



## SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)

(Established under section 3 of the UGC Act 1956)

Re - accredited by NAAC with 'A' Grade

Founder: Prof. Dr. S. B. Mujumdar, MSc., Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)

**Course Name :** Applications of Augmented Reality and Technology Trends

**Course Code :** T3669

**Faculty :** Computer Studies

**Course Credit :** 3

**Course Level :** 3

**Sub-Committee (Specialization) :** Emerging Trends in IT

**Learning Objectives :**

- To understand the basics of Augmented Reality
- Introducing importance and applications of Augmented and Virtual Reality Systems
- To identify the various challenges in augmented reality.
- To understand various business applications of Augmented and Virtual Reality System.
- To evaluate the impacts of Augmented and Virtual Reality Systems
- To evaluate and analyze the evolution of Augmented and Virtual Reality Systems using case studies

**Books Recommended :**

Book	Author	Publisher
Augmented Reality: Principles & Practice	Pearson Education India	Dieter Schmalstieg and Tobias Höllerer
Discovering Statistics Using SPSS	Andy Field	SAGE Publications
Handbook of Human Computer Interaction	Kent Norman	Wiley
Handbook of Virtual Environments: Design, Implementation, and Applications, Second Edition	. Kelly S. Hale (Editor), Kay M. Stanney	CRC Press; 2 edition
Virtual Reality Technology	Grigore C. Burdea, Philippe Coiffet	Wiley

**Course Outline :**

Sr. No.	Topic	Actual Teaching Hours	Contact Hours Equivalence
1	<b>Introduction to augmented reality and virtual reality. Fundamental and core concepts. History and differences between Augmented and Virtual Reality, five Classic Components of a VR System, Early Commercial VR Technology, VR Becomes an Industry, Reality, Virtuality and Immersion, VR, AR, MR, xR: similarities and differences,</b>	10	10
2	<b>The present and the future of xR, Areas and industries for immersive reality applications, Entertainment, Education, Training, Medical Industrial, Military, Use-cases, applications and production pipelines</b>	10	10
3	<b>Basics of Computer Vision and Multimodal Interaction, AR systems for Fault Inspection, Digital Twin, Head Up and Head Mounted Systems in Automotive and Aviation Domains, Virtual Reality System development in Unity.</b>	10	10
4	<b>Rendering real time sensor data in VR model, Human Robot Interaction using AR/VR systems</b>	10	10
5	<b>Current trends and state of the art in immersive technologies, developing platforms and consumer devices.</b>	5	5

<b>Total</b>	<b>45</b>	<b>45</b>
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**Pre Requisites :**

Basics of Augmented and Virtual Reality Systems

**Evaluation :**

Assignment  
case studies  
Class test  
Quiz  
Project

**Pedagogy :**

Lecture & Discussion  
Case analysis  
Article analysis  
Quizzes  
Project presentation

**Expert :**

Dr. Parag R Kaveri,Assistant Professor,SICSR  
Dr. Farhana Desai,Assistant Professor,SICSR