

Material Advantage @ IIT Kanpur Chapter
Fall Membership Challenge Drive Report

Sept. 20 - Oct. 25, 2021



MATERIAL ADVANTAGE
IIT KANPUR

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Submitted on
October 25, 2021

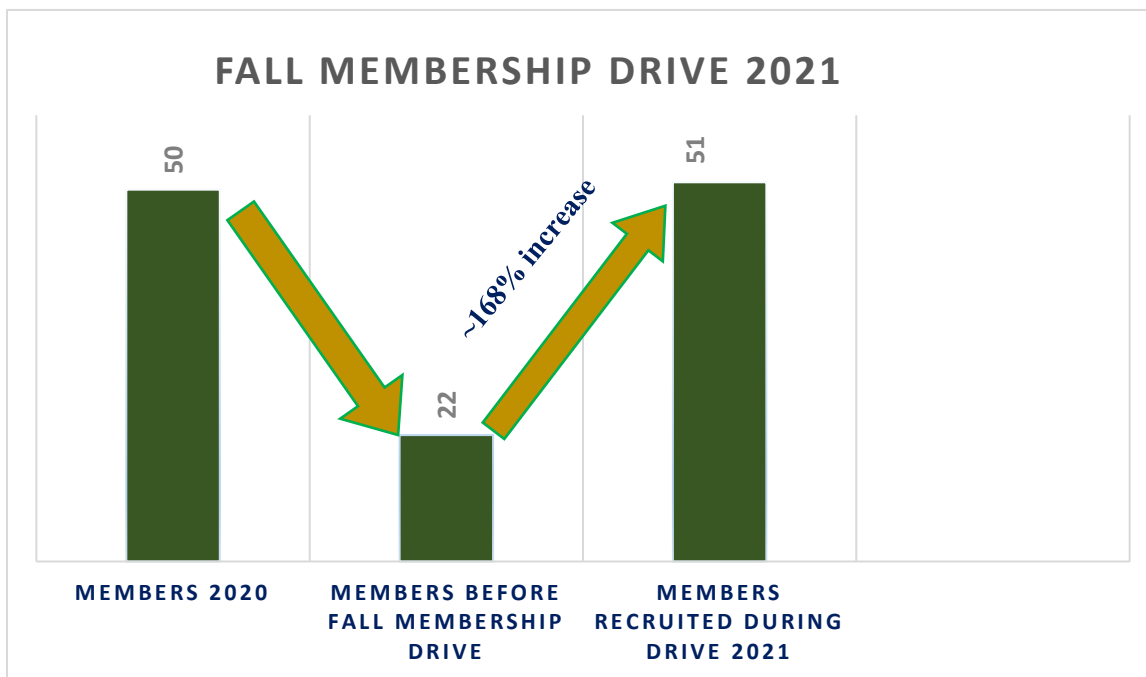
Recruitment Strategies

- Due to the prevailing pandemic situation all the students are studying and working from home making it more challenging to conduct the membership drive. The drive was planned to be completely virtual and e-modes of communication and publicity were opted. The conduction of drive was a huge challenge.
- We conducted a plethora of virtual events that involved students of IITK across all batches including Bachelors, Masters and Ph.D. students. List of events conducted during the fall membership challenge drive are as follows:

Sl. No	Event	Date
1	Unveiling Material Advantage Fall Membership Drive 2021-22	20 September, 2021
2	Interview Skills and Communication Skills for Career Success	21 September, 2021
3	Panel Discussion on Technological Advancement in Materials Science	25 September, 2021
4	Video Tutorial cum workshop on OOF2	27-28 September, 2021
5	Two-minute to Pitch-Lightning Talk National Competition	22-28 September, 2021
6	Gandhi Jayanti guest lecture on Urban Mining and Sustainability of Metals	2 October, 2021
7	Virtual tour of Mechanical Testing Laboratory ACMS IIT KANPUR	4 October, 2021
8	Tell your Untold stories of resilience-Writing Competition	4-8 October, 2021
9	Webinar on Transmission Electron Microscopy	9-10 October, 2021
10	Workshop on ThermoCalc	11 October, 2021
11	LaTeX Workshop	12 October, 2021
12	Interactive session cum talk on “Find a Leader in you”	15 October, 2021
13	MA Members Tea Session and Get-together	17 October, 2021
14	E-helpdesk for membership	17-20 October, 2021
15	Lucky Draw	24 October, 2021

Outcome of Fall Membership Challenge Drive 2021

- The major factor that engaged the students, throughout the drive, was that the participants attending maximum number of events were provided cashback on their membership fees. Also, the winners and runner ups were provided with discounted memberships. e-certificates and gifts were also provided to winners of various events and participants of workshops.
- MA @ IIT Kanpur organized *15 events* during the period (Sept. 20 – Oct. 25, 2021) 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. All the events were conducted via ZOOM video conferencing software.
- This year MA@IITK recruited *28 new members* whereas *22 members renewed* their membership. Statistically, *growth of ~168%* has been witnessed this year in recruiting new members.



