STEM EDUCATION
IN THE CONTEXT OF NEP

Institution Innovation Council
P.K.M. COLLEGE OF EDUCATION
Madampam, Kaithapram P.O. Kannur, India. PIN-670631
(Govt. Aided Teacher Education Institution affiliated to Kannur University)
www.pkmcollege.org

In association with

SRISHTI ROBOTICS
www.srishtirobotics.com

&

IEEE OES
IEEE OES Student Chapter,
KMEA Engineering College, Kochi

Phase I
April 2025 - March 2026

INSTITUTIONAL INITIATIVES OF PKM

MoU: Industry-Academia Collaboration

April 4th 2025

P.K.M. College of Education entered into a Memorandum of Understanding (MoU) with Srishti Robotics Technologies Pvt. Ltd, Kochi, a firm known for its work in underwater robotics and related technologies. The company is led by Sunil Paul, who has played an active role in promoting robotics initiatives in Kerala.

The MoU was signed on April 4, 2025, in the presence of Sajeev Joseph, MLA, Irikkur. The signing marked the beginning of a collaborative effort to bring practical STEM exposure into teacher education.

As part of this partnership, a STEM Laboratory was established at the college to provide hands-on learning opportunities for teacher trainees. The collaboration also includes organizing training sessions for teachers and school students, offering certificate and skill development courses in STEM education, and creating opportunities to take part in national and international competitions.

Through this initiative, the college aims to strengthen practical learning experiences and help future teachers gain confidence in integrating STEM-based activities into classroom teaching. The collaboration is expected to benefit both teacher trainees and school students by connecting academic learning with real-world applications.

MoU between Srishti Robotics & P.K.M. College of Education

INSTITUTIONAL INITIATIVES OF PKM

Establishment of STEM Laboratory

STEM Laboratory was established with adequate facilities such as robotics kits, 3D printers, etc., necessary for training teachers and students. It provides ample space for training 25 people at a time.

3D Printing

Establishment of STEM Academy: Centre for STEM Education Initiatives

STEM Academy was established to train teachers and school students.
The academy initiated two academic projects titled:

i. STEM Mentors@PKM-Training for Teachers (in-service and pre-service)
ii. STEM@Schools-Training for School Students (elementary and secondary).

Adv. Sajeev Joseph, MLA, Irikkur, Kerala, officially declared P.K.M. College of Education as a 'Centre for STEM Education Initiatives' on April 4, 2025

Declaration of CENTRE FOR STEM INITIATIVES

STEM MENTORS@PKM TRAINING FOR TEACHERS

To train teachers (in-service and pre-service) in STEM Education and to become skilled STEM mentors.

Orientation in STEM Education

Phase 1. ***Workshop on "STEM in EDUCATION in the context of NEP – 2020"***

February 7th 2025

Participants:
Student Teachers of 2023-25, 2024-26 batch & School Students from different schools.

As part of:
SCI-FIESTA 2025
National Science Day Celebrations

Resource Person:
Mr. Sunil Paul
CEO, Srishti Robotics

Themes:

- Future of robotics and the growing role of artificial intelligence in education.
- Interdisciplinary learning and the integration of inno vative teaching methodolo gies to enhance creativity, critical thinking, and prob lem-solving.
- STEM and STEAM education

