Tesca Excellence Center

Upskilling your AI, ML, AR, VR competence
For International Engineering & Polytechnic Colleges

Our ecosystem-

AI Empowered AR/VR Excellence Center

With our ecosystem of **AWS, NITTTR, Unreal, I4C, Razor Pay, 100xVC**, we are proud to present artificial intelligence empowered augmented reality and virtual reality excellence center for **International engineering and polytechnic colleges**.

The AI empowered AR/VR excellence center is designed in coherence with the **AICTE guidelines and National Education Policy 2020**. The establishment of such center would certainly help in adding value to the credibility and the gradation of your institution.

The AI empowered AR/VR excellence center also offers a placement pool, to aid the *employability index* of the institution. The center connects companies across India to the enrolled institutions.

Under this initiative, we wish to set up a state of the art artificial intelligence empowered - augmented reality and virtual reality excellence center at your eminent institution for *affordable cost*. Only the certified courses in AI, ML, AR and VR courses are available on a paid subscription basis for individual students.

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AI Empowered AR/VR Excellence Center Offerings

The excellence center seeks to offer augmented reality, virtual reality, artificial intelligence and machine learning infrastructure setup for international engineering colleges and polytechnic colleges.

Hardware

- Installation of AR tablets
- Installation of VR headsets

Certified Courses

- Introduction to augmented reality
- Introduction virtual reality
- Introduction to artificial intelligence
- Introduction to machine learning

Placement Pool

- Employment pool that connects students with corporate network for internship and job opportunities in the field of artificial intelligence, augmented reality and virtual reality

Hackathon

- Nationwide AR/VR hackathon once a semester
- Nationwide AI/ML hackathon once a semester

Incubation Support

- Incubation support for students, who wish to start their enterprise in the field of artificial intelligence, augmented reality and virtual reality

Patent and IP support

- Patent/IP support for applications conceptualized through this program in the field of artificial intelligence, augmented reality and virtual reality

Our Eco System

Amazon Web Services

NITTTR Chandigarh

Unreal Engine

Inter Institutional Inclusive Innovations Center

Razorpay

XR guerrilla

Technology

The Big Four: AI, ML, AR, VR

The Big Four: AI, ML, AR, VR

The *global artificial intelligence* (AI) market size to grow *USD 58.3 billion in 2021* to *USD 309.6 billion by 2026*, at a Compound Annual Growth Rate (CAGR) of 39.7% during the forecast period. Various factors such as growth of data-based AI and advancement in deep learning and are expected to drive the adoption of the AI solutions and services.

The *augmented reality (AR) and virtual reality (VR)* market size was *$37.0 billion in 2019*, and it is expected to reach *$1,274.4 billion in 2030*, while progressing at a *CAGR of 42.9%* during 2020–2030. The increasing demand for AR and VR technology is one of the major factors propelling the market growth.

Based on the technology, the market saw maximum growth in the artificial intelligence and augmented reality segment in 2019. Factors such as new AR VR product (hardware and software) launches, growing adoption of AI in different application areas, and rising funding and investments in AI, AR technology are fueling the growth of the segment.

Asia Pacific countries dominated the market with a *37% share in 2019*. Factors such as the presence of key vendors, the growing industry in Asia, especially in Japan, China, and India, and rising investments in AI and AR technologies in different fields are driving the growth of the AI and AR market in Asia Pacific countries.

Virtual Reality

Virtual Reality (VR) is the use of computer technology to create a simulated environment. VR places the user inside an experience. Instead of viewing a screen in front of them, users are immersed and able to interact with 3D worlds. By simulating as many senses as possible, such as vision, hearing, touch, even smell, the computer is transformed into a gatekeeper to this artificial world.

In Virtual Reality, the computer uses similar sensors and math. However, rather than locating a real camera within a physical environment, the position of the user's eyes are located within the simulated environment. If the user's head turns, the graphics react accordingly. Rather than compositing virtual objects and a real scene, VR technology creates a convincing, interactive world for the user.