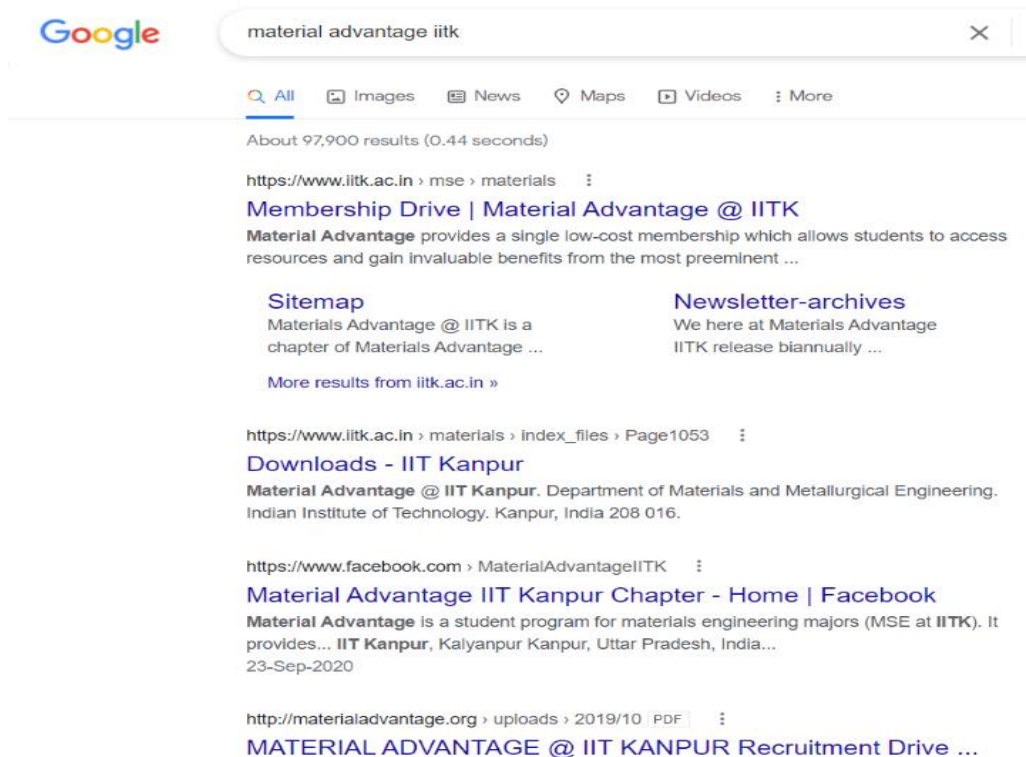
- The Chapter also revamped its website specially for the membership drive.
- This year MA@IITK conducted many events in outreach mode where students from various other IITs, NIT and government engineering colleges participated.

- The chapter popularized the drive with the help e-flyers posted all across our Facebook page and group, LinkedIn and WhatsApp of the core team members. We also created the hashtags **#materialadvantageiitk #fallmembershipchallengedrive2021 #MaterialAdvantage**.
- As a part of the membership drive, Material Advantage @ IIT Kanpur conducted a telephonic campaign wherein the core team members called around 500 students across IITK who attended the events conducted during the drive 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.
- We introduced our team and inaugurated the drive in the most creative way possible. We prepared a montage with all our team members holding placards saying WELCOME TO MA@IITK FALL MEMBERSHIP CHALLENGE DRIVE 2020. Not only this, but the last day of the drive was also much more creatively planned where we conducted spin a wheel for all the members who joined MA this year to provide a 100% and 50% cashback of membership fees to two lucky members. It was great fun and highly appreciated by everyone.
- 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”.

Creativeness and Uniqueness of the drive:

The past years have changed everything and there was a huge adoption in digital technologies. In the time where social gathering was not feasible, we at IITK have made use of our digital means to promote material advantage and encourage membership enrolments during the membership drive through our newly designed landing page.

We have created a landing page that focusses on encouraging website visitors into becoming a member of the organization. The page was made visually appealing, intuitive, easy to navigate and easily searchable on search engines. The page incorporates elements to make sure key things like catches the reader’s eyes and draws attention. The website was coded in Vanilla JS and CSS with code and images optimized for page loading speed.



Website being ranked higher in the search results due to Search Engine Optimization.