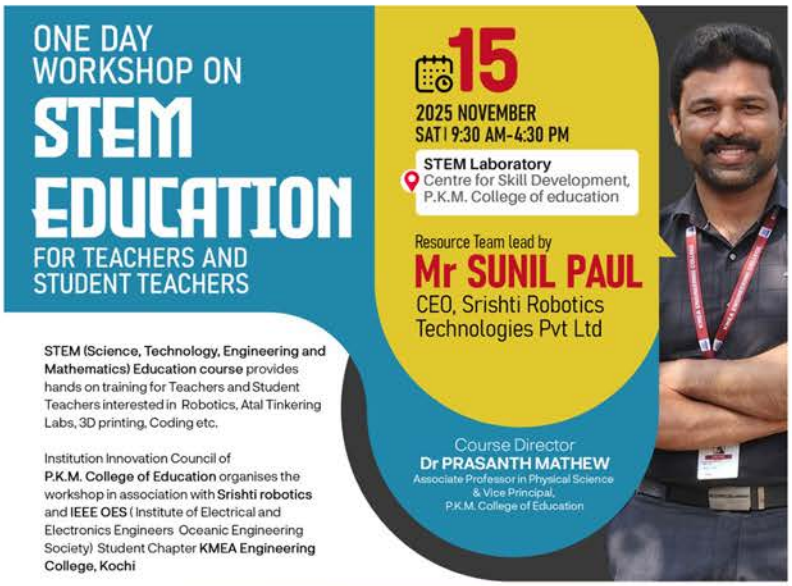
Student Coordinators:
Sisira V, Nijil Sans, Niveditha K.V., Sandra Louis (2023-25 batch)

STEM MENTORS@PKM TRAINING FOR TEACHERS

Orientation in STEM Education

Phase 2. ***Workshop on "STEM in EDUCATION in the context of NEP – 2020"***

November 15th 2025



Resource Person:
Mr. Sunil Paul
CEO, Srishti Robotics

Student Coordinators:
13 STEM Mentors of PKM (2024-26 batch)

Participants:
36 Student Teachers of 2025-27 batch

In association with

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&
IEEE OES
IEEE OES Student Chapter
KMEA Engineering College, Kochi

Session Overview

- Report presentation (Phase 1) by Ms. Ashly Joseph (STEM Mentors @ PKM) and Ms. Fathimathul Zuhra (STEM @ Schools).
- The Presidential Address by Dr. Jessy N. C., Principal, highlighted the institution's commitment to nurturing technologically confident future educators.
- Mr. Sunil Paul, CEO of Srishti Robotics inaugurated the workshop followed by Technical session with a focus on Robotics, Coding, 3D Printing, and related technologies.
- Valedictory session, included participant reflections, feedback, and the honouring of STEM Mentors @ PKM (Batch 2024–26).

STEM MENTORS@PKM TRAINING FOR TEACHERS

School Acclimatization in STEM Initiated Schools

January 17-28, 2026

Jwala Thomas

Deekshitha T

Sikha Dev

Ebeena Thomas

As part of the school acclimatization programme in their first year of pre-service training, four student teachers from the 2025–27 batch spent one week (January 17–28, 2026) at St Theresa's Anglo Indian Higher Secondary School. The visit helped them become familiar with the school environment and daily classroom routines.

During the week, they explored the STEM lab and observed how teachers use simple tools and activities to support learning. They interacted with students, assisted during classes, and closely observed how lessons were conducted. They also watched how teachers planned their sessions and guided students through practical activities.