Augmented Reality

Augmented Reality (AR) is an interactive experience of a real world environment where the objects that reside in the real world are enhanced by computer generated perceptual information. AR is a system that fulfills three basic features; a combination of real and virtual worlds, real time interaction and accurate 3D registration of virtual and real objects. The overlaid sensory information can be constructive (i.e masking of the natural environment), or destructive (i.e Masking of the natural environment). This experience is seamlessly interwoven with the physical world such that it is perceived as an immersive aspect of the real environment.

Artificial Intelligence

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving. The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal. A subset of artificial intelligence is machine learning, which refers to the concept that computer programs can automatically learn from and adapt to new data without being assisted by humans. Deep learning techniques enable this automatic learning through the absorption of huge amounts of unstructured data such as text, images, or video.

Machine Learning

Machine Learning is a similar concept to AI. Machine Learning is the idea that machines should be able to learn for themselves given access to enough data. This might sound like the territory of geeks, but it could also be a way to deliver personalised recommendations and solutions in the future. It is already being used in retail — recommendations engines like Amazon's, for example, often use some form of ML to learn from your preferences and deliver more accurate recommendations in future. This type of engine often needs quite a lot of training, with plenty of input from the person on the receiving end of recommendations. This has already changed the way we shop, and could have further impact in future.

AI Empowered AR/VR Excellence Center Phase Wise Offerings

Tesca excellence center
Launch date: 30 Aug 2021

- Hardware & Software setup
- Certified courses in AR, VR, AI, ML
- Hackathon
- Incubation support
- Employment pool

- Virtual labs for IOT, robotics, 3D printing technologies
- Virtual Labs for Engineering modules

Tesca excellence virtual
Launch date: 1 Jan 2022

AI Empowered AR/VR Excellence Center
Phase 1 Offerings

Hardware

For every educational institute, we provide

Hololense

7x SIMD Fixed Point (SFP) for 2D processing, 6x Floating Vector Processor (FVP) for 3D processing, >1 TOP of programmable compute, 125Mb SRAM, 79mm2 die size and 2 billion transistors, TSMC 16FF+ process, PCIe 2.0 x1 at 100 MB/s bandwidth to Snapdragon 850

Augmented reality tablets

Sensor-8MP COMS Image Sensor, 9-axis Gyro, Light Sensor, Proximity Sensor. Optics- 40° FOV, Monocular Display, High Resolution, High Contrast, Compatibility- PC, Mobile Devices with DP Output, Accessibility- Detachable Cover, Corrective Lens

Virtual reality headsets

All in one virtual reality headset
ALLWINNER VR9 ARM-CORTEX 1.8 GHz, IPS 5.5 INCH,
2K SCREEN, 2GB DDR3, 16 GB eMMC, OS Support of
Nibru Operation System Developed based on Andriod,
WIFI 2.4G, BT 4.0, LITHIUM POLYMER BATTERY 3800
mAh, which has a 4-hour battery backup

Virtual reality headcase

Headset & bluetooth controller, (support Android and iOS
Smart Phones), Model: VR BOX 2.0, VR Glasses, Type: VR
Glasses, Compatiblewith : 3.5"~6.0" Smartphones, Color:as
picture shows, Materials: ABS+Resin, Item size: 19.0 * 13.0 *
10.0 cm / 7.67" * 5.31" * 3.94", Item weight: 412g / 13.5oz

Software

- Our preferred choice for the software platform is Unreal Engine. Unreal Engine is a complete suite of development tools for anyone working with real-time technology. It gives creators across industries the freedom and control to deliver cutting-edge entertainment, compelling visualizations, and immersive virtual worlds.

- Unreal engine license for each participating student

- Unreal engine certified trainer program for 2 faculties

- Unreal engine Academic partner certification to the college (After ticking all the eligibility criterion's)

Unreal Engine

Certified Courses

- **Introduction to augmented reality and building apps in augmented reality**

- **Introduction to virtual reality and building apps in virtual reality**

- **Introduction to artificial intelligence and developing apps in artificial Intelligence**

- **Introduction to machine learning and developing apps in machine learning**

Academic MOU with NITTTR

Excellence center would offer 2 courses under Augmented and Virtual reality & 2 courses under Artificial intelligence and Machine learning space for students and professors of engineering and polytechnic colleges.

