

MATERIAL ADVANTAGE @ IIT KANPUR



Recruitment Drive Report



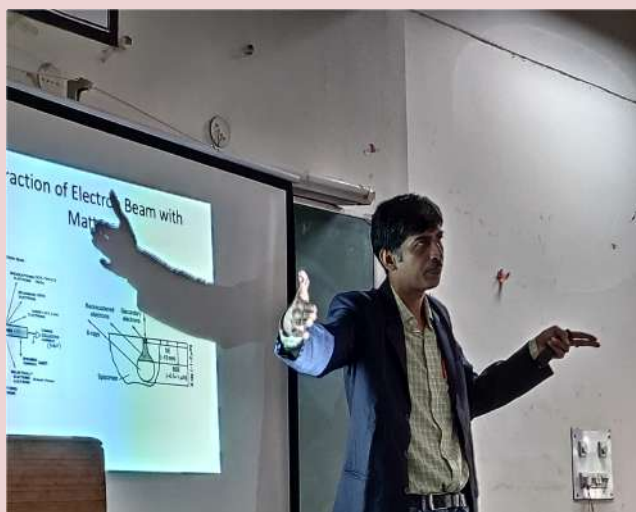
Sep. 09, 2019 – Oct. 14, 2019

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Recruitment Strategies

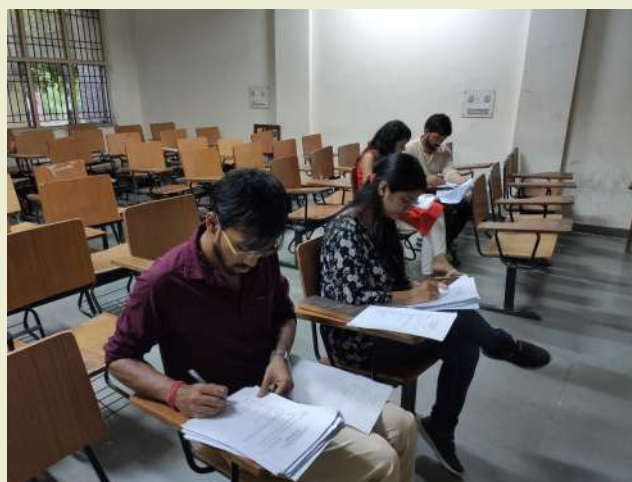
- We conducted a plethora of events that involved students across all batches including Bachelors, Masters and Ph.D. students. List of events conducted during the recruitment drive are as follows:
 - Lecture on Understanding SEM
 - Material Advantage quiz for B.Tech. Students
 - Series of 5 talks in “For your Information” session
 - Talk on “How to write a paper” by Prof. Kantesh Balani
 - Two-minute Thesis contest
 - Industry visit to Anod Plasma Spray Ltd.
 - Talk on Optics by Prof. Harshawardhan Wanare
 - SEM facility & Biomaterials lab visit for CSJM university students
 - Micrography Contest
 - Material Advantage Fun morning
 - LaTeX workshop
 - Membership Help Desk
- A major factor that drove students to join material advantage was that winners of various events were awarded with **discounted membership coupons** in addition to the goodies and prizes.
- MA @ IIT Kanpur organized **12 events** during the period of membership drive. This was an outcome of the meticulous efforts taken by the team over **10+ meetings** wherein the ideas were born as a result of the brainstorming discussions which then perpetuated towards planning and execution into successful events.
- The **membership** has **increased from** a previous figure of **10**, to **46 (36 new recruitments, 5 existing member renewals and 5 graduating batch members)**. This year Material Advantage @ IIT Kanpur chapter witnessed a whopping **360% increase** in membership.
- As a part of the membership drive, Material Advantage @ IIT Kanpur conducted a door to door campaign wherein the existing members visited various labs of the department and spread awareness regarding the significance and perks of becoming a material advantage member. They shared their own experiences about attending conferences, getting access to various webinars etc. which motivated fellow researchers to join the platform. Undergraduate students were also made aware about the various scholarships and exchange programs which are offered by member societies. This campaign helped us a lot to convince students for joining material advantage.
- Apart from this, MA@IITK is also supporting organisation of 'Women in Sciences and Engineering' conference on Oct. 19-20, 2019 at IIT Kanpur.
- Through all our events, the chapter has tried to imbibe its tag line among the students of materials fraternity. Our tag line at MA @ IITK is “The advantage is beyond materials”.

