



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

NATIONAL EDUCATION POLICY

GENERAL ELECTIVE FOR UG

Subject Code	Category	Subject Name	Teaching and Evaluation Scheme								
			Theory			Practical		Th	T	P	CREDITS
			End Sem University Exam	Two Term Exam	Teachers Assessment*	End Sem University Exam	Teachers Assessment*				
GUPH301	IDC	Physics in Science Fiction	60	20	20	-	-	4	0	0	4

Course Objectives	<ol style="list-style-type: none"> To develop a basic understanding of Physics and Science fiction. To develop critical thinking ability, while exploring the physics behind the science fiction.
Course Outcomes	<ol style="list-style-type: none"> Students belonging to various streams will be able to understand the basics of physics and science fiction. Student will be able to understand the role of Physics in science fiction movies and literature.

Abbreviation		Teacher Assessment (Theory) shall be based on following components: Quiz / Assignment/ Project / Participation in class (Given that no component shall be exceed 10 Marks).
Th	Theory	
T	Tutorial	Teacher Assessment (Practical) shall be based on following components: Viva / File / Participation in Lab work (Given that no component shall be exceed 50% of Marks).
P	Practical	

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PHUGE01: PHYSICS IN SCIENCE FICTION

UNIT I: What is science fiction, Roots of science fiction, Common themes in science fiction, classical and modern works in science fiction, Science fiction in India, Scope of Physics in science fiction.

UNIT II: The Nature of Science, Big-Bang Theory, Early Universe, Four fundamental forces, Anti-Particle and Anti matter and Assignments.

Topics of Discussions: Novels: '**Dark Matter**' by Garfield Reeves-Stevens, '**Origin**' by Dawn Brown

Films: Dr. Strangelove (1964), Friend of the World (2020), Age of Extinction (2009).

UNIT III: Grand Unified Theory (GUT), String Theory, Black Hole, Dark Matter, String Theory, Basics of Space and Time symmetry and Assignments.

Topics of Discussions: Novels: '**Cohesion**' by Jeffrey Lang, '**The Elegant Universe**' by Brian Greene.

Films: Lockdown's ship is propelled by dark matter, Star Trek Series, Interstellar (2017).

UNIT IV: Newtonian Mechanics, Galilian transformation, Relativity, Special theory of relativity, Time Dilation, Time Travel, Space Exploration, Assignments.

Topics of Discussions: Novels: 'Time Travel' by H.G. Wells, 'The Time Travelers Wife' by Audrey Niffenegger.

Films: Déjà Vu (2006), Source Code (2011), Edge of Tomorrow (2014), and Predestination (2014). Other movies, such as the Planet of the Apes series, Timeline (2003) and The Last Mimzy (2007),

UNIT V: Quantum Mechanics, Heisenberg Uncertainty Principle, Uncertainty in quantum world, ERP Paradox, Worm-hole, The Future of Science, Project work.

Topics of Discussions: Novels: 'The Quantum Thief', 'The coming of the quantum cat', The space between world, 'The Quantum Bunny' by Otto Fong.

Films: See You Yesterday 2019, Time Freak 2018, Ant-Man Series 2015, Terminator series, The Matrix trilogy, I, Robot (2004), and Transformers series.

REFERENCES

1. Exploring Science Through Science Fiction by Barry Luokkala.
2. The Physics of Hollywood Movies by Adam Weiner
3. The Time Machine by H.G. Wells
4. Through Time and Space: A Brief History of Science Fiction
5. The Modern Physics, Arthur Beiser, McGraw-Hill.

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