

# **N MATERIAL<sup>TM</sup>** **ADVANTAGE**

The Student Program for Materials Science and Engineering



Material Advantage  
Student Chapter of Excellence Report 2022-23  
Material Advantage @IIT Kanpur Chapter



MATERIAL ADVANTAGE  
IIT KANPUR

*...The advantage is beyond materials*

by  
**Shiven Ponnappureddy**  
Chair (2022-23)  
Material Advantage @IIT-Kanpur



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## OFFICE BEARERS OF MA@IITK 2022- 2023



**Dr. Kantesh Balani**  
Faculty Advisor  
kbalani@iitk.ac.in



**Shiven Ponnupureddy**  
Chair  
shivenp20@iitk.ac.in



**Pooja Rani**  
Vice Chair  
rpooja20@iitk.ac.in



**Swati Mahato**  
Secretary  
swatim20@iitk.ac.in



**Pranjal Chauhan**  
Treasurer  
cpranja@iitk.ac.in



**Dwij Raj Hari**  
Publicity Coordinator  
dwij20@iitk.ac.in



**Pareena Wagle**  
Web Coordinator  
pareenagw21@iitk.ac.in



**Sruthi S**  
Event Coordinator  
sruthi21@iitk.ac.in



**Anandhakrishnan S**  
Spokesperson & Student  
Advisor  
anandhak21@iitk.ac.in



**Nandni Sinha**  
UG Coordinator  
snandni@iitk.ac.in



**Arpit Kushwaha**  
Outreach UG Coordinator



**Govind**  
Webmaster  
govindb@iitk.ac.in

The Material Advantage Chapter at the Indian Institute of Technology – Kanpur (MA@IITK) is an initiative of the students of the Department of Materials and Metallurgical Engineering (now Material Science and Engineering) Indian Institute of Technology - Kanpur.

The members of Material Advantage at IITK associate us to accomplish the following:

1. Promote Materials Science and Engineering through a joint chapter of ASM, TMS, AIST, and ACerS.
2. Provide opportunities for students to become active in Materials Science and Engineering.
3. Provide forums for the exchange of information.
4. Contribute to the learning experience by providing sufficient tools from our research centers and experienced professionals and encourage professionalism and ethical behavior.

➤ ***Material Advantage @ IITK Chapter ensures continuity of excellence from year to year***

Indian Institute of Technology (IIT) Kanpur became an official charter of Material Advantage in **September 2009**. Material Advantage @ IIT Kanpur has won the

- (i) "Most Creative Recruitment Strategy" award during the **2022 Fall Membership Challenge**, which includes a citation and a cash award of US \$500
- (ii) Prestigious "Chapter of Excellence" award for the year 2021-2022
- (iii) "Most Creative Recruitment Strategy" award during **2021 Fall Membership Challenge** which includes citation and cash award of US \$500
- (iv) Prestigious "Chapter of Excellence" award for the year 2020-2021
- (V) "Most Recruited Students" during **2019 Fall Membership Challenge** which includes citation and cash award of US \$1000

(vi) "Most Recruited Students" during **2020 Fall Membership Challenge** which includes citation and cash award of US \$1000

(vii) prestigious "Chapter of Excellence" award for the year 2019-2020 (viii) "Most Recruited Students" during the **2019 Fall Membership Challenge** which includes citation and cash award of US \$1000,

(ix) "Most Creative Recruitment Strategies Award" during the **2011 Fall Membership Challenge**, which includes citation and cash award of US \$250, and

(x) "**Most Recruited Students**" challenge for the **Fall 2009**, which includes citation in one of the AIST/ASM/ACerS/TMS journals and cash award of US \$500. Apart from this, the Chapter also participated in the first ever "**ACerS Next Top Demo Competition**" in **April 2017** and grabbed the second position along with a cash prize of US \$ 150.

### ✓ *The recruitment of students into the Material Advantage Student Membership Program*

The fall membership challenge has become one of the most awaited and celebrated times of Material Advantage @ IIT Kanpur Chapter. It is a month-long recruitment session where the students participate in various events conducted from time to time and the winners are provided certificates, souvenirs, and even discounted membership in Material Advantage. The drive is open to all students, including the existing material Advantage members. The executive team introduces new aspects to this challenge to make it more exciting and unique every coming year. In 2022, the Chapter managed to conduct more than 20 events together online and offline. During the e-membership helpdesk, volunteers contacted students one-on-one via phone calls and facetime over ZOOM to guide interested students towards membership. The 2022 fall membership challenge led to a ~ **93% growth in membership over a month**, making it the most successful recruitment drive of the Material Advantage @ IITK chapter even during the volatile situation. The Chapter also won prize in the category of "Most Creative Recruitment Strategy" (prize money \$100). Later, four new members joined MA during "Recruit a Member challenge-2023" organized by MA. Overall, the MA@IIT-Kanpur chapter has witnessed an unprecedented surge in MA student members, demonstrating exponential growth and marking a highly successful period for 2022-23.