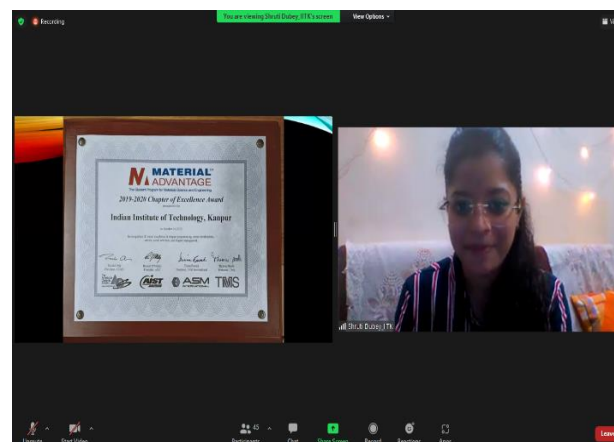
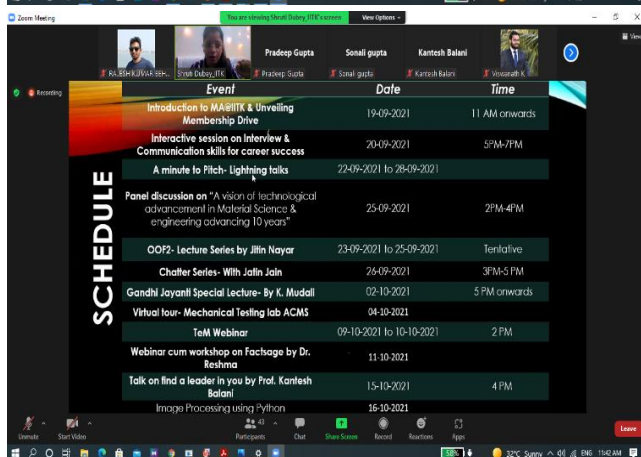
Since our aspiration for the landing page was to convert visitors into members, we have added sections on the page that focus on the following

- Membership Benefits to highlight the key advantage of being a material advantage member.
- Testimonials from past members of MA at IITK chapter as a social proof, these testimonials enable us to build a sense of trust and credibility with the visitor.
- Frequently asked questions to enable the prospective members to get answers to questions quickly. We have also added a form which the visitors could fill in incase they had any other questions.
- And finally, we have added a signup section where in the user can signup. In this section we have used a countdown timer, by adding a countdown timer we aim to create excitement about your site and membership offer. Countdown timer creates a feeling of urgency passively that is likely to promote people into becoming a member of the organization.

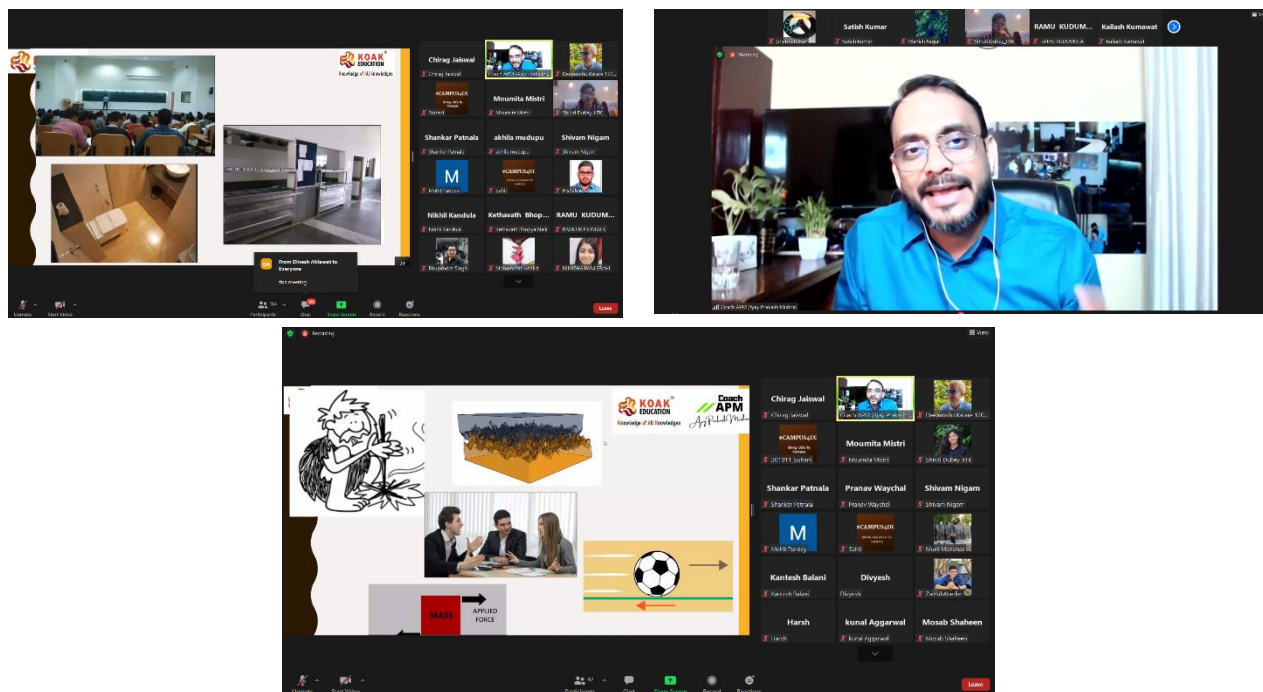
1. Unveiling Material Advantage Fall Membership Drive 2021-22 on Sept. 20, 2021, Speakers: Prof Kantesh Balani and Miss Shruti Dubey

