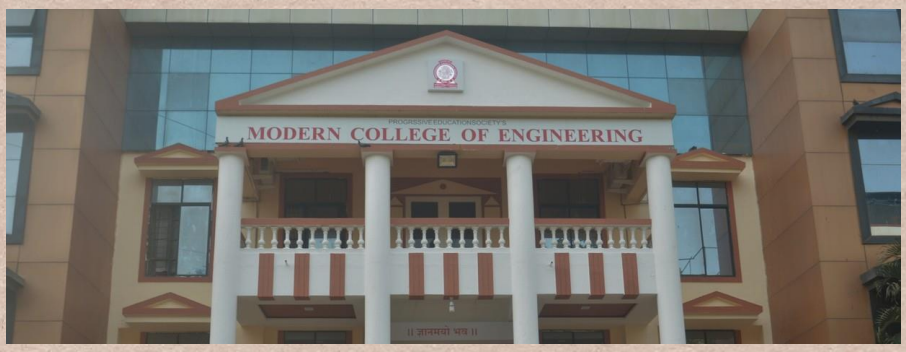
P. E. S. MODERN COLLEGE OF ENGINEERING

E-BUZZ

Busy as a bee.....Gathering Information!!!



MUSIC GENETRATION USING AI

Artificial intelligence and music (AIM) is a subject in the International Computer, the Computing Society Conference Music Conference and the International Joint Conference on Artificial Intelligence. The first International Computer Music Conference (ICMC) was held in 1974 at Michigan State University. Current research includes the application of AI in music composition, performance, theory and digital sound processing.

- **Now let's first understand what exactly AI Music Generation is and what it does:**

AI in music simulates mental tasks. A prominent feature is the capability of an AI algorithm to learn based on past data, such as in computer accompaniment technology, wherein the AI is capable of listening to a human performer and performing accompaniment.

Artificial intelligence also drives interactive composition technology, wherein a computer composes music in response to a live performance.

- **Further, let's see the software applications of AI Music Generation**

1. Interactive scores:

Temporal objects, temporal relations, and interactive objects represent Multimedia Scenarios in interactive scores. Examples of temporal objects are sounds, videos and light controls.

2. Computer Accompaniment:

The Computer Music Project at CMU develops computer music and interactive performance technology to enhance human musical experience and creativity.

3. ChucK:

Developed at Princeton University by Ge Wang and Perry Cook, ChucK is a text-based, cross-platform language that allows real-time synthesis, composition, performance, and analysis of music.

OUR VISION:

- To impart holistic Education in Electronics and Telecommunication Engineering to create engineers equipped to meet the challenges of a dynamic, global environment.

OUR MISSION:

- To impart quality Education in the field of Electronics, Communication and Signal Processing, by providing a comprehensive learning experience.
- To provide avenues to encourage students to continue education in diverse fields.
- To develop competent Engineers, well-versed in multi-disciplinary fields.
- To inculcate ethical and professional values in our students to endow society with responsible citizens

PROGRAM SPECIFIC OUTCOMES:

- Apply the Knowledge in E&TC engineering to understand, evaluate, design, or implement the electronics, communication, embedded or information systems or sub-systems using conventional or modern tools/techniques
- Take up jobs in Government or private sectors, undertake research, create jobs or pursue further studies in any of the fields of E&TC, in India or Abroad.
- Incorporate ethical & social responsibility to complete projects in the E& TC and allied fields and use effective written and oral communication skills to present the work.

ROLE OF AI IN MUSIC CREATION

Artificial intelligence (AI) has the potential to create music in various ways. One of the most popular methods involves using machine learning algorithms, particularly deep neural networks, to analyze large datasets of existing music and then generate new compositions based on the analysis.

The process of creating music with AI involves training the ML(Machine Learning) algorithm on a dataset of existing music, which could be a vast collection of songs in a particular genre or style. The algorithm examines the patterns and structures in the music, such as the chords, melodies, beats, rhythms, and instrumentation, and then uses this information to create new music that is similar in style and structure.

• MUSIC REPRESENTATION TO ML(MACHINE LEARNING) :

When it comes to developing AI-based music, the primary obstacle is how to translate music into a comprehensible format for the machine learning model.

Since the model perceives information as a numerical vector, we must depict music as a series of numeric tokens that carry information about the rhythm, notes, timbre, and other relevant data points. These tokens serve as a representation of music that can be processed by the AI system.

