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St. JOSEPH'S COLLEGE OF ENGINEERING

(An Autonomous Institution)

St. JOSEPH'S GROUP OF INSTITUTIONS

OMR. CHENNAI - 119

VOL 7 ISSUE 1

SEPT 2022

M E C H B U Z Z

NEWSLETTER

St. JOSEPH'S
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The Choice of
Disciplined Toppers



OUR COLLEGE VISION AND MISSION



VISION

To be a world class center for education, training and research by providing infrastructural facilities and competent faculty that unleashes technological innovations to serve the global society.

MISSION

The mission of the department is to provide quality education to the aspiring students and to produce competent engineering to meet the challenges and help industry which in turn shall improve the quality of life of mankind.



PROGRAMME EDUCATIONAL OBJECTIVES

Engineering graduates will be able to:

PEO1: Profession - Practice manufacturing engineering in a broad range of industries both core engineering and non-engineering fields such as medicine, space, law or business.

PEO2: Continuing Education - Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Technophile - Conduct them in a responsible, professional, and ethical manner and attain professional maturity with deep understanding of the impact of the technological solutions in a societal and global context and a need for sustainable development.

PEO4: Service - Participate as leaders in their fields of expertise and in activities that support service and economic development nationally and throughout the world.

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Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. Design/development of solutions: Design solution for complex engineering problems and design systems components or process that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.



Conduct investigations of complex problems: Use research- based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environmental and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-Long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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PSO 3: The students graduating in Manufacturing Engineering will have the ability to pursue advanced careers and discharge his/her duties entrusted with high degree of commitment to address professional and ethical responsibilities, including a respect for diversity and provide cost effective engineering solutions.

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B I S

Participating students from Civil Engineering—Mr. Akash A, Mr. Gokul K, Mr. Guru Prasath, Mr. Manikandan V, and Mr. Varhun Sriram V—gained insight into the standards shaping the quality and performance of uPVC profiles in the construction sector.





MANAK MANTHAN

The event on May 25, 2023, at Hotel Turiya, Perungudi, Chennai, Tamil Nadu, was a technical discussion focused on the newly released Indian Standard IS 17953:2023 titled “uPVC Profiles for Windows and Doors - Specification.” The discussion involved detailed engagement on the specification requirements for unplasticized polyvinyl chloride (uPVC) profiles used in fabricating windows, doors, and their framing components





KEY DETAILS AND CONTENT FROM THE STANDARD AND THE DISCUSSION INCLUDE:

Scope and Purpose:

- IS 17953:2023 sets out the requirements and test methods for non-coated unplasticized PVC (uPVC) profiles with light-colored surfaces intended for windows and doors. The standard aims to ensure the durability, strength, and performance of uPVC profiles, crucial as they offer a lightweight, strong, and energy-efficient alternative to traditional materials like timber, mild steel, and aluminum.

Material and Manufacturing:

- The uPVC profiles are produced predominantly by extrusion using unplasticized polyvinyl chloride mixed with additives that improve surface finish, mechanical strength, and opacity. These additives help create profiles that are sound and durable for building applications.





Specification Elements:

- The standard covers several important aspects including:
 - Raw material requirements for uPVC, including the use of virgin or reprocessed material.
 - Physical and dimensional specifications such as the wall thickness, depth, and width tolerances of the profiles.
 - Performance testing parameters such as weldability, impact resistance (resistance to impact from falling mass), heat reversion properties, surface flatness, straightness, and parallelism.
 - Sampling and conformity assessment protocols define how to test batches (“lots”) of profiles for compliance.

Quality and Certification:

- Each profile batch is tested to ensure compliance with the prescribed measurements and performance tests.

Profiles that pass these criteria are marked with:

- Manufacturer's name or trademark
- Profile identification code as per nominal shapes and dimensions
- Lot or batch number for traceability
- Declaration of use of recycled materials, if applicable



Significance of the Standard:

- Adoption of IS 17953:2023 helps unify quality benchmarks for uPVC profiles in India, supporting safety, reliability, and consumer confidence. The event was organized by the Bureau of Indian Standards (BIS), highlighting the importance of public education and professional awareness around newer material standards.

Event Context:

- The discussion drew over 100 stakeholders and experts, emphasizing the collaborative efforts in the construction industry to promote energy-efficient and sustainable building materials through standardized norms.



This event provided the Civil Engineering students a valuable opportunity to learn about the regulatory and technical parameters essential for working with uPVC profiles, which are increasingly popular in modern construction due to their performance benefits and cost-effectiveness compared to traditional materials.

The standard IS 17953:2023 thereby plays a crucial role in governing the production and application quality of uPVC profiles for windows and doors at the national level. It encompasses material composition, manufacturing practices, dimensional and performance requirements, conformity sampling, and product marking to assure standardized quality in the marketplace. This knowledge equips students with current industry standards, preparing them for professional roles in construction and materials engineering.





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QUIZ

COMPETITION FOR



STANDARD STUDENTS

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The program scheduled for 28th November 2023 will be held from 2:00 PM to 2:45 PM. It will involve participation from second, third, and fourth-year Standards Club student members, as well as members of the BIS-Club from the Mechanical Engineering Department.

Under the supervision of Dr. Arivazhagan, Professor and Head of the Department of Mechanical Engineering at St. Joseph's College of Engineering, OMR, Chennai-119, an offline quiz competition for members of the standards club was held at the CAD Lab. The Standards Club at St. Joseph's College of Engineering's BIS Club Mentor, Mr. KMB. Karthikeyan, oversaw the event. Mr. T. Balasubramanian gave the students their instructions. Mr. Prem Kumar and Mr. Sakthivel, Assistant Professors, helped the team run the quiz competition efficiently.

