



## Centre of Studies in Resources Engineering



### **DEPARTMENT HANDBOOK 2022-2023**



### DISCLAIMER

Though the ISCP (Institute Student Companion Program) has taken care while compiling the handbook, neither the council nor the Institute can be held responsible for errors/inadequacies that may inadvertently creep in. This handbook cannot be used as a basis for making a claim on facilities/concessions/interpretation of rules/statutes or the like. If there is some critical information to which the reader of this handbook refers, it is with his or her own responsibility that it is put to use, with cross verification if need be.

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### Message from Head of Department



Prof. Alok Porwal
(Professor and Head of Department)

Welcome to the Geo-informatics and Natural Resources MTech Programme at the Centre of Studies in Resources Engineering (CSRE), IIT Bombay.

As you all know, IIT Bombay is recognized worldwide as a leader in the field of engineering education and research. Reputed for the outstanding calibre of students graduating from its undergraduate and postgraduate programs, the institute attracts the best students from the country for its bachelor's, master's, and doctoral programs. CSRE is a premier centre for research and education in the frontier area of geospatial technology. At CSRE we aim to train innovative, enthusiastic and broad thinking young students to become leaders in the field geospatial technology and its applications to earth systems studies and planetary sciences. Our research and academic programs are driven by an outstanding faculty, many of whom are reputed for their research contributions internationally. We take pride in our cultural and lingual diversity, and aim to make every student feel at home in the Centre. I hope you will have a productive and enjoyable learning experience at CSRE.

Best wishes.

### Message from Faculty Advisor



Prof. Avik Bhattacharya (Professor and Faculty Advisor)

#### Dear Students,

Congratulations on your admission to the Master's program in Geoinformatics and Natural Resources Engineering (GNR) at the Centre of Studies in Resources Engineering (CSRE), Indian Institute of Technology (IIT) Bombay. We have carefully designed the GNR program to impart basic knowledge and state-of-the-art in aeoinformatics technologies and their applications to natural resources exploration and exploitation, environmental monitoring, engineering applications, and disaster assessment and mitigation. Our faculty members have earned eminence in their respective fields by being on editorial boards of reputed journals, through international collaborations, high-quality journal and conference publications, patents, doctoral and Master's thesis supervision, invited and keynote presentations in conferences and training programs organized by other institutions in India and abroad. Most of our students get placed within the first fortnight as soon as the campus recruitments begin. Our students had opportunities to visit esteemed universities in US/Europe/Japan/Australia for internships or participate in joint research programs. Several of our doctoral students are pursuing careers or Ph.D. / post-doctoral research in prestigious laboratories and reputed universities across the globe. I wish you all good luck and look forward to seeing you in the classrooms soon.

Best wishes.

### Message from Institute student companion team

#### Dear new entrants.

Heartfelt congratulations for embarking on one of life's most memorable journeys - the journey of learning at IIT. On the behalf of our prestigious institute of IIT Bombay, team ISCP welcomes you aboard.

Give a pat on your shoulder for having achieved this feat. Your dedication, hard work and perseverance brought you here, and we know that your experience will lead you towards great opportunities. We can guarantee that your time here on this colossal campus will be exciting and knowledgeable. A degree will just be a small portion of what you will be leaving this institute with. You will also leave with beautiful memories of late-night conversations, interesting wing cultures, and crazy birthday parties (oh you are going to miss those!!). You will have the opportunity to mingle in various clubs and societies where individuals strive to become experts in their fields and devote endless hours. As a result, there will be many chances to learn inside and outside the classroom. So entering this new universe in itself presents both exhilaration and potential difficulties. This is where we will help you by providing the tips you need to handle these difficulties and enjoy your time at IIT Bombay.

Now, you should be thinking what on earth is this ISCP? Institute Student Companion Programme (ISCP) is a student body with the primary objective of building a relationship of trust and comfort between the on-roll students and the incoming students of the PG programmes. We are here to help you get familiar with the ways of IITB, guide you through your ups and downs and make sure that each voice is heard. You will become part of a culture where people want to perfect their craft and thus work day in and day out. Various events are organised by the cultural, technical, and sports clubs in the institute throughout the year. Managing these along with lectures might seem daunting at first, and hence, to help you with a world of problems, including these, we assign you a student companion.

The student companions are self-motivated volunteers who will genuinely want to help you in low and high tides as an act of giving back what they received from the programme. You can rely on the team for any advice or information on anything you are venturing out into, whether it be academics or extracurriculars, any issues that you are facing, any support or requirements that you want to raise as a part of the student community. And at last but undoubtedly not least just for regular interaction because that is all the programme holds at its core. The knowledge and the experience that our student companions have gained with their stay on the campus will help your transition become smooth. From campus tours to classroom lectures, from the

grading system to completing the syllabus, from the profile to placements, from Schezwan Frankie to curry-pakora, they will be there for you.