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P.E.S.MODERN COLLEGE OF ENGINEERING DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION Shivaji Nagar, Pune. Website-moderncoe.edu.in Phone no- (020) 25533638, (020) 255336	RITESH CHAUDHARI MEET NILI STAFF CO-ORDINATOR: MRS. S.V.THUSE

From the Principal's desk:

I am very happy & feeling proud to see launch of the 18th edition of E-newsletter of E&TC department. I'd like to share a heartfelt praise for the editorial team on their efforts and wish them success for all future endeavours.

-Dr Mrs. K. R. Joshi

From the HOD's desk:

I would like to extend my gratitude to the editorial team and also the faculty in-charge for their efforts in putting together this newsletter. This newsletter captures the essence of cultural events, technical and extra-curricular activities and many other events that took place in the department. Surely our editorial team will achieve more heights and will be more successful.

-Dr. Mrs. R. S. Kamathe

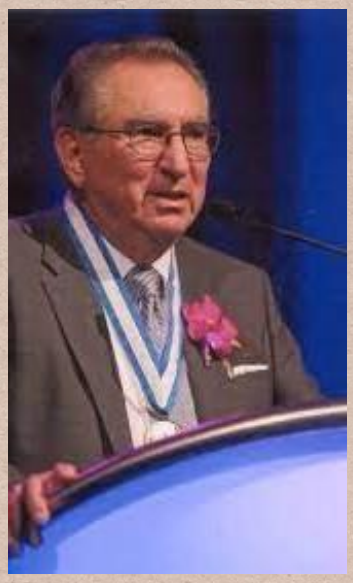
From Editor's desk:

In this edition, we have highlighted cultural events, technical and extra-curricular activities along with scientific articles. We look forward for further achievements. A special thanks to my editorial team

-Mrs. S. V. Thuse

AUTHORS

John G. Proakis



John G. Proakis (S'58–M'62–F'84–LF'99) received the B.S.E.E. degree from the University of Cincinnati, Cincinnati, OH, USA, in 1959, the M.S.E.E. degree from the Massachusetts Institute of Technology (MIT), Cambridge, MA, USA, in 1961, and the Ph.D. degree from Harvard University, Cambridge, MA, USA, in 1967.,He is an Adjunct Professor at the University of California at San Diego, La Jolla, CA, USA, and a Professor Emeritus at Northeastern University, Boston, MA, USA. He was a faculty member at Northeastern University from 1969 through 1998 and held the following academic positions: Associate Professor of Electrical Engineering (1969–1976), Professor of Electrical Engineering (1976–1998), Associate Dean of the College of Engineering and Director of the Graduate School of Engineering (1982–1984), Interim Dean of the College of Engineering (1992– 1993), and Chairman of the Department of Electrical .

Andrew S. Tanenbaum

Andrew Stuart Tanenbaum (born March 16, 1944), sometimes referred to by the handle ast, is an American-Dutch computer scientist and professor emeritus of computer science at the Vrije Universiteit Amsterdam in the Netherlands. He is the author of MINIX, a free Unix-like operating system for teaching purposes, and has written multiple computer science textbooks regarded as standard texts in the field. He regards his teaching job as his most important work.Tanenbaum was born in New York City and grew up in suburban White Plains, New York, where he attended the White Plains High School. He is Jewish.[11] His paternal grandfather was born in Khorostkiv in the Austro-Hungarian empire. He received his Bachelor of Science degree in physics from MIT in 1965 and his PhD degree in astrophysics from the University of California, Berkeley in 1971. Tanenbaum also served as a lobbyist for the Sierra Club.

ACTIVITIES

Expert Session on Life Skill Learning through Corporate Kirtan

Date & Day: 17th February 2023.