Report



QUIZ

COMPETITION

Student Name	Marks Scored (Maximum Marks:20)	Prize with Cash Reward
TARUN PRASAD A	19	I Prize – Rs.1000
S ELUMALAI	18	II Prize – Rs.750
THAMIZHSELVAN S	18	III Prize -Rs.500
SRIRAM KARTHICK	18	Consolation Prize -Rs.250

WINNERS



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STUDENT
A C H I V E M E N T S





STUDENT A C H I V E M T S

- Sam Richard N won II Position in ROBOKART, conducted at Sathyabama Institute of Science and Technology, on 06 August 2022.
- Sathish Kumar V won II Position in ROBOKART, conducted at Sathyabama Institute of Science and Technology, on 06 August 2022.
- Madhusuthan A V secured III Position in Seed Your Startup, conducted at Sathyabama Institute of Science and Technology, on 06 August 2022.
- Mohamed Thoufiq secured III Position in Seed Your Startup, conducted at Sathyabama Institute of Science and Technology, on 06 August 2022.
- Maiganasivam secured III Position in Seed Your Startup, conducted at Sathyabama Institute of Science and Technology, on 06 August 2022.
- Aditya Kamila secured III Position in Seed Your Startup, conducted at Sathyabama Institute of Science and Technology, on 06 August 2022.



STUDENT P U B L I C A T I O N S

- Hem Anand E A (Semester 8) published in Materials and Manufacturing Processes, published by Taylor & Francis, Volume 39, Issue 15, indexed in Scopus & SCIE, with an Impact Factor of 4.1, 2 citations, under Q1 Quartile.
- Labib Mohammed Irshaad (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue 0, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.
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- Pranav S (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue O, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.
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- Saravana Kumar E (Semester 8) published in Journal of the Brazilian Society of Mechanical Sciences and Engineering, published by Springer Berlin Heidelberg, Volume 45, Issue 4, indexed in Scopus & SCIE, with an Impact Factor of 1.8, 5 citations, under Q2 Quartile.



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- N. Sathishkumar authored a technical textbook titled Composite Materials, published by Technical Publications, Pune, during the year 2022.
- A research article by K.G. Ashok, B. Gopinath, M. Raju, and G. Kasirajan was published in the International Journal of Vehicle Structures & Systems, Volume 14, Issue 3, in 2022.
- Additional scholarly contributions addressing composite materials and manufacturing technologies were published during 2022 in reputed journals where the month of publication was not specified.
- S. Arivazhagan, K. Arun, T. Gavaskar, and M. Venkata Ramanan evaluated the performance of dual-fuel engines using biodiesel blends, with results published in Energy, Volume 275, Article 127296, July 2023 (Scopus Indexed).



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D E S I G N T E A M

DR.N. E ARUNKUMAR

MR T BALASUBRAMANIAN

MR K PRAVINKUMAR

ANIRUDHA H
5th Semester

DINESH KUMAR J S
5th Semester

ADITHYAAR
3rd Semester



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STUDENT
A C H I V E M E N T S





STUDENT A C H I V E M E N T S

- Ganesan S secured II Position in CAD WAR, conducted at Easwari Engineering College, Chennai, on 15 October 2022.
- Prince Antony Claret S secured I Position (BUZZ) and II Position (MARKETECH) at Loyola-ICAM, on 08 October 2022.
- Suresh secured I Position (BUZZ) and II Position (MARKETECH) at Loyola-ICAM, on 08 October 2022.
- Sanjay Kalyan secured II Position in MARKETECH, conducted at Loyola-ICAM, on 08 October 2022.
- Lionel Morais and Madhan B secured II Position in Crime Scene Investigation, conducted at Loyola-ICAM, on 08 October 2022.
- Damodharan A, Aswin R J, Chandrus secured II Position in Web Decorz / Mr. Designer, conducted at R.M.K. College of Engineering, on 17 October 2022.
- S Chandru secured II Position in DesiVity, conducted at Shiv Nadar University, on 04 November 2022.



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- D. Jude Hemanth, V. Rajinikanth, Vaddi Seshagiri Rao, Samaresh Mishra, Naeem Hannon, R. Vijayarajan, and S. Arunmozhi published a significant interdisciplinary study on image fusion techniques for ischemic stroke lesion detection in *Evolutionary Intelligence*, Volume 14, pp. 1089–1099, February 2022.
- A Scopus-indexed publication by N. Sathishkumar, T. Gavaskar, B. Dhanasakkaravarthi, T. Ramakrishnan, and G. Rathinasabapathi analysed the effect of heat treatment on the machinability behaviour of aluminium alloy 6060 in *Materials Today: Proceedings*, Volume 66, Part 3, pp. 1477–1484, January 2022.
- K. Arun, K.M. Kumar, K.M.B. Karthikeyan, and S. Mohanasutan conducted a structural integrity analysis of Pelton wheel turbine materials, which was published in *Materials Today: Proceedings*, Volume 62, Issue 2, pp. 1045–1053, June 2022.
- K. Arun, M. Venkata Ramanan, and S. Mohanasutan presented comparative studies on biomass gasification of coconut shells and corn cobs in *Biomass Conversion and Biorefinery*, Volume 12, Issue 4, pp. 1257–1269, April 2022.



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QUIZ

COMPETITION FOR



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QUIZ

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D E S I G N T E A M

DR.N. E ARUNKUMAR

MR T BALASUBRAMANIAN

MR K PRAVINKUMAR

ANIRUDHA H
5th Semester

DINESH KUMAR J S
5th Semester

ADITHYAAR
3rd Semester

HARIHARAN B
3rd Semester



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VOL 7 ISSUE 3

MAR 2023

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NEWSLETTER





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STUDENT
A C H I V E M E N T S





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- • Abin Joe John, Anthony Glen, Anto Leo Binso, Dominic Sam Cardoza, Gurubalan N, Rajesh Krishna secured Top 100 Rank in mBAJA SAE INDIA 2023, conducted at SAE INDIA, on 20 February 2023.
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- • Naveen Dsouza, Navinjith Ajith, Krithika V, Nakshathraa N J secured I / II Positions in Green Energy Club events, conducted at SJCE, on 08 March 2023.



STUDENT P U B L I C A T I O N S

- Vijayakumar S (Semester 8) published in Engineering Research Express, published by IOP Publishing, Volume 6, Issue 4, indexed in Scopus & ESCI, with an Impact Factor of 1.5, under Q2 Quartile.
- Monish N (Semester 7) published in Materials and Manufacturing Processes, published by Taylor & Francis, Volume 39, Issue 8, indexed in Scopus & SCIE, with an Impact Factor of 4.1, under Q1 Quartile.
- Monish N (Semester 7) published in Scientific Reports, published by Nature Publishing Group (UK), Volume 13, Issue 1, indexed in Scopus & SCIE, with an Impact Factor of 3.8, 6 citations, under Q1 Quartile.
- Monish N (Semester 7) published in Applied Energy, published by Elsevier, Volume 355, Issue 1, indexed in Scopus & SCIE, with an Impact Factor of 10.1, 13 citations, under Q1 Quartile.
- Monish N (Semester 6) published in Fuel, published by Elsevier, Volume 350, Issue 15, indexed in Scopus & SCIE, with an Impact Factor of 6.7, 8 citations, under Q1 Quartile.