## CALENDAR OF EVENTS

S. No	Event	Date
1.	Charge handover	June 01, 2022
2.	Hunting the elements	July 15, 2022
3.	X- tended class talk series	July 28, 2022
4.	Fun with materials science	August 08, 2022
5.	Alum talk: Life@IITK	August 26, 2022
6.	Interaction with Industry: Manufacturing Challenges in the Indian Defense Industry	September 01, 2022
7.	Unveiling Material Advantage Fall Membership Drive 2022-23	September 12, 2022
8.	Strategizing For membership Drive with volunteers	September 13, 2022
9.	Engineers Day	September 15, 2022
10.	Outreach Event at CSJM	September 16, 2022
11.	Happy Hours	September 25, 2022
12.	Symmetry in Nature	September 22-28, 2022
13.	Unraveling the misconceptions between morphological and crystallographic texture	September 27, 2022
14.	Industrial Visit to SWASYA	September 30, 2022
15.	Workshop on MATLAB	October 08, 2022
16.	Treasure Hunt	October 09, 2022
17.	LaTeX Workshop	October 10, 2022
18.	Placement Talk	October 13, 2022
19.	Lab Visit (BPCL and SEM)	October 14, 2022
20.	Evolution of CFD as a reliable and Efficient Tool	October 15, 2022
21.	Plantation Drive	October 16, 2022
22.	E-helpdesk for membership	14-16 October 2022
23.	Children day	November 14, 2022
24.	AIST's Pizza Party	December 21, 2022
25.	Rietveld Refinement - Unlocking the Secrets of Crystalline Materials	December 22, 2022
26.	Dinner night with the faculty advisor	January 30, 2023
27.	MA: Recruit a Member Challenge	Feb 05-28, 2023
28.	BIS Launch Workshop on Standardization & Conformity Assessment	March 02, 2023
29.	Survivors for MA @IITK	May 03, 2023
30.	Materials Camp	May 06-07, 2023
31.	Workshop on "Characterization of Coating Materials	May 09, 2023

### OUR STUDENT ACTIVITY IS BASED ON THE THREE OBJECTIVES:

1. To improve student members' academic abilities and to provide opportunities for our members to communicate with established professionals working in metallurgy, materials, and related disciplines.
2. To reach out to the community's aspiring engineers and to inspire students to become future researchers. As a result, our Chapter organized various activities such as lecture series, quizzes, virtual workshops, material camps and webinars, and online celebrations, with significant participation in each activity.
3. Our student chapter encourages personal & professional skills; given this, student talks have to be arranged on metallurgy and material science aspects even outside the campus.

The Chapter is led by an executive committee, which includes the faculty advisor, Prof. Kantesh Balani. The one-of-a-kind events organized by this year's executive team would not have been possible without the organizational structure in place. The team communicated effectively throughout the year to ensure that everything ran smoothly. The following table summarizes the basic organizational structure and the duties of the executive team:

Responsibilities of the Executive Members:

Officer's Name	Position	Duty
Shiven P	Chair	Conduction of all Chapter Events & meetings
Pooja Rani	Vice-Chair	Takes charge in absence of Chair & supports the Chair whenever & wherever needed.
Swati Mahato	Secretary	Maintains chapter records, minutes of all meetings, coordinating with speakers for various talks.
Pranjal Chauhan	Treasurer	Oversees all the financial Affairs of the Chapter. Keeping bills, ledger, balance sheet and even bringing sponsors.

<b>Pareena Wangle</b>	Website Coordinator	Time to time updating of the local website.
<b>Dwij Raj Hari</b>	Publicity Coordinator	Publicizing the society & its events on groups and social media handles, bring more members to the community.
<b>Anandhakrishnan</b>	Student Advisor & Spokesperson	Authoritative person to be contacted by students for any advice on membership, scholarships, workshops, or participation in events/conferences etc.
<b>Sruthi S</b>	Event Coordinator	Planning & conducting events
<b>Nandhini Sinha and Arpit Kushwaha</b>	Undergraduate Coordinator	Spokesperson, advisor and connecting link for undergraduate students.

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## MANAGEMENT PROCEDURES:

**GENERAL MEETINGS:** In the previous academic year 2022-2023, general meetings were held once a month and were attended by almost all members of the executive team and the subordinate team appointed by them to discuss chapter activities. More than 12 meetings have taken place both online and in person. During each meeting, duties are assigned and updated, and events are planned. General body meetings are also held twice a year to collect feedback from peer members.

GENERAL MEETINGS	3/6/22, 10/6/22, 24/6/22, 9/7/22, 30/7/23, 17/8/22, 4/9/22, 16/9/22, 20/10/2022, 2/11/2022, 25/12/2022, 15/01/2023, 14/2/2023, 19/5/2023
GENERAL BODY MEETINGS	14/11/ 2022, 13/11/2023

**ELECTIONS:** The Chapter chooses new officers through a democratic process. The Chair, and Vice-Chair positions are decided at a general body meeting chaired by the faculty advisor, and nominees from the existing executive team receive a majority vote. For the other positions, applications were invited from all existing Material Advantage members, and the selected candidates attended an interview for each profile. For better functioning and networking, the

Chapter retained two executive team positions, Event Coordinator and Undergraduate Student Coordinator. The chapter advisor is available for any Material Advantage-related work.

**FINANCES:** The Treasurer is in charge of all finances and keeps the ledger. To maintain transparency, the bills are cleared only after his approval, and he keeps a proper, duly signed record for all of them. The ledger is regularly updated, and all expenses are discussed with the executive board during meetings. Aside from that, the Chapter collaborates with local sponsors for a variety of events.

**RECRUITMENT ACTIVITIES:** The current term MA@IIT Kanpur has **organized thirty-one events** which blend virtual and offline events. This denotes our allegiance of us to adapt to the change. The events were carefully coordinated to make Material Advantage a multiskilled student chapter. The new students are welcomed with an introductory session on Material Advantage and the benefits of being a member. The faculty advisor and core team of IITK chapter chairs this session. Events are structured to imbibe its tag line among the students of materials fraternity. Our tagline at MA @ IITK is "The advantage is beyond materials". The one-month-long recruitment drive was one of the most successful events, increasing the membership by ~93%. In this tenure we organized more industrial visits. The Chapter also has a dedicated *WhatsApp*, *Facebook* group/page, *LinkedIn* and *YouTube* channel for better reach out and follow up. The student chapter is actively connected with all of its members, and seminars, workshops, and conferences are organised for fellow members' career and academic growth. In addition, fun games and meet-ups are organized on occasion to relieve academic stress. The various types of events held entice students to join the society.

