4.MOU

TENSAX Innovations Labs

MOU

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) is executed and entered at Jaipur on 23rd May 2023 by and

between

Swami Keshwanand Institute of Technology (SKIT),
Ramnagaria, Jagatpura, Jaipur, India

and

TensaX Innovation Lab,
C-411, Siddharth Nagar, Jaipur, India,

RAMNAGARIA (JAGATPURA), JAIPUR-302017 (RAJASTHAN), INDIA
Tel. 0141-3500300, 2752165, 2752167, 2759609 | Fax : 0141-2759555
✉: info@skit.ac.in |🌐: www.skit.ac.in

Background

Swami Keshwanand Institute of Technology, Management & Gramothan (SKIT) (Here in after referred to as "SKIT") inspired by the learnings of Swami Keshvanand, was established in the year 2000 by Technocrats and Managers Society for Advanced Learning and Gramothan. Today the institute is recognized as one of the centers of academic excellence in Northern India. The Institute is affiliated to Rajasthan Technical University, Kota for offering Postgraduate and Graduate Courses in Engineering and Management. The Institute is accrediated by NAAC with A++ grade and is ranked No.1 Institute by Rajasthan Technical University, Kota for last five consecutive years. The UG Programme of Institute namely Computer science & Engineering, Information Technology, Electronics and Communication Engineering, Electrical Engineering, Mechanical Engineering are continuously accrediated and re-accrediated by National Board of Accreditation since 2009.

TensaX Innovation Lab, is owned by TensaX Innovations Private Limited. Tensax Innovations Private Limited is a Company incorporated under Companies Act 2013 and its Corporate Identification Number (CIN) is U72501RJ2018PTC061345 and its registration number is 61345.TensaX Innovation Lab is an Artificial Intelligence and technology research and product development organization. The Lab is equipped with powerful systems with a team of AI Experts and specializes in development and prototyping facilities. TensaX has its development office in Jaipur, Rajasthan and marketing offices in Dubai, UAE, and San Francisco, Silicon Valley, California, USA.

A. Purpose

The Purpose of the MOU is to create a framework of cooperation between SKIT Jaipur and TensaX Innovation Lab to collaborative on mutually beneficial. The purpose of this MOU is to research and develop technologies. The SKIT will be the academic partner and TensaX Innovation Lab will be the industry partner working together on Artificial Intelligence, modern technologies, & startup incubation with the following sub-objectives.

- **Research:** Work together in the research of modern technologies.
- **Education:** By combining academia and industry, develop and conduct educational programs and internships.
- **Startup Incubation:** Identify and mentor startups from SKIT and help student founders take their product to the next step by mentoring and partnering with them individually.

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B. Roles and Responsibilities

Swami Keshwanand Institute of Technology agrees to:

1. Actively organize programs for student grooming, internships, and student or talent development programs.
2. Select students to work on latest frameworks as per latest industry standards of AI / ML and application development sectors, which TensaX Lab will train and groom.
3. Give access to hardware, software, incubation infrastructure facilities for joint mentorship programs.
4. Provide academic support in research and product development.

TensaX Innovation Lab agrees to:

1. Give access to hardware, software and infrastructure facilities.
2. Access to our development team and office.
3. Provide hands-on training to persons authorized by SKIT.
4. Mentor student startups originating from SKIT.
5. Share the books, projects and publications to persons authorized by SKIT.

C. Reporting Requirements.

Selected members from SKIT and TensaX Innovation Lab will be responsible for collecting and submitting data as per the project target outputs and outcomes.

D. Timeframe.

This MOU will commence on 21th May 2023 and shall be effective for the duration of ten years. It may be renewed on mutual agreement.

E. Confidentiality

In order to ensure the privacy and safety of clients/subjects, all parties to the Memorandum of Understanding agree to adhere to confidentiality. The parties agree that there is no intention to share any confidential or proprietary information in any collaboration under this MOU. This Memorandum of Understanding is the complete agreement between Swami Keshwanand Institute of Technology (SKIT) Jaipur and, TensaX Innovation Lab, Jaipur.