STUDENT P U B L I C A T I O N S

- Sam Richard N (Semester 8) published multiple papers in IOP Conference Series: Materials Science and Engineering, published by IOP Publishing, Volume 1316, Issue 1, indexed in Scopus, with an Impact Factor of 0.50.
- Eshwar N K (Semester 8) published in IOP Conference Series: Materials Science and Engineering, published by IOP Publishing, Volume 1316, Issue 1, indexed in Scopus, with an Impact Factor of 0.50.
- Sai Ram B (Semester 8) published in IOP Conference Series: Materials Science and Engineering, published by IOP Publishing, Volume 1316, Issue 1, indexed in Scopus, with an Impact Factor of 0.50.



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- A research article by G. Velmurugan, Jasgurpreet Singh Chohan, R. Sathish, Ramesh Velumayil, R. Ranjith Kumar, D. Elil Raja, M. Nagaraj, and A. John Presin Kumar was published in the journal Silicon during 2024, with the month of publication not specified.
- Srinivasan D., Senthilkumar N., Ganesh M., and Perumal G. published their work in Multiscale and Multidisciplinary Modeling Experiments and Design during 2024.
- A study authored by Karthikeyan R., Madhu S., R. George Sahaya Nixon, and Krishnamoorthi S. was published in 2024 with the DOI reference available, though the month was not specified.
- Several publications during 2023–24, covering areas such as additive manufacturing, energy systems, composite materials, and computational modeling, were published in reputed and Scopus-indexed journals where the month of indexing was not mentioned.



STAFF

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- A Scopus-indexed article by Pravinkumar Kamatchi, Seshagiri Rao Vaddi, and Sathish Rengarajan investigated the inhibition effect of curcumin extract on dissimilar aluminium joints and was published in the Journal of the Serbian Chemical Society, Volume 89, Issue 2, pp. 245–258, March 2024.
- G. Ashwin Prabhu, R. Selvam, and K.M. Kumar reported enhancements in mechanical properties of fibre composites using response surface methodology in *Fibers & Polymers*, March 2024 (Scopus Indexed).
- M. Diviya, J. Jebin Joel, M. Subramanian, T. Balasubramanian, A.V. Madhusuthan, N. Monish, and Nasim Hasan published a parametric investigation on W-EDM machining of biomaterials in *Scientific Reports*, Volume 14, Article 216, March 2024 (Scopus Indexed).



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MR K PRAVINKUMAR

ANIRUDHA H
6th Semester

DINESH KUMAR J S
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4th Semester

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VOL 7 ISSUE 4

JUN 2023

M E C H B U Z Z

NEWSLETTER





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STUDENT P U B L I C A T I O N S

- Pranav S (Semester 8) also published in Journal of Polymer and Composites, published by STM Journals, Volume 13, Issue 2, indexed in ESCI, with an Impact Factor of 6.005, under Q2 Quartile.
- Mohanaranga S (Semester 6) published in Materials Today: Proceedings, published by Elsevier, Volume 62, Issue 2, indexed in Scopus, with an Impact Factor of 2.46, 16 citations, under Q2 Quartile.
- Rohith S V (Semester 8) published in Progress in Additive Manufacturing, published by Springer International Publishing, Volume 8, Issue 6, indexed in Scopus & ESCI, with an Impact Factor of 4.4, 10 citations, under Q1 Quartile.
- Rohit Hariharan R (Semester 8) published in Progress in Additive Manufacturing, published by Springer International Publishing, Volume 8, Issue 6, indexed in Scopus & ESCI, with an Impact Factor of 4.4, 10 citations, under Q1 Quartile.



STUDENT P U B L I C A T I O N S

- Rajaram M (Semester 8) published in Journal of the Brazilian Society of Mechanical Sciences and Engineering, published by Springer Berlin Heidelberg, Volume 45, Issue 4, indexed in Scopus & SCIE, with an Impact Factor of 1.8, 5 citations, under Q2 Quartile.
- Saravana Kumar E (Semester 8) published in Journal of the Brazilian Society of Mechanical Sciences and Engineering, published by Springer Berlin Heidelberg, Volume 45, Issue 4, indexed in Scopus & SCIE, with an Impact Factor of 1.8, 5 citations, under Q2 Quartile.



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- Anup Goel, A. Jacob Moses, Dr. Renjin J. Bright, and N. Sathishkumar authored a technical textbook titled Composite Materials, published by Technical Publications, Pune, during the year 2022.
- A research article by K.G. Ashok, B. Gopinath, M. Raju, and G. Kasirajan was published in the International Journal of Vehicle Structures & Systems, Volume 14, Issue 3, in 2022.
- Additional scholarly contributions addressing composite materials and manufacturing technologies were published during 2022 in reputed journals where the month of publication was not specified.
- An interdisciplinary medical imaging study by D. Jude Hemanth, V. Rajinikanth, Vaddi Seshagiri Rao, Samaresh Mishra, Naeem Hannon, R. Vijayarajan, and S. Arunmozhi improved ischemic stroke lesion detection and was published in Evolutionary Intelligence, February 2022.



STAFF

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- N. Sathishkumar, T. Gavaskar, B. Dhanasakkaravarthi, T. Ramakrishnan, and G. Rathinasabapathi investigated heat treatment effects on aluminium alloy 6060 machinability in *Materials Today: Proceedings*, January 2022 (Scopus Indexed).
- Research on phase change materials and thermal performance by Kailash Ganesh, M. Nagaraja, N. Sathishkumar, R. Elakkiyadasan, and S. Murugapoopathi appeared in *Materials Today: Proceedings*, January 2022.
- K. Arun, K.M. Kumar, K.M.B. Karthikeyan, and S. Mohanasutan published a structural integrity analysis of Pelton wheel turbine materials in *Materials Today: Proceedings*, June 2022.
- K. Arun, M. Venkata Ramanan, and S. Mohanasutan conducted comparative studies on biomass gasification and published their findings in *Biomass Conversion and Biorefinery*, April 2022 (Scopus Indexed).
- Additional publications during 2022 addressed composite materials, manufacturing optimisation, and energy systems through journals and book chapters.