**CHAPTER WEBSITE:** The website was updated periodically and was improvised to make it more user-friendly. The website is also connected with the social media handles (i.e., Facebook, LinkedIn, WhatsApp).

Link: <http://www.iitk.ac.in/mse/materials>

**RECORD KEEPING/DOCUMENTATION:** Agendas/meeting notes, event organisation, documents, photos, presentations, and so on are all documented on the Google Drive platform. The minutes of all meetings are written up and distributed to all executive members. A list of all members is also kept, and the date of their membership renewal is communicated to fellow members on a regular basis based on the database.

## TECHNICAL / PROGRAMING: WORKSHOPS

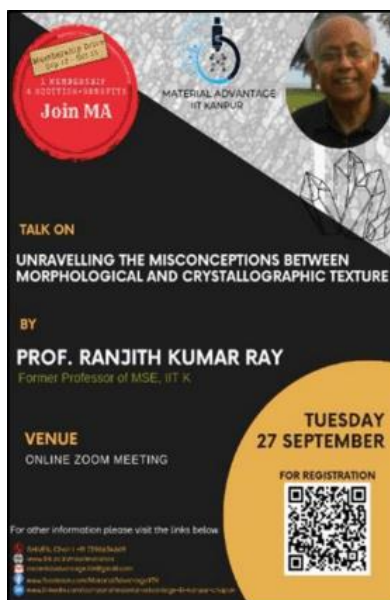
### 1. X-TENDED CLASS TALK: ATOM PROBE TOMOGRAPHY BY PROF. GOUTHAMA (JULY 28, 2022)

Before the beginning of classes, the "X-tended class" was the topic of the first talk that Material Advantage organised at IIT K. Emeritus Professor Gouthama serves in the Mechanical and Systems Engineering department at IIT K. The presentation started with the fundamentals and discussed its significance in materials science. The discussion was then had regarding the design, instrumentation, and fundamental analysis modes of the LEAP 5000XR. This talk was attended by more than fifty students from a variety of academic departments. Students actively participated in the event, which helped them gain a deeper understanding of the sophisticated characterization instrument.



### 2. TALK ON "UNRAVELLING THE MISCONCEPTIONS BETWEEN MORPHOLOGICAL AND CRYSTALLOGRAPHIC TEXTURE" (SEPTEMBER 27, 2022)

MA@IIT K has 10 a lecture with a former professor from the Department of Materials Science and Engineering at IIT Kanpur. Dr. R K Ray gave a talk titled "Unravelling the Misconceptions Between Morphological and Crystallographic Texture." The speaker is widely regarded as the best texture expert in India and worldwide. The speaker led the event, who explained the fundamentals of texture, its significance, and how to Characterize it. The event was attended by students and faculty from across campus. There were over 50 participants, all of whom participated actively.



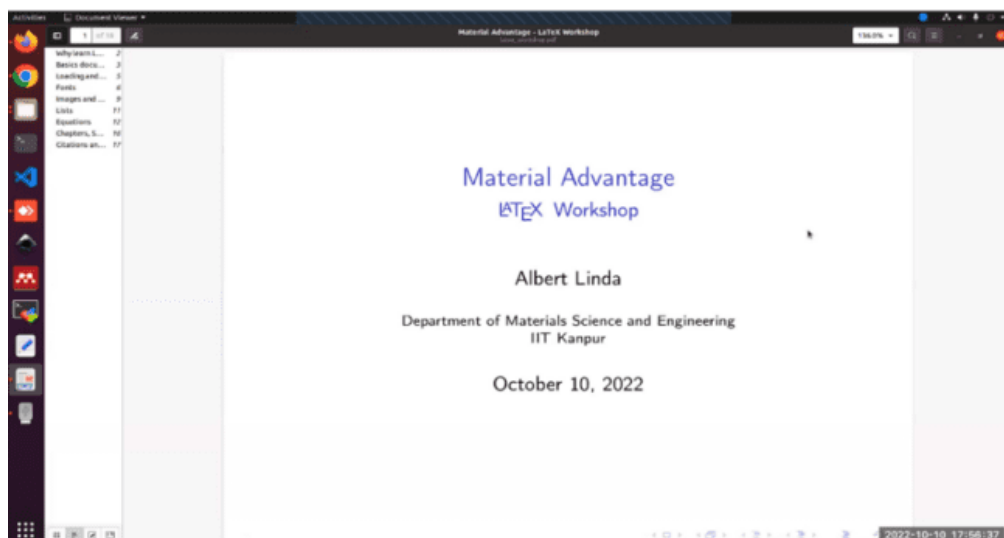
### 3. INDUSTRIAL VISIT TO SWASA INDUSTRY ON SEPTEMBER 30, 2022

MA@IITK organises a field trip to SWASA industry (Naramau, Kanpur). Students from the MSE department attended the event. The company is well-known for its N95 masks during Covid-19. Additionally, the company manufactures electrospinning equipment. Students were given tours of the mask and nano fibre manufacturing facilities. Students actively participated and enjoyed their education.