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The agreement may be amended only by a written agreement signed by each of the parties involved.

For: Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur	For : TensaX Innovation Lab, Jaipur
Signature:	Signature: Aryan
Name: Ramesh Kumar Pachar	Name: ARYAN SINGH
Date: 24/05/2023	Date: 24/05/2023
Seal: PRINCIPAL Swami Keshvanand Institute of Technology, Management & Gramothan Ramnagaria (Jagatpura), JAIPUR-302017	Seal:

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List of Activities

S.no.	Name of Activity	Date	Duration
1.	Summer Internship on Applications on AI and ML	20 July to 30 Aug. 2023	40 days

Swami Keshvanand Institute of Technology, Management & Gramothan,Ramnagaria, Jagatpura, Jaipur-302017, INDIA
Approved by AICTE, Ministry of HRD, Government of India
Recognized by UGC under Section 2(f) of the UGC Act, 1956
Tel. : +91-0141- 5160400 Fax: +91-0141-2759555
E-mail: info@skit.ac.in Web: www.skit.ac.in

Name of the event: 45 Days Summer Internship Program (SIP) 2023 on "Application of Al and ML (AAM)"

Date of the event: 20 July to 30 August 2023

Venue of the event: TensaX Innovations Lab.





Glimpse/s of the event

About the Event : Summer Internship Program (SIP) is an integral part of B.Tech, M.Tech, and MBA curricula. SIP is a great opportunity to gain research experience, develop project management skills and enhance knowledge through real Industrial problems. The internship runs for 6-8 weeks through the summer. Academic supervisors allocate self-contained projects, spanning a broad range of subject areas and feeding directly into current research and teaching activities. During SIP, each student is assigned a project and is trained to handle various equipment and machines available in the laboratory. The programs are industry/project-based and address the fundamental understanding and the applications related to the specific domain. The programs will focus on lecturing sessions, hands on practice sessions, presentations, industrial visits, onsite learnings.

Name or contact number of event coordinator:- Ajay Dhanopia, 9928909235

REPORT

45 Days IIC Summer Internship Program (SIP) 2023 on “Application of Al and ML (AAM)”

About the Event : Summer Internship Program (SIP) is an integral part of B.Tech, M.Tech, and MBA curricula. SIP is a great opportunity to gain research experience, develop project management skills and enhance knowledge through real Industrial problems. The internship runs for 6-8 weeks through the summer. Academic supervisors allocate self-contained projects, spanning a broad range of subject areas and feeding directly into current research and teaching activities. During SIP, each student is assigned a project and is trained to handle various equipment and machines available in the laboratory. The programs are industry/project-based and address the fundamental understanding and the applications related to the specific domain. The programs will focus on lecturing sessions, hands on practice sessions, presentations, industrial visits, onsite learnings.Institute Innovation Council (IIC), SKIT Jaipur announces the Summer Internship Program (SIP) is an integral part of B.Tech, M.Tech, and MBA curricula. SIP is a great opportunity to gain research experience, develop project management skills and enhance knowledge through real Industrial problems. The internship runs for 45 days (120 hrs) per program through the summer. Academic supervisors allocate self-contained projects, spanning a broad range of subject areas and feeding directly into current research and teaching activities. During SIP, each student is assigned a project and is trained to handle various equipment and machines available in the laboratory. The following programs are industry/project-based and address the fundamental understanding and the applications related to the specific domain.

Program-I: Youth Employability Skills (YES) In Association with BOSCH India Ltd.

Program - II: Application of Al and ML (AAM) In Association with TensaX Innovations Lab.

Program - III : Design and Development of Electric Vehicle (DDEV In Association with UVIK Automobiles Ltd.

Program - IV Design Thinking for Entrepreneurship (DTE In Association with IGET Innovations Lab.

Program - V Advanced Computational & Technical Skills (ACTS) In Association with SKIT Jaipur.