On September 20, 2021, An Introductory talk was given by **Prof. Kantesh Balani**, Faculty Advisor, MA@IITK for Unveiling Material Advantage Fall Membership drive 2021-22. He briefed about every aspect of Material advantage and how it is associated with prominent societies: ACerS, AIST, ASM International, and TMS. He explained how advantage is beyond materials in Material Advantage He also talked about how tremendously Material Advantage@ IIT Kanpur chapter growing in the global scale. All the Core team members of MA@IITK introduced themselves, shared their experience of being associated with it, and their vision for Material advantage.

Later, **Ms. Shruti Dubey**, Chair, MA@IITK unveiled the drive with the list of events that have been planned for the Material Advantage Fall Membership Drive 2021-22. Over 50+ participants from various departments and programs joined the session and clarified their queries regarding MA@IITK from Faculty Advisor, MA@IITK.



2. Interview Skills and Communication Skills for Career Success on Sept. 21, 2021, Speaker: Mr. Ajay Prakash Mishra



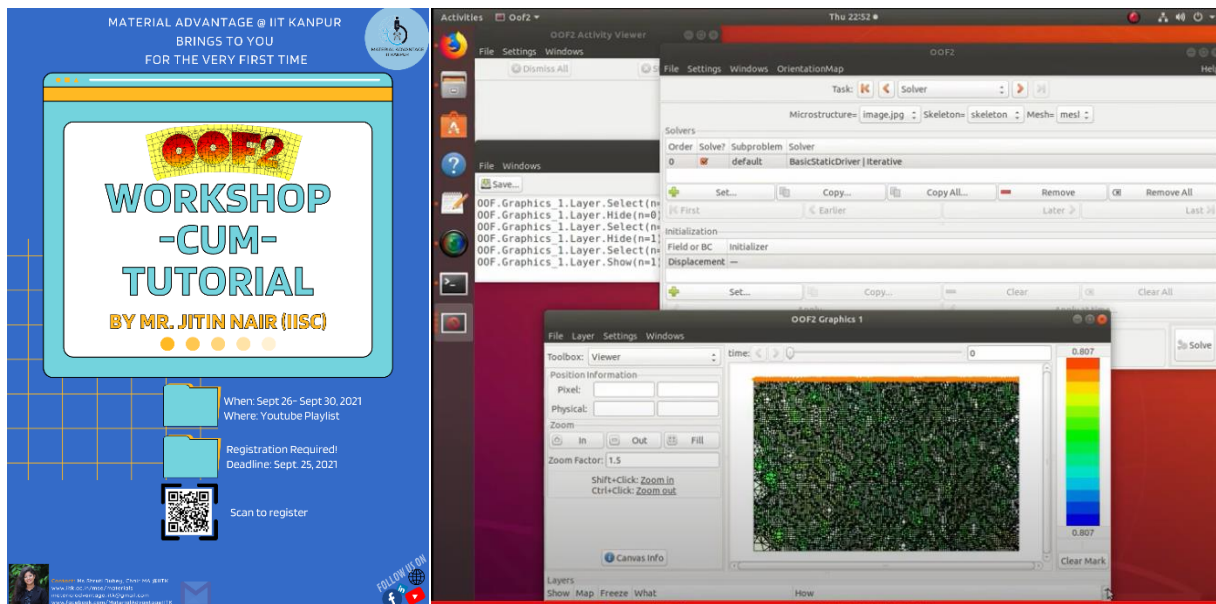
On September 21, Material advantage has organized a workshop on Interview and Communication skills. We had an energetic speaker *Ajay Prakash Mishra* works at KOAK education and is commonly known as ‘COACH APM.’ The session started with a presentation that followed the Q& A of the students. The speaker mentored students on acing the interviews and improve one communication skills. They were simplified that the most critical aspects of human life are confidence, communications skills, and clarity. As the event progressed, the interaction between the students and the speaker increased. He also shared the suggestions to tackle in an interview by presenting one in the best way and tips necessary to improve overall performance. The event drew a lot of student participation not only from the material science departments but also from other departments of IITK. The event lasted for 2 hours, with more than 100 attendees.