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B I S

VOL 2, ISSUE 1 JUN 2023

NEWSLETTER

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VOL 2, ISSUE 1 JUN 2023

NEWSLETTER



25th May, 2023

MANAK MANTHAN

The event on May 25, 2023, at Hotel Turiya, Perungudi, Chennai, Tamil Nadu, was a technical discussion focused on the newly released Indian Standard **IS 17953:2023** titled "uPVC Profiles for Windows and Doors - Specification." The discussion involved detailed engagement on the specification requirements for unplasticized polyvinyl chloride (uPVC) profiles used in fabricating windows, doors, and their framing components

Participating students from Civil Engineering—Mr. Akash A, Mr. Gokul K, Mr. Guru Prasath, Mr. Manikandan V, and Mr. Varhun Sriram V—gained insight into the standards shaping the quality and performance of uPVC profiles in the construction sector.





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Key details and content from the standard and the discussion include:

Scope and Purpose:

- **IS 17953:2023** sets out the requirements and test methods for non-coated unplasticized PVC (uPVC) profiles with light-colored surfaces intended for windows and doors. The standard aims to ensure the durability, strength, and performance of uPVC profiles, crucial as they offer a lightweight, strong, and energy-efficient alternative to traditional materials like timber, mild steel, and aluminum.

Material and Manufacturing:

- The uPVC profiles are produced predominantly by extrusion using unplasticized polyvinyl chloride mixed with additives that improve surface finish, mechanical strength, and opacity. These additives help create profiles that are sound and durable for building applications.

Specification Elements:

- The standard covers several important aspects including:
 - Raw material requirements for uPVC, including the use of virgin or reprocessed material.
 - Physical and dimensional specifications such as the wall thickness, depth, and width tolerances of the profiles.
 - Performance testing parameters such as weldability, impact resistance (resistance to impact from falling mass), heat reversion properties, surface flatness, straightness, and parallelism.
 - Sampling and conformity assessment protocols define how to test batches ("lots") of profiles for compliance.

Quality and Certification:

- Each profile batch is tested to ensure compliance with the prescribed measurements and performance tests. Profiles that pass these criteria are marked with:
 - Manufacturer's name or trademark
 - Profile identification code as per nominal shapes and dimensions
 - Lot or batch number for traceability
 - Declaration of use of recycled materials, if applicable



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Key details and content from the standard and the discussion include:

Significance of the Standard:

- Adoption of **IS 17953:2023** helps unify quality benchmarks for uPVC profiles in India, supporting safety, reliability, and consumer confidence. The event was organized by the Bureau of Indian Standards (BIS), highlighting the importance of public education and professional awareness around newer material standards.

Event Context:

- The discussion drew over 100 stakeholders and experts, emphasizing the collaborative efforts in the construction industry to promote energy-efficient and sustainable building materials through standardized norms.

This event provided the Civil Engineering students a valuable opportunity to learn about the regulatory and technical parameters essential for working with uPVC profiles, which are increasingly popular in modern construction due to their performance benefits and cost-effectiveness compared to traditional materials.

The standard **IS 17953:2023** thereby plays a crucial role in governing the production and application quality of uPVC profiles for windows and doors at the national level. It encompasses material composition, manufacturing practices, dimensional and performance requirements, conformity sampling, and product marking to assure standardized quality in the marketplace. This knowledge equips students with current industry standards, preparing them for professional roles in construction and materials engineering.



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QUIZ COMPETITION FOR STANDARD STUDENTS

The program scheduled for 28th November 2023 will be held from 2:00 PM to 2:45 PM. It will involve participation from second, third, and fourth-year Standards Club student members, as well as members of the BIS-Club from the Mechanical Engineering Department.

● Report

Under the supervision of Dr. Arivazhagan, Professor and Head of the Department of Mechanical Engineering at St. Joseph's College of Engineering, OMR, Chennai-119, an offline quiz competition for members of the standards club was held at the CAD Lab. The Standards Club at St. Joseph's College

of Engineering's BIS Club Mentor, Mr. KMB. Karthikeyan, oversaw the event. Mr. T.

Balasubramanian gave the students their instructions. Mr. Prem Kumar and Mr. Sakthivel, Assistant Professors, helped the team run the quiz competition efficiently.



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QUIZ COMPETITION WINNERS

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Student Name	Marks Scored (Maximum Marks:20)	Prize with Cash Reward
TARUN PRASAD A	19	I Prize – Rs.1000
S ELUMALAI	18	II Prize – Rs.750
THAMIZHSELVAN S	18	III Prize -Rs.500
SRIRAM KARTHICK	18	Consolation Prize -Rs.250





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MR. K. GNANASEKARAN

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ANIRUDHA H
MECH III - A

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ISHRAE NEWSLETTER

The Official Newsletter of ISHRAE

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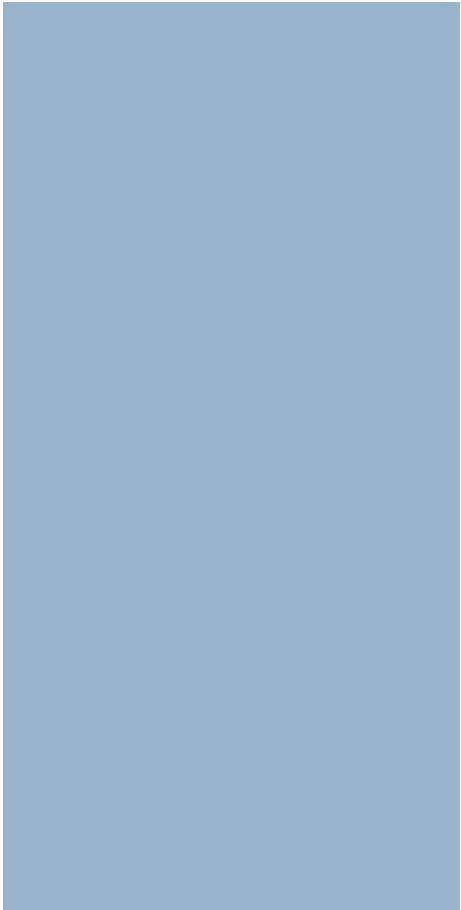
ISHRAE NEWSLETTER

The Official Newsletter of ISHRAE



CAREER OPPORTUNITIES IN HVAC INDUSTRIES

The Department of Mechanical Engineering of St. Joseph's College of Engineering, in collaboration with ISHRAE Chennai Chapter, successfully organized a technical seminar titled "Career Opportunities in HVAC Industries." The primary objective of this seminar was to create awareness among engineering students about the vast scope, emerging trends, and professional pathways available in the Heating, Ventilation, and Air Conditioning (HVAC) sector.