Program Highlights:

- Expert lecturing sessions,
- hands-on practice sessions,
- presentations,
- industrial visits,
- onsite learnings.

Registration & Certification:

- Maximum 30 seats are available per program.
- Preference will be given on a first come first serve basis only.
- Supporting material will be provided in the soft mode.
- Minimum 90% attendance is compulsory.
- Certificate will be provided after completion of training.
- Confirmation email shall be sent to the aspiring participants only after the receipt of payment.
- Student is eligible to join only one program.
- Training program is exclusively for SKIT IV Semester Students.

Glimpse of Event:

Brochure

SCAN THE QR CODE FOR REGISTRATION FORM

For Making Course Fee Payment, NEFT details are as below:

Bank A/c Name: Swami Keshvanand Institute of Technology

A/c Number: 50100200092582

Bank Name: HDFC Bank, 3D Villa Station, Jaipur-302001

IFSC Code: ICIC0006768

Accomodation:
Limited accomodation may be arranged for the students in the Boys and Girls hostels on payment basis as per Institute norms.

Limited Seats:

- Preference will be given on first come fist serve basis only.
- Confirmation email shall be sent to the aspiring participants only after the receipt of payment

ORGANISING COMMITTEE

PATRON:
Sri. Surja Ram Meel
Chairman, SKIT Jaipur

Program Co-PATRON:
Sri. Jaipal Meel
Director, SKIT Jaipur

Program Conveners:
Mr. Subhrajeet Gupta
President – SIIC

Program Coordinators:
Mr. Ajay Dhanopia
Coordinator – Incubation Cell
Prof. Archana Saxena
Coordinator – ED Cell
Prof. Amber Srivastava
Coordinator – SDC Cell
Dr Savita Choudhary
Coordinator – IPR Cell
Prof. Nilam Choudhary
Coordinator – Innovation Cell
Mr Dinesh Kumar

Contact Person:
Mr./Ms.
SIIC Jaipur
Mob.:
Email: incubation@skit.ac.in • Website: www.skit.ac.in

SKIT INSTITUTE INNOVATION COUNCIL (SIIC)

Announces:

Summer Internship Program (SIP) 2023

Last Date of Registration 15th June, 2023 (45 Days)

Date of Commencement
01 July 2023 to 15 July 2023 (45 Days)
15 July 2023 to 30 August 2023 (45 Days)

SWAMI KESHVANAND INSTITUTE OF TECHNOLOGY, MANAGEMENT & GRAMOTHAN JAIPUR (RAJASTHAN) 302017

ABOUT SIIC

SKIT Institute Innovation Council (SIIC) is established since 2021 at SKIT Jaipur, as a Techno Business Incubator (TBI) by MSME Govt. of India to provide a platform for conceiving, realizing, promoting & nurturing knowledge-based innovation & Entrepreneurship amongst students, innovators, and budding entrepreneurs from the state of Rajasthan. SIIC has a strong and vibrant footprint of 50 start-ups. Currently, 35 start-ups are incubating their ideas physically in SIIC, besides 6 associate start-ups and are working in various domains. SIIC has to date conducted more than 50 start-up programs and activities to address the practical and business concerns of the Rajasthan ecosystem stakeholders benefitting 1500 plus participants.

ABOUT PROGRAM

Summer Internship Program (SIP) is an integral part of B.Tech, M.Tech, and MBA curricula. SIP is a great opportunity to gain research experience, develop project management skills and enhance knowledge through real industrial problems. The internship runs for 6-8 weeks through the summer. Academic supervisors allocate self-contained projects, spanning a broad range of subject areas and feeding directly into current research and teaching activities. During SIP, each student is assigned a project and is trained to handle various equipment and machines available in the laboratory. The programs are industry/project-based and address the fundamental understanding and the applications related to the specific domain.

COURSE CONTENT

Program – I
Unmanned Ariel Vehicle (Drone) Solid works & 3D Printing (UAV)
In Association with Zero Gravity Aero Systems Pvt. Ltd.