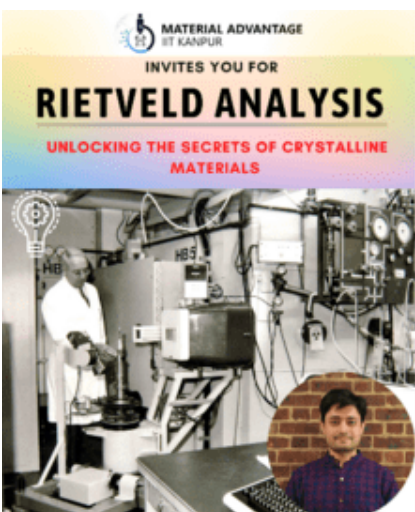
### 4. WORKSHOP ON LATEX (OCTOBER 10, 2022)

As part of its membership drive, MA@IIT K held a LaTeX workshop for IIT Kanpur students on October 10. Most document preparation software is LaTeX. The workshop covered document structure, packages, math equations, citations, and a bibliography. IIT Kanpur Ph.D. student Albert Linda spoke. The event allowed theoretical and real-time code execution overleaf. Over 100 students from various departments participated.



## 5. RIETVELD REFINEMENT - UNLOCKING THE SECRETS OF CRYSTALLINE MATERIALS (DECEMBER 22, 2022)

MA @ IITK organized an event on Rietveld Refinement - Unlocking the Secrets of Crystalline Materials. The event's speaker is Dr Gagan Kumar Goyal, currently a postdoc at Penn State University. Rietveld refinement is performed on the diffraction data of powder/ bulk of crystalline materials. The event covered the basics of the Rietveld, simulating the diffraction pattern and concluded with a FullProf software demonstration. Students interacted with the speaker on the collection and interpretation of XRD data of the materials. More than 20 students have actively participated in the event.




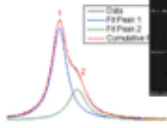
**What is Rietveld refinement?**

A structural refinement method, mostly used for powder diffraction data to fit the measured pattern (experimental) with a calculated pattern based on the known/assumed crystal structure.

**History**

Originally, the problem was to extract the individual peak intensities from the overlapping peaks.

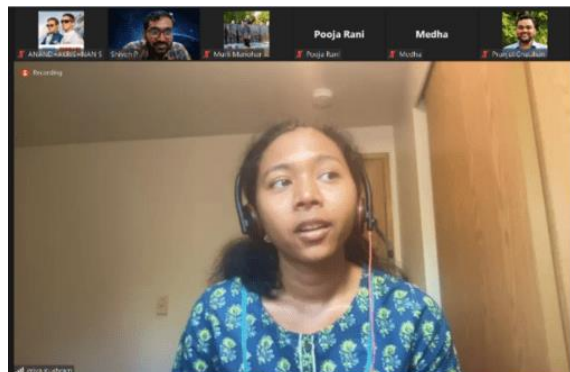
Dr. H. M. Rietveld in 1960s, published a paper offering a solution to this for neutron diffraction data and developed the mathematical code for the refinement method.



## CAREER DEVELOPMENT

### 1. ALUM TALK: LIFE @IITK WITH PRIYA KUSHRAM (AUGUST 26, 2022)

MA@IITK hosted an interactive event with alums from the Department of MSE IITK. Ms. Priya Kushram shared her journey from an IITK student to an ExxonMobil employee to a researcher. This gave students a new perspective on life and helped them understand how life decisions, ranging from work to becoming a Ph.D. Scholar, can change. This conversation helped students understand why trying new things in life is essential. This event drew more than 15 students and is the most watched video on our channel.



### 2. INTERACTION WITH INDUSTRY: MANUFACTURING CHALLENGES IN INDIAN DEFENSE INDUSTRY (SEPTEMBER 01, 2022)

Team MA@IIT K organized an event by inviting Mr. Ayush Verma, Head of the Department of Welding and Metallurgy for L&T Defense, Pune. The speaker discusses some of the challenges encountered while manufacturing defense equipment in recent years, as well as the need for research in material design, synthesis, and processing to improve the capabilities of Indian defense equipment. This motivational talk drew more than 20 students and concluded interactively.



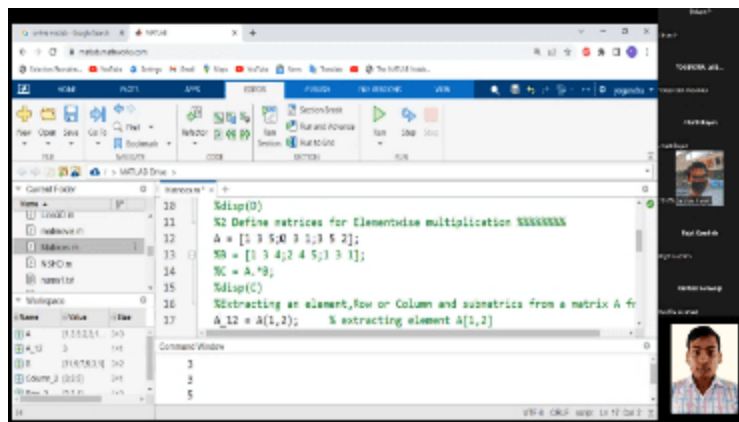
### 3. STRATEGIZING FOR MEMBERSHIP DRIVE WITH VOLUNTEERS (SEPTEMBER 13, 2022)

In addition to recruiting members, the MA@IITK chapter seeks out individuals interested in becoming volunteers. The volunteers are given information regarding MA as well as the activities that are going to be planned. They will acquire the knowledge necessary to learn how to organise events, how work is distributed among teams, and how to publicize. Planning, strategizing, and organising events are also strongly encouraged to take place. The great MA treasure hunt was a huge success thanks to the team's and volunteers' hard work.



#### 4. WORKSHOP ON SCIENTIFIC COMPUTING USING MATLAB (OCTOBER 08, 2022)

As part of the Fall membership drive, IIT Kanpur has organized a "Scientific computing using MATLAB" workshop on October 8. MATLAB was covered from the ground up, including arrays, loops, plotting, etc. Mr. Yogendra Jaiswara is a Ph.D. student in the Department of Physics at IIT Kanpur. Students now better understand MATLAB thanks to real-time code execution and doubt resolution. Students also expressed a desire to participate in related events. The current event drew over 100 participants from IIT Kanpur's various departments and programs.



