



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/GD/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 |
| Total | | | 14 | 8 | -- | 60 | 60 | 40 | 160 | 75 | 235 | 14 | 240 | 50 | -- | 25 | 315 | 550 | 18 |
| Prepared by: Name and Signatures (with date) | | | Head of Department | | | | | Vice-Principal | | | | | | Principal | | | | | |
| | | | Dr. Aruna Gawde | | | | | Dr. Narendra Shekokar | | | | | | Dr. Hari Vasudevan | | | | | |
| Checked By Name and Signatures (with date) | | | | | | | | | | | | | | | | | | | |



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 |



| | | |
|---|-------------------|----------------|
| Program: Artificial Intelligence & Machine Learning | TY.B.Tech. | Sem: VI |
| Course: Game Design and Gamification (DJS23ACH1601) | | |
| Course: Game Design and Gamification Laboratory (DJS23ALH1601) | | |

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

| Detailed Syllabus: Game Design and Gamification (DJS23ACH1601) | | |
|---|--|-----------------|
| Unit | Description | Duration |
| 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 |
| | Total | 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:**

| Game Design and Gamification Laboratory (DJS23ALH1601) | |
|---|---|
| Sr. No | Title of Experiment |
| 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.