Venue: E&TC Seminar Hall (Room No.401)

***Objective*:** Describe various leadership skills and soft skills through spiritual references.

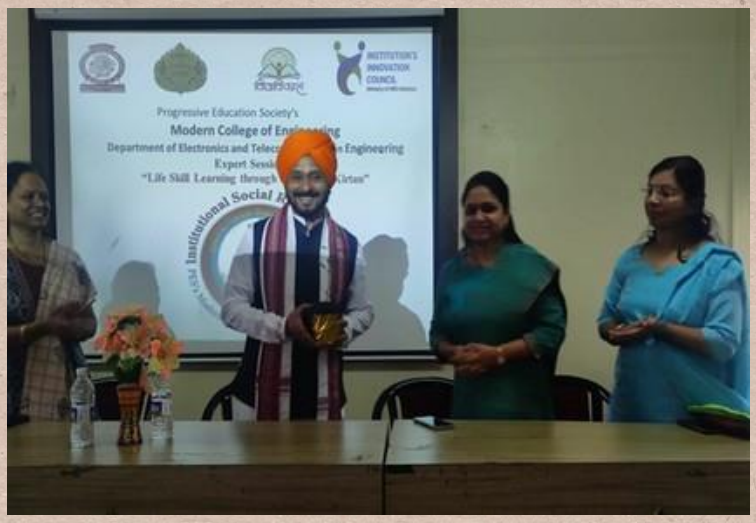
Summary of the event:

PES's Modern College of Engineering E&TC Dept. had arranged an Expert Lecture on "Life Skill Learning through Corporate Kirtan" on 17th February 2023. The session was conducted by Mr Pushkar M. Aurangabadkar, Director, Milastic Education (P) Ltd, Pune.

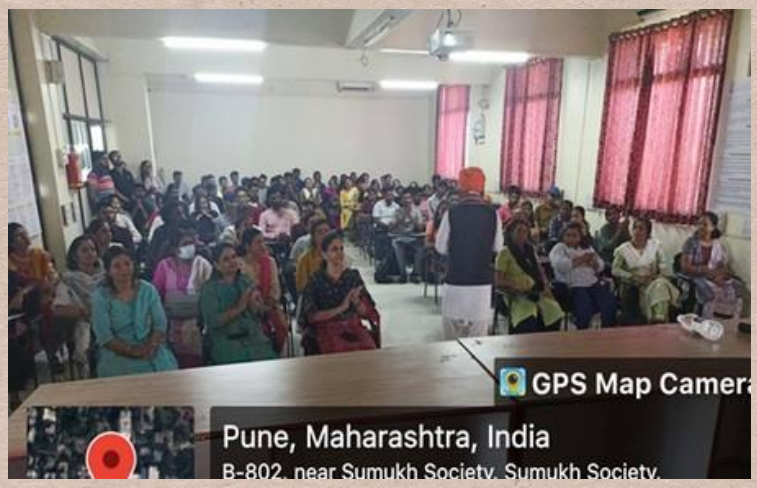
During the session, the speaker clearly explained various lifelong learning skills by spiritual means, abhangas, devotional poems, etc. He even gave the importance of self-confidence, politeness, communication and leadership.

Outcome:

The students enjoyed the session. This activity provided some essential qualities like self-confidence, communication and leadership skills to the students. The session also provided the importance of positivity, harmony and peace in our day-to-day life. The activity helped students to learn various lifelong learning skills through a spiritual reference platform.



Photograph 1: Felicitation of Guest Speaker Mr.Pushkar M. Aurangabadkar Director, Milastic Education (P) Ltd, Pune.



Photograph 2: Dr. Mrs. K.R. Joshi, Principal & Dr. Mrs. R.S. Kamathe, H.O.D E &TC, Vice Principal attending the session with students

ACTIVITIES

PERSONALITY DEVELOPMENT

***Date & Day*:** 09/05/23

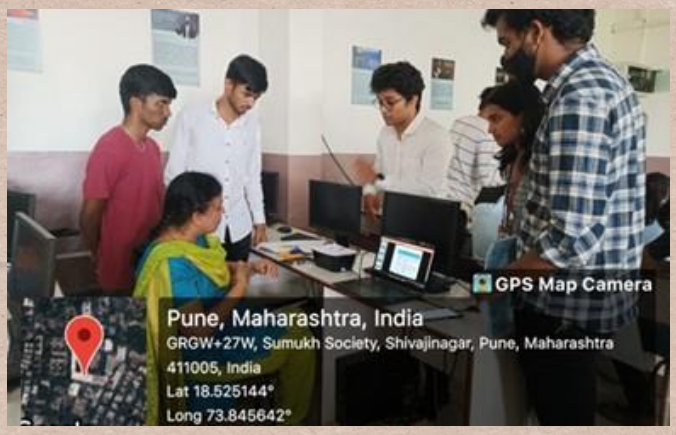
***Venue*:** Seminar Hall (401), Department of ENTC, PES MCOE.