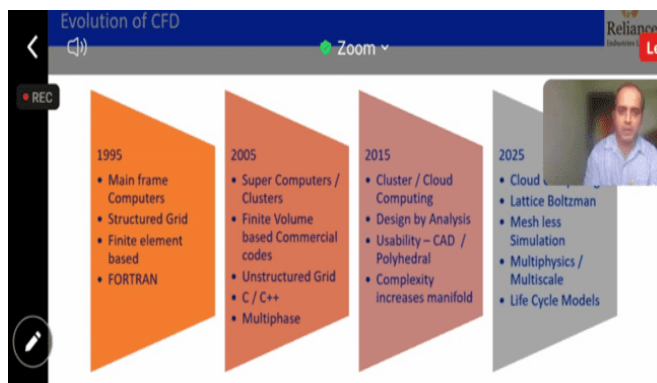
#### 5. PLACEMENT TALKS- INTERACTION WITH ALUM (OCTOBER 12, 2022)

As the placement season approaches, Material Advantage at IIT K hosted an interactive session with alums on October 12 during the fall membership drive. Mr. Shiven moderates the interactive session, which features speakers Ms. Shruti Srivastava (HSBC) and Mr. Jatin Jain (HFCL). During their master's degrees, both were members of the placement team. Speakers openly discussed their perspectives on placement-related issues ranging from exam patterns to core and analytics company strategies. Analytics and core companies have shared strategies. The event lasted more than an hour and had over 20 participants.



#### 6. TALK ON "EVOLUTION OF CFD AS A RELIABLE AND EFFICIENT TOOL" (OCTOBER 15, 2022)

On October 15, Material Advantage @IIT Kanpur hosted a session titled "Evolution of CFD as a Reliable and Efficient Tool." Mr. Nilesh was an experienced speaker. Gandhi is a Group Lead, Modelling & Reaction Engineering at Reliance Industries. The speaker discussed the evolution of CFD from 1995 to the present and its applications in industries ranging from aerospace to automobiles to biochemical. Later, the importance of mixing in chemical industries, heat transfer in boilers, and phase separation in cyclone separators were highlighted. The event lasted about 1.5 hours and ended with student questions.



## 7. BIS LAUNCH WORKSHOP ON STANDARDIZATION & CONFORMITY ASSESSMENT (MARCH 02, 2023)

Material Advantage, in collaboration with the Bureau of Indian Standards (BIS), the Advanced Centre for Materials Science, and the INAE Kanpur chapter, IITK Kanpur hosted a workshop on "Standardisation & Conformity Assessment." Mr. Jayanta Roy Chowdary (consultant BIS) spoke about BIS's contributions, the Standards National Action Plan, and opportunities for IIT Kanpur students, scholars, and faculty at the event. The four-hour event was highly interactive between students, faculty, and officials. More than 50 students participated in the event.



## 8. WORKSHOP ON "CHARACTERIZATION OF COATING MATERIALS" (MAY 09, 2023)

Industry must engage with students and participate in understanding one another's challenges. MA@IIT K collaborated with Anton Paar, Department of MSE (IITK), IIM (Kanpur Chapter), and INYAS to host a workshop. The workshop included a brief presentation and hands-on training in tribology, nanoindentation, Calotest coating thickness tests, and Scratch Test. More than 30 students interacted with the speakers during the event.



### 1. ENGINEERS DAY WAS CELEBRATION WITH PRAYAS (SEPTEMBER 15, 2022)

MA@IITK chapter celebrated Engineers Day with PRAYAS IIT Kanpur students this year. This event aimed to put a smile on the faces of future engineers, specifically Prayas students. Prayas is an IIT Kanpur student-led initiative that aims to educate marginalized children in and around IIT Kanpur. All willing students were asked to contribute. 85 students received gifts (copies, pens, and chocolates). It was a happy moment when it became clear that the MA@IIT Kanpur chapter was the source of these happy faces.



### 2. OUTREACH EVENT: INTERACTION EVENT @ CSJM UNIVERSITY, KANPUR (SEPTEMBER 16, 2022)

Material Advantage IIT Kanpur organized an outreach event at Chatrapati Sahu Ji Maharaj University Kanpur. The speaker is Ph.D. research scholars from IIT Kanpur. The discussion topics were "Fundamentals of scanning electron microscopy" by Murli Manohar, "Understanding crystals using XRD" by Mr. Md Aman and "Life of Research Scholar" by Mr. Sawan Dubey. The session began with a presentation, which was followed by student Q&A. This was an interactive event with over 30 attendees that lasted 1 hour.



### 3. PHOTOGRAPHY CONTEST: SYMMETRY IN NATURE FROM (SEPTEMBER 22-28, 2022)

MA@ IITK organised a refreshing event for students during the mid-examination as part of the fall membership drive. Many students took part and shared photos taken at college. Participants in the event shared photographs of trees, flowers, and leaves, emphasizing their inherent symmetry. The photos were shared on the MA@IITK Chapter's official Facebook page. The Winner was chosen based on the most likes, comments, and shares on the Facebook page. The Winner Neeraj, received a membership discount.



