



MATERIAL ADVANTAGE
STUDENT CHAPTER OF EXCELLENCE PROGRAM
APPLICATION

Material Advantage @ IIT Kanpur Chapter

2019-2020



Submitted By:

Shruti Dubey
Vice-Chair (2019-2020)
Material Advantage @ IITK

About Material Advantage @ IIT Kanpur

The Material Advantage Chapter at the Indian Institute of Technology – Kanpur 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 ourselves to accomplish the following:

1. Promote Materials Science and Engineering through a joint chapter of ASM, TMS, AIST and ACerS;
2. Provide opportunities for student to become active in the field of 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, ethical behavior.

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 Recruited Students” during 2019 which includes citation and cash award of US \$ 1000, (ii) “Most Creative Recruitment Strategies Award” during the 2011 Fall Membership Challenge, which includes citation and cash award of US\$ 250.00, and (iii) “Most Recruited Students” challenge for the Fall 2009, which includes citation in one of the AIST/ASM/ACerS/TMS journal and cash award of US\$ 500.

Officers 2019-2020



Dr. Kantesh Balani
Faculty Advisor



Mr. Rupesh Chafle
Chair



Ms. Shruti Dubey
Vice Chair



Ms. Reshma Sonkusare
Secretary



Mr. Miral Verma
Treasurer



Ms. Rubia Hassan
Publicity Coordinator



Ms. Chinmayee Nayak
Student Coordinator



Ms. Shipra Bajpai
Web Coordinators

Overall calendar of activities have been appended below which has taken place successfully during Aug 2019-May 2020.

Sr. No.	Date	Event
1.	4 August, 2019	Introduction to MA@IITK for new students
2.	15-16 September, 2019	Nanomechanics and Biotribology (NMB-2019) Workshop at IIT Kanpur
3.	19 September, 2019	Outreach event at UIET, CSJM University Kanpur
4.	25 September, 2019	Talk on “How to write a paper”
5.	27 September, 2019	Two-minute Thesis contest
6.	28 September, 2019	Industry visit to Anod Plasma Spray Ltd.
7.	03 October, 2019	Understanding Lecture Series Talk on Imaging
8.	04 October, 2019	SEM facility & Biomaterials lab visit for CSJM university students
9.	04 October, 2019	Micrography Contest
10.	12 October, 2019	Material Advantage Fun morning
11.	12 October, 2019	LaTeX workshop
12.	14 October, 2019	Membership Help Desk
13.	13 November, 2019	MA Team Success party
14.	29 september-03 October, 2019	Participation in MS&T 2019
15.	19-20 October, 2019	'Women in Sciences and Engineering' conference
16.	05 November, 2019	First Frontier Lecture Series Talk
17.	25-27 November, 2019	Mock interview session for Placements
18.	18 December, 2019	AIST's Pizza Party
19.	13 January, 2020	Science Coffee Meet Up
20.	18 January, 2020	Campus Cycling
21.	24 January, 2020	Annual Treat by Faculty Advisor
22.	23-27 February, 2020	Participation At TMS 2020

The plethora of events organized by the Chapter during the academic year 2019-2020 can be divided into broad categories of (i) programming, (ii) career-development, (iii) service, (iv) social activities, and (v) chapter management as follows:

1. Programming

1.1 LaTeX Workshop (12 October, 2019):

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 Oct. 12, 2019 (Afternoon Session). Both undergraduate as well as postgraduate students attended this workshop. Best performing students were awarded discounted memberships so as to catalyze them towards becoming a material advantage member during our recruitment drive.

