PROGRAMME DETAILS

PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1 Techno Commercial Engineer: To develop the ability to think critically, analyse and make innovative design for offering techno-commercially feasible solutions.

PEO 2 Governance of Super Intelligence: To apply current tools and technologies to contribute for industries, public sectors, research organization for solving time critical problems.

PEO 3 Enduring Exploration: To impart the knowledge of inventive design skills and lifelong learning to succeed in their professional challenges

PROGRAMME OUTCOMES

PO1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

K .S. R. COLLEGE OF ENGINEERING

K S R KALVI NAGAR , TIRUCHENGODE -637215

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

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MINDS SPARK

GAME DEVELOPMENT

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K.S.R. COLLEGE OF ENGINEERING

VISION OF THE INSTITUTE

We envision to achieve status as an excellent educational institution in the global knowledge hub, making self-reliance, experts, ethical and responsible engineers, technologists, scientists, managers, entrepreneurs and leaders with good citizenship enabling them to meet the challenges and ensure sustainable growth of the nation and the world.

MISSION OF THE INSTITUTE

To inculcate in the students' self-learning abilities that enable them to become competitive and innovative professionals and institutions through state-of-art laboratory facilities and industrial collaborations improving the level of education, mentoring environmental and social needs. To foster and maintain a mutually beneficial partnership with global industries and Institutions through knowledge transfer, collaborative research, and innovation.

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

VISION OF THE DEPARTMENT

To produce professionals for designing technology with ethical values, ingenious attitude and team spirit required for the continual development of the society and the nation.

MISSION OF THE DEPARTMENT

To behave academic environment for the development of skilled professionals qualified with knowledge, skills, values and ethics, thereby take a role in the field of computer science and design.

To behave holistic, creative learning and ethical attitude for embracing global challenges and leadership qualities in the field of computer science and design.

To influence graduates with the skills to become self-employed entrepreneurs and future leaders.

Introduction to Game Development

What is Game Development?

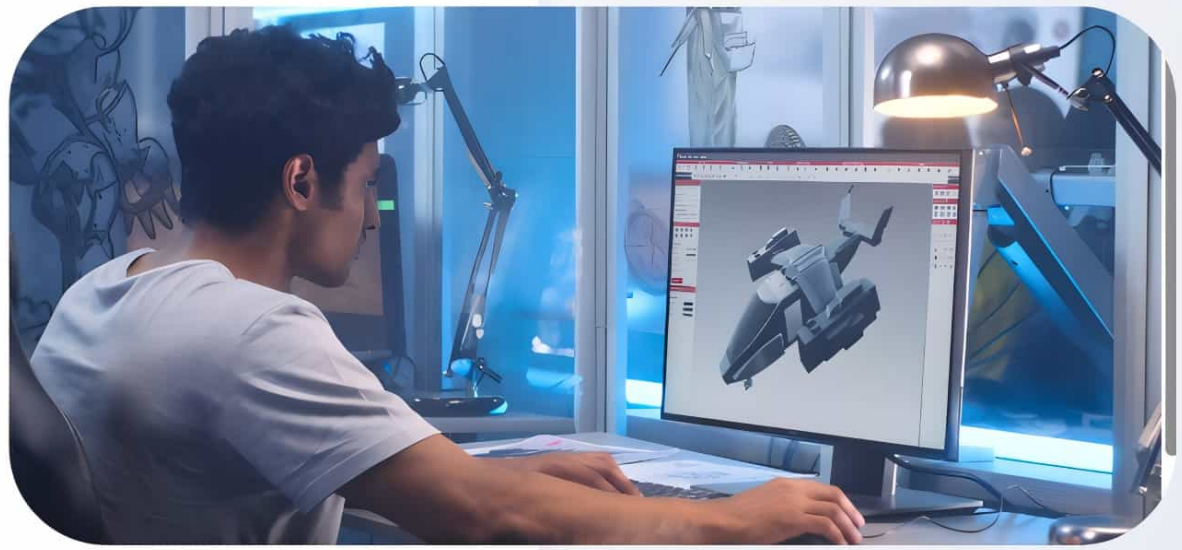
Every iconic game—whether it's Minecraft, Among Us, or God of War—started with a simple idea. But how does that idea evolve into a fully playable experience enjoyed by millions? Game development is the perfect blend of imagination, logic, storytelling, art, and programming. In today's tech-driven creative world, making games is more accessible than ever—especially for design and computer science students.