Module I - Introduction • Fundamentals of physics • Basic Aeronautics • Air frame structure

Module II - Basic electronics • Basic mechanics • Model building techniques • Drones rules and regulation
Module III - Scales • Plan making • Auto CAD • Solid works
Module IV - Corel draw • 3d Printing • Laser Cutting • Preparation of Flight Electronics
Module V - Hot Wire Cutting • Balsa Building • Wing Construction
Module VI - Fuselage Construction • Tail/Fin • Model Assembly • Electronics Installation

Module VII - Simulator Training • Gliding Training • Circuiting Training
Module VIII - Takeoff Training • Landing Training • Solo Flight
Eligibility: All branches of B.Tech. (IV & VI Semester)
Course Fees: Rs.

Program – II
Youth Employability Skills (YES)
In Association with BOSCH India Ltd.

Module I Skill Entrepreneurship • Starting your own Skilling Centre • Understand the Skill Ecosystem • Become a Skill Entrepreneur • Train the Trainer
Module II - Nation Building Attitudes & Behaviours
Module III - Future Human Competencies • Self-Management • Technology ∓ Development • People Management •
Module IV - Corporate Social Responsibility Introduction to CSR • Institutional Framework for CSR • CSR-Legislation in India • The Drivers of CSR in India • Stakeholders of CSR
Eligibility: All branches of B.Tech. (IV & VI Semester)
Course Fees: Rs.

Program – III
Application of AI and ML in Healthcare (AAMIH)
In Association with TensorX Innovations Lab

Module I Python Programming • Introduction to Python • Basic language syntax • Model Building • Data Science and Analysis • Data Visualization,
Module II Basics of Machine Learning • Machine Learning Concepts
Module III: User-Centered Medical Device Design • User Persona • Human Factors Design • Task Analysis/Empathy Maps

Module IV: Internet of Things • Basics of IoT, Concepts and Components • Sensor Interfacing using Internet of Things (IoT) , Basic Implementation.
Module V: Machine Learning Approaches • Regression analysis • Basics of Classifiers • Feature Selection and Reduction techniques • Model evaluation through performance parameters

Module VI • Study of Clustering Algorithms, Advance Neural Networks • Introduction to NN • Deep neural Network: Case study in healthcare.
Module VII • AI in healthcare Applications • Physiological signal processing for Healthcare (ECG, EMG, EEG etc.) • Mental Disorder detection & Diabetes prediction and detection

Module VIII • Prediction of Coronary Artery Detection using Fundus Images • Intelligence Prosthetic Application • Brain Tumor detection
Eligibility: All branches of B.Tech. (IV & VI Semester)
Course Fees: Rs.

Program – IV
Design and Development of Electric Vehicle (DDEV)
In Association with Unik Automobiles Ltd.

Module I: Presenting your Vehicle Development Strategy Practical Session: Introduction to Computer Aided Design
Module II: Introduction to Chassis Statics & Dynamics Practical Session: Introduction to Parametric Modelling &Chassis Simulation
Module III: Component-based Structure of an Electric Vehicle Practical Session: a. Battery modeling (Software Based) b. Battery Management System (Software Based)
Module IV: Introduction to Transmission System, Control Module of an Electric Vehicle Practical Session: a. Using Excel Techniques to calculate the Top Speed and acceleration performance. b. Using Excel Techniques to calculate the Range of the vehicle.
Module V: PCB Design
Eligibility: All branches of B.Tech. (Any Semester)
Course Fees: Rs.

Program – V
Design Thinking for Entrepreneurship (DTE)
In Association with IGET Innovations Lab

Module I- Introduction to design thinking
Module II- Introduction to Entrepreneurship; Entrepreneurial Process; Opportunity Identification
Module III- Idea Generation and Evaluation

Module IV- Developing Prototype, Minimum Viability Product
Module V- Building the Team, Leadership, Business Plan/Business Models

Module VI- Valuation of a new company, Finance, Funding, and Unit Cost Identification.

Module VII- Sales & Marketing, Company Growth Acquisitions, and exit strategies.