#### 4. LAB TOUR FOR CSJM STUDENTS AT SEM AND BIOMATERIAL PROCESSING IN IIT KANPUR (OCTOBER 14, 2022)

Material Advantage IIT Kanpur chapter hosted an outreach event for CSJM Kanpur students. The event was in collaboration with IIT Kanpur's Materials Science and Engineering department. The students visited the Department of MSE's Scanning Electron Microscopy (SEM) and Biomaterial Processing and Characterization (BPCL) facilities at IIT Kanpur. The visit broadened the students' understanding of the SEM facility, which they had studied in class a few weeks before. The students were shown several other facilities in the Laboratory for Biomaterials. Many desired to further their education after finishing their bachelor's degrees. It was fascinating for students to connect their classes with demonstrations during the event. Many of them expressed an interest in participating in additional lab visits shortly.



#### 5. CLOSING CEREMONY OF MEMBERSHIP DRIVE: PLANTATION EVENT (OCTOBER 16, 2022)

With the plantation event, the MA@IIT Kanpur membership drive ended. As we all know, plants are vital to our lives. We can help ourselves and the world have a better future by planting samplings. MA members showed their enthusiasm by planting different fruit and flowering.



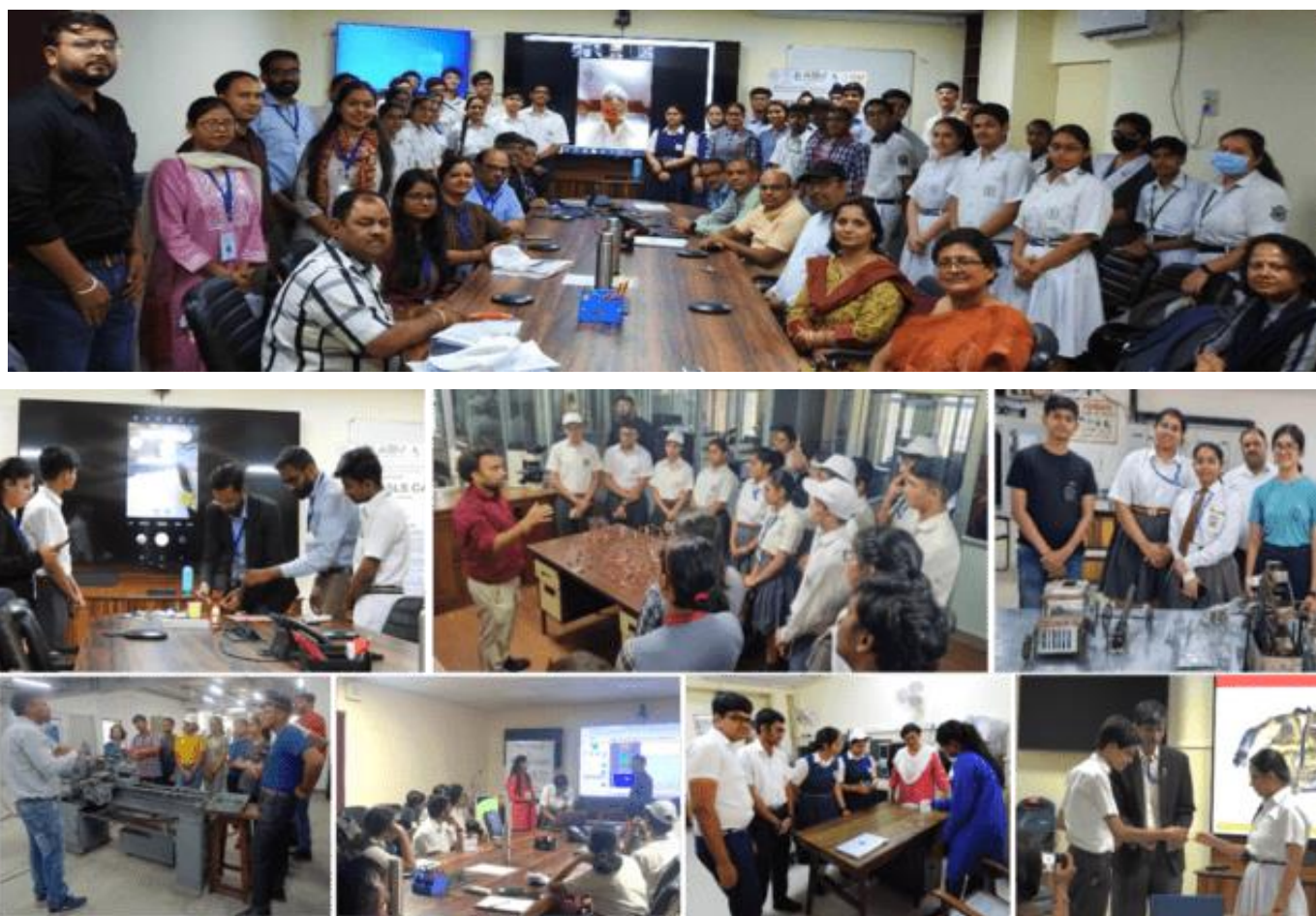
#### 6. CHILDREN'S DAY CELEBRATION (NOVEMBER 14, 2022)

The Material Advantage @ IIT Kanpur chapter visited PRAYAS IIT Kanpur on November 14 (Children's Day). Children's Day is observed on Pandit Jawaharlal Nehru's birth anniversary. The team interacted with the students at the school and had a great time with them. More than 37 students and 10 MA members took part in the event.