***Objectives*:** To build and maintain interpersonal skills and communication skills & To make the students aware of effective leadership skills

Summary of the Activity and Event : The Department of E&TC and TEESA team had organized a session on "Personality Development" on 9th May 2023 from 1 pm to 2.30 pm, at PES Modern College Of Engineering, Department of Electronics and Telecommunication Seminar Hall. The speaker for the session was Ms. Ketaki Sahoni, who is the cofounder of 'Asymmetrical.ai', an Ed-tech company that collaborates with schools all over India to encourage kids to read more, write more effectively and excel in self learning. Ma'am inspired the students to be proactive and always learn something new.

Outcome : The session helped the students to build and maintain interpersonal skills and communication skills. The session also helped students make the students aware of effective leadership skills.

SE PROJECT EXHIBITION 2K23



Date & Day: Saturday, 20th May 2023

Venue: E & TC department Labs

Objectives: To provide open platform for SE students to present their projects.

Summary of the Activity/Event: Total 32 project groups from SE participated in SE Project Exhibition. Projects were displayed by SE (E & TC) students during 10 am to 12:30 pm. It was open for all the students. All projects were examined by judge panel of senior faculty members from E & TC department. Students could get to learn more and this sharpened their knowledge. All participants were awarded with certificates.

Outcome: Opportunity for students to work on practical ideas.

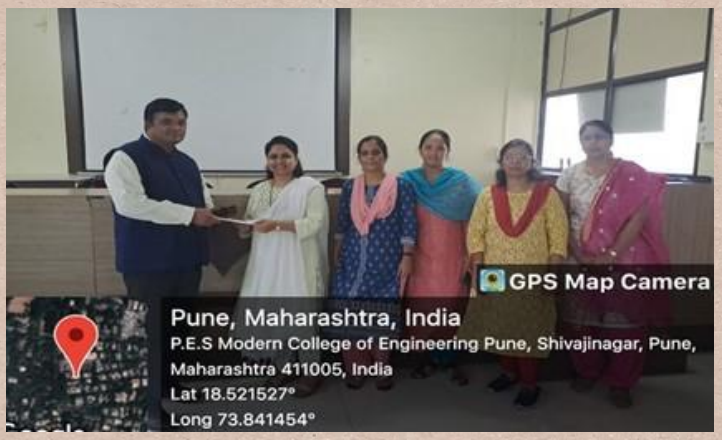
ACTIVITIES

HANDS ON SESSION ON AI & ML

Date & Day: 15th & 16th May 2023

Venue: TSL LAB (410A), Department of Electronics and Telecommunication Engineering

Objectives: To get students acquainted with Cloud AI & ML concepts.



Summary of the Activity/Event: The Department of E&TC had organized a hands on session on AI&ML for TE students in association with "VOIS for Tech". Students were explaind about fundamentals and applications of AI & ML. Students were also provided with hands on training on AI & ML. In this session, students gained valuable insight into the AI and ML field along with hand-on session.

Outcome: Students not only learnt the concepts of AI & ML but also had a practical experience of building real-world solutions using AI & ML

Best Outgoing Student

My journey in the ENTC department has been an incredible and enriching one. The department's dedication to fostering a supportive and inclusive environment became evident as I navigated my way through lectures, projects, and extracurricular activities.

One of the cornerstones of my success was the unwavering support I received from both the faculty and my fellow students. The professors went above and beyond, not only in delivering engaging lectures but also in their willingness to provide guidance and mentorship outside of the classroom. Collaborative projects and discussions with peers further enhanced my perspective, allowing me to appreciate diverse viewpoints and cultivate teamwork skills.

In retrospect, it's clear that my department served as a nurturing space for personal and academic development. The numerous workshops, seminars, and events organized by the department offered opportunities to expand my horizons beyond the curriculum. These experiences not only enriched my knowledge but also honed my soft skills, enabling me to communicate effectively, adapt to different situations, and tackle challenges with confidence.

To my junior friends who are about to embark on this exciting journey, I urge you to approach each day with enthusiasm and with an open mind. Challenges you encounter are not roadblocks, but rather stepping stones towards your success. As you navigate your studies, don't hesitate to seek guidance from your professors and peers. Remember that you're not alone on this path; your department is a community that is here to support you every step of the way.