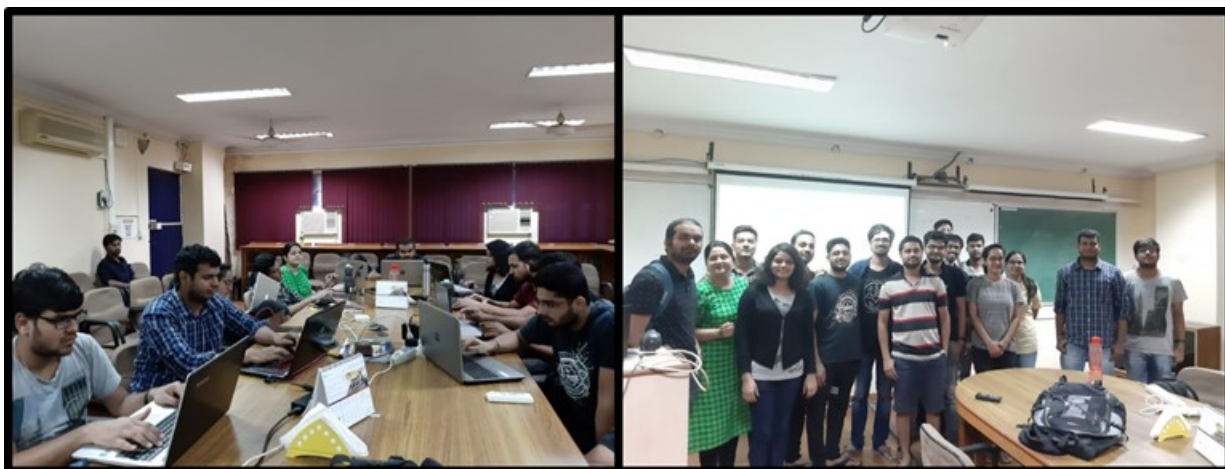


Figure 1: Student participation in the Latex Workshop (12 October, 2019)

2. Career Development

One of the primary roles of Material Advantage @ IITK is to provide professional development opportunities to students outside of the classroom. This year students participated very actively at various workshops, conference, competitions and industry visits which helped them grow both academically and professionally. Team material advantage @ IITK worked tirelessly to cater this category impeccably. The various events that were conducted in this category are appended below:

2.1 Nanomechanics and Biotribology (NMB-2019) Workshop at IIT Kanpur (Sept. 15-16, 2019)

With advent of biomaterials, the life-expectancy has increased and the demand for continued mobility is provided by materials and biomedical engineers. This interdisciplinary arena, mainly focused on to the damage associated with the moving joints of body, require biological understanding of articulation and associated damage. Accordingly, Nanomechanics and Biotribology Workshop was organised on Sept. 15-16, 2019 by Prof. Gouthama & Prof. Kantesh Balani at Advanced Centre for Materials Science, IIT Kanpur. This intensive workshop was targeted to provide a detailed understanding to material damage in the context of wear at different length scales for biological systems. Applying the concepts of *Nanomechanics and Biotribology* are highly essential in assessing the initiation of damage in biological environment during the articulation at joints. A total of 9 lectures and 8 lab sessions were held during the two day workshop. The workshop witnessed enthusiastic participation of 31 delegates (from BITS Pilani, REC Banda, IIT Roorkee, IIT BHU, IIT Kanpur, among others). The unending interest and curiosity of students encouraged interactions with faculty members even during tea/lunch sessions. The workshop was sponsored by Ducom Instruments (platinum sponsor) and Bruker Inc. (silver sponsor). Material Advantage @ IIT Kanpur supported the workshop with more than 60% members actively participated in the workshop whereas many others volunteered in organising it and demonstrating various laboratory facilities.



Figure 2: Group Photograph clicked during the Nanomechanics and Biotribology (NMB-2019) workshop held on Sept. 15-16, 2019

2.2 Talk on “How to write a paper” (September 25, 2019)

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, Material Advantage @ 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 with 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 in association with Material Advantage @ IITK.



Figure 3: Some moments captured from the talk on “How to write a paper” (25 September, 2019)

2.3 Two-minute Thesis contest (September 27, 2019)

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.



