



Er. PERUMAL MANIMEKALAI POLYTECHNIC COLLEGE

An ISO 9001:2015 Certified Institutions
(Approved by AICTE, New Delhi, and Government of Tamil Nadu)
Koneripalli, Hosur - 635 117.



Er. Perumal Manimekalai Polytechnic college Department of Electronics (Robotics) Engineering

*11th State level Technical symposium – **INNOVISION 2019***



HELD On 09-02-2019

Our Institution

“PMC TECH play influential role with Industries for providing meaningful impact on overall competency and skill levels of the students in relation to knowledge updating with practicality in learning and professionalizing them aiming at the developing scenario of current and future technologies.”

PMC TECH Group of Institutions, Hosur, Tamilnadu established in the year 1996 is run by “Er. Perumal Manimekalai Telugu Minority Educational and Charitable Trust” under the dynamic leadership of Shri. Er. P. Perumal, Founder Chairman. The Institutions comprise Matriculation School, ITI, Polytechnic, Engineering College and Research Studies providing quality education in the region.

Er. Perumal Manimekalai polytechnic college (established 1996) approved by AICTE and affiliated to DOTE Chennai, is an ISO 9001:2015 certified Institution. The Institute provide scholarly and professional environment with quality education & skill oriented training that help students becoming best employable for Industries and professional entrepreneurs for the Nation. The Institute supports students’ creativity/innovations by establishing Scientific and Industrial Research Organization (SIRO), Women Technology Park (WTP), Centre for IIT Bombay Employability Skill Trainings, Business Incubation Centre (MSME BI), Innovation & Entrepreneurship Development Centre (IEDC) etc., for research and developments.

Vision:

PMC Tech -Polytechnic College shall emerge as a premier Institute for valued added technical education coupled with Innovation, Incubation, Ethics and Professional values.

Mission:

1. To foster the professional competence through excellence in teaching and learning.
2. To nurture overall development of students by providing Quality Education & Training.
3. To provide innovative environment to learn, innovate and create new ideas for the betterment of oneself and society.

About the Department

The Department of Diploma in Electronics (Robotics) Engineering was established in the academic year 2005-2006. It has well equipped laboratories with a state of art Computer Laboratory, Electronics Devices etc... Robotics, and Mechanical Related Labs Pneumatic, Hydraulic, Manufacturing, CNC, CAD Laboratories, Qualified and experienced faculty members have been involved in teaching and conducting various short term courses for the benefit of students.

Vision:

To develop Electronics (Robotics) Engineering diploma holders to meet the Growing needs of Industry and Society.

Mission:

- To foster the professional competence through excellence in teaching and learning.
- To nurture overall development of students by providing Quality Education & Training.
- To create conducive environment for students to learn, innovate and conceive for the betterment of oneself and society.

Program Educational Objectives (PEOs)

1. **Core Competence:** Our students will exhibit the knowledge in Mathematics, fundamentals of Mechanical, Electrical, Electronics and Computer Engineering to solve Engineering problems. **Co**
2. **Breadth:** Our students will be able to design and create novel products and solutions for real life problems using the knowledge of Scientific, Mechanical, Electronics and Computer Engineering. **Br**
3. **Professionalism:** Our students exhibit professional and ethical attitude, effective communication skills and exhibit teamwork over multidisciplinary areas.
4. **Higher studies and Employability:** Our students succeed in industry / technical profession by creating an environment excellence and a high order of ethics and a zeal for lifelong learning.

Program Specific Outcomes (PSOs)

- PSO1:** Ability to understand the integration of engineering applications such as electronic, Mechanical, electromechanical, control and computer systems that contain software And hardware components including sensors, actuators and controllers.
- PSO2:** An ability to exhibit the knowledge of electrical and electronic circuits, Hydraulic & Pneumatic control system, logic design and image processing using hardware and Soft programming for automation.



About the Symposium

Most of the present day research are taking place with focus towards technology and education in this engineering the foremost leader. It plays a unique role in exploiting innovative technology

This Conference provides a real opportunity to bring together scientists, researchers and academicians of different disciplines to discuss new issues, tackle complex problems and find advanced solutions breeding new trends in Engineering.