HVAC

INTRODUCTION

HVAC plays a crucial role in modern infrastructure by ensuring thermal comfort, indoor air quality, and energy efficiency in residential, commercial, and industrial buildings. With rapid urbanization, smart city development, and increased focus on sustainable construction, the HVAC industry has become one of the fastest-growing engineering domains worldwide.

The session was delivered by Ferno Susai A, Founder and Managing Director of Air Design Engineering Solutions Pvt. Ltd., and former President of ISHRAE Chennai Chapter (2022-2023). His extensive industry experience and leadership in HVAC design and execution provided students with valuable insights into real-world applications and career prospects.





TOPICS

1. Fundamentals of HVAC Systems

The speaker began with an overview of HVAC fundamentals, explaining the basic principles of heating, cooling, ventilation, and air distribution. Students were introduced to major system components such as chillers, air handling units, cooling towers, ducting systems, compressors, and control systems.

Emphasis was placed on understanding load calculations, psychrometrics, indoor air quality, and thermal comfort standards. These foundational concepts form the backbone of HVAC system design and operation.



TOPICS

2. Scope of HVAC in Modern Infrastructure

Mr. Ferno Susai highlighted how HVAC systems are integral to:

- Commercial buildings (malls, offices, IT parks)
- Healthcare facilities (hospitals, laboratories)
- Industrial plants and clean rooms
- Airports, metros, and transportation hubs
- Data centers and smart buildings

He explained how HVAC engineers collaborate with architects, electrical engineers, and structural designers to deliver integrated building solutions. With the rise of green buildings and energy regulations, HVAC professionals are now expected to design systems that are both high-performance and environmentally responsible.



TOPICS

3. Sustainability and Future Trends in HVAC

The seminar also addressed future trends such as:

- Energy-efficient HVAC systems
- Green building certifications
- Smart HVAC controls and IoT integration
- Renewable energy-based cooling
- Low-GWP refrigerants
- Net-zero energy buildings

Students learned how HVAC engineers play a major role in reducing carbon emissions and improving building energy performance. The speaker emphasized that sustainability will be a defining factor for future HVAC professionals.



TOPICS

4. Importance of Practical Skills and Industry Exposure

Mr. Ferno Susai stressed that theoretical knowledge alone is insufficient for success in HVAC careers. He encouraged students to:

- Participate in internships and industrial training
- Join professional bodies like ISHRAE
- Attend workshops and technical conferences
- Work on real-time projects
- Develop communication and project management skills

He shared real project experiences, highlighting challenges faced during system installation, commissioning, and troubleshooting. These examples helped students understand the practical realities of engineering projects.



CONCLUSION

The seminar on Career Opportunities in HVAC Industries proved to be highly informative and inspiring. It bridged the gap between academic learning and industrial practice, equipping students with essential knowledge about HVAC careers and future trends.

The Department of Mechanical Engineering extends sincere gratitude to ISHRAE Chennai Chapter and Mr. Ferno Susai A for sharing valuable expertise. Such initiatives significantly contribute to the holistic development of engineering students and prepare them for successful professional journeys.



TEAM

Dr. T. GAVASKAR
Mr. V. ASHOK KUMAR

ADITHYAA R
4TH SEMESTER
HARIHARAN B
4TH SEMESTER





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VOL 4 ISSUE 1

JUNE 2022- 2023

SAE

NEWSLETTER



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OUR COLLEGE VISION AND MISSION



VISION

To be a world class center for education, training and research by providing infrastructural facilities and competent faculty that unleashes technological innovations to serve the global society.

MISSION

The mission of the department is to provide quality education to the aspiring students and to produce competent engineering to meet the challenges and help industry which in turn shall improve the quality of life of mankind.





PROGRAMME EDUCATIONAL OBJECTIVES

Engineering graduates will be able to:

PEO1: Profession - Practice manufacturing engineering in a broad range of industries both core engineering and non-engineering fields such as medicine, space, law or business.

PEO2: Continuing Education - Pursue advanced education, research and development, and other creative and innovative efforts in science, engineering, and technology, as well as other professional careers.

PEO3: Technophile - Conduct them in a responsible, professional, and ethical manner and attain professional maturity with deep understanding of the impact of the technological solutions in a societal and global context and a need for sustainable development.

PEO4: Service - Participate as leaders in their fields of expertise and in activities that support service and economic development nationally and throughout the world.

PROGRAMME OUTCOMES

Engineering graduates will be able to:

Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. Design/development of solutions: Design solution for complex engineering problems and design systems components or process that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.





Conduct investigations of complex problems: Use research- based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

Environmental and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-Long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES

PSO 1: The students graduating in Manufacturing Engineering will have profound foundation in mathematical, scientific and engineering domains necessary to achieve professional and productive excellence in technical and non-technical problem solving and analyzing engineering problems.

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INDEX

POJAI
ACHIEVMENTS



BUGGY POJAI

The pojai for both M-Baja and E-Baja was done in the presence of our beloved chairman



ACHIEVEMENTS

- The BAJA SAEINDIA competition is an exciting event that challenges engineering students to
- design, build, test, and validate single-seater all-terrain vehicles (ATVs).

Preliminary Round (Phase 1):

- Scheduled in July 2022.
- Teams present their finalized ATV designs and implementation plans virtually.
- Focuses on technical and professional capacity.
- Conducted online.