3. Panel Discussion on Technological Advancement in Materials Science on Sept. 25, 2021,
Speakers: Prof. Niraj Chawake, Prof. Nilesh Gurao and Prof. Shikhar Jha
Moderator: Prof Kantesh Balani



This event was conducted to discuss the future technological advancement in Material Science & Engineering. Students got the opportunity to ask their questions to professors who are working in different fields of materials science to get in depth of their field and make future decisions. Questions regarding job opportunities in this field in the future, scope of PhD and M.Tech, also new quality of materials which we are going to be witnessed in future were addressed. Panelists also discussed how technological advancement in Materials Science is going to bring changes in our daily life. The event was moderated by **Prof. Kantesh Balani**, Faculty Advisor MA@IITK with **Prof. Niraj Chawake**, **Prof. Nilesh Gurao** and **Prof. Shikhar Jha** as the panelists.

4. Video Tutorial cum workshop on OOF2 on Sept. 27 and 28, 2021, Speaker: Mr. Jitin Nair



MA@ IIT Kanpur has conducted an online session on the basics of OOF2, from software installation to sample examples. The speaker **Mr. Jitin Nair** has prepared the recorded videos for the event, and registered participants on YouTube accessed published material. The playlist comprised a series of videos describing the importance of the OOF2 tool in analyzing the microstructures for various properties such as thermal, mechanical, electrical, etc. The background for solving is using finite element modeling, where we share inputs of features in the micrograph with their bulk properties and solve. They attracted more than 60+ participants from various departments in IIT Kanpur.

5. Two-minute to Pitch-Lightning Talk National Competition from 22 to 28 Sept, 2021

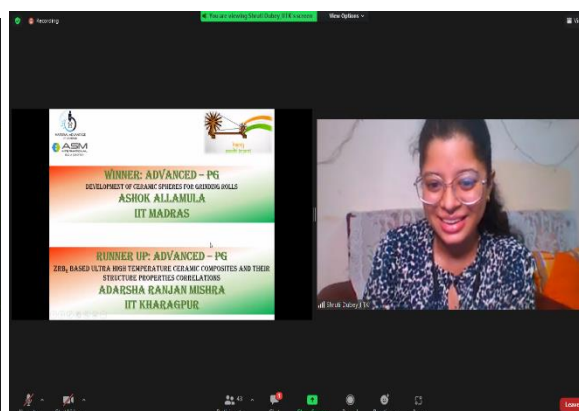
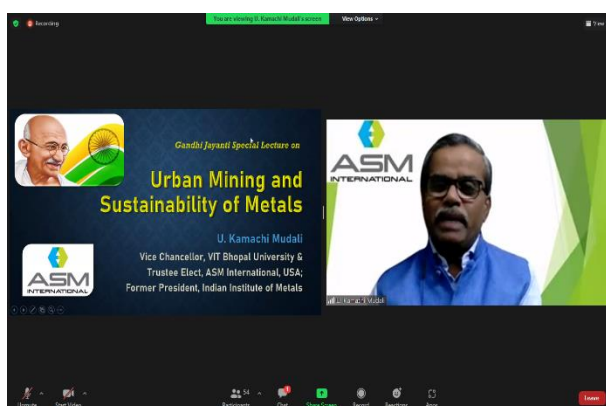


Material advantage @ IIT Kanpur organized a national event named “Two-minute to Pitch-Lightning Talk” in collaboration with ASM International India chapter from 22 to 28 Sept 2021. The topic for the presentation was based on “Material Charkha” which was symbolic to the upcoming Gandhi Jayanti. The entries were judged on its different categories of structure, processing, performance and properties. Freshmen and graduates were graded separately. This national event drew participants from various institutes around India where the participants shared their ideas by sending pre-recorded presentation videos that lasted for 2 min. The winners of the events were declared on Gandhi Jayanti on 2nd of October by **Dr. U. Kamachi Mudali**. In the PG category, winner was Mr. Ashok Allamula (Research Scholar, IIT Madras, India) and runner-up Mr. Adarsha Ranjan Mishra (M.Tech, IIT Kharagpur, India).