Lecture on “Understanding SEM”



As a part of Materials Advantage Membership Drive, Materials Advantage @ IIT Kanpur conducted an outreach programme at MSME Department, UIET, CSJM University Kanpur on **Sep. 19, 2019 (Forenoon Session)**. The event was organised in a way to instill basic understanding lectures for the students of UIET, by the faculty and research scholars of IIT Kanpur. Dr. Kantesh Balani delivered a talk on "**Understanding SEM**", where he enlightened the crowd with the basics of Scanning Electron Microscopy. He discussed electron beam interaction with sample, significance of depth of field versus depth of focus, aperture size, various imaging modes, etc.

MatAD quiz for undergraduate students



To get the undergraduate students excited for material advantage, MA @ IIT Kanpur conducted a quiz for the students of Chatrapati Shahuji Maharaj University Kanpur on **Sep. 19, 2019 (Forenoon Session)**. The quiz had multiple choice questions from general materials science and basic metallurgy. The event was named after MATerial Advantage. The students were given 30 questions which they had to answer in 15 minutes. Around 75 students participated in the quiz. After the quiz, all the questions were discussed and correct answers were revealed to the students in their classroom.

The quiz papers were evaluated by MA volunteers and results were declared on the same day. Top three positions were awarded based on the score in quiz. The winners were provided with discounted memberships for becoming members of the Material Advantage along with certificates of merit and lots of goodies and prizes.

Series of 5 talks in “For your Information” session



To inculcate basic understanding of prime topics in materials science, MA @ IIT Kanpur conducted a series of talks in the session titled “**For your Information**” on **Sep. 19, 2019 (Afternoon Session)**. This covered a vast spectrum of basic material science through topics such as Dislocation and Plasticity by Mr. Prince Setia, Into the World of Crystals by Mr. Rupesh Chafle, Significance of Fe-C Phase Diagram by Ms. Reshma Sonkusare. Mr. Shashikant Gupta and Mr. Mirtunjay Kumar also provided their valuable insights on Energy Harvesting based on Piezoelectricity & Triboelectricity and Correct and Incorrect Phase Diagram Features respectively. This event enlightened the undergraduate students with information at par along with a curiosity to learn more and be a part of MA@IITK’s extended family at UIET. It was indeed a fun and informative event!

Research Paper Writing Session



Material Advantage @ IIT Kanpur, along with the Academics and Career Council of the institute organised a session on research paper writing on **Sep. 25, 2019 (Evening Session)**. The session was conducted by Prof. Balani, Chapter Advisor, MA @ IIT Kanpur. Research paper writing is one thing that all of the Masters and Ph.D. students are involved with at some point of time in their academic career. The session focused on many key factors which most people tend to neglect or are unaware of. Things like preparing abstract, key conclusions, highlights, and figure files were very helpful. All these technical and formatting tips were beautifully weaved along interesting stories and take home messages which allowed everyone to follow the pace of instruction and remember the details in a proper way. Over 200 students, from across all the departments of the institute attended this session. It was a full-house. The Academics and Career Council plans to conduct more such events every semester.