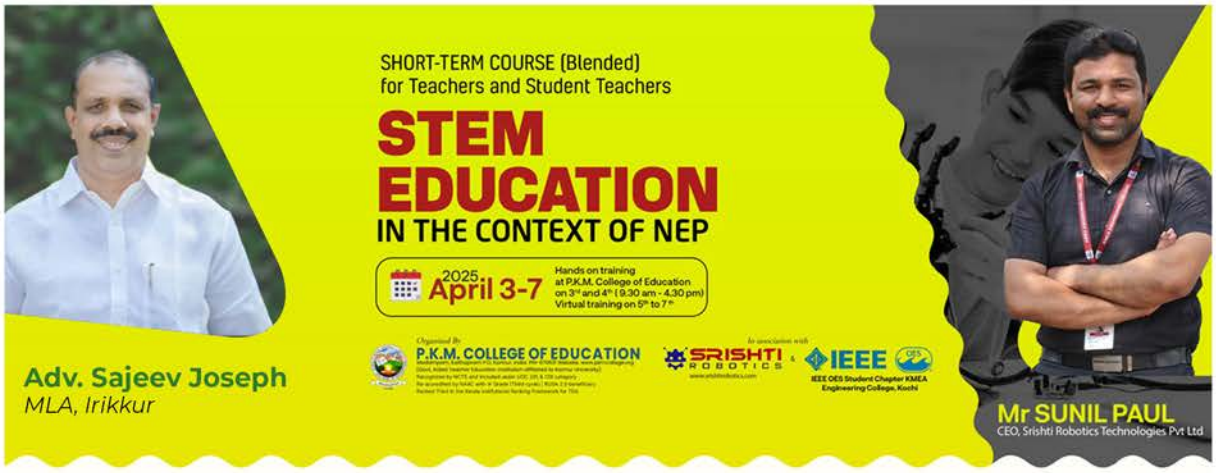
The experience gave the student teachers a clearer understanding of how schools connect classroom teaching with hands-on learning. It also helped them build confidence, understand student behaviour, and see how teaching methods are applied in real classroom settings.

STEM MENTORS@PKM TRAINING FOR TEACHERS

Certificate Course

Five Days Blended Short-Term Course on "STEM Education in the Context of NEP"

April 3-7, 2025



Inaugurated By:
Adv. Sajeev Joseph
Irikkur MLA

Resource Person:
Mr. Sunil Paul
CEO, Srishti Robotics

Student Coordinators:
Ms Meera K.V. & Ms Ashly Joseph (2024-26 batch)

Participants:
Twenty student teachers: Seven from 2023-25 batch and Thirteen from 2024-26 batch

The course aimed to familiarise STEM concepts, automation, and activity-based learning through hands-on and virtual sessions and the student teachers worked on several Arduino-based projects.

STEM MENTORS@PKM TRAINING FOR TEACHERS

Working with STEM@Schools Project

STEM@SCHOOLS
TRAINING FOR STUDENTS

April 4th 2025

Objective

To train rural school students (elementary and secondary) in STEM Education and to become innovators in STEM.

The collaborative academic project "STEM@Schools" designed by P.K.M. College of Education and Srishti Robotics Technologies Pvt. Ltd was launched by Adv. Sajeev Joseph, Irikkur MLA on April 4, 2025.

The Project aimed at training school students (elementary and secondary) who study in rural schools and are interested in Robotics and are lacking opportunities in STEM Education. 6.0

The project focuses on developing curiosity and innovation in school students through hands-on learning in robotics, 3D printing, and coding.

STEM Mentors ***Ms. Fathimathul Zuhara M, Ms. Sonima Krishnan C.*** (2024-26 batch) were the Student Co-ordinators.

The STEM Mentors worked with the project during their *Pre-Internship, Internship and Post Internship.*

STEM PRE-INTERNSHIP #STEM LAB@PKM

As a Pre-Internship in STEM Education the STEM Mentors were given opportunity to work with STEM@Schools Project. They trained three batches of school students on second Saturdays of July, August and September.

Phase 1. STEM@SCHOOLS_ JULY BATCH

July 12th 2025

Venue:
STEM Laboratory
PKM College of Education

Resource Team:
Mr. Sunil Paul
CEO, Srishti Robotics &
13 Trained STEM Mentors
Supported by:
Ms. Roshni
Academic Dean,
Vimal Jyothi Engineering College
Dr Prasanth Mathew
Course Director

Participants:
24 School Students (Classes 5,6,7,8)

Purpose:
To develop curiosity and innovation in school students through hands-on learning in robotics, 3D printing, and coding

The Process:
Orientation on the future of robotics and skills needed for the future and Hands-on training in robotics and programming.