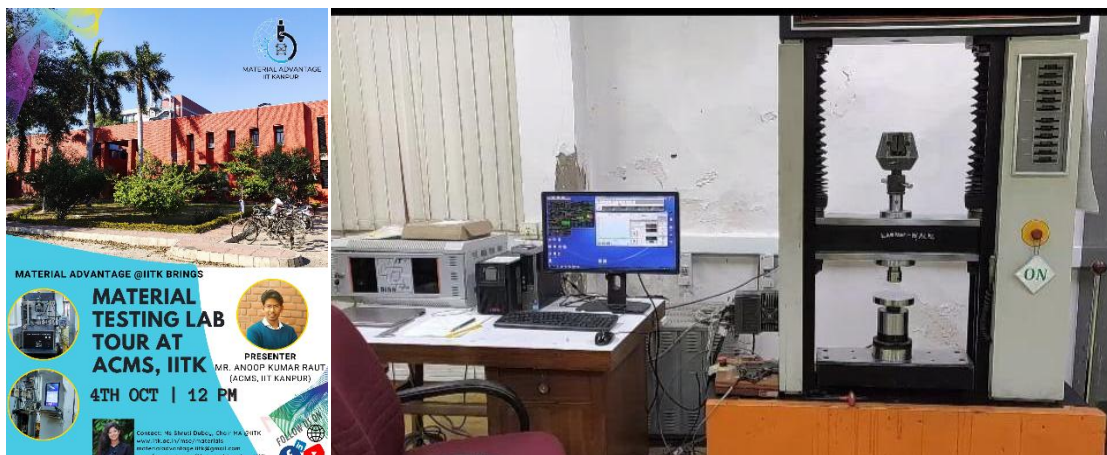
6. Gandhi Jayanti guest lecture on Urban Mining and Sustainability of Metals, Oct. 2, 2021, Speaker: Dr. U. Kamachi Mudali

On 2nd October 2021, **Dr. U. Kamachi Mudali**, Vice-Chancellor of VIT Bhopal University, ASM Board of Trustee and formerly Distinguished Scientist, Chief Executive, and Chairman of Heavy Water Board, Mumbai delivered a special Lecture on “Urban Mining and Sustainability of metals” on the occasion of Gandhi Jayanti. The event was hosted by Ms. Shruti Dubey, Chair, MA@IITK. The event started with a Patriotic song by Akhila Mudupu and Poetry by the students of the MSE Department, IIT Kanpur, and Prof. Kantesh Balani, Faculty Advisor, MA@IITK introduced the Speaker. He talked began about how materials related to human civilization and the global scenario of different metal productions and how India can grow further in these aspects. The lecture was very informative with facts and figures to enlighten the participants. He gave several ideas and showed examples of how we can follow the 3 R’s principle Reduce, Reuse and Recycle. He also highlighted the facts about the low production cost of various metals such as steel, copper, nickel, gold, silver, aluminum, and rare-earth elements by using the 3 R’s principle and He conclude the event with a very nice quote “We do not inherit the Earth from our ancestors; We borrow it from our Children”. In the end, the result was declared for the “Two Minutes to Pitch-Lightning Talk” which was organized by MA@IITK in association with ASM International, India Chapter from 22nd to 28th September.

Over 60+ participants from various departments and programs from different engineering colleges of India have joined the session along with some board members of the ASM, India chapter.



7. Virtual tour of Mechanical Testing Laboratory ACMS IIT KANPUR on Oct. 04, 2021, Speaker: Mr. Anoop Raut



On 4th October, Material Advantage IIT Kanpur chapter organized an outreach event in collaboration with Advanced center for Material sciences (ACMS) IIT Kanpur. The speaker **Mr. Anoop Raut** is currently Technical Superintendent in ACMS IIT Kanpur. Session was a virtual demonstration of various Mechanical tests that are performed in the Mechanical Testing laboratory. The virtual demonstration consisted of tension/compression, shear, fatigue, creep, Charpy impact on different materials and sizes. The session covered how/why material will fail and connected to different examples like in failure of ship in World War II caused by low notch toughness at low temperature is steel at welded joints. Explained with study of sample with software and control panel. In this over 100+ participants from various departments and programs from different engineering colleges and associated with of India.

8. Tell your Untold stories of resilience-Writing Competition from Oct. 04-08, 2021

As part of Fall Membership drive, Material Advantage at IIT Kanpur conducted an event named “Tell your untold stories of Resilience” from Oct. 04-08, 2021. Many students participated and shared their stories of resilience, motivation and inspiration and how they developed many creative ideas to face challenging times. All the stories posted on official Facebook group of MA@IITK Chapter. The winner announcement done based on maximum number of likes, comments and share on Facebook page. Membership discount and prize was given to the Winner.

As part of the Fall membership drive, Material advantage of IIT Kanpur has organized a two-day workshop on transmission electron microscopy (TEM). The first day, i.e., the 9th of October focuses on understanding the principle of TEM operation from basics with an overview of different modes of operation and especially on imaging of dislocations by ***Prof. Niraj Chawake***, MSE Dept. IITK. The speaker started from the basics of electron sample interaction, the definition of contrast, different sources of contrast, imaging of strain, etc. More than 60+ participants have attended the event and ended with the answers to the queries of the participants. The second session of two days event was on common sample preparation techniques used for transmission electron microscopy. The event's speaker was ***Dr. Bhagyaraj***, who works in Research and Development with Tata Steel and possesses 5+ years of experience with TEM. The



Material Advantage @ IIT Kanpur
brings
**TRANSMISSION
ELECTRON MICROSCOPY
WORKSHOP**

DAY 1

- Basics and construction of TEM
- Image acquisition BF, DF and SADP
- Analysis of SADP, a general methodology for different crystal systems
- Basics of STEM, ADF, ADF and HAADF
- Introduction of dislocation analysis and example