Figure 4: (a) One of the students sharing some thoughts and (b) Winner of the 2-minute thesis contest (27 September, 2019)

2.4 Industry visit to Anod Plasma Spray Ltd. (Sep. 28, 2019)

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!



Figure 5: Group picture during industrial visit to Anod Plasma Spray Ltd. (28 September, 2019)

2.5 Understanding Lecture Series Talk on Imaging (October 03, 2019)

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'.



Figure 6: Prof. Harshawardhan Wanare, describing the law of physics during “Understanding Imaging” lecture series (03 October, 2019)

2.6 Women in Science and Engineering Conference 2019 (October 19, 2019)

As a part of diamond jubilee celebrations at IIT Kanpur, Women in Sciences and Engineering (WiSE) Conference 2019 was organised with support from Indian National Academy of Engineering (INAE) Kanpur Chapter. WiSE 2019 was inaugurated by Dr. Abhay Karandikar, Director, IIT Kanpur, chief guest Dr. Asha Agarwal (retired from GSVM), guest of honour Dr. Mamta Vyas (Chief Medical Officer, IIT Kanpur), Dr. S.C. Srivastava (on behalf of Dr. K. Muralidhar, President, INAE Kanpur Chapter), and conference organisers (Dr. Bushra Ateeq and Dr. Kantesh Balani), at IIT Kanpur on Oct. 19, 2019. All expressed a desire to enhance the participation of women in sciences and engineering, and sensitizing the policy makers towards creating sustainable opportunities for women to be able to pursue these as career options. The MA members actively participated and volunteered in this conference. It was a very different and unique concept which provided a platform to the women frontiers in the sciences and engineering

to share their contribution (via both oral talks & poster) to the society and advise emerging women researchers in constructive engagements and management to result productive research output. This conference addressed multi-thematic areas and served as a platform for thought stimulating interactions. The open discussion time for the group of speakers addressing an erudite audience indirectly from their domain encouraged discussion and force open new areas of collaborative research. All the participants learnt many new things and were able to make new research-network through personal interactions with the speakers.



Figure 7: Inauguration ceremony and address by Prof. Abhay Karandikar during Women in Sciences and Engineering 2019 Conference at IIT Kanpur on Oct. 19, 2019.

2.7 First Frontier Lecture Series Talk (November 05, 2019)

Material Advantage @ IIT Kanpur conducted the first Frontier Lecture Series talk on, "Foray into Studies of Superconductivity in Silver-Gold Alloy Nanostructures" by Prof. Dasari L.V.K. Prasad, Dept. of Chemistry, IIT Kanpur, on 5th November, 2019. A recent report from India on the possibility of near ambient conditions superconductivity has stirred up lot of excitement. This lecture took the audience deep into this new realm.



Figure 8: Prof. D.L.V.K. Prasad delivering lecture on "Foray into Studies of Superconductivity in Silver-Gold Alloy Nanostructures" (05 November, 2019)

2.8 One-on-One Mock Interview Session (25-27 November, 2019)

During the placement session of phase I, Material Advantage @IITK is arranged a one-on-one interview and feedback session for UG and PG students appearing for placements. The MA team helped the students with mock interviews and even arranging a session with alumni placed in various core/non-core companies. The students were provides a platform to prepare, practice and experience firsthand how a real-life job interview feels. Post interviews constructive

feedback was shared with the students. They also received in-depth analysis of their resume, interview style and tips to help them in their areas of improvement. Students also asked their specific queries in the feedback session.

2.9 Student Participation in MS&T 2019 and TMS 2020

Mr. Vivek Verma (PhD Research Scholar) was invited for an oral talk on "Experimental Determination of Quinary Interdiffusion Coefficients in Fe-Ni-Co-Cr-Mn System" at MS&T 2019, Portland, Oregon, USA (29th September – 3rd October 2019). He has also attended chapter officer workshop. Workshop was very fruitful and informative. It was great experience to meet fellow chapter officers across the globe and learn new activities from the chapters.