We are sure that the last couple of years have been rough for many of you. But as we know that life moves on. So, make sure that you make the best out of your journey at IIT Bombay. Come and contribute to this vast store of knowledge and help it become more vibrant and colourful.

The campus of IIT Bombay awaits your presence; see you there.



**Dipankar Kuli**Overall Coordinator
Contact No.: 8638272899
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Prabhat
Overall Coordinator
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Ashish Kumar Gautam
Cabinet Member
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### Message from Institute student companion team

It is a joy to welcome you at CSRE. The centre draws from various disciplines and through the work of the students and the professors, becomes greater than the sum of its parts. You get to widen your horizons by interacting with and learning from people of different backgrounds.

The exposure the centre offers is vast. One studies things as varied as agricultural fields, polar ice-caps, and the surface of Mars. Monitoring understanding these varied places, requires some knowledge of programming, but worry not; it and many other things will be taught to you.

However, do not limit yourself to academics. The campus offers a myriad of opportunities for self-development, and discovery. Arts, culture, sports, yoga or anything else. You will have a chance to participate and learn. Although due to pandemic it might not be possible to explore but as soon as you get chance you will love it.

You probably have been hearing it and you will continue to hear it for a while, congratulations on making it here. Be sure to explore and make use of the opportunities here. I hope you have a wonderful stay in Bombay, and don't feel alone in this journey we are there for you, feel free to reach out to us, if you need any help.



**Mainak Singha** 

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Department Coordinator (ISCP)

# Message from Institute Master's Representative (PGAC)

#### Welcome Freshers!

We all have gone through a lot in these past couple of years, so firstly congratulations to all of you for securing admission in one of the prestigious institutes in the country. IIT Bombay provides best exposure to its students in all the aspects, both academically as well as non-academically. The skills you develop here, the interactions you have with people here will stay with you throughout your life. The post-graduation demands something additional compared to the under graduation, more time, more effort, more determination and a ton of dedication. For meeting these primary requirements, often we find ourselves in a daunting situation.

In order to make your stay at IIT Bombay convenient, the institute has established the PGAC (Post Graduate Academic Council). Any technical necessity, any placement related assistance, any research queries or any academic grievances, you can always reach out to us. Each department has their own AURAA (Academic Unit Representative of Academic Affairs), whom you can approach directly in case you find any difficulties. Wishing you all a really convenient and productive IIT journey!

Regards,



Mohit Meena
Institute Secretary of Academic Affairs Masters

# ISCP Team of CSRE

Mainak Singha	Department Coordinator	213310020@iitb.ac.in 8348863360	16-407-N23
Himanshu Chaubey	Student Companion	213310006@iitb.ac.in 7983660083	
Shubham Gupta	Student Companion	213310005@iitb.ac.in 9818174500	
Abhijendra Anand	Student Companion	213310010@iitb.ac.in 8109233812	

### Message from Department General Secretary

Hello Friends,

Heartiest congratulations for making it into the prestigious and beautiful campus of IIT Bombay – an institute of eminence located in India's heart of busy financial capital, however, surrounded by lush green flora and two beautiful lakes (Powai and Vihar lake).

This is a magnificent opportunity for all of you to work with and learn from esteemed professors who hold prominent positions in their respective research areas. You will also work and learn with a great community of knowledgeable and enthusiastic peers. There is no bound of learning in the institute; you all will work on diverse ideas which will help you in the overall growth of your personality.

Apart from academics, the institute organizes numerous sports and cultural events throughout the year. The institute also has a vast number of opportunities and resources at your disposal; make the best use of them. The following years of your life in the institute would be the most memorable ones; enjoy them to the fullest.

Furthermore, the last year has been appalling for the entire country. All of us suffered a significant loss in some way or another. Still, I admire you all for remaining pragmatic in this challenging time and continuing your progress towards a better and safe future. I wish you the best for your career, joyous life, and a wonderful stay at IIT, Bombay.

Quote for life – "The purpose of our lives is to be happy – Dalai Lama."



Ranjan Kumar Gupta

Department General Secretary

### About IIT Bombay

Established in 1958, the second of its kind, IIT Bombay was the first to be set up with foreign assistance. The funds from UNESCO came as Roubles from the then Soviet Union. In 1961 Parliament decreed the IITs as 'Institutes of National Importance'. Since then, IITB has grown from strength to strength to emerge as one of the top technical universities in the world.



The institute is recognised worldwide as a leader in the field of engineering education and research. Reputed for the outstanding calibre of students graduating from its undergraduate and postgraduate programmes, the institute attracts the best students from the country for its bachelor's, master's and doctoral programmes. Research and academic programmes at IIT Bombay are driven by an outstanding faculty, many of whom are reputed for their research contributions internationally.

