



**Proposed Scheme for Third Year Undergraduate Program in Artificial Intelligence and Machine Learning: Semester VI (Autonomous)**  
**Academic Year(2025-26)**

Sr. No.	Course Code	Course	Teaching Scheme			Continuous Assessment (A)						Semester End Examination (B)						Aggregate (A+B)	Credits
			Theory (hrs.)	Practical (hrs.)	Tutorial (hrs.)	Term Test 1(TT1) -a	Term Test 2(TT2) -b	Assg/CP/G D/Presentation/Quiz -c	Total (a+b+c)	Term work	CA Total	Duration	Theory	Oral	Pract	Oral & Pract	SEE Total		
Sem III																			
1	DJS23ACH1301	Computer Graphics and Virtual Reality	4	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	4
Sem IV																			
2	DJS23ALH1401	C# Programming Laboratory	--	4	--	--	--	--	--	25	25	2	--	--	--	25	25	50	2
Sem V																			
3	DJS23ACH1501	Augmented Reality and Mixed Reality	3	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	3
4	DJS23ALH1501	Augmented Reality and Mixed Reality Laboratory	--	2	--	--	--	--	--	25	25	2	--	25	--	--	25	50	1
Sem VI																			
5	DJS23ACH1601	Game Design and Gamification	3	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	3
6	DJS23ALH1601	Game Design and Gamification Laboratory	--	2	--	--	--	--	--	25	25	2	--	25	--	--	25	50	1
Sem VIII																			
7	DJS23ACH1801	Metaverse	4	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	4
<b>Total</b>			<b>14</b>	<b>8</b>	<b>--</b>	<b>60</b>	<b>60</b>	<b>40</b>	<b>160</b>	<b>75</b>	<b>235</b>	<b>14</b>	<b>240</b>	<b>50</b>	<b>--</b>	<b>25</b>	<b>315</b>	<b>550</b>	<b>18</b>
Prepared by: Name and Signatures (with date)			Head of Department						Vice-Principal						Principal				
Checked By Name and Signatures (with date)			Dr. Aruna Gawde						Dr. Narendra Shekokar						Dr. Hari Vasudevan				



### Continuous Assessment (A):

Course	Assessment Tools	Marks	Time (mins)
Theory	a. Term Test 1 (based on 40 % syllabus)	15	45
	b. Term Test 2 (on next 40 % syllabus)	15	45
	c. Assignment / course project / group discussion /presentation / quiz/ any other.	10	--
	Total marks (a + b + c)	40	--
Audit course	Performance in the assignments / quiz / power point presentation / poster presentation/group project / any other tool.	--	As applicable
Laboratory	Performance in the laboratory and documentation.	25	
Tutorial	Performance in each tutorial & / assignment.	--	
Laboratory & Tutorial	Performance in the laboratory and tutorial.	--	

### Continuous Assessment (B):

Course	Assessment Tools	Marks	Time (hrs.)
Theory / * Computer based	Written paper based on the entire syllabus.	60	02
	* Computer based assessment in the college premises.	--	
Oral	Questions based on the entire syllabus.	--	--
Practical	Performance of the practical assigned during the examination and the output / results obtained.	--	--
Oral & Practical	Project-based courses - Performance of the practical assigned during the examination and the output/results obtained. Based on the practical performed during the examination and on the entire syllabus.	25	As applicable



<b>Program: Artificial Intelligence &amp; Machine Learning</b>	<b>TY.B.Tech.</b>	<b>Sem: VI</b>
<b>Course: Game Design and Gamification (DJS23ACH1601)</b>		
<b>Course: Game Design and Gamification Laboratory (DJS23ALH1601)</b>		

**Prerequisite:** Computer Graphics, Virtual Reality and Augmented Reality.

**Course Objectives:** The course introduces the students to the application of game-design elements and game principles. The objective of the course is to develop problem-solving capabilities using

**Course Outcomes: On completion of the course, learner will be able to:**

1. Understanding game design fundamentals
2. Analyze Game Mechanics and Dynamics
3. Building foundation for the game.
4. Analyze Opponent Moves in Gamification

<b>Detailed Syllabus: Game Design and Gamification (DJS23ACH1601)</b>		
<b>Unit</b>	<b>Description</b>	<b>Duration</b>
1	Introduction to Game Design: Motivation, Types of games, Different aspects of game design; Different components in a game, Game engines, Design Schemas, Game Design Fundamentals	07
2	The Design Process: Iterative Design, Commissions, Game creation, Game Modification, Game Analysis, Design Process, Scripted Game Design, Play Testing, Game Mechanics and Dynamics: Feedback and Re-enforcement, Designing for engagement Game Mechanics in depth, Putting it together, Case study of 8 queen's problem	08
3	Rules of Digital Games: Rule as a Whole, What are Rules, Types of Rules: constitutive, operational, and implicit, Case Study: Rules of Tetris, Why Rules.	07
4	Foundations of Gamification: Definition of Gamification, Why Gamify, Examples and Categories, Gamification in Context, Resetting Behavior, Replaying History, Gaming foundations: Fun Quotient, Evolution by loyalty, status at the wheel, the House always wins.	07
5	Developing Thinking: Re-framing Context: Communicology, Apparatus, and Post-history, Concepts Applied to Video games and Gamification, Rethinking 'playing the game' with Jacques Henriot, To Play Against: Describing Competition in Gamification, Player Motivation: Powerful Human Motivators, Why People Play, Player types, Social Games, Intrinsic verses Extrinsic Motivation, Progression to Mastery. Case studies for Thinking: Tower of Hanoi.	08
6	Opponent Moves in Gamification: Reclaiming Opposition: Counter gamification, Gamed Agencies: Affectively Modulating Our Screen- and App- Based Digital Futures, Remodeling design, Game Mechanics, Designing for Engagement, Case study of Maze Problem.	05
	<b>Total</b>	42