Figure 9: Students attending MS&T 2019 (29th September – 3rd October 2019) and TMS 2020 along with student participation in materials bowl competition in the TMS Annual meeting (23-27 February, 2020).

Four other members of Material Advantage, IIT Kanpur Chapter have attended the annual TMS meeting held on 23-27 Feb, 2020, San Diego, California, USA. All the members have given oral presentation in their respective areas. A team of 3 members have also participated in the Materials Bowl Quiz. During this meet all the students have interacted with various esteemed professors working in their areas and got motivated towards more meaningful research.

3. Service.

This year Material Advantage @ IITK participated and volunteered in an abundance of outreach activities. Through the events that were hosted, students interfaced with the community and generate interest in material science and metallurgy.

3.1 Outreach event at UIET, CSJM University Kanpur (September 19, 2019)

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 organized in a way to instill basic understanding lectures for the students of UIET, by the faculty and research scholars of IIT Kanpur. The entire event was divided in three sessions. In the first session, Dr. Kantesh Balani delivered a talk on "Understanding SEM", where he enlightened the crowd with the basics of Scanning Electron Microscopy. Further, to get the undergraduate students excited for material advantage, MA @ IIT Kanpur conducted the MatAd quiz, named after MATerial ADvantage, for the students of Chatrapati Sahuji Maharaj University Kanpur on Sep. 19, 2019 (Forenoon Session). The quiz had 30 multiple choice questions from general materials science and basic metallurgy to be answered in 15 minutes. Around 75 students participated in the 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. The final session **“For your Information”**, consisted of a series of talks to inculcate basic understanding of prime topics in materials science, MA @ IIT Kanpur. 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. It was indeed a fun and informative event!



Figure 10: Outreach event at UIET, CSJM University Kanpur (19 September, 2019)

3.2 SEM facility & Biomaterials lab visit for CSJM university students (October 04, 2019)

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.