Two-minute Thesis Contest



As Einstein said, “If you can't explain it simply, you don't understand it well enough”. To polish the oratory and convincing skills of our students, Material advantage @ IIT Kanpur organized a “**Two-minute thesis contest**” for the postgraduate students of Materials science and engineering department on **Sep. 27, 2019 (Evening Session)** as a part of membership drive. We accommodated 30 participants on first-cum-first basis. The agenda of the contest was to speak for a minute about one's thesis followed by a minute on an impromptu topic (totally crazy and unrelated to Materials Science). One of the judges was from the Department of Humanities; so a major task was to make him understand one's thesis in a minute. All the participants performed really well. Freshmen were graded separately in the Beginners' category. Top three contestants from both categories received membership discounts of 75%, 50% and 25%, respectively.

Visit to Anod Plasma Spray Ltd.



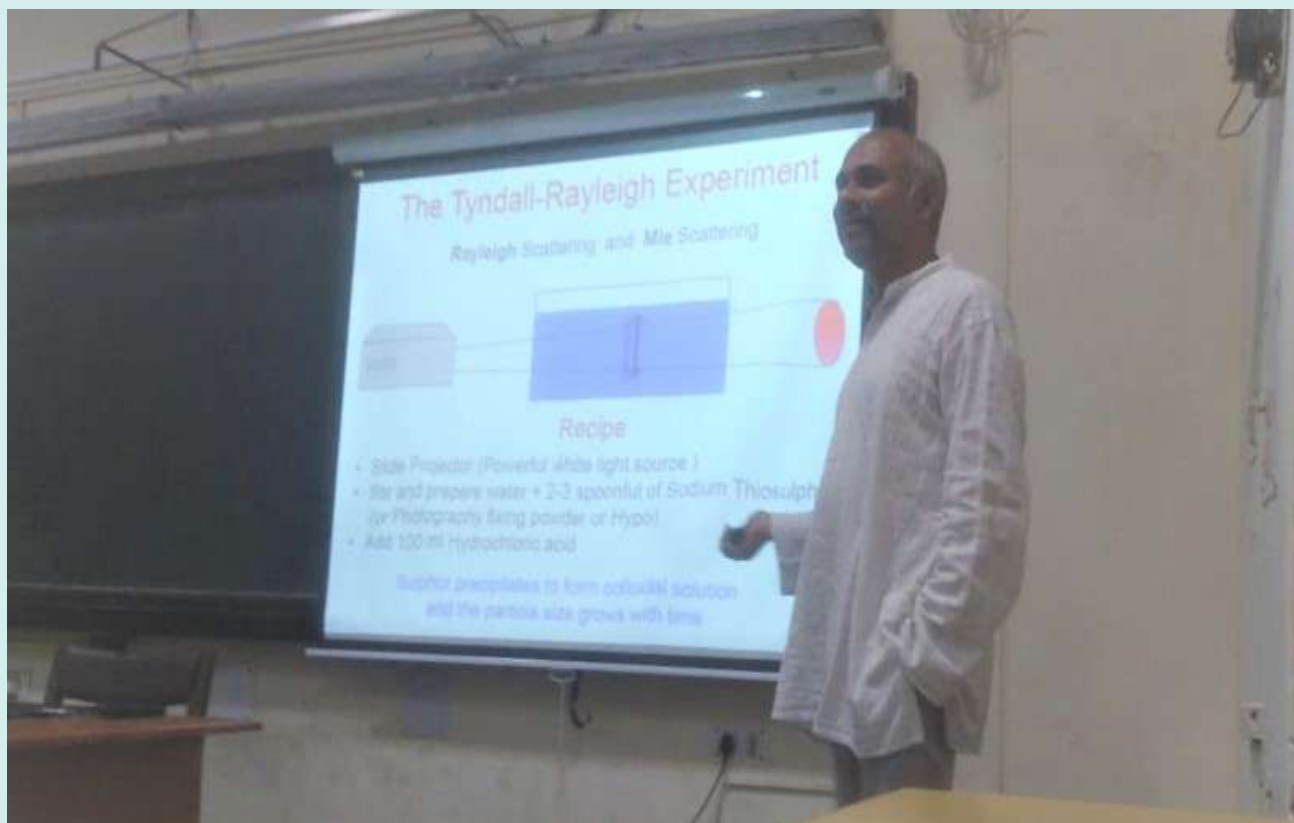
As a part of the Material Advantage membership drive, students from the Department of Materials Science & Engineering, IIT Kanpur visited Anod Plasma Spray Ltd. on **Sep. 28, 2019 (Morning Session)**.

