		Day 4	Hour 1	Session on General Overseas Employment opportunities.	
			Hour 2	Job search Avenues.	
			Hour 3	Visa	
			Hour 4	Immigration Information (Legal age requirements, Health Certificate, Police Clearance & Travel	

				Insurance)	
		Day 5	Hour 1	RL for Games	
			Hour 2	Atari Games	
			Hour 3	AlphaGo and AlphaZero	
			Hour 4	Complete topic revision	
Week 12	Practical Projects and Job hunt	Day 1	Hour 1	Communicate with gamers what they like in games	•Task 12 <u>Details may be seen at Annexure-I</u> Final Project
			Hour 2	Do your paperwork before starting a project	
			Hour 3	Start from creating modules	
			Hour 4	Model required 3d assets	
		Day 2	Hour 1	Player control	
			Hour 2	Another system according to your game	
			Hour 3	Case Study (For further detail please see Page No: 4)	
			Hour 4	Session on General Overseas Employment opportunities.	
		Day 3	Hour 1	Job search Avenues.	
			Hour 2	Free lancing and earning result	

			Hour 3	Selection of two countries of destination (Gulf Countries, Malaysia, South Korea etc) focusing on:-
			Hour 4	Trade specific Job Prospects and Earning levels in that country.
		Day 4	Hour 1	Free lancing continued....
			Hour 2	Session on Self-Employment
			Hour 3	How to start a Business.
			Hour 4	Requirements (Capital, Physical etc)
		Day 5	Hour 1	Final Project & Assessment
			Hour 2	
			Hour 3	
			Hour 4	

Tasks for Certificate in AI (Robotics)

Task No.	Task	Description	Week
1.	Create a Zig-Zag Game	First make a floor then create a ball and when button is pressed, ball starts moving. After moving the ball, we will use and if-else statement to change the direction of the ball on input. Now write a camera script to follow the ball by using vectors. Then we will learn how to instantiate prefab in-game and then will generate random cubes to make a path like a Zigzag	Week 1
2.	Creating a 1st Person Shooting Game	First set up a character controller and its animations and then create a script to control these animations. Also work on blend trees to move look more realistic. Then use raycasting for shooting and simple integers and if-else statements to make an ammo system	Week 2
3.	Creating Enemy in 1st Person Shooting Game using AI	Set up enemies and also create a navmesh surface so enemies know which surface is walkable and how they can get to the player. Use ragdoll animation so make enemies look realistic when they die. Use particle system to make blood and instantiate this blood particle whenever enemy is hit. Use an event system to make the melee attack better also create a health system and connect it to UI to show in the game.	Week 3
4.	Creating Forrest in 1st Person Shooting Game using Unity terrain system and pro builder	Create a simple terrain and then texture it to create a path and use the terrain tool to make hills and create a forest by adding trees and grass by using unity standard assets. Use pro builder to create a building.	Week 4
5.	Knowing 3D Modelling	Create a simple model then texture and render it. After that use reference images to create a complex model. After modelling, we will export it to unity in order to see how measurement works in different software.	Week 5
6.	Rig and Animate 3d model created in previous Week	This week we will work on animation in Maya. We will Use a model created in previous week and then rig both human character and a non human character. Now use key frames and animate the model and then export it to unity. Create an animation for equipping a gun, firing and reloading a gun.	Week 6

7.	Unity Augmented Reality (Create 3d model in Maya and then use it in AR app)	Use Vuforia engine to create an application and show the object in the real world.	Week 7
8.	Designing UI of Flappy bird	Design sprites for 2D game in which you have to create a background like a continuous image also design button sprites and Main menu screens.	Week 8
9.	Make Mario game using 2D Game development	To create a sprite base 2D game, first create a simple character in Photoshop and then animate it. Create to control the player add levels of game. Also add enemies..	Week 9
10.	Adding Sounds and particles in game	Add sounds in 2D game developed in week-9. Create particles in order to give blood effects, the bullet hit effects and muzzle flash.	Week10
11.	Publish Game on Play Store	Publish the 2D game developed by your trainees on play store	Week11
12.	Start your project (Complete in 1 month)	<p>For the purpose of your Project, you have to generate a game idea and for this purpose you have to gather requirements gather resources and reference images. Then you have to make a plan and then divide it into four weeks and then start working according to your plan. You have to achieve:</p> <ul style="list-style-type: none"> • Generate Game idea • Gather Requirements • List of systems to be used • Gather reference images • Communicate with gamers what they like in games • Do your paperwork before starting a project • Start from creating modules • Model required 3d assets • Player control • Another system according to your game <p>Publish this game on Play store</p>	Week12
13.	Final Project	Combining all the topics covered in the course to build a complete AI-driven robot that can perform tasks autonomously.	Week12

Motivational Lectures Game Developing

Annexure-IV:

Workplace/Institute Ethics Guide

Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue, or value to strengthen character and individual abilities. It is a set of values-centered on the importance of work and manifested by determination or desire to work hard.

The following ten work ethics are defined as essential for student success:

1. Attendance:

Be at work every day possible, plan your absences don't abuse leave time. Be punctual every day.

2. Character:

Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

3. Team Work:

The ability to get along with others including those you don't necessarily like. The ability to carry your weight and help others who are struggling. Recognize when to speak up with an idea and when to compromise by blend ideas together.

4. Appearance:

Dress for success set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a lifetime

5. Attitude:

Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems, and procedures in light of changing responsibilities.

6. Productivity:

Do the work correctly, quality and timelines are prized. Get along with fellows, cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take pride in your work, do things the best you know-how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

7. Organizational Skills:

Make an effort to improve, learn ways to better yourself. Time management; utilize time and resources to get the most out of both. Take an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

8. Communication:

Written communication, being able to correctly write reports and memos. Verbal communications, being able to communicate one on one or to a group.

9. Cooperation:

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing work situations and the application of new or different skills.

10. Respect:

Work hard, work to the best of your ability. Carry out orders, do what's asked the first time. Show respect, accept, and acknowledge an individual's talents and knowledge. Respects diversity in the workplace, including showing due respect for different perspectives, opinions, and suggestions.