Virtual BAJA SAEINDIA (Phase 2):

- Incorporates both Virtual Dynamic Events and Digital Static Events.
- Virtual Static Events include Design, Cost, and Sales Presentation evaluations.
- Dynamic Events (e.g., Maneuverability, All Terrain Performance) are held virtually using benchmarked Automotive Simulation software (IPG CarMaker).
- Tests software knowledge, design understanding, cost efficiency, and business skills.

Physical Round (Phase 3):

- Conducted physically for mBAJA (January) and eBAJA (March) in 2023.
- Evaluates buggies in events like Acceleration, Maneuverability, Suspension & Traction, and Endurance. Initial technical evaluation also takes place

ACHIEVEMENTS

- The M-Baja and E-Baja Students cleared the Phase 2 – Virtual event and M-Baja Team Aurelian Racing Team Cleared in top 100 teams out of 450 all over India and E-Baja Team Inferno Racing Team Cleared in top 50 out of 300 all over India. Both the teams participated in physical event conducted in Pithampur for M-Baja and Bangalore E-Baja.





NEWSLETTER

EDITORIAL TEAM

STAFF

MR. T. BALASUBRAMANIAN

MR. M. GANESH

TEAM

DINESH M -8 TH

SEMESTER,

DOMNIC SAM

CARDOZA R -8TH

SEMESTER,

DINESH KUMAR J

S - 6TH SEMESTER,

ANIRUDHA H -6 TH

SEMESTER





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JET SPARK

M A G A Z I N E

V O L 2 5 , I S S U E 1
J U N 2 0 2 3





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Student Achievements

Student Publications

Staff Publications

BIS

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STUDENT ACHIEVEMENTS





STUDENT A C H I E V E M E N T S

- Abin Joe John, Anthony Glen, Anto Leo Binso, Dominic Sam Cardoza, Gurubalan N, Rajesh Krishna secured Top 100 Rank in mBAJA SAE INDIA 2023, conducted at SAE INDIA, on 20 February 2023.
- Rahul M, Sathishkumar V, Vignesh S, Thanigaivel G, Shanmugasundaram M, Varun Kumar V emerged as Winners in the Walkaround Workshop on Scorpio-N, conducted at Mahindra Research Valley, on 21 January 2023.
- Naveen Dsouza, Navinjith Ajith, Krithika V, Nakshathraa N J secured I / II Positions in Green Energy Club events, conducted at SJCE, on 08 March 2023.



STUDENT A C H I E V E M E N T S

- A. Nivita Pandey, C. Chandru, B. Adithyan, S. Anthiya, S. Sarathi, Arockia Robinson, Chandrakishor, Aloysius Antony, Suman, Yuvaraj, JesuNicholas Filbert, Jerome, Balaji, RamSaiManasB, Haraharan secured I / II / III Positions in Design Challenge 2K23 (National Level) on 18 August 2023.
- Muthukumars, Thamizselvan S, M V Sree Harish, V Subramaniyan secured III Position in Green Energy Club Events, conducted at SJCE, during July–August 2023.
- Prakrithi Harith P and Tejaswin S were Finalists in the Smart India Hackathon 2023, conducted at National Level, on 11 November 2023.



STUDENT A C H I E V E M E N T S

- Ganesan V, Harshith Raj K, Hemanand E A, Labib Mohammed Irshad, Manav Ajai, Navin Sales Michael, Pranav Narayanan participated in the Bicycle Design Competition (National Level) and secured III Position (Maneuverability) & VIII Position (Overall – Southern Section) on 22 May 2023.
- Sam Richard N and Sathish Kumar V won II Position in ROBOKART, conducted at Sathyabama Institute of Science and Technology, on 06 August 2023.
- Madhusuthan A V, Mohamed Thoufiq, Maiganasivam, Aditya Kamila secured III Position in Seed Your Startup, conducted at Sathyabama Institute of Science and Technology, on 06 August 2023.
- Safin Fernando S secured III Position in Robo Race, conducted by Robotics Club, SJCE, on 27 August 2023



STUDENT A C H I E V E M E N T S

- Ganesan S secured II Position in CAD WAR, conducted at Easwari Engineering College, Chennai, on 15 October 2023.
- Prince Antony Claret S secured I Position (BUZZ) and II Position (MARKETECH) at Loyola-ICAM, on 08 October 2023.
- Suresh secured I Position (BUZZ) and II Position (MARKETECH) at Loyola-ICAM, on 08 October 2022.
- Sanjay Kalyan secured II Position in MARKETECH, conducted at Loyola-ICAM, on 08 October 2023.
- Lionel Morais and Madhan B secured II Position in Crime Scene Investigation, conducted at Loyola-ICAM, on 08 October 2023.
- Damodharan A, Aswin R J, Chandrus secured II Position in Web Decorz / Mr. Designer, conducted at R.M.K. College of Engineering, on 17 October 2023.
- S Chandru secured II Position in DesiVity, conducted at Shiv Nadar University, on 04 November 2023.



STUDENT P U B L I C A T I O N S

- Hem Anand E A (Semester 8) published in Materials and Manufacturing Processes, published by Taylor & Francis, Volume 39, Issue 15, indexed in Scopus & SCIE, with an Impact Factor of 4.1, 2 citations, under Q1 Quartile.
- Labib Mohammed Irshaad (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue 0, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.
- Jayanthan S N (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue 0, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.
- Niranjan Kulasekara Pandian (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue 0, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.



STUDENT P U B L I C A T I O N S

- Navin Sales Michael J (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue 0, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.
- Navin Sales Michael J (Semester 8) also published in Journal of Polymer and Composites, published by STM Journals, Volume 13, Issue 2, indexed in ESCI, with an Impact Factor of 6.005, under Q2 Quartile.
- Pranav S (Semester 8) published in Materials Today: Proceedings, published by Elsevier, Volume 2024, Issue 0, indexed in Scopus, with an Impact Factor of 2.46, 1 citation, under Q2 Quartile.
- Pranav S (Semester 8) also published in Journal of Polymer and Composites, published by STM Journals, Volume 13, Issue 2, indexed in ESCI, with an Impact Factor of 6.005, under Q2 Quartile.
- Mohanaranga S (Semester 6) published in Materials Today: Proceedings, published by Elsevier, Volume 62, Issue 2, indexed in Scopus, with an Impact Factor of 2.46, 16 citations, under Q2 Quartile.