Key Benefits

Let's walk through the thrilling journey of turning a game idea into reality.

Spark:

- "A puzzle game where you control time to solve levels." That becomes the seed of a full game. Tools like mind maps, storyboards, and game design documents (GDD) help developers flesh out ideas, game mechanics, goals, levels, and aesthetics.



Game Development

Game Design

Game design is about defining: •Core mechanics: Jumping, shooting, collecting, crafting Game rules and win/lose conditions Level design: Environment, progression, difficulty curve

Key Benefits

User interface (UI) and player experience (UX) Designers also plan the game loop: what keeps the player coming back? A great game feels "easy to learn, hard to master."

Quiz :

► 1. What does "UI" stand for in game development?

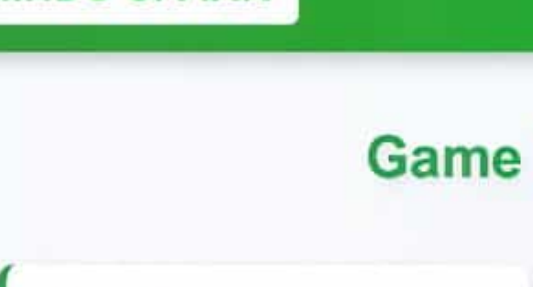
A. User Interaction
B. Unique Interface
C. User Interface
D. Universal Input

► 2. Which of the following is a key principle of good game UX design?

A. Confusing menus
B. Slow load times
C. Player guidance and feedback
D. Unpredictable controls

► 3. What is "level design" in game development?

A. Programming character levels
B. Creating game environments and challenges
C. Designing music levels
D. Adjusting difficulty



Vignesh.S II/CSD

Drawing

Yugesh.S II/CSD

Art & Audio

Games are experiences. Visuals and sound shape the tone and mood.

- 2D/3D Art: Characters, environments, objects, effects
- Animations: Movement, feedback, transitions
- Sound Design: Background music, effects, and voice-overs

Tools like Blender, Photoshop, FL Studio, and Figma are commonly used.

Indie games like Celeste

PRASANTH , I/CSD

Development

Developers use game engines like:

- Unity (C#)
- Unreal Engine (C++)
- Godot (GDScript/Python)

Programming involves:

- Game physics
- Player input
- AI behavior
- UI systems
- Multiplayer networking (optional)

Prototyping early and iterating fast is key.

Harinisri C II/CSD

Testing

Testing involves:

- Bug fixing (code, collision, glitches)
- Balancing gameplay
- User testing: Observing real players
- Performance optimization

Test → Feedback → Improve → Repeat

C.Sathish II/CSD

Team Roles in Game Development

In a typical studio or indie team:

- Game Designer – Creates core concept and mechanics
- Programmer – Implements functionality
- Artist – Designs characters and environments
- Sound Designer – Produces audio
- Tester – Identifies bugs and gameplay issues
- Project Manager – Keeps deadlines and coordination

From College Projects to Indie Stardom

Many successful games started as college projects or solo experiments.

Example: Thomas Was Alone was created by one developer during his weekend.

Game jams (like Global Game Jam or Ludum Dare) are great ways for students to practice, collaborate, and showcase creativity.

Vignesh.S II/CSD

Launch

Depending on the scale, games can be launched on:

- App Stores (Android/iOS)
- Steam / Itch.io
- Web platforms (like WebGL games on personal portfolios)

Marketing involves creating:

- Game trailers
- Social media teasers

Future of Game Dev: What's Next?

- AR/VR games with spatial interaction
- AI-powered storytelling
- Cross-platform and cloud gaming
- Interactive narrative design
- Social games & virtual worlds

ER.Harish II/CSD