Course Type:	Course completion certificate provided by NITTTR, Chandigarh
Period:	18 Weeks
Eligibility:	SE, TE, BE student from any stream of Engineering
Duration:	Weekly 4 hours theory and 2 hours lab sessions
Mode of learning:	Theory classes conducted via online mode Lab sessions conducted remotely from home and in college's AR/VR excellence center
Projects:	3 Small Projects + 1 Thesis Project
Assessment:	Online assessment of 4 projects Online assessment of lab sessions Written exam at the end of the course

Certificate course 1: Introduction to augmented reality and building apps in **Augmented Reality**

Course Objectives:

- *To give historical and modern overviews and perspectives on augmented reality*

- *To understand the fundamentals of sensation, perception, technical and engineering aspects of augmented reality systems*

- *To enable a beginner to design and develop AR applications*

Course Outcomes:

- *Describe how AR systems work and list the applications of AR*

- *Understand the design and implementation of the hardware that enables AR systems to be built*

- *Understand the system of human vision and its implication on perception and rendering*

- *Explain the concepts of motion and tracking in AR systems*

- *Describe the importance of interaction in AR systems*

Course Topics for Introduction to Augmented reality and building applications in **Augmented reality**

- Introduction
- The history of augmented reality
- Study of Human vision
- AR today: smartphone vs. standalone
- AR for Retail
- AR for Engineering industry
- AR for marketing and promotion
- AR for healthcare

CYBER SECURITY

Certificate course 2: Introduction to virtual reality and building apps in **Virtual Reality**

Course Objectives:

- *To give historical and modern overviews and perspectives on virtual reality*

- *To describe the fundamentals of sensation, perception, technical and engineering aspects of virtual reality systems*

- *To enable a beginner to design and develop VR applications*

Course Outcomes:

- *Describe how VR systems work and list the applications of VR*

- *Understand the design and implementation of the hardware that enables VR systems to be built*

- *Understand the system of human vision and its implication on perception and rendering*

- *Explain the concepts of motion and tracking in VR systems*

- *Describe the importance of interaction in VR systems*

Course Topics for Introduction to Virtual reality and building applications in **Virtual reality**

- Introduction
- The history of virtual reality
- Study of Human vision
- VR today: smartphone vs. standalone
- VR for Retail
- VR for Engineering industry
- VR for marketing and promotion
- VR for healthcare
- AR for infrastructure

Certificate course 3: Introduction to artificial intelligence and developing apps in **Artificial Intelligence**

Course Objectives:

- *To give historical and modern overviews and perspectives on Artificial intelligence*

- *To describe the fundamentals and workflow of machine learning, data sciences, deep learning segments*

- *To enable a beginner to build Artificial intelligence based applications*

Course Outcomes:

- *Describe what is Artificial intelligence and list the applications of AI*

- *Understand the workflow and basic building structure of the Artificial intelligence based systems*

- *Understand the machine learning and data science projects*

- *Understanding and building Artificial intelligence based application*

Course Topics for Introduction to Artificial intelligence and developing applications in **Artificial Intelligence**

- Introduction
- What is data?
- The terminology of AI
- What machine learning can and cannot do
- Machine Learning
- Deep learning
- Workflow of a machine learning project
- Workflow of a data science project
- How to choose an AI project
- Working with an AI team
- Technical tools for AI teams
- Survey of major AI application areas
- Survey of major AI techniques
- A realistic view of AI
- AI and developing economies

Certificate course 4: Introduction to machine learning and developing apps in **Machine Learning**

Course Objectives:

- To give historical and modern overviews and perspectives on Machine learning

- To describe the fundamentals of machine learning and workflow of machine learning project

- To enable a beginner to build Machine learning

Course Outcomes:

- Describe what is machine learning and list the applications of ML

- Understand the workflow and basic building structure of the Machine learning based systems