STUDENT P U B L I C A T I O N S

- Rohith S V (Semester 8) published in Progress in Additive Manufacturing, published by Springer International Publishing, Volume 8, Issue 6, indexed in Scopus & ESCI, with an Impact Factor of 4.4, 10 citations, under Q1 Quartile.
- Rohit Hariharan R (Semester 8) published in Progress in Additive Manufacturing, published by Springer International Publishing, Volume 8, Issue 6, indexed in Scopus & ESCI, with an Impact Factor of 4.4, 10 citations, under Q1 Quartile.
- Rajaram M (Semester 8) published in Journal of the Brazilian Society of Mechanical Sciences and Engineering, published by Springer Berlin Heidelberg, Volume 45, Issue 4, indexed in Scopus & SCIE, with an Impact Factor of 1.8, 5 citations, under Q2 Quartile.
- Saravana Kumar E (Semester 8) published in Journal of the Brazilian Society of Mechanical Sciences and Engineering, published by Springer Berlin Heidelberg, Volume 45, Issue 4, indexed in Scopus & SCIE, with an Impact Factor of 1.8, 5 citations, under Q2 Quartile.



STAFF P U B L I C A T I O N S

- Anup Goel, A. Jacob Moses, Dr. Renjin J. Bright, and N. Sathishkumar authored a technical textbook titled Composite Materials, published by Technical Publications, Pune, during the year 2022.
- A research article by K.G. Ashok, B. Gopinath, M. Raju, and G. Kasirajan was published in the International Journal of Vehicle Structures & Systems, Volume 14, Issue 3, in 2022.
- Additional scholarly contributions addressing composite materials and manufacturing technologies were published during 2022 in reputed journals where the month of publication was not specified.



STAFF P U B L I C A T I O N S

- An interdisciplinary medical imaging study by D. Jude Hemanth, V. Rajinikanth, Vaddi Seshagiri Rao, Samaresh Mishra, Naeem Hannon, R. Vijayarajan, and S. Arunmozhi improved ischemic stroke lesion detection and was published in Evolutionary Intelligence, February 2022.
- N. Sathishkumar, T. Gavaskar, B. Dhanasakkaravarthi, T. Ramakrishnan, and G. Rathinasabapathi investigated heat treatment effects on aluminium alloy 6060 machinability in Materials Today: Proceedings, January 2022 (Scopus Indexed).
- Research on phase change materials and thermal performance by Kailash Ganesh, M. Nagaraja, N. Sathishkumar, R. Elakkiyadasan, and S. Murugapoopathi appeared in Materials Today: Proceedings, January 2022.



STAFF P U B L I C A T I O N S

- K. Arun, K.M. Kumar, K.M.B. Karthikeyan, and S. Mohanasutan published a structural integrity analysis of Pelton wheel turbine materials in *Materials Today: Proceedings*, June 2022.
- K. Arun, M. Venkata Ramanan, and S. Mohanasutan conducted comparative studies on biomass gasification and published their findings in *Biomass Conversion and Biorefinery*, April 2022 (Scopus Indexed).
- Additional publications during 2022 addressed composite materials, manufacturing optimisation, and energy systems through journals and book chapters.



B I S

Participating students from Civil Engineering—Mr. Akash A, Mr. Gokul K, Mr. Guru Prasath, Mr. Manikandan V, and Mr. Varhun Sriram V—gained insight into the standards shaping the quality and performance of uPVC profiles in the construction sector.





M A N A K M A N T H A

The event on May 25, 2023, at Hotel Turiya, Perungudi, Chennai, Tamil Nadu, was a technical discussion focused on the newly released Indian Standard IS 17953:2023 titled “uPVC Profiles for Windows and Doors - Specification.” The discussion involved detailed engagement on the specification requirements for unplasticized polyvinyl chloride (uPVC) profiles used in fabricating windows, doors, and their framing components





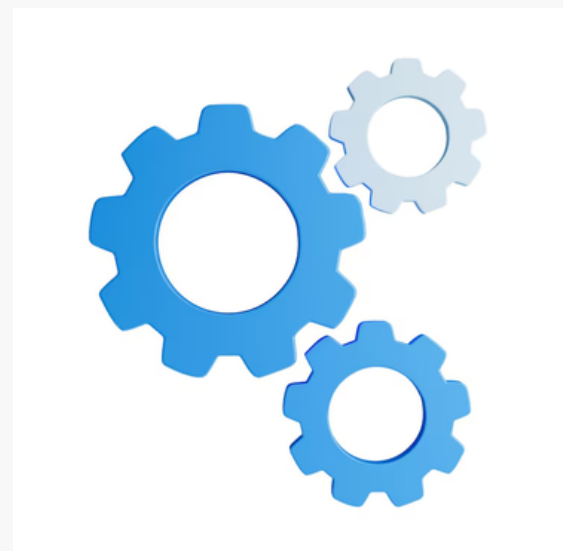
KEY DETAILS AND CONTENT FROM THE STANDARD AND THE DISCUSSION INCLUDE:

Scope and Purpose:

- IS 17953:2023 sets out the requirements and test methods for non-coated unplasticized PVC (uPVC) profiles with light-colored surfaces intended for windows and doors. The standard aims to ensure the durability, strength, and performance of uPVC profiles, crucial as they offer a lightweight, strong, and energy-efficient alternative to traditional materials like timber, mild steel, and aluminum.

Material and Manufacturing:

- The uPVC profiles are produced predominantly by extrusion using unplasticized polyvinyl chloride mixed with additives that improve surface finish, mechanical strength, and opacity. These additives help create profiles that are sound and durable for building applications.