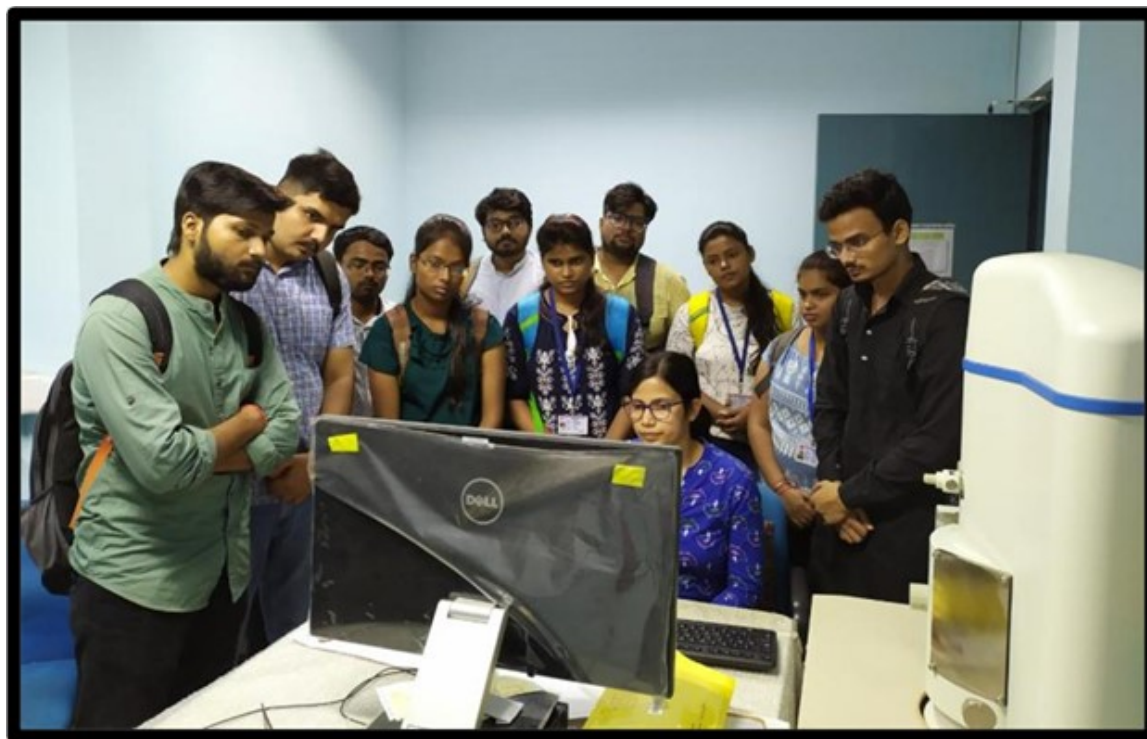


Figure 11: Students from CSJM University Kanpur, understanding the SEM (04 October, 2019)

3.3 Micrography Contest (October 04, 2019)

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.



Figure 12: Few clicks from the Micrography contest (04 October, 2019)

3.4 Science Coffee Meet up (January 13, 2020)

Another event, the science coffee meet was conducted develop strong networking among Material Advantage members. Networking gives materials science and engineering students the advantage of competitions, research, and conferences to build their skills for future materials careers. The meet up also encouraged the students to actively participate in various Material advantage and its sister societies' conferences and events to develop this networking which can boost the growth in their respective fields. Various discussions on current and prospective future research opportunities for both UG and PG scholars where done and students to keep their options open when looking to start their careers. It concluded in a plethora of ideas that could be initiated to motivate more such students.



Figure 13: The Science coffee meet (January 13, 2020)

4. Social Activities

Social activities were planned in a way to develop relationships with their peers and relax. The highlight of this category has been the fun morning which includes a series of fun games promoting the team and sportsman spirit among the members and a break from their monotonous and tiring lifestyle. The social activities conducted by team Material Advantage @IITK filled the participants with lots of energy.

4.1 Fun Morning Carnival (October 12, 2019)

A fun morning was organized 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 it has been suggested by fellow members to conduct such events atleast twice in a year.



Figure 14: Students enjoying various games during fun carnival (12 October, 2019)

4.2 AIST's Pizza Party (December 18, 2019)

Material Advantage @ IIT Kanpur has received a 'Pizza Grant' from AIST for the chapter meeting which took place on 18th December 2019 (Wednesday) at 5:00 pm. The meeting began with an introductory session regarding AIST (grants, scholarships, opportunities, etc.) followed by a pizza party. Mr. Zainul Abedin and Mr. Rupesh Chafle, briefed the students about opportunities in steel industry and about AIST as a society. The meeting was attended by more than 30 student members, faculty chair and past faculty speakers associated with Material Advantage society. The students interacted with each other and relished some delicious pizzas along with productive discussions on planning for some more fun activities and publicizing Material Advantage @ IITK for the coming semester.



Figure 15: Pizza Party celebration from AIST Pizza grant (18 December, 2019)

4.3 Campus Cycling (January 18, 2020)

The IIT Kanpur campus is a lush green campus and an abode to variety of flora. Material Advantage @ IITK organized a cycling trip of the entire campus in chilly winter morning on 18 January, 2020. It was a fun event to explore each and every corner of the vibrant campus spread over around 1000 acres. The participants also fed the peacocks and stray animals inhabited in the campus. The enthusiasm and high spirit of the participants during the whole journey was par the tiredness.



Figure 16: Cycling inside the IIT Kanpur Campus (18 January, 2020)

4.4 Annual Treat by Faculty Advisor (January 24, 2020)

An annual treat was given by MA faculty advisor to post-graduate, under-graduate students, non-teaching staff and research associate of laboratory for biomaterials and MA members. It was an informal get together with the faculty advisor along with his family and the Material Advantage family @IITK. The invitees relished awesome dinner served at campus Restaurant at IIT Kanpur followed by sing-a-song session. The Faculty Advisor, Material Advantage @ IITK thanked all the current members for being a part of IITK chapter and encouraged more participation in future.