Module VIII- Intellectual Property and corporate Law/Real Life Association and Learning with Start-ups / Organizations in Identified Areas.

Eligibility: Students of B.Tech (IV & VI Semester)
Course Fees: Rs.

Program – VI
Advanced Computational & Technical Skills (ACTS)
In Association with SKIT Students Chapters & Clubs

Module I- Machine learning models: Learn from their past computations, analyze available data, identify hidden patterns and adapt for new data such as Quantum Computing, Tuned Recommendation Engines.

Module II- Artificial Intelligence: Design human-computer interaction/ intelligent machines such as Cortana, Siri, Alexa, and Eliza.

Module III- Li-Fi communication: Futuristic and eco-friendly, Uses wired secure VLC wireless communication by LED/lamp.

Module IV- Augmented Reality: Superimposition of computer-generated images on real-world providing a composite view such as Google Glasses, AR Gaming, Green screen, Chroma keying, VFX.

Module V- Internet Of Things: Interconnection of physical devices with cyber world/cloud computing Industry 4.0, Smart city/ agriculture/ healthcare, Remote bomb detonators, drones, surgery and military operations.

Module VI- Embedded Systems: Embed an idea in a microcontroller and perform a real-world application found in various consumer, commercial, industrial and military electronic devices.

Module VII- Robotics: Simulation of design, construction, operation, and control, sensory feedback, and information processing by ROS and MATLAB.

Eligibility: 2rd/3rd Year B.Tech (C.S./IT/Electronics)
Course Fees: Rs.

List of Students Participants

rtu_roll_no	name_of_participant	year	branch	email	phone	summer_internship_program_sip_2023_applied_for
22eskcs219	Vaibhav sobhani	II Year	CSE	vaibhavsobhani@gmail.com	7726050838	Application of Al and ML in Healthcare (AAMIH)
21ESKIT080	Payal gupta	II Year	IT	pgupta5133@gmail.com	9351191916	Application of Al and ML in Healthcare (AAMIH)
21ESKEC062	Shivansh Agarwal	II Year	ECE	shivansha48@gmail.com	7878528878	Advanced Computational & Technical Skills (ACTS)
21ESKCA108	Suzane Khan	II Year	CS(AI)	khansuzane18@gmail.com	9521344240	Application of Al and ML in Healthcare (AAMIH)
22ESKCS207	Koushal Goyal	II Year	CSE	1234koushalgoyal@gmail.com	8094616810	Application of Al and ML in Healthcare (AAMIH)
21ESKCA020	Anubhuti sharma	II Year	CS(AI)	anubhuti405@gmail.com	7877931030	Advanced Computational & Technical Skills (ACTS)
21ESKCS106	Karan kishore Verma	II Year	CSE	karanjenaw2612@gmail.com	+917014795310	Application of Al and ML in Healthcare (AAMIH)
21ESKIT098	Sachin Kumar	II Year	IT	sachinbalyan7988693632@gmail.com	8826973368	Design Thinking for Entrepreneurship (DTE)
21ESKEE007	Anuj Kanchal	II Year	EE	anujkanchal29@gmail.com	8764002087	Design and Development of Electric Vehicle (DDEV)
21ESKCX026	Hridayansh Sharma	II Year	CS(DS)	hridayansh1703@gmail.com	7877836651	Design and Development of Electric Vehicle (DDEV)

Modules Covered

- Python
  - Programming fundamentals
    - Intro to logic and concepts
    - Data and variables

- Conditions and operators
- Iteration and algorithms
- Functions and modular coding
- Examples
- Introduction to Python 3
- Syntax introduction and basic functions
- Python Live coding demo project covering
- Data types
- Conditional statements
- Loop functions
- Functions

