Course Name	**Augmented (AR) and Virtual Reality (VR) Programming**
Course Name as on Certificate	**Augmented and Virtual Reality Certificate Course**
Certificate Type	Basic course
Certificate Issued by	VyVoxel India Pvt Ltd and IITM Pravartak
Course Objectives	At the end of the course students will be able to : • Develop engaging Augmented Reality and Virtual Reality applications. • Learn core skills needed for developing AR and VR applications such as basics of 3D graphics, design considerations and programming toolkits. • Explore industry standard development platforms such as Unity3D, Vuforia, ARCore and ARKit • Publish Augmented Reality (AR) applications to both Android and IOS • Develop Virtual Reality applications and publish to a variety of headsets. • Learn the fundamentals of C# programming to create AR/VR experiences in Unity3D. • Learn how these technologies are used in industry today for training, simulation, engineering, and collaboration. • Work on projects that provide the experience needed to be industry ready in AR and VR.
Eligibility	• Engineering / Science undergraduate students with basic understanding of programming, • working professionals who want to learn AR and VR • corporate entities / institutions who want to understand this technology area. • Individuals interested in this area and want to explore this technology further.
Pre-Requisites	• Knowledge of 1 programming language is beneficial. • Interest in the AR and VR area • Availability of an android or iPhone for AR applications • Access to a VR headset (if not available, lab visits to our dev centre in Chennai can be provided to access the headset and try out the VR projects)
Target Segment	Engineering students, Engineering graduates from any brand, working IT, engineering and SW professionals, visual communication professionals, corporate entities who are looking to explore this area, faculty / students of educational institutions who would like to offer this course at their institutions

Course Content	**Total course duration 60 hours in online mode. 30 hours of theory and 30 hours of practical classes** UNIT I Introduction to 3D graphics and AR VR fundamentals | 10 hours Introduction to 3D graphics concepts – modelling, file formats – texturing – lighting and rendering – animation – AR / VR and MR (Mixed Reality) concepts – mobile phones and headset applications – basic introduction to ARCore and ARKit UNIT II - Exploring the Unity 3D programming toolkit | 10 hours Introduction to Unity 3D Interface – Using Unity 3D to create AR and VR applications – Importing and creating assets – User Interfaces for AR and VR – Combining assets into complex models – Adding physics to the interactions - Creating an AR Application and publishing to a mobile device. UNIT III - C# programming and scripting for AR and VR | 15 hours C# programming introduction – data types and classes – programming logic – using C# to write scripts for Unity 3D – Using C# to animate and add advanced interactions to AR and VR models. UNIT IV - Virtual Reality Application essentials | 15 hours Virtual Reality fundamentals – VR design considerations – Using Unity 3D and C# programming to create VR applications – Oculus Quest VR headset fundamentals – User interface considerations - Creating a VR application and publishing to the Oculus VR headsets. UNIT V - Industry applications of AR and VR | 10 hours Industry domains where AR and VR are applied – healthcare, manufacturing, field service, retail and branding – Design considerations while creating domain specific applications – Example industry applications – Writing an industry application from a domain of your choice
Pedagogy	Online mode of delivery with online materials, project work, access to our facility in Chennai to try out VR headsets if students do not have access to them
Assessment	3 quizzes, 2 projects and a final exam / project
Programme Faculty	Sanjay KR and Kavitha Chandran (profiles attached)

Duration	60 hours (calendar duration is flexible) weekdays or weekend as per convenience of the students		
Class schedule	8 hours per week for 8 weeks		
Programme Highlights/USPs	**On successful completion of the programme, you will** **Get a certificate for the course.** **We can provide placement assistance if required** **Other Highlights:**		
Total Fees		**Total Fees (Rs.)**	
	Total Programme Fee	INR as applicable Twenty thousand + GST	