They were introduced to practical aspects of metallurgy through various facilities such as, atmospheric plasma spray, vacuum plasma spray, HVOF etc, with emphasis on significance of binder and other subsequent thermal barrier coatings. They also got to witness the process of manufacturing rotogravure printing cylinders which have immense use these days. In a section of the plant, students also saw the making of plastic bottles by stretch blow molding. Various non-destructive techniques of detecting cracks were demonstrated with the help of actual samples from the industry.

The most intriguing part of the trip was the realization of the scale at which the work is carried out in an industry as compared to the labs in the institute. The refurbishing work on the parts of turbine engines was a magnum opus in itself. The heat treatment of these huge parts require furnaces of the same scale and students were flabbergasted to see the gigantic atmospheric and vacuum arc furnaces. The company management conducted this tour with utmost integrity and relevant safety measures were followed by everyone involved. The organisers arranged for refreshments and snacks during the trip.

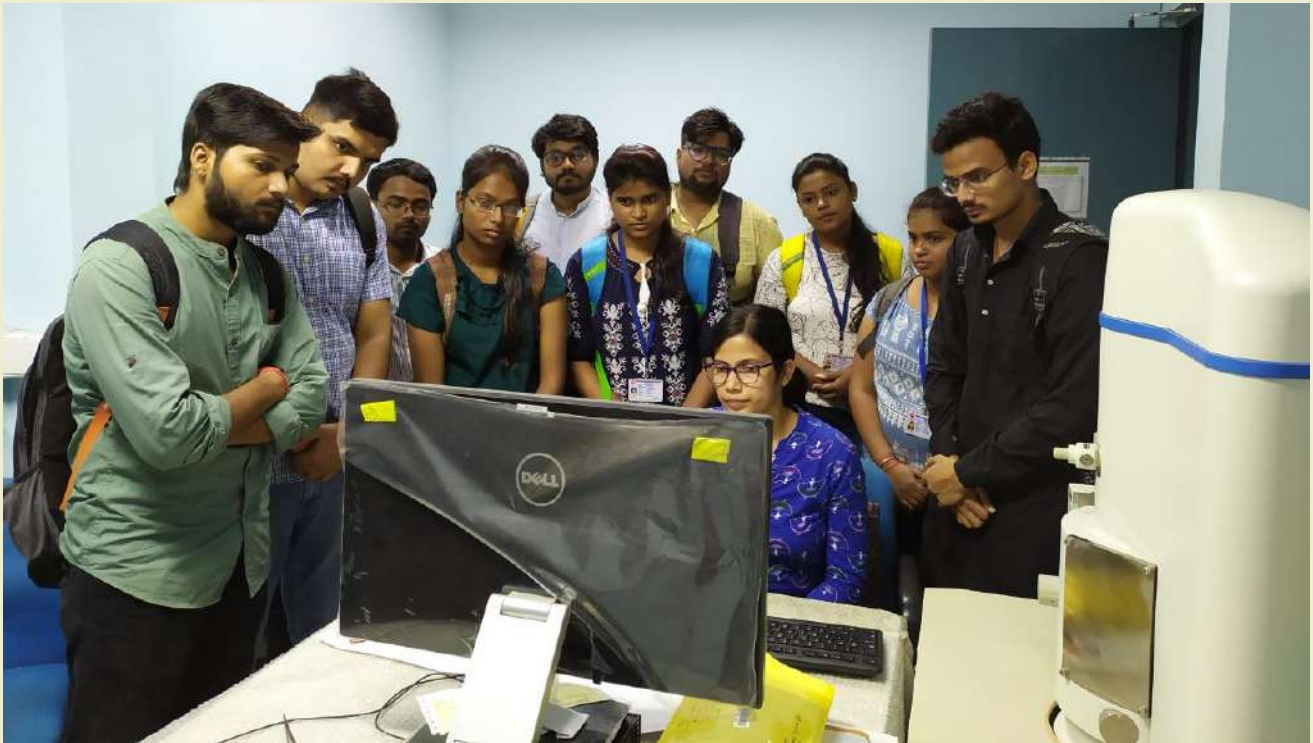
The trip was mentored by Prof. Kantesh Balani, faculty advisor of Material Advantage @ IIT Kanpur. The guided tour was hosted by Mr. Ritik Tondon, Managing Director, Anod Plasma Spray Ltd. This tour certainly added a new dimension to the theoretical knowledge which the students gain in classrooms. It was indeed, a well-spent rainy day!