- Understanding and building machine learning based application

Course Topics for Introduction to Machine learning and developing applications in **Machine learning**

- Introduction
- Definition of learning systems.
- The concept learning task.
- Decision Tree Learning
- Ensemble Learning
- Computational Learning Theory
- Models of learnability
- Translating decision trees into rules
- Artificial Neural Networks
- Neurons and biological motivation
- Support Vector Machines
- Bayesian Learning
- Instance-Based Learning
- Clustering and Unsupervised Learning
- Language Learning

Hackathon

- A bi-yearly event for enthusiasts and students, to design and develop their own ideas

- Shortlisted corporate companies for each hackathon will share a problem statement in marketing, operations, service maintenance etc. department

- Individual students or team of students would be challenged to create a robust technology application solving the said problem

- Academic and Corporate Mentorship support will be provided to all the teams participating in the hackathon

- The shortlisted achiever's will get an opportunity to implement their application in the industries along with the exciting awards and scholarship

Hackathon partner

Incubation & Acceleration Support

The state-of-the-art startup programs are designed to foster a culture of innovation through access to cutting-edge technology and a network of corporates, mentors, investors and service providers.

- **Curated Playbooks:** Assisting you to accelerate your entrepreneurial journey with tailor-made playbooks

- **Market Access:** Providing a platform to showcase your innovations and attract investments

- **Networking Opportunities:** Connecting with distinguished industry leaders, investors, partners and service providers

- **Top-Notch Mentorship:** Sharing their valuable knowledge and guidance, and your gateway to subject matter experts

100X

Funding Simplified

Trademark/IP Filling Support

Students will get an opportunity to file patent or trademark for the applications that they have developed in the AI/ML, AR/VR field as part of course or after completion of course.

The facilitators will provide assistance in advising, filing and disposal of the intellectual property registration relating to patent or trademark or design act, including appearing on behalf of Startups at hearings and contesting opposition, if any, by other parties, till final disposal of the IPR application.

Employment Pool

Employment pool, also known as job portal, is a modern versions of job boards. This platform will allow job seekers to post their applications online for the AI, ML, AR and VR field and apply to posts which they deem suitable to their career track. Similarly, it will let firms review posted resumes and find qualified candidates for the job. Job portals also makes it possible for firms to reach as much candidates as possible for their job vacancies.

One of the major advantages of applying for a this portal online is the availability of endless job opportunities. The college placement cells along with the job seekers can easily access a wide array of job vacancies through job search engines, at their own phase.

Likewise, our platform will help employers speed up their hiring process. It would be easier for hiring managers to check job applications online than manually scan printed resumes. Hence, this platform will help them save time and effort.

Enrollment Process

Step 1 - Excellence center registration link for college (provide link)

Step 2 - College will fill up the enrollment form

Step 3 - Validation of information mentioned in the form

Step 4 - Course registration link for students (provide link)

Step 5 - Students will fill up the course enrollment form

Step 6 - Validation of information mentioned in the form

Step 7 - Student will pay course fee for the course of his or her choice

Step 8 - Course material will be shared with the student

Step 9 - Bare minimum course enrollment is achieved by the college

Step 10 - MOU with the college for installation of excellence center

Step 11 - Installation of hardware at the college

Step 12 - Course commencement

Pricing & Eligibility

Particulars	Quantity
All in one VR Headsets	3
VR Headsets	5
AR Glasses	1
Hololens	1
AWS Server access	Yes
Delivery, Installation, Training	Included

Hardware & Server access worth ~~USD. 8822/-~~

Get it at only for Enrollment fees USD. 1999/- per annum

Fees for an 18 weeks certificate courses:

- Augmented reality: USD 150/-
- Virtual reality: USD 150/-
- Artificial intelligence: USD 150/-
- Machine learning: USD 150/-

Eligibility:

- College should be AICTE registered institute

- For first semester total no. of enrollment should be at least 50 for 4 certificate courses, cumulative.

- For second semester onwards, a minimum of 20 registrations for next 4 courses

Tesca Technologies Pvt. Ltd.

Thank You!

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