STEM PRE-INTERNSHIP #STEM LAB@PKM

Phase 2. STEM@ SCHOOLS_ AUGUST BATCH

August 9th 2025

Venue:
STEM Laboratory
PKM College of Education

Resource Team:
Mr. Sunil Paul
CEO, Srishti Robotics (Online) &
13 Trained STEM Mentors
Supported by
Mrs. Reshmi Benjamin
ATL Instructor,
Marygiri English Medium School
Dr Prasanth Mathew
Course Director

Participants:
24 School Students (Class 9 only)

Purpose:
To develop curiosity and innovation in school students through hands-on learning in robotics, 3D printing, and coding

The Process:
Ms. Sonima Krishnan C led the introductory session, and Mr. Akshay Siby conducted a hands-on workshop on robotics kits and programming supported by STEM mentors. The programme concluded with a creative puzzles and games session by Ms. Bhavana T.V.

STEM PRE-INTERNSHIP #STEM LAB@PKM

Phase 3. STEM@ SCHOOLS_ SEPTEMBER BATCH

September 13th 2025

Venue:
STEM Laboratory
PKM College of Education

Resource Team:
Mr. Sunil Paul
CEO, Srishti Robotics (Online) &
13 Trained STEM Mentors
Supported by
Mrs. Reshmi Benjamin
ATL Instructor,
Marygiri English Medium School
Dr Prasanth Mathew
Course Director

Participants:
21 School Students (Classes 6,7,8,9)

Purpose:
To develop curiosity and innovation in school students through hands-on learning in robotics, 3D printing, and coding

The Process:
The introductory session by Ms. Fathimathul Zuhara M, and hands-on robotics workshop led by Rinu Mariya and Ashly Joseph, supported by Mrs. Reshmi Benjamin and the STEM mentors. Students received practical training in assembling and programming circuits using LEDs, buzzers, and breadboards, guided by Sonima Krishnan C, Asha Mary Jose, Keerthana Chandran, Meera K.V, Aneena Chacko, and Riya Sunil, with virtual guidance from Mr. Sunil Paul.

STEM INTERNSHIP #Practice Teaching Schools

During the School Internship 2025, the student teachers were doing their practice teaching in six different schools of the locality. The 13 STEM mentors (2024-26 batch) took initiative in organising training programmes for the selected school students in collaboration with *Little kites and ATL Labs* in the Practice Teaching Schools.

STEM@ Schools #G.H.S.S. Sreekandapuram

August 27th2025

Participants:
48 School Students (Little Kites)

The Process:
The program was designed to familiarize students with practical applications of STEM through Arduino-based activities. The session began with an introduction to STEM by Fathimathul Zuhara M., followed by Preethika O., who presented the STEM kit and explained its various applications. As part of the hands-on demonstrations, Bhavana T V carried out a Single LED Arduino Program, which introduced the students to basic coding and circuit building using Arduino. Following this, Meera.K.V. demonstrated the Arduino Buzzer Program, guiding the students to observe how coding and circuit design could be combined to produce sound output. The Traffic LED Arduino program was effectively demonstrated by Meera K. V., providing students with a clear understanding of sequential coding and its application in real-life traffic light systems.

The Outcome:
These practical demonstrations bridged the gap between theoretical concepts and real-world applications, making the orientation program highly interactive and impactful.

STEM INTERNSHIP #Practice Teaching Schools

STEM@Schools #G.H.S.S. Irikkur

September 22th 2025

Participants:

40 School Students (ATL Team)

The Process:

The STEM Orientation Programme, jointly organized by the STEM mentors of P.K.M. College of Education (Aneena Chacko, Keerthana Chandran, Ashly Joseph and Malavika K.) and the faculty of G.H.S.S. Irikkur, aimed to familiarize students with the interdisciplinary principles of STEM education through hands-on, experiential learning. Held at the Atal Tinkering Lab, the event included interactive sessions on robotics and electronics, emphasizing collaboration, innovation, and problem-solving. The programme began with an inaugural ceremony featuring addresses by faculty and dignitaries, followed by engaging practical sessions led by STEM mentors who guided students in circuit design, LED operations, and buzzer-based experiments.