- Algorithm design ○ Data structures
  - Data operations with lists, dictionaries, and tuples
  - Slicing, deleting ,appending, updating and list comprehensions
  - adding and removing key value pairs, iterating item values
- Examples and live coding with project ○ Algorithms //Projects
  - OOP in Python
  - Introduction to objects and object oriented execution
  - Introduction to Computer Processing, Execution, & Compiling
- Classes, constructors, and inheritance ○ File operations
  - ‘os’ in python
- Read, Write, Re-writing .txt files ○ Try-Expect in Python
  - Exceptions in Python
  - Timestamps
  - REGEX
  - Http requests
- Sending Emails with Python introduction to using APIs

- Muti Threading & into to Async programming

- Introduction to Jupyter Notebooks & Google Collaboratory
- Data Science
  - Data & File Handling
    - Working with .csv | Tabular Data | pools of data
    - Accessing, Reading Writing, Re-writing
    - Loading in runtime with variables
  - Data Operations
    - Introduction to
      - Numpy
      - Pandas
      - Scipy
        - Iteration and data functions
        - Nested Iteration
        - Sort
        - Search
        - Filter
        - Restructuring
        - Re-indexing
        - Working with Data SCHEMA
  - Data Visualisation
    - Introduction to Plotly and matplotlib
      - Graph & Plots
      - Bar Chart
      - Pie Chart
      - Heat Map
      - Histogram
      - Scatter plot
- Introduction to Machine Learning

- Learning of Features - Machine Lerarning

- ML vs traditional conditional programming
- Machine Learning terminology
  - Classification
  - Regression
  - Clustering
- Types of Machine Learning
  - Supervised
  - Un-Supervised
  - Semi-Supervised
  - Reinforcement Learning
- Ensemble Learning- Multiple ML algorithms
- Machine Learning Prcecess
  - Thinking like a ML scientist

Datasets

Data Sources- how to get data

- Features
  - Identifying revant features
  - Preparing data

- Feature extraction
- Normalisation
- Batch standardisation
  - Data Augmentation
- Math Behind ML
  - Statistics

- Regression
- Clustering

- Probability
- Permutation Combination
- Sets
- Matrices
- Calculus

- Diferenciation
- Integration
  - Multivariate Calculus
- N Variate Calculus ○ Machine Learning Models
  - Model Types
- Classical ML
  - Regression
    - Linear
    - Logistic
  - Random forest
  - Decision Tree
  - Markov Model
- Deep Learning
  - Perceptron

○ Computer Vision ■ Layers

- Convolution Layers
- Pooling Layers and types
- Flatten Layers
- Dense/fully connected Layers ■ Natural Language
- Vector Maps
- Work Ecodings
- Language models

- Transformers

ML Framoworks & Libraries

Pyorch / tensorflow ■ Ml Libraries

-
  - Training
    - Data split
    - Taining Algorithm
    - The Loss function
  - Types
  - Loss function visualisation
- Gradient Discent
- Backpropagation
  - Training Hyperparameters
- Hyperparamater optimisation
  - Saving model architecture
  - AutoML
    - NAS
    - Hyperparameter
  - Model Inference
    - Running the model
    - Saving weights
    - Loading weights
  - Using Pretrainined models
  - Using Exising Models
  - Transfer Learning
- Model Deployment ■ Cloud

- Containersation & Docker
- Cloud DevOps
    - Mobile
- Native
    - Onnx
    - Native TFlite, PyTorch native
- Browser
    - OnnxJS
    - TF.js
- Connecting with an interface
    - Gradio
    - Machine Learning Specialisations
- Computer
- AI
    - AI in Future / the future
    - Understanding AI Progression
    - Types of AI

AI in Industries

Healthcare | BioTech

- Office AI
- FinTech | Banking
- Education AI
- Human Emotion AI
- Social Intelligence AI
- Smart Governace AI
- Transportation AI
- Real Estate AI
- Factory AI & RPA
- Energy & Power AI

- Agriculture AI
- Safety & Defence AI
- Space AI
- How to prepare yourself for AI
- How to use AI to get ahead not stay behind it
- Emerging Technologies
  - AI
  - Big Data
  - BlockChain
  - IOT
  - 3D Prining
  - Metaverse
  - Application Development