## 7. MATERIALS CAMP (MAY 06-08, 2023)

Material Advantage @ IIT Kanpur has organised "Materials Camp" at IIT Kanpur in collaboration with the American Society for Metals (ASM) International Kanpur Chapter, the Indian Institute of Metals (IIM) Kanpur Chapter, and the Indian National Academy of Engineering (INAE) Kanpur Chapter. The "Materials Camp" attracted 38 students and nine teachers from nine Kanpur schools (including DPS Azad Nagar, DPS Kalyanpur, Jai Narayan Vidya Mandir, Kendriya Vidyalaya IIT Kanpur, and others). Shri Pradeep Goyal, Senior Vice President of ASM International, graced the event with his online presence for the event's inauguration on May 6, 2023, and emphasized the importance of materials in today's world. The workshop was designed to include both talks and live demonstrations. Prof. Niraj Chawake spoke on "Classification of materials," and Prof. Kantesh Balani spoke on "Looking into materials." The event also included laboratory visits to SEM, Physical Metallurgy, Surface Tribology, and characterization and orientation with a virtual SEM on Virtual Lab. MA@IIT K is grateful to Mrs. Shruti Dubey, Mrs. Pooja Rani, Mr. Murli, Mr. Shiven, and the MSE IITK and Virtual Lab departments staff<sup>1</sup>.



## SOCIAL EVENTS

### 1. MOVIE NIGHT: HUNTING THE ELEMENTS (JULY 15, 2022)

MA@ IITK organized a movie night for MA members. The documentary highlights the construction of the periodic table and the hidden ingredients of everything in our world was demonstrated, from the carbon in our bodies to the metals in our smartphones. MA students and Emeritus Professor Gouthama enjoyed watching the game together. The event was designed to instill scientific thinking in young minds while providing a welcome break from their research work.



### 2. FUN WITH MATERIALS SCIENCE (AUGUST 06, 2022)

A fun and interactive event was planned to break the ice between MSE seniors and freshmen. Students participated in the event by playing trivia and memes about materials science. The freshmen were given an informal orientation about the department and about material advantages IIT Kanpur chapter past events organized. More than 20 members enjoyed this fruitful experience.



### 3. UNVEILING MATERIAL ADVANTAGE FALL MEMBERSHIP DRIVE 2022-23 (SEPTEMBER 12, 2022)

The orientation to MA@IITK was conducted to introduce the newer students of IITK to the benefits of MA. Shiven P. (MA@IITK Chair) gave the welcome address and explained about material advantage and ACerS, AIST, ASM International, and TMS. The members were imbibed that the advantage of Material Advantage goes beyond materials. Later, core team members Pareena, Nandi, and Anandh introduced the website and social media. Pranjal introduced the membership benefits and various scholarships. Sruthi launched the membership drive with the first event. Mrs. Shruti Dubey (ex-MA chair) concluded by sharing her MA journey and wishing everyone the best. Over 50 people from various departments and programs attended the event and asked questions about MA@IITK.

#### 4. HAPPY HOURS (SEPTEMBER 25, 2022)

Apart from lectures, virtual events, and workshops, the Material Advantage @IITK chapter has also organized one happy hour event. Motive of this event was to lower the gap between junior and seniors. MA @IITK chapter got the opportunity to arrange for a Get-together or we can say 'Chai Pe Charcha' (*discussion at tea*). Total 14 MA members joined for this happy hour. It was overwhelming to see that everyone took time from their busy schedule and enjoyed it.



#### 5. THE GREAT MA TREASURE HUNT (OCTOBER 09, 2022)

MA@IIT K organized a treasure hunt as part of Fall membership drive. The current event attracted student fraternity attention with over 70 registrations. 25 students played the final round. Participants were given hints to find a place in college in the second round. The final round is a fun event where students are challenged on material advantage and its societies. The fastest treasure hunt team won Rs. 1200 Domino's pizza coupons.



#### 6. AIST PIZZA PARTY (DECEMBER 21, 2022)

MA@IIT K received a "Pizza Grant" for the chapter meeting on December 21, 2022. Mr. Anandhakrishna addressed the student community with AIST Steel to student training programs, Young Professional and Student Mentorship Program, Student resume coaching, and other AIST resources the students about opportunities in the steel industry as well as AIST as a society (grants, scholarships, opportunities, and so on). Over 35 students attended the gathering, which allowed them to network and share their experiences.



## 7. FACULTY ADVISOR'S DINNER WITH MA@IITK (JANUARY 30, 2023)

MA faculty adviser gave an annual treat to post-graduate and under-graduate students, non-teaching staff, research associates of the laboratory for biomaterials, and MA members. This was a casual dinner with the faculty advisor, his family, and the Material Advantage family at IITK. The guests enjoyed an excellent dinner at Kanpur's NH 91. The Faculty Advisor, Material Advantage @ IITK thanked all current members for participating in the IITK chapter and encouraged future participation.