The Outcome:

The participants showed great enthusiasm and curiosity, demonstrating enhanced teamwork, creativity, and scientific thinking.

STEM INTERNSHIP #Practice Teaching Schools

STEM@Schools #Mary Land H.S. Madampam
September 26th 2025

Participants:
36 School Students (Little Kites)

The Process:
The session aimed to introduce students to the practical applications of STEM through Arduino-based activities. The program began with an introduction to STEM by Mrs. Asha Mary Jose, followed by Ms. Riya Sunil, who presented the STEM kit and explained its various components. As part of the hands-on activities, students were guided through the Single LED Arduino Program, which helped them understand basic coding and circuit building. This was followed by demonstrations of the Arduino Buzzer Program and Traffic LED Arduino Program, where students learned how programming and circuit design can be used to produce sound and simulate real-life traffic light systems.

The Outcome:
These engaging demonstrations effectively bridged the gap between theoretical knowledge and practical application, making the session highly interactive and meaningful.

STEM INTERNSHIP #Practice Teaching Schools

STEM@Schools #A.K.G.H.S.S. Malappattam

September 16th 2025

Participants:
36 School Students (Class 10)

The Process:
The session was conducted by Ms. Sonima Krishnan C, STEM Mentor from PKM College of Education, who introduced students to the basics of robotics through the principles of STEM education. She explained how Science, Technology, Engineering, and Mathematics are interconnected in building robotic systems and highlighted the importance of applying theoretical knowledge to practical situations. The session aimed to help students understand fundamental concepts through experiential learning.

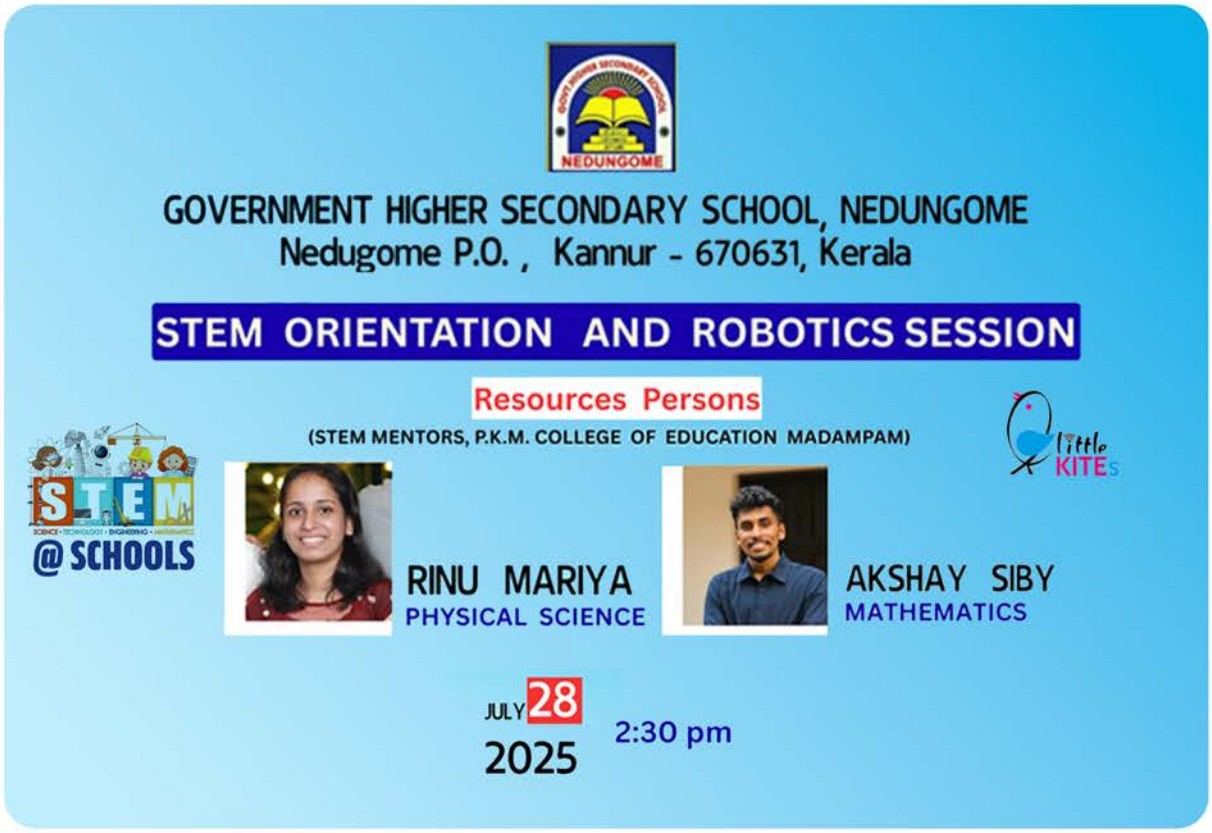
The programme included hands-on activities with various electronic components and circuits. Students worked on a simple LED circuit to understand current flow and polarity, followed by an LED blinking circuit that introduced them to basic programming concepts. Demonstrations on servo motor operation, buzzer functioning, and IR sensor working helped students understand controlled movement, sound output, and object detection in automation. The session was interactive and provided valuable practical exposure to foundational robotics concepts.