Figure 17: Annual treat from Faculty advisor Dr. Kantesh Balani (January 24, 2020)

5. Chapter Management

Our Student activity is based on the three objectives:

1. To improve student member's academic ability and open doors for our members to communicate with established professional's workings in the fields of metallurgy, materials and related disciplines. Thus regular website was updated: <http://www.iitk.ac.in/mse/materials>.
2. To outreach community to the budding Engineer and to inspire students to become the future researcher. Hence various activities such as lectures series, providing clothes to orphanage, travelling to places, cycling and playing games were arranged by our chapter with a huge participation in every activity.
3. Our student chapter encourages personal & professional skills, in view of this, student talks have to be arranged on metallurgy and material science aspect even outside the campus.

The Chapter is managed by an executive team along with the faculty Advisor, Prof. Kantesh Balani. The unique events that were put on by this year's executive team would not have been possible if not for the organizational structure in place. Throughout the year, the team communicated effectively to ensure things ran smoothly.

The basic organization structure and the duties of executive team is listed in table below:

<i>Officer's Name</i>	<i>Position</i>	<i>Duty</i>
Rupesh Chafle	Chair	Conduction of all Chapter Events & meetings
Shruti Dubey	Vice-Chair	Takes charge in absence of Chair & supports the Chair whenever & wherever needed.
Reshma Sonkusare	Secretary	Maintains chapter records, minutes of all meetings, coordinating with speakers for various talks.
Miral Verma	Treasurer	Oversees all the financial Affairs of the Chapter. Keeping bills, ledger, balance sheet and even bringing sponsors.
Rubia Hassan	Publicity Coordinator	Publicising the society & it's events on groups and social media handles, bring more members to the community.
Shipra Bajpai	Website Coordinator	Time to time updation of local website.
Chinmayee Nayak	Student Advisor & Spokesperson	Authoritative person to be contacted by students for any advice on membership, scholarships, workshops or participation in events/conferences etc.

Management procedures:

General Meetings: Periodic General meetings occurred every month in the past academic year 2019-2020 and were attended by almost all the members of the executive team and the subordinate team appointed by them to discuss chapter activities. However, due to lockdown situation during COVID-19, online meetings have also been conducted using ZOOM application for video conferencing. Duties are assigned and updated after every meeting. Additional duties are assigned and updated after every meeting. General body meetings are also conducted bi-annually to get the feedback from peer members.

Elections: The chapter follows a democratic process for recruiting new office bearers. The position of Chair, Vice - Chair and Treasurer are decided during general body meeting chaired by the faculty advisor and majority votes are taken for the nominees from the existing executive team. However, the other positions are circulated via google form where all the existing Material Advantage members can fill their nominations and the selected candidates appear for an interview conducted for each profile. Open door policy followed by chapter advisor for any kind of Material Advantage related work.

Finances: The Treasurer handles all the finances and keeps the ledger. The bills are cleared only after his approval and he maintains a proper, duly signed record for all of them so as to maintain transparency. The ledger is updated regularly and all the expenses are discussed with the executive board during the meetings. Apart from this, the chapter also associates with local sponsors for various events.

Recruitment activities: The events are organized and planned in a way so as to publicize Material Advantage. The new students are welcomed with an introductory session on Material Advantage and the benefits being a member. This session is chaired by the Faculty advisor, Chair, and Vice-Chair of IITK chapter. The one month long recruitment drive was one of the most successful events which increased the membership by ~300%. The chapter also has a dedicated WhatsApp group for better reach out and follow up. The society is well connected with all its members where workshops, conferences and seminars are organized for professional and academic growth of the peer members along with fun games and meet ups organized time- to-time to relieve

them from academic stress. The broad range of events conducted grab the attention of students at large to join the society.