## Books

### Text books:

1. "Doing Things with Games, Social Impact through Play" by Elizabeth Goins (Publisher: CRC Press, 2021).
2. "The Art of Game Design: A Book of Lenses, Third Edition" by Jesse Schell (Publisher: CRC Press, 2019).
3. "Games, Design and Play: A Detailed Approach to Iterative Game Design" by Colleen Macklin and John Sharp (Publisher: Addison-Wesley Professional, 2016).
4. "Gamify: How Gamification Motivates People to Do Extraordinary Things" by Brian Burke (Publisher: Bibliomotion, 2014).
5. Mathias Fuchs, Sonia Fizek, Paolo Ruffino, Niklas Schrape, "Rethinking Gamification", Meson Press, ISBN (Print): 978-3-95796-000-9, <http://projects.digital-cultures.net/meson-press/files/2014/06/9783957960016-rethinkinggamification.pdf>, ISBN (PDF): 978-3-95796-001-6, 2014.
6. Ernest Adams, "Fundamentals of Game Design", 3rd Edition, New Riders; ISBN-10: 0321929675, 2013 .
7. Characteristics of Games" by George Skaff Elias, Richard Garfield, and K. Robert Gutschera (Publisher: MIT Press, 2012)

### References:

1. Scott Nicholson, "A User-Centered Theoretical Framework for Meaningful Gamification," Proceedings of the 8th Games Learning and Society Conference (2012) .
2. B.J. Fogg, "A Behavior Model for Persuasive Design", Proceedings of the 4th international Conference on Persuasive Technology (ACM, 2009)
3. Joey Lee and Jessica Hammer, "Gamification in Education: What, How, Why Bother?" Academic Exchange Quarterly 15.2, 2011.
4. Steffen P. Walz and Sebastian Deterding, eds., "The Gameful World: Approaches, Issues, Applications", MIT Press, 2015, (selected chapters), chapter. 18 (Gamification and the Enterprise)
5. Juho Hamari and Vili Lehdonvirta, "Game Design as Marketing: How Game Mechanics Create Demand for Virtual Goods," International Journal of Business Science and Applied Management 5:14 (2010) .
6. Roger E. Pedersen, "Game Design Foundations", Jones & Bartlett Learning; 2009, Second Edition, ISBN-10: 1598220349.
7. Kevin Werbach and Daniel Hunter, "For the Win: How Game Thinking Can Revolutionize Your Business", (Wharton Digital Press, 2012).
8. "Reality is Broken: Why Games Make Us Better and How They Can Change the World" by Jane McGonigal (Publisher: Penguin Books, 2011).
9. "Rules of Play: Game Design Fundamentals" by Katie Salen Tekinbas and Eric Zimmerman (Publisher: MIT Press, 2003).

### Online Resources:

1. [Introduction to Game Design | Coursera](#)
2. [Microsoft Word - 2WS0404HunickeR.doc \(northwestern.edu\)](#)
3. [The Game Design Resource Guide. I rounded up a list of references for... | by Alexia Mandeville | Medium](#)
4. [\(1\) \(PDF\) Digital Games and Gamification in Education: Chapter 11 – Assessment Based Games and Gamification \(researchgate.net\)](#)
5. [::1 - Gamifying the development of critical thinking in education - Drimify](#)
6. [Gamification \(edtechbooks.org\)](#)
7. [LitReview\\_Gamification\\_12FEB19.pdf \(advanced-hindsight.com\)](#)



### Suggested Experiments:

<b>Game Design and Gamification Laboratory (DJS23ALH1601)</b>	
<b>Sr. No</b>	<b>Title of Experiment</b>
1.	Analyze a game and describe it in terms of its core elements, game mechanics, rules
2	Gamification Definition Video: Create a video, animation, or screencast up to ten minutes long, which explains the concept of gamification. Imagine you are describing to a friend or relative what this course is about, and why it's an important topic. To the extent possible, anticipate and address possible misunderstandings. Humor and creativity are encouraged!
3	Spend some time playing a casual online/mobile game, such as Candy Crush Saga, Clash of Clans, or Words with Friends. (These are just examples; it can be any game of your choosing, so long as you didn't already use it for a prior assignment.) Analyze the techniques the game uses to motivate players to participate, and to keep playing. Are they effective? Why or why not?
4	To understand how game behavior changes when constitutive, operational, and implicit rules are modified.
5	To analyze the rule structure of Tetris and understand how those rules control challenge and fun.
6	Identify two games. Do a comparative analysis that explains which system you think is most successful, and why. Give specific examples of design aspects that you find effective or ineffective.
7	Casual Games: Spend some time playing a casual online/mobile game, such as Candy Crush Saga, Clash of Clans, or Words with Friends. (These are just examples; it can be any game of your choosing.) Answer the following questions, drawing on the concept discussed in the course: Is the game fun? Why or why not? What could a business learn from this game?
8	Player Behavior Observation Study
9	Reward vs Penalty Behavior Test
10	Application Comparison: Compare the use of gamification in two of the four application categories, viz., Marketing, Workplace, Learning, Behavior Change. How would a successful gamification system differ in the two situations, and how would it be similar? In which do you think gamification can be more effective?
11	Develop a simple digital game or gamified system that incorporates the selected game mechanics. Ensure that the game addresses a specific objective (e.g., learning a concept)
12	Mini Project

Minimum ten experiments from the above suggested list or any other tutorial based on syllabus will be included, which would help the learner to apply the concept learnt.