The Outcome:
The students participated actively and gained practical knowledge of basic robotics and electronic components. The session helped students develop an interest in technology, innovation, and problem-solving skills.

STEM INTERNSHIP #Practice Teaching Schools

STEM@Schools #G.H.S.S. Nedungome

July 28th 2025



Participants:
25 School Students (Little Kites)

The Process:
The session was led by Mr. Akshay Siby and Ms. Rinu Mariya, STEM mentors from PKM College of Education. The program aimed to introduce students to the basics of STEM education and demonstrate its practical applications through interactive and hands-on learning.

Mr. Akshay Siby began the session with an introduction to STEM, explaining the integration of Science, Technology, Engineering, and Mathematics in problem-solving and real-life applications. He highlighted the importance of developing analytical thinking, creativity, and innovation among students through STEM-based learning.

Following this, Ms. Rinu Mariya introduced the Robotics kit and explained its key components, including the Arduino board and sensors. She demonstrated the working of a smart automatic dustbin, showing how sensors and coding can be combined to create useful everyday solutions. The session was interactive, allowing students to observe practical applications of STEM concepts and encouraging curiosity in robotics and technology.

The Outcome:
Students gained better understanding of how STEM concepts can be applied creatively to real-world problems, making the event both educational and inspiring.

STEM POST- INTERNSHIP #Innovative Schools

Good Shepherd Public School and Junior College

January 05-16, 2026

Akshay Siby

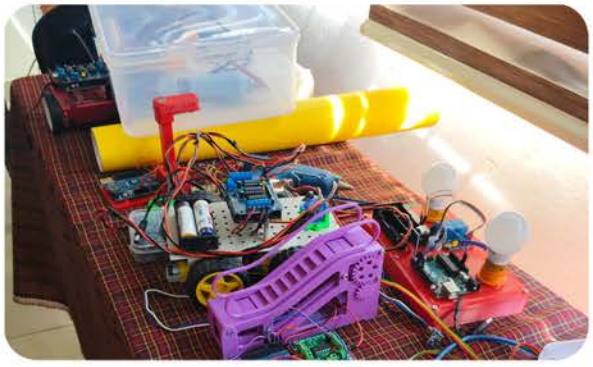
Riya Sunil

Aneena Chacko

Three STEM mentors - Mr. Akshay Siby, Ms. Riya Sunil, and Ms. Aneena Chacko (2024–26 batch) - took part in a two-week STEM-based Internship and Placement Programme at Good Shepherd Public School and Junior College. The school is known for its STEM lab and active STEM learning practices.