Chapter website: For the first time ever, we have included a separate personnel, the website coordinator, who regularly updates the website to continually develop and maintain the database.

Record Keeping/Documentation: Documentation of agendas/meeting notes, event organization, documents, photos, presentation, etc. are maintained on Google drive platform. The minutes of all meetings are drafted and gist is circulated among all executive members. The list of all the members is also maintained and the date of their membership renewal is intimated to the fellow members from time-to time based on the database.

➤ ***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 Recruited Students” during **2019 Fall Membership Challenge** which includes citation and cash award of US \$ 1000, (ii) “Most Creative Recruitment Strategies Award” during the **2011 Fall Membership Challenge**, which includes citation and cash award of US\$ 250.00, and (iii) “**Most Recruited Students**” challenge for the **Fall 2009**, which includes citation in one of the AIST/ASM/ACerS/TMS journal 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 price of US\$ 150.

➤ ***Participation in meetings and chapter events.***

A notable participation of members and students in all chapter events has been witnessed this year with events like talk on research paper writing, “Understanding...” and “Frontier” Lecture series, two minute thesis, LaTeX workshop, micrography contest and Outreach event at CSJM

University turning to be a full house. The student participation was a delight to watch and the efforts by Material Advantage @ IITK were appreciated time-to-time by Department of Material Science and engineering, IITK. The active participation of students has also been a highlight on the departments official social media handles, such as facebook, twitter and linkedin, many a times. The participation was restricted not only till events, but also, the members were pro-active in volunteering and organizing them as well. The chapter grabbed the spotlight of all and sundry because of an efficient team work and dedicated members.

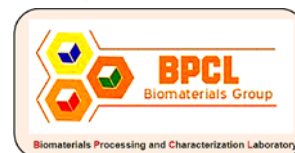
➤ *The recruitment of students into the Material Advantage Student Membership Program*

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 time to time and the winners in each of them are provided certificates, goodies and even discounted memberships in Material Advantage. The drive is open for all students including the existing material Advantage members. This promotes student participation and even membership. The executive team introduces new aspects to this challenge to make it more interesting and unique every coming year. The 2019 fall membership challenge lead to a ~ 300% increase in membership in over a month's time making it the most successful recruitment drive of Material Advantage @ IITK chapter. The chapter also won a cash price of US \$ 1000 for winning the competition.



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May 25, 2020

To Whom It May Concern

I strongly endorse and support the activities of Material Advantage @ IIT Kanpur (MA@IITK). I have served as the faculty advisor of the MA@IITK since its inception in Fall 2009. I am delighted to see the leadership and dynamism of the current executive committee and am overjoyed to see a such a systematic and complete set of activities that are arranged by the student chapter executive members and chapter as a whole. Many of these activities are multi-pronged, i.e. they cut across from programming to chapter management & from service to career-development.

A few dominant features were conduction of technical workshop (Sep. 2019), industry visit (Sep. 2019), outreach to colleges (Sep. 2019), organization of 'Women in Sciences and Engineering' (Oct. 2019), Understanding/Frontier lecture series (Oct. 2019/ Nov. 2019) and social events (Dec. 2019). With the participation of students (from India) in MS&T 2019, and TMS 2020 in, the current leadership has shown that distances do not matter and funds can be arranged towards realizing international networking. With winning the "Most Recruited Students" during Fall 2019 membership challenge, MA@IIT Kanpur is back on the leader board.

MA@IIT Kanpur is an integral part of the Materials Science and Engineering Department at IIT Kanpur and has hosted many technical and fun-events to foster the materials science education and learning. As the faculty advisor of the chapter, I extend the highest support to the chapter for its continued efforts and committed leadership.

with best regards

(Dr. Kantesh Balani)