DAY 2

- Basics of sample preparation
- Preparation of metallic samples using electrochemical process
- Choosing of right electrolyte and condition for TEM sample preparation
- Preparation of non-metallic samples
- Cross-sectional sample preparation
- Site-specific sample preparation

DR. BHAGYARAJ TATA STEEL, R&D

PROF. V. CHAWAKE
MSE, IIT KANPUR

FOLLOW US ON

Facebook, Instagram, YouTube, LinkedIn, Twitter

Material Advantage @ IIT Kanpur

Invisibility criteria



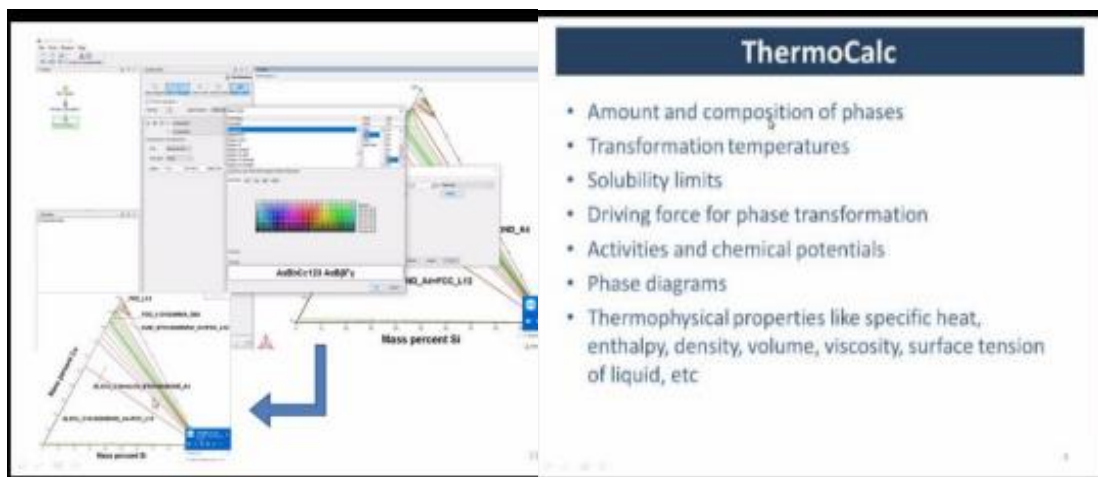
Table 3.3 Possible values of $g \cdot b$ for the dislocations under the three reflections in figure 3.8

Figure No.	g	$[(10)]$	$[(01)]$	$[(11)]$	$[(10)]$	$[(01)]$	Dislocation contrast D, E
3.8(a)	(020)	1	0	1	0	-1	visible
3.8(b)	(200)	1	1	0	-1	0	visible
3.8(c)	(111)	1	0	0	-1	-1	invisible

- Dislocation will be visible if $g \cdot b = 0$
- Weak contrast if $g \cdot b < 0$

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10. Workshop on ThermoCalc on Oct. 11, 2021, Speaker: Dr. Reshma Sonkusare



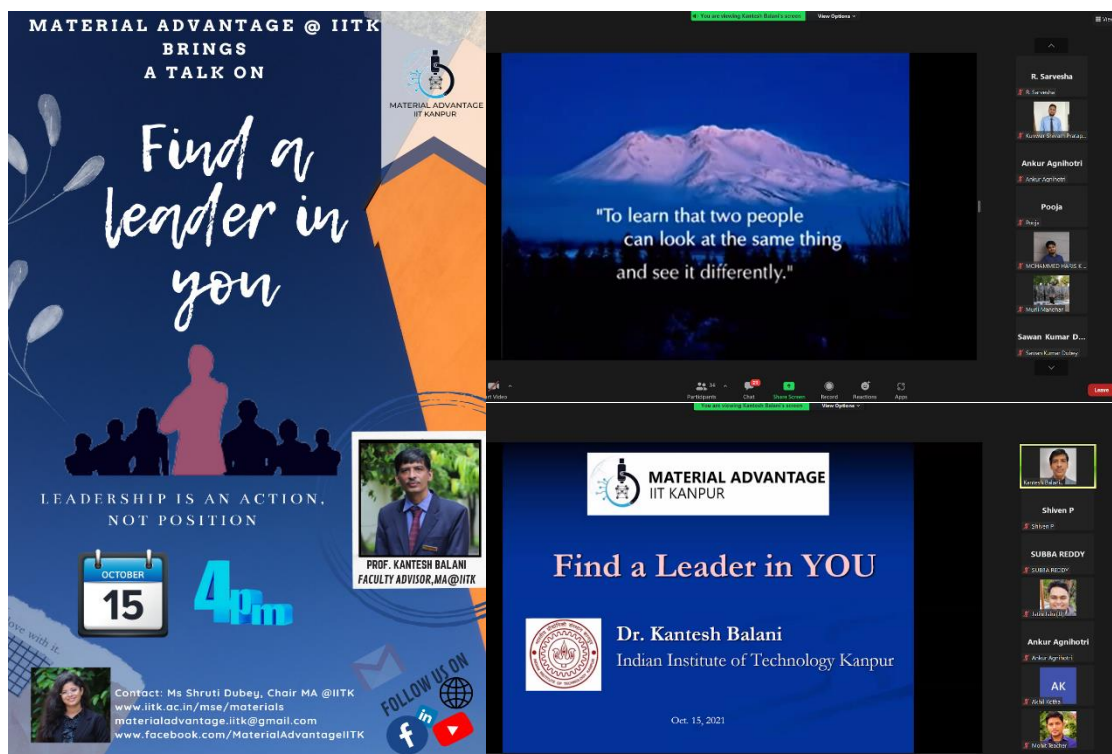
As a part of Material Advantage @IITK, membership drive, e-workshop on ThermoCalc software organized on 11 October 2021. This workshop was conducted by **Dr. Reshma Sonkusare** (Post-doc, Karlsruhe Institute of Technology, Germany). Speaker started with the basic introduction about the ThermoCalc software followed by practical basis. The event drew a lot of student participation not only from the material science department but also from other departments of IITK. The event lasted for 1 hour, in with 53 attendees.