During their time there, they interacted closely with students, supported classroom activities, and helped incorporate STEM concepts into regular lessons. They assisted with practical sessions and encouraged students to learn by doing, making the classes more engaging and activity-based.

They also worked alongside students who participated in RoboRoarZ 2026 - Robotics Competition, where the team won the Best Innovation Award. This experience gave the mentors a chance to understand how students prepare for international-level competitions and apply their ideas in real-world projects.



PARTICIPATION IN ROBOTICS COMPETITION

RoboRoarZ Singapore 2026

January 22-23, 2026

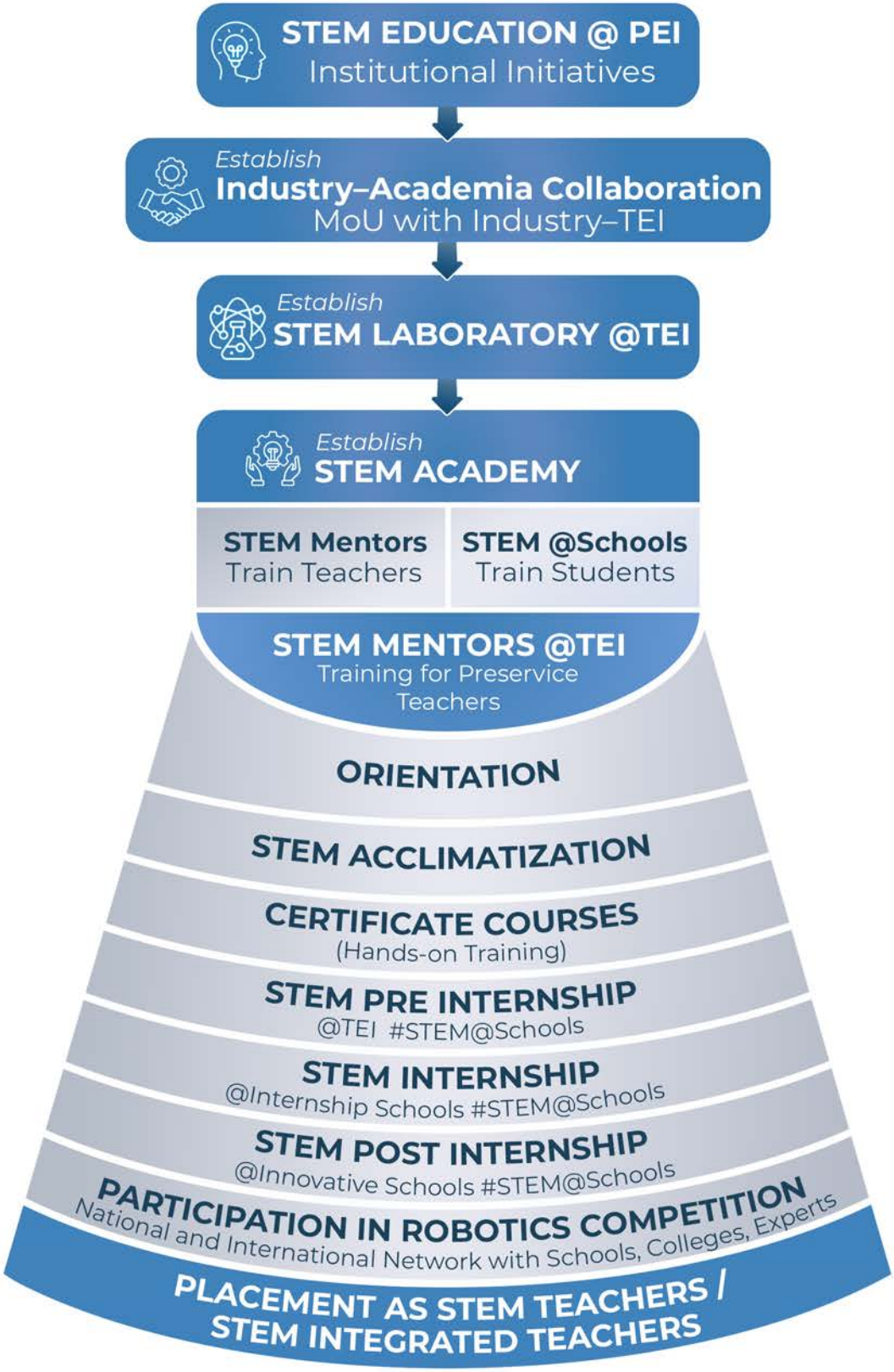
In continuation with the Orientation, Training, School Acclimatization, Internship etc in STEM Education, two teams from P.K.M. College of Education were selected for participation in the RoboRoarZ Singapore 2026 sponsored by the Liobot International, Maple Tree, The James Dyson Foundation, Kajima and Supported by the Singapore University of Technology and Design(SUTD), Wefaa, the Workplace Safety and Health Council, IEEE Women in Engineering, and IEEE NUS Student Branch held from January 22-23,2026 at the Singapore University of Technology and Design.