“ UNDERSTANDING...” Lecture Series



Material Advantage @ IIT Kanpur conducted its first talk of the “ UNDERSTANDING...” lecture series on **Oct. 03, 2019 (Afternoon Session)** in IIT Kanpur. **Prof. Harshawardhan Wanare**, Department of Physics, IIT Kanpur, presented a lecture on "**Understanding Imaging**" describing various aspects of the electromagnetic radiation such as its spectrum, polarization, and coherence aspects, developing an understanding of conventional notions of imaging and the accompanying limitations. Some elegant and powerful ideas have addressed many of these limitations. These ideas are simple to understand, and yet their implementation has been a challenge, and overcoming these challenges has historically led to multiple Nobel prizes. The speaker explained each of the selected topics with various examples such as formation of rainbow, colour of sky and sea etc. More than 100 people from IITK community (faculty as well as students) joined in on this saga of pursuit 'towards perfection'.

Lab Visit for UIET students



As a part of the Material Advantage membership drive, students from UIET, CSJM University Kanpur were invited to visit the IIT Kanpur campus on **Oct. 04, 2019 (Forenoon Session)**, to attend a guided tour of the Laboratory for Biomaterials and the Scanning Electron Microscopy facility on campus. 10 students attended this visit, and got to see various equipments that are used in materials research. A demonstration of each of the instruments was given by trained persons at IIT Kanpur. The students were amazed to see the equipments, especially the SEM facility about which they had just studied in their class few weeks ago.

In the Laboratory for Biomaterials, several other facilities were demonstrated to the students. Compression Moulding facility, Fretting Wear Testing facility, Contact angle Goniometer, and Cell culture facility are some of them. These demonstrations helped to inculcate a sense of research among the students. Many of them expressed interest in going for higher studies after their Bachelors.

Students found it interesting to correlate their theory lessons with what was being demonstrated to them during this visit. Many of them expressed their interest to be an active part of more such lab visits in near future.



Compression Moulding Machine

Micrography Contest

Material Advantage @ IIT Kanpur organised a **Micrography contest** on **Oct. 04, 2019 (Afternoon Session)**, in which students from seven different departments of the institute including Material Science and Engineering, Material Science Programme, Mechanical Engineering, Chemical Engineering, Biological Sciences and Bio-engineering, Chemistry, and Physics, participated. A total of 69 entries were received. The micrographs were divided into three broad categories viz Optical Microscopy, Scanning Electron Microscopy and Transmission Electron Microscopy. Winners from each category were awarded with Material Advantage membership discount coupons and prizes. The prizes for winners were sponsored by the official Souvenir shop of IIT Kanpur.

The event was co-sponsored by Lucknow Scientific & Surgicals, and IIT Kanpur Souvenir shop. They had also put up stalls where they displayed various products that they deal with and offered exclusive discounts for IIT Kanpur students.