11. Latex Workshop on Oct. 12, 2021, Speaker: Mr. Rupesh Chafle



During the membership drive of Material Advantage @IIT Kanpur. 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 Oct. 12, 2021, by **Mr. Rupesh Chafle** (Research Scholar, Material Science and Engineering Department, IIT Kanpur). LaTeX has a prominent role in the preparation and publication of books and articles that contain complex multilingual materials. Both undergraduate as well as postgraduate students attended this workshop. 20+ participants have attended the event and it lasted for 1 hour.

**12. Interactive session cum talk on “Find a Leader in you” on October 15, 2021, Speaker:
Dr. Kantesh Balani**



An inspirational and interactive session was organized by material advantage IIT Kanpur on the “Find a leader in you.” **Dr. Kantesh Balani** shared thoughts for the day, a professor in the Department of Materials Science and Engineering at IIT Kanpur. The talk highlighted the qualities one should possess or inculcate to become a leader. Leadership starts with living in a state of possibility and healthy regard to the impossibility. The speaker drew examples from prominent leaders such as Martin Luther King and Mahatma Gandhi, decoding the traits of a leader. Also, an interactive event was held with four volunteers to demonstrate that “To learn that two people are looking at the same thing and see things differently.” More than 40 + participants have attended this life hacks session, and this session ended with answers to queries.

13. MA Members Tea Session and Get-together on Oct 17, 2021

The whole world has seen unprecedented times since the advent of Covid19. The suffering involved imposed lockdowns with no social gatherings, leaving us strangled at the house amidst virtual mode. Material Advantage @IITK chapter has kept the spirit high even in these unprecedented times by organizing multiple virtual events including workshops, webinars, understanding lectures, and Quiz events. And happily, with ease in lockdown and students' campus return, the MA @IITK chapter got the opportunity to arrange for a Tea session and Get-together. All MA members (Total 13) available on the campus attended the session, interacted with each other, and were given a Souvenir coffee mug from the chapter Vice-chair, Mr. Zainul Abedin. It was overwhelming to see happy faces of MA members as shown in the photograph below having evening Tea all together.



14. E-helpdesk for membership



Don't Worry!
MA@IITK team will Help You!!
Just follow the instructions



To assist the students in the registration process, an e- help desk was set up on **October 17-20, 2020**. Our team created an online guide which helped the students to complete the process of becoming a member and joining this family. Google feedback forms were collected after each event and based on the response our team approached nearly 300 people over telephone and emails. MA members assisted the interested students 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. A google registration form was generated as the last step for completing the registration process for individual member to make a note of all the registered members and their MA IDs.

~28 new members became associated with MA@IITK and ~23 existing members renewed their membership. We managed to increase the membership by ~168% even though entire drive was run online over a span of one month.

15. Lucky Draw on 24th Oct. 2021



The most awaited and fun event of the entire membership drive was the LUCKY DRAW made to find one lucky MA member whose membership was sponsored by MA@IITK. The lucky draw was done live on October 24th, 2021 by spinning a wheel using an online application. Winner of the Lucky Draw was *Mr. Aditya Kamat*, PhD Research Scholar, IITK. The new members were also given a warm welcome by the executive team MA@IITK. Announcement of membership discounts based on participation and merit in various events was also announced. This was a very creative way to endorse the entire drive and lit the screen with happy faces.