CENTRE FOR GAMING AND AR/VR

ABOUT:

A "Gaming and AR & VR " Technology Centre is a specialized hub or institution dedicated to fostering innovation, research, and development in the fields of gaming, augmented reality (AR), and virtual reality (VR). These centres bring together experts, developers, and industry professionals to collaborate on cutting-edge projects, share knowledge, and advance the state-of-the-art in gaming and immersive technologies. They serve as a catalyst for driving industry growth, pushing the boundaries of interactive entertainment, and exploring new possibilities in AR and VR applications across various sectors, from gaming to education, healthcare, and beyond.

OBJECTIVE:

- Learn about the technical and design aspects of AR and VR.
- Create 3D design, Visualization and Animation for various objects and scenes.
- Apply virtual and Augmented reality methods, tools and equipment in various field of industry, education and social life
- Provide an overview of the concepts and working of AR-VR techniques

COURSES:

Introduction to Virtual Reality

Introduction, Fundamental Concept and Components of Virtual Reality. Primary Features and Present Development on Virtual Reality. Computer graphics, Real time computer graphics, Flight Simulation, Virtual environment requirement, benefits of virtual reality, Historical development of VR, Scientific Landmark 3D Computer Graphics: Introduction, The Virtual world space, positioning the virtual observer, the perspective projection, human vision, stereo perspective projection, 3D clipping, Colour theory, Simple 3D modelling, Illumination models, Reflection models, Shading algorithms, Radiosity, Hidden Surface Removal, Realism-Stereographic image.

Interactive Techniques in Virtual Reality

Introduction, From 2D to 3D, 3D space curves, 3D boundary representation Geometrical Transformations: Introduction, Frames of reference, Modelling transformations, Instances, Picking, Flying, Scaling the VE, Collision detection Generic VR system: Introduction, Virtual environment, Computer environment, VR technology, Model of interaction, VR Systems.

Visual Computation in Virtual Reality

Animating the Virtual Environment: Introduction, The dynamics of numbers, Linear and Nonlinear interpolation, the animation of objects, linear and non-linear translation, shape & object in battening, free from deformation, particle system. Physical Simulation: Introduction,

Objects falling in a gravitational field, Rotating wheels, Elastic collisions, projectiles, simple pendulum, springs, Flight dynamics of an aircraft.

Augmented and Mixed Reality

Taxonomy, technology and features of augmented reality, difference between AR and VR, Challenges with AR, AR systems and functionality, Augmented reality methods, visualization techniques for augmented reality, wireless displays in educational augmented reality applications, mobile projection interfaces, marker-less tracking for augmented reality, enhancing interactivity in AR environments, evaluating AR systems.

Multiple Models of Input and Output Interface in Virtual Reality

Human factors: Introduction, the eye, the ear, the somatic senses. VR Hardware: Introduction, sensor hardware, Head-coupled displays, Acoustic hardware, Integrated VR systems. VR Software: Introduction, Modelling virtual world, Physical simulation, VR toolkits, Introduction to VRML, Input -- Tracker, Sensor, Digital Glove, Movement Capture, Video-based Input, 3D Menus & 3DScanner etc. Output -- Visual /Auditory / Haptic Devices.

Application of VR in Digital Entertainment

VR Technology in Film & TV Production. VR Technology in Physical Exercises and Games. Demonstration of Digital Entertainment by VR.

List of Practical

>> Developing architecture of a house using Virtual Reality.

>> Perform CRO based experiment using Virtual Reality.

>> Undertaking qualitative analysis in Chemistry using Virtual Reality.

>> Carry out assembly/disassembly of an engine using Virtual Reality.

>> Explore human anatomy using Virtual Reality.

>> Simulation of circulation of blood in heart.

>> Simulation of Fight/Vehicle/Space Station.

>> Building Electronic circuit using Virtual Reality, given basic electronic components.

>> Developing concept of Virtual class room with multiplayer.

CENTRE HEAD

Mrs.M PANDEESWARI M.E, Assistant Professor/CSE

OUTCOME

➢ Master game development skills for creating immersive virtual worlds.
➢ Create captivating augmented reality applications for real-world integration.
➢ Gain expertise in designing interactive 3D environments.
➢ Learn to optimize performance and graphics for gaming and AR/VR.
➢ Develop a portfolio of projects showcasing your gaming and AR/VR capabilities.

A national level hackathon organised by Guru Nanak Institutions ,Telangana. We got shortlisted in top 30 finalist among 150 teams

GPS Map Camera

Guwahati, Assam, India
5MRV+C2V, North Guwahati, Guwahati, Namati Jalah, Assam
781039, India
Lat 26.191156°
Long 91.692326°
03/09/23 02:51 PM GMT +05:30

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H Y D E R A B A D

Event Supported By:
SmartIMS
assuring outcomes
<epam>

GURU NANAK INSTITUTIONS TECHNICAL CAMPUS (Autonomous)
Department of Computer Science & Engineering
Emerging Technologies and Information Technology
1st National Hackathon on Innovations in Computer Science 2023
25th - 26th August, 2023

HACKTOPIA
~Innovation Never Ends...

Certificate

This is to certify that Shaik Zaith R _____ Dept. BE CSE _____ from
MSAJ Collage Of Engineering _____ has participated in the 1st National Hackathon **Hacktopia: Innovation Never Ends**, Theme Open Innovation _____, organized by Department of Computer Science and Engineering, Emerging Technologies & Information Technology held during 25th -26th August, 2023.

Convener

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Dr. H.S. Saini
Managing Director - GNI

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GURU NANAK INSTITUTIONS TECHNICAL CAMPUS (AUTONOMOUS)
■ School of Engineering & Technology
■ School of Management Studies
■ School of Pharmacy
GURU NANAK INSTITUTE OF TECHNOLOGY (AUTONOMOUS)

Other Institutions of the Group
■ Panineeya Institute of Dental Science & Hospital
■ Guru Nanak Institute of Engineering & Technology (Nagpur)
■ Guru Nanak Institute of Engineering & Management (Nagpur)

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St. JOSEPH'S INSTITUTE OF TECHNOLOGY
(An Autonomous Institution)
St. Joseph's Group of Institutions
OMR, Chennai - 119

AICTE
IDEALab

Certificate of Participation

This is to certify Mr./Ms. .... SHAIKH ZAITH R .... of

..MOHAMED....SATHAK....A.J....COLLEGE....OF....ENGINEERING. has participated

in "HACK O' HOLICS 4.0" conducted by St. JOSEPH'S INSTITUTE OF TECHNOLOGY,

organized by the Department of Computer Science and Engineering, Information Technology

& Artificial Intelligence and Data Science on 11th September 2023 & 12th September 2023.

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