Chairman's Message

Organizing Committee Members

Chief Patrons

Er. P. Perumal, Chairman, PMC TECH – Group of Institutions

Shri. P. Kumar, Secretary, PMC TECH – Group of Institutions

Smt. P. Mallar, Trustee, PMC TECH – Group of Institutions

Patron

Mr. N. Balasubramaniam, Principal, PMC TECH – Polytechnic College

Convener

Mr. K. Arunkumar M.E., HOD/ E(Robotics)

Co-ordinators

Mr. M. Mohamed Jinna M.E., Lecturer /E(Robotics)

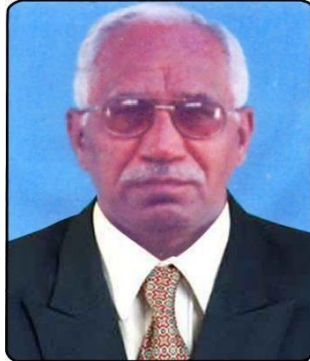
Members

Mr. A. Ravikumar B.E., Lecturer/ E(Robotics)

Mr.Kumaran M.E., Lect / E(Robotics)

Mr. Manikandan M.E., Lect/ E(Robotics)

Chairman's Message



I feel immense pleasure to inscribe my message for the souvenir. It has been said that the mask of success contains many hidden faces behind it. **INNOVISION 2019 SYMPOSIUM** as well as this institution is an assertion of this fact.

Absolute teamwork and strong vision resulted in Digital Marketing (**INNOVISION 2019**)” a National level symposium organized by the Department of Electronics (Robotics) Engineering. Our Institution Strive to travel beyond the boundaries of Mere books. We have realized that our future is abstract and unknown but youth in our hands are real and can be molded. This souvenir gives us just the glimpses of the achievements be held by our institution. Brighter days are still to come. And my heartfelt wishes for that.

The diligent contribution made by our faculty members and elaborated endeavor done by our students are the foundations of **INNOVISION 2019** Conference.

“Be with wise people that make you wise”

My best wishes for the future!

Er. P. Perumal Chairman,
PMC TECH – Group of Institutions.

Secretary's Message



It gives me great pleasure to send the message for the souvenir, which is to be released at **INNOVISION 2019** Symposium. **INNOVISION 2019** Symposium is being organized on 7th Feb 2020 by Department of Electronics (Robotics), Hosur.

An Institution of Higher Education, where students and faculty members are busy in learning and research, organizes such co-curricular activities for giving an opportunity to the students to celebrate their competence in technology and to inculcate in them the qualities of confidence, innovative thinking and analytical abilities. Co-curricular activities are intimately connected with the inner-being of a person. On the one hand, these permit an individual to express oneself and understand oneself better.

We want PMC Tech to be a great Institution. While making every single classroom, laboratory and workshop interesting is important, while working to make our programs practice-oriented is PMC Tech's mission, development of the complete personality of every student in all the hues, which come together to create a great human being, is the objective of the Institution. Such programs contribute a great deal in achieving the PMC Tech's objectives.

I convey my Best Wishes for the success of **INNOVISION 2019**, organized by department of Electrical and Electronics Engineering.

Shri. P. Kumar,
Secretary,

PMC TECH – Group of Institutions.

Trustee's Message



A feeling of great pride and contentment rises to witness our event “**INNOVISION 2019**” and this souvenir is nothing else but the reflection of the success saga our institution has created.

It has always been a tradition of our institution of confer holistic education to the learners which not only gives the qualification but also intends to mold them into better human beings. And I wish the same tradition will be followed in future years. Being a constant witness of the progress of our institution, I can surely acclaim that in times to come, our institution will prove to be an epitome of excellence in imparting quality education.

The sincere work and strength put up by our faculties and dear students in materializing this conference is worth admiring. This souvenir reflects aspiring vision and inspiring insight of our students and faculties.

So, my good wishes are always with them.

Many congratulations to all!

Smt. P. Mallar,

Trustee,

PMC TECH – Group of Institutions.

Principal's Message



Er. Perumal Manimekalai Polytechnic College has been the crest of jewels in the educational map of Tamilnadu. Its unrivalled excellence in conferring quality education of PMC Tech has played pivotal role in the technical development of the learners.

The sincere and meticulous work pattern has been the heritage given by our Institution. As a consequence, our institution has cultivated a tradition of bestowing learners with best quality academic education. Apart from that, to develop creative, conceptive and analytical skills as well as to furnish the learners with research and leadership skills technical festivals are essential. So the Department of Electronics (Robotics) Engineering has organized “**INNOVISION 2019**” a National level Symposium and it stands a class apart from all the events. And I dream our conference will provide a forum for all the students to exchange their learning experiences as well as their creativetechical knowledge. I am assured that our Symposium will represent the students both quantitatively and qualitatively.