KEY DETAILS AND CONTENT FROM THE STANDARD AND THE DISCUSSION

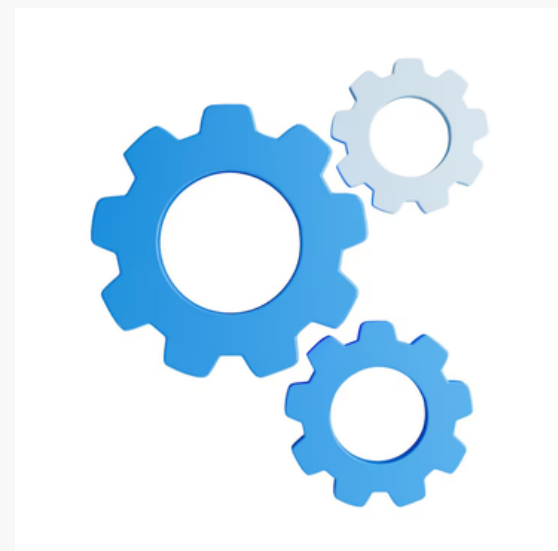
Specification Elements:

- The standard covers several important aspects including:
 - Raw material requirements for uPVC, including the use of virgin or reprocessed material.
 - Physical and dimensional specifications such as the wall thickness, depth, and width tolerances of the profiles.
 - Performance testing parameters such as weldability, impact resistance (resistance to impact from falling mass), heat reversion properties, surface flatness, straightness, and parallelism.
 - Sampling and conformity assessment protocols define how to test batches (“lots”) of profiles for compliance.

Quality and Certification:

- Each profile batch is tested to ensure compliance with the prescribed measurements and performance tests. Profiles that pass these criteria are marked with:
 - Manufacturer's name or trademark
 - Profile identification code as per nominal shapes and dimensions
 - Lot or batch number for traceability
 - Declaration of use of recycled materials, if applicable

INCLUDE:





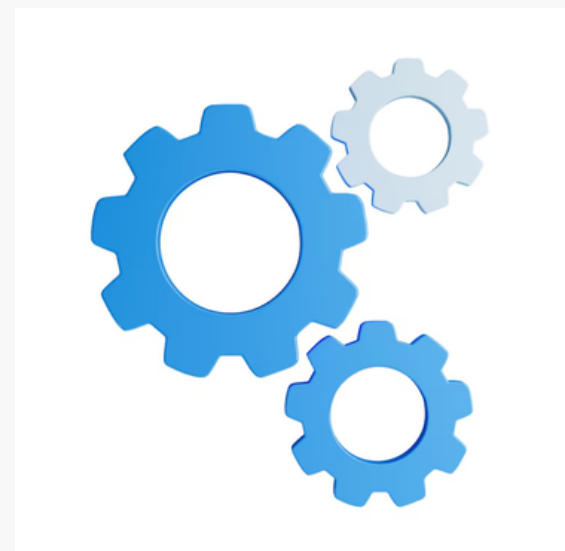
KEY DETAILS AND CONTENT FROM THE STANDARD AND THE DISCUSSION INCLUDE:

Significance of the Standard:

- Adoption of IS 17953:2023 helps unify quality benchmarks for uPVC profiles in India, supporting safety, reliability, and consumer confidence. The event was organized by the Bureau of Indian Standards (BIS), highlighting the importance of public education and professional awareness around newer material standards.

Event Context:

- The discussion drew over 100 stakeholders and experts, emphasizing the collaborative efforts in the construction industry to promote energy-efficient and sustainable building materials through standardized norms.





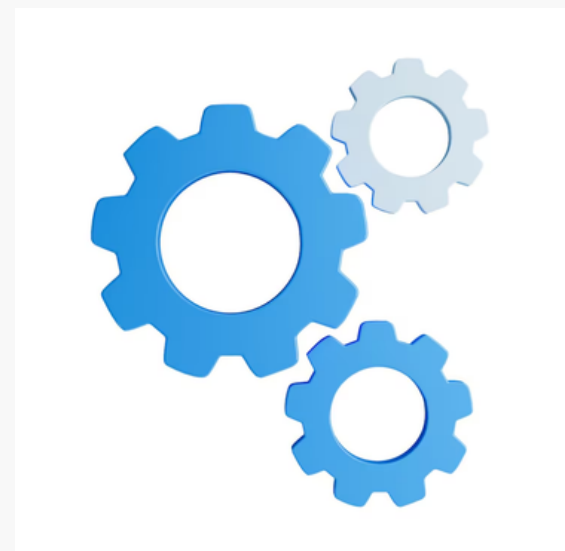
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This event provided the Civil Engineering students a valuable opportunity to learn about the regulatory and technical parameters essential for working with uPVC profiles, which are increasingly popular in modern construction due to their performance benefits and cost-effectiveness compared to traditional materials.

The standard IS 17953:2023 thereby plays a crucial role in governing the production and application quality of uPVC profiles for windows and doors at the national level. It encompasses material composition, manufacturing practices, dimensional and performance requirements, conformity sampling, and product marking to assure standardized quality in the marketplace. This knowledge equips students with current industry standards, preparing them for professional roles in construction and materials engineering.





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QUIZ

COMPETITION FOR



STANDARD STUDENTS

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The program scheduled for 28th November 2023 will be held from 2:00 PM to 2:45 PM. It will involve participation from second, third, and fourth-year Standards Club student members, as well as members of the BIS-Club from the Mechanical Engineering Department.

Under the supervision of Dr. Arivazhagan, Professor and Head of the Department of Mechanical Engineering at St. Joseph's College of Engineering, OMR, Chennai-119, an offline quiz competition for members of the standards club was held at the CAD Lab. The Standards Club at St. Joseph's College of Engineering's BIS Club Mentor, Mr. KMB. Karthikeyan, oversaw the event. Mr. T. Balasubramanian gave the students their instructions. Mr. Prem Kumar and Mr. Sakthivel, Assistant Professors, helped the team run the quiz competition efficiently.

Report



QUIZ

COMPETITION

Student Name	Marks Scored (Maximum Marks:20)	Prize with Cash Reward
TARUN PRASAD A	19	I Prize – Rs.1000
S ELUMALAI	18	II Prize – Rs.750
THAMIZHSELVAN S	18	III Prize -Rs.500
SRIRAM KARTHICK	18	Consolation Prize -Rs.250

WINNERS



QUIZ

COMPETITION

WINNERS

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DR. L. BALAMURUGAN
MR. K. MUNINATHAN

ANIRUDHA H -6TH SEMESTER
DINESH KUMAR J S – 6TH SEMESTER
ADITHYAA R -4TH SEMESTER
HARIHARAN B -4TH SEMESTER