Ten STEM Mentors and three Teacher Educators participated in the event. The Robotics competition included Robotics Simulation competition, Robotics Physical Challenge etc and the teams could compete in the event successfully. The event provided opportunity to interact with more than 400 participants (School Students, Engineering students) from seven countries and also with experts around the world especially with Dr Amy Eguchi, Professor at University of California San Diego.

The significance of the participation in the Robotics Competition lies in the fact that our teams were the only teams representing a Teacher Education Institution.

INSTITUTIONAL MODEL FOR TEACHER EDUCATION

STEM EDUCATION



Publication in Mass Media and Social Media

The advertising and promotion of the STEM Innovation Programmes were carried out through digital brochures, posters, and video highlights of the SciFiesta, workshops, and STEM@Schools training sessions. Publications and updates on the college website, YouTube, and social media platforms such as Facebook, Instagram, and X, along with coverage in local newspapers and online media, helped in creating wide public awareness. These initiatives made a significant impact in conveying the importance of STEM education and innovation to the general public.

Check Out Our Socials

FACEBOOK YOUTUBE INSTAGRAM LINKEDIN

P.K.M. College of Education (www.pkmcollege.org) is a Government Aided Teacher Education Institution affiliated to Kannur University offering Graduation in Education. In the context of the UN Sustainable Development Goals (SDGs), "Next Generation Teacher at PKM" aims at the whole person development of the student teachers for which seven goals to be attained such as Teachers as Environment protectors, Peace Builders etc. The TEI is a member of Greening Educational Partnership in Education of UNESCO.

Dr. Prasanth Mathew,
Vice Principal & Associate Professor in Physical Science
drprasanthmathew@gmail.com
View Profile

STEM ACADEMY

Industry-Academia Collaborative Project of PKM
CENTRE FOR SKILL DEVELOPMENT

COURSE DIRECTOR

Dr Prasanth Mathew
Associate Professor in Physical Science and Vice Principal
P.K.M. College of Education

ADVISORY BOARD

Dr Jessy NC
Principal
P.K.M. College of Education

Dr Veena Appukuttan
Associate Professor in Social Science
IQAC Coordinator
P.K.M. College of Education

Dr Sinoj Joseph
Assistant Professor in Physical Education NSS Program Officer
P.K.M. College of Education

TECHNICAL TEAM

Technical Director

Mr Sunil Paul
CEO, Srishti Robotics

Project Associates

Mrs. Reshmi Benjamin
Marygiri English Medium School, Podikkalam

Mr Jacob Prasanth
BTech CSE (Cyber Security) 2023-27 Batch SJCET, Palai