My cordial felicitations to all!

Congratulation to all of the students. Yours efforts have not gone unnoticed!

Best wishes for this, **National Level Symposium – INNOVISION 2019.**

Mr. N. Balasubramaiam,
Principal,

HoD's Message



This National conference on "**INNOVISION 2019**" organized by E(Robotics) department, to focus the attention of all concerned professionals to discuss at length concern with emerging trends in engineering and technology.

To seek solutions wherever possible and identify areas where further in research. Invited contributions from professional bodies for knowledge sharing. Enormous participants confirmed their registration and presentation in National level symposium.

PMC Tech is making strides towards evolving directions for the growth and dissemination of technical knowledge for the purpose of research and innovation. It is with these clear thoughts the department of Electronics (Robotics) Engineering has been organizing National level Symposium. This year the focus is on

Moreover, this whole event is a conclusion of synchronized efforts done by our faculty members and students. Congratulations to them for their sincere and earnest hard work. I, hope this conference will be a platform for all our energized students where they can explore their hidden potential.

Wish you best of luck in your endeavor.

Mr. K. Arunkumar HOD/ E(Robotics)

PMC TECH – Polytechnic College.

TABLE OF CONTENTS

S. No	PAPER TITLE	Page. No
1.	ADVANCED TRENDS IN AUTOMATION	12
2.	RENEWABLE ENERGY SOURCES	13
3.	INDUSTRIAL ROBOT	14

ADVANCED TRENDS IN AUTOMATION

ABSTRACT

High technologies play an important role in social progress and economic growth. Monitoring the development trend and competition status of high technology is crucial for policymakers, managers, and developers. This study proposes a framework that integrating the analysis of technological evolutionary trends and competitive status, the results of which will be helpful for engineers and developers for technology scouting and forecasting, but also for policymakers and managers for research and development (R&D) strategy. The electronic design automation (EDA) technology is selected as a case study. The patent analysis and bibliographic coupling are used to analyze the overview and identify the critical technical areas of EDA technology. This research also identifies the competition status of the main competitors in the EDA field from three aspects, including the market and technology fields, R&D capability, and comprehensive evaluation of patents. Our results show that the United States has an absolute advantage in the competition status of EDA technology. This study contributes to monitoring the development situation and competition status of high technologies, and will be of interest to policymakers and engineers.

RENEWABLE ENERGY SOURCES

ABSTRACT

The primary purpose of the study is to rank and evaluate renewable energy sources that are the only alternative of non-renewable energy sources, according to twenty-six regions in Turkey. Multi-criteria decision making methods are widely employed in the solution of energy selection problems because energy selection problems contain many criteria contradicting each other. In this study, the importance levels weights of the evaluation criteria were measured by the Fuzzy Entropy method. Later, with the Fuzzy COPRAS and Fuzzy MULTIMOORA methods, renewable energy sources alternative rankings were acquired for the regions. According to the fuzzy COPRAS results in Appendix 2, the hydroelectric energy source has been defined as the suitable renewable energy source alternative for seventeen regions. According to the fuzzy MULTIMOORA results in Appendix 2, the hydroelectric energy source has been determined as the suitable renewable energy source alternative in the first rank for eighteen regions. With this study, a resource is presented to regional investors to reach an investment decision for renewable energy sources. This study constitutes an indication for development agencies along with investors.

INDUSTRIAL ROBOT

ABSTRACT

A novel trajectory planning approach is presented suitable for online industrial robot applications along short path segments such as spot-welding. The proposed method generates trajectories that are computationally efficient, dynamically near time-optimal, and maintain path-following integrity in high-frequency planning-and-control cycles. The method is based on the well-known path constrained time-optimal motion. We show that this trajectory can be quickly approximated with trapezoidal velocity profiles, resulting in near time-optimal trajectories, requiring only four robot dynamics computations per path segment. For continuous motions, a method to safely transit between adjacent optimal path segments within geometric bounds is also presented. We then show how the generated second order trajectory can be successfully used with a generic control loop by adopting feed forward control based on an elastic model. A real-world experiment with a 6DOF industrial robot validates our approach.