## 8. MA: RECRUIT A MEMBER CHALLENGE (FEBRUARY 05-28, 2023)

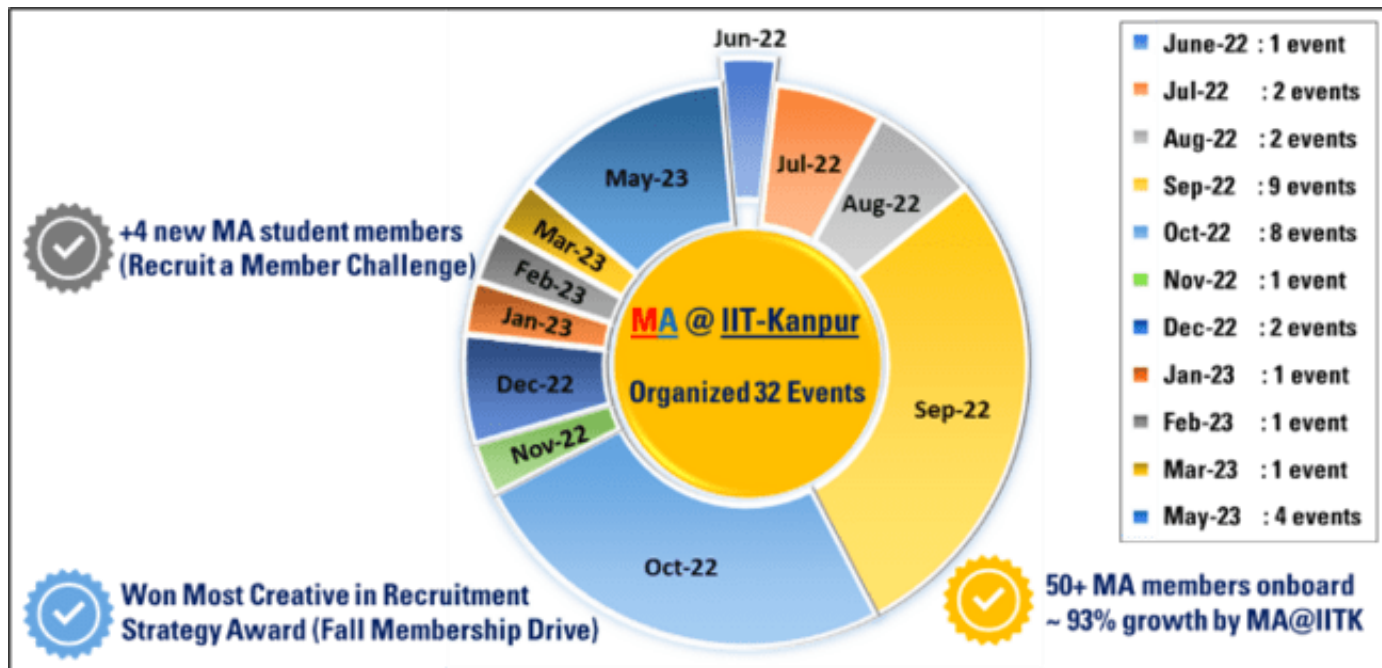
Four new members were recruited during “Recruit a Member challenge-2023”, recognizing the immense opportunities for growth and development that MA offers. Despite not winning any prizes, the MA-IITK chapter took the initiative to promote and encourage participation by offering exclusive membership discounts. This effort aimed to highlight the significant benefits of joining MA and foster a vibrant community of research oriented students dedicated to their personal and professional advancement.

## 9. SOUVENIR FOR MEMBERS OF MA @ IIT K (MAY 03, 2023)

Team MA@ IITK would like to extend their sincere gratitude to all the material advantage IIT Kanpur members for their consistent support and enthusiastic participation in all of the events that took place over the academic year 2022-2023. We handed out the souvenirs to the over 30 members as a token of our affection for them, and each member expressed their gratitude for receiving one.



## Annual Report Summary: 2022-2023

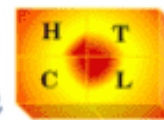


Appendix: Complete report of materials camp<sup>1</sup>:

<https://drive.google.com/file/d/1MPA9y7oDIWnZnQ4Q39ECt43b67Gs0SZN/view?usp=sharing>



**Prof. Kantesh Balani, FASM, FNAE, FNASc**  
Faculty Advisor, Material Advantage @ IIT Kanpur  
Dean of Resources and Alumni  
Faculty Building, Room 413,  
Department of Materials Science and Engineering  
Indian Institute of Technology Kanpur,  
Kanpur-208016, INDIA  
Ph: +91-512-259-6194, Email: [kbalani@iitk.ac.in](mailto:kbalani@iitk.ac.in)  
Web: <http://home.iitk.ac.in/~kbalani/>



May 24, 2023

### Support Letter to Material Advantage @ IIT Kanpur for Chapter of Excellence Nominations

I am pleased to endorse *Material Advantage @IIT Kanpur's* (MA@IITK) efforts for the academic year 2022-23 and its candidature for the *Chapter of Excellence 2022-23*. Since the Chapter's inception in the Fall of 2009, I have served as the faculty advisor for MA@IITK. It gives me immense pleasure to observe such a dynamic participation of executive committee members of MA@IITK for the FY 2022-23 led by Mr. Shiven P. (Chair). The energetic executive committee has demonstrated remarkable energy and systematic approach, which has resulted in the year's diverse activities. The activities planned encompassed everything from technical enrichments to professional development to social networking to outreach to K-12 and other initiatives.

MA@IITK has held technical talks on advanced characterization techniques (July 2022/ Sept 2022/ Dec 2022), invitation to industry experts (Sept 2022/ Oct 2022), outreach events (Sept 2022/Oct 2022), industrial visits (Sept 2022, May 2023), first-time conduct of *Materials Camp* (May 6-8, 2023), technical workshops (Oct 2022/Mar 2023/ May 2023), interactive sessions (Aug 2022/ Sep 2022/ Oct 2022), movie night (Jul 2022) and social events (Sept 2022/Oct 2022/Dec 2022/ Jan 2022/ May 2022). The MA@IITK chapter has organized myriad technical and fun activities throughout the year to advance the field of materials science and will continue to do so in the future.

MA@IITK has become an integral part of the Materials Science and Engineering Department at IIT Kanpur and its activities have created ripples across the country and the globe. With student participation in numerous departmental events, recognition with "*Chapter of Excellence Award 2021-2022*" & support of Ms. Shruti Dubey (ASM student board member) to advocate the benefits of Material Advantage chapters, the never-ending enthusiasm of MA@IITK has created enough vibe towards inception of other MA chapters in India.

As the chapter advisor, I am pleased to offer the Material Advantage @IIT Kanpur chapter the best possible recommendation and support in its pursuit of the Chapter of Excellence 2022-2023, especially in regard to the chapter's ongoing efforts to promote materials science awareness in community, popularizing science and engineering among K-12 students and promoting leadership.

With best regards

Kantesh Balani