SP27 — CS 470 Calendar

Game Development • MWF, 50 min • Spring 2027 • Fakhir Shaheen • fakhirshaheen@fccollege.edu.pk

Lec #	Date	Topic	*Deliverables*
1	Mon, 1 Feb	What a game is: input, update, draw; why an engine; a tour of Godot	
2	Wed, 3 Feb	Wanderer & Ricochet: _process & delta, Input, velocity, instantiate	
—	Fri, 5 Feb	*Kashmir Day*	*A1 released*
3	Mon, 8 Feb	Fruit Frenzy: Area2D, signals, groups, Timer, queue_free	
4	Wed, 10 Feb	Pong I: paddles, ball, collision normals, Vector2.bounce, scoring	
5	Fri, 12 Feb	Pong II: @export, custom signals, audio, labels, game over & restart	*A1 due, A2 released*
6	Mon, 15 Feb	Flappy I: gravity by hand: acceleration, velocity, position; flap	
7	Wed, 17 Feb	Flappy II: infinite scrolling; spawning on a Timer; scoring gate	
8	Fri, 19 Feb	Flappy III: state machines (enum + match); menus & scenes; high score	*A2 due, A3 released*
9	Mon, 22 Feb	Fruit Ninja: mouse gestures, _draw, match, distance_to	
10	Wed, 24 Feb	Juice: Tween & easing curves, particles, camera shake, await, hit-stop	
11	Fri, 26 Feb	Game structure: autoloads, scene changes, save & load (JSON)	*A3 due, A4 released*
12	Mon, 1 Mar	Platformer I: CharacterBody2D & move_and_slide; jump feel	
13	Wed, 3 Mar	Platformer II: TileMapLayer; layers & masks; one-way platforms	
14	Fri, 5 Mar	Platformer III: AnimatedSprite2D; Camera2D limits; parallax	*A4 due, A5 released*
—	Mon 8 – Fri 12 Mar	*Eid-ul-Fitr*	
15	Mon, 15 Mar	Top-down I: hitbox & hurtbox, health, knockback, invincibility frames	
16	Wed, 17 Mar	Top-down II: enemy FSM & steering (seek, flee, wander, arrive)	
17	Fri, 19 Mar	Top-down III: pathfinding, BFS to A*; NavigationAgent2D	*A5 due, A6 released*
—	Mon 22 – Mon 29 Mar	*Spring Break; Pakistan Day 23 Mar; Easter Break 25 – 29 Mar*	
18	Wed, 31 Mar	Physics I: RigidBody2D, forces, impulses, PhysicsMaterial, sleeping	
19	Fri, 2 Apr	Physics II: drag to launch; impulse vectors; trajectory preview	*A6 due, A7 released*
20	Mon, 5 Apr	Show-and-tell of A1–A6; midterm review	
—	Wed, 7 Apr	**Midterm (lectures 1–19)**	
21	Fri, 9 Apr	Physics III: joints, destructibles, breakable structures	*A7 due*
22	Mon, 12 Apr	3D I: Node3D transforms & basis, Camera3D, lights, materials	
23	Wed, 14 Apr	3D II: Roll a ball: RigidBody3D, follow camera, Area3D pickups	
24	Fri, 16 Apr	3D III: first-person walker: CharacterBody3D, mouse look, jump	*A8 released*
25	Mon, 19 Apr	Worlds I: CSG prototyping; MeshLibrary & GridMap	
26	Wed, 21 Apr	Worlds II: RayCast3D: aim, build & destroy; HUD	
27	Fri, 23 Apr	Worlds III: lighting: sun, sky, shadows, fog, day–night cycle	*A8 due, A9 released*
28	Mon, 26 Apr	Characters I: rigged glTF import; AnimationTree state machine	
29	Wed, 28 Apr	Characters II: third-person camera; camera-relative movement	
30	Fri, 30 Apr	Procedural worlds: noise terrain, seeded placement, chunks	*A9 due, A10 released*
31	Mon, 3 May	Shaders I: the GPU pipeline; vertex & fragment; colour = f(UV)	
32	Wed, 5 May	Shaders II: 2D effects: flash, outline, dissolve, wave, CRT	
33	Fri, 7 May	Shaders III: toon, vertex displacement, post-processing, visual shaders	*A10 due, A11 released*
34	Mon, 10 May	A complete game I: enemies, PathFollow3D, waves, health & damage	
35	Wed, 12 May	A complete game II: towers, targeting, projectiles, economy	
36	Fri, 14 May	A complete game III: upgrades, win & loss; project kickoff & pitches	*A11 due; Proposal assigned*
—	Mon 17 – Wed 19 May	*Eid-ul-Adha*	
37	Fri, 21 May	Project lab: scoping check-ins	*Proposal due*
38	Mon, 24 May	Audio & adaptive music; export & publishing; playtesting	
39	Wed, 26 May	Project lab: milestone check-ins	
40	Fri, 28 May	Showcase & playtest day	
41	Mon, 31 May	Where next: game jams, portfolios, the industry	
42	Wed, 2 Jun	Course review & exam prep	*Final project due after the exam period*
—	Thu 3 – Fri 11 Jun	**Final Exams**	

Weekly assignments (released Friday, due the following Friday 11:59 pm): A1 Lunar Lander • A2 Breakout • A3 Dino Run • A4 Juicy Clicker • A5 Platformer (three rooms) • A6 Monster Arena • A7 Carrom • A8 Roll-a-Ball course • A9 Minecraft-lite extensions • A10 Third-person explorer • A11 Shader pack.

Grading: Assignments *(weekly)* 40% • Project 20% • Midterm 15% • Final exam 25%. *There is no attendance policy.*