Inauguration



At Sponsor's Desk



Aarush Mittal (I)



Jaya Kumari (II)

Category A
Optical Micrograph

Category B
SEM



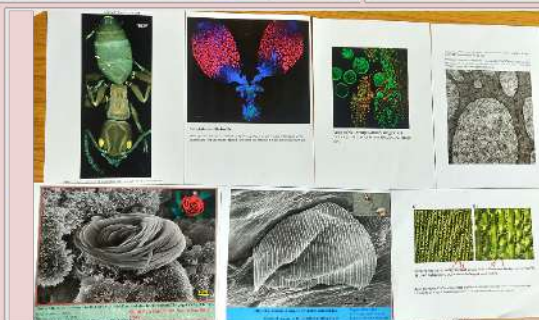
Gaganjot (I)



Sangha Mitra (II)



Khushboo Suman (I, TEM)



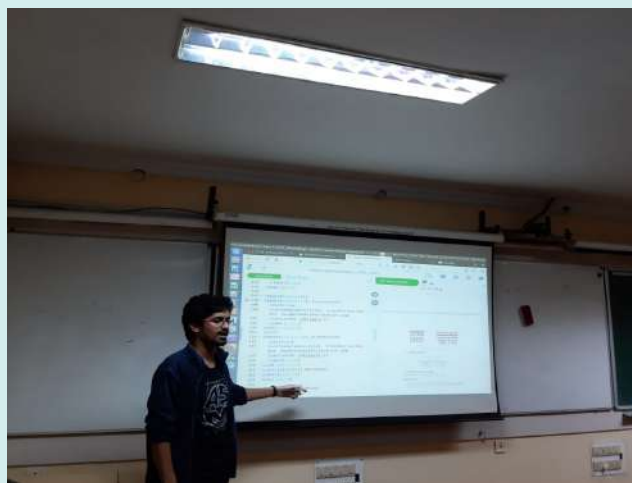
Winning
Micrographs

Fun Morning Event



A fun morning was organised on **Oct. 12, 2019 (Forenoon Session)** to relieve all the academic stress and to promote the importance of healthy lifestyle among the students. The participants were divided into teams of two and a dodge-the-ball match marked the onset of the fun event. This was followed by many interesting cup and balloon games such as the little hearts, one minute games such as hit-the-cup, blow-and-throw. After this the students had juice and snacks, post which they played dumb charades in teams. It was a much needed fun event and everyone suggested that we make this a weekly affair.

LaTeX workshop



LaTeX has a prominent role in the preparation and publication of books and articles that contain complex multilingual materials. To accommodate students with the structure and to break the phobia of writing in latex, Material Advantage @ IIT Kanpur initiated a workshop on LaTeX document writing on on **Oct. 12, 2019 (Afternoon Session)**. Both undergraduate as well as postgraduate students attended this workshop. The workshop was conducted in two sessions of two hours each. The outline of the content covered in these sessions is given below:

Session 1

- Basic Structure
- Writing Special Characters & Symbols
- Writing Equations and Formulae
- Including Figures and Tables
- Common Errors

Session 2

- Index, Bibliography
- Basic Formatting options
- Other Document Classes (Thesis, Resume, Research Paper, Book, Presentation etc.)
- Take Home Information & Resources

Best performing students were awarded discounted memberships so as to catalyze them towards becoming a material advantage member during our recruitment drive.

Membership Help Desk

To assist the students in the registration process, a help desk was set up on **Oct. 14, 2019 (Afternoon and Evening Sessions)**. Those who had won membership discounts as awards in various competitions held during the membership drive period came along with their coupons and existing MA members assisted them in getting their forms processed smoothly. Many students did not have credit cards to make the payment. In such cases, the existing members volunteered to make the payment using their own cards. We made a note of the membership ID for each newly recruited member.

Since it was the last day of the membership drive, we motivated everyone passing by to join our drive. More than 30 students became MA members for the first time and 5 existing members renewed their memberships. Apart from this, 5 existing members are from the graduating batch and so, they aren't required to renew their membership. This year's membership drive was a great success at Material Advantage @ IIT Kanpur.