IIT Bombay also builds links with peer universities and institutes, both at the national and the international levels, to enhance research and enrich its educational programmes. The alumni have distinguished themselves through their achievements in and contributions to industry, academics, research, business, government and social domains. The institute continues to work closely with the alumni to enhance its activities through interactions in academic and research programmes as well as to mobilise financial support. Over the years, the institute has created a niche for its innovative short-term courses through continuing education and distance education programmes. Members of the faculty of the institute have won many prestigious awards and recognitions, including the Shanti Swaroop Bhatnagar and Padma awards.

Located in Powai, one of the northern suburbs of Mumbai, the residents of the institute reap the advantage of being in the busy financial capital of India, while at the same time enjoying the serenity of a campus known for its natural beauty. A fully residential institute, all its students are accommodated in its 15 hostels with in-house dining; the campus also provides excellent amenities for sports and other recreational facilities.

#### About CSRE



Established in IIT Bombay in 1976, Centre of Studies in Resources Engineering (CSRE) has grown into one of the premier centres in the country working in the frontier area of Geo-informatics and Natural Resources Engineering.

Modern technologies like Geographic Information System (GIS), Global Positioning System (GPS), Satellite image processing and Remote Sensing are used extensively in the Centre in teaching, research, consultancy and continuing education programmes. CSRE has been active in contributing significantly towards the needs of developing and demonstrating the technology of satellite data utilization and development of Geographic Information Systems. The Centre has successfully demonstrated the application potential of remote sensing technology in the programs of disaster mitigation like drought and flood along with national agencies such as ISRO and NRSC. The Centre has also developed mutually beneficial international collaborations to carry out contemporary research programs with Leeds University, UK, Miami and Minnesota Universities in USA, Melbourne University, Australia, Technical University of Budapest, Hungary and ITC and The Netherlands.

### Faculty Members at CSRE

Prof. Alok Porwal
Professor and Head
Email: alok@csre.iitb.ac.in



Prof. J. Adinarayana Institute Chair Professor Email: adi@csre.iitb.ac.in

Prof. Y.S. Rao Professor Email: ysrao@csre.iitb.ac.in





Prof. B. Krishna Mohan
Professor
Email: bkmohan@csre.iitb.ac.in

Prof. S.S. Gedam
Professor
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Prof. Avik Bhattacharya Professor

Email: avikb@csre.iitb.ac.in





Prof. Gulab Singh Associate Professor

Email: gulab.singh@iitb.ac.in

Prof. Biplab Banerjee Assistant Professor

Email: bbanerjee@iitb.ac.in





Prof. Karthikeyan Lanka Assistant Professor

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Prof. Deepak Singh Assistant Professor

Email: deepak.singh@iitb.ac.in



### Research Areas at CSRE

Agro-Informatics / Digital-Agriculture Global Positioning System (GPS) and Photogrammetry Satellite Image Processing

### **Research Labs**

- Satellite Image Processing laboratory
- GIS Laboratory
- Geomatics Laboratory
- Photogrammetric Laboratory
- Microwave Remote Sensing Laboratory
- Coastal and Marine Laboratory
- Agro-informatics Laboratory
- Natural Hazard Laboratory





**CSRE Seminar Hall** 



Ph.D. Research Lab



M.Tech. I Research Lab



M.Tech. II Research Lab

To know more about the centre go to <a href="https://vimeo.com/242822740">https://vimeo.com/242822740</a>

### Office Staffs



**Ms. Vijaya Hegde**Jr Suprintendent



**Ms. Manasi R Lele** Sr. Administrative Assistant



Mr. P. Manivannan
Junior Administrative
Assistant



Mr. Rama S Nikam Technical Officer



**Mr. Madhu Y Sonkamble**Driver



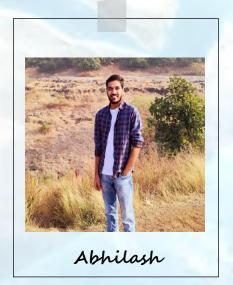
Ms. Arti A Bhosale Assistant (Casual)

### Know your Seniors

Roll No.	Name	Research Area	Guide
213310001	Amol Narang	Land cover characterization using dual- polarimetric SAR data	Prof. Avik Bhattacharya
213310003	Umesh Chandra Garjola	Spectral Analysis of various types of ices in our solar system	Prof. Deepak Singh
213310004	Uddesh Sahu	Soil moisture mapping using Polarimetric SAR data	Prof. Y.S. Rao
213310005	Shubham Gupta	Impact of Urbanization on Spatio- temporal pattern on Urban Heat Island footprints	Prof. Shirish Gedam
213310006	Himanshu Chaubey	Studies on Interannual Variation in Phytoplankton Primary Production in Arabian Sea	Prof. Shirish Gedam
213310007	Sudhir Kumar K	Geological feature learning and unsupervised mineral prospectivity modeling	Prof. Alok Porwal
213310009	Abhilash Nagineni	Small object detection and counting in remotely sensed imagery	Prof. B Krishna Mohan
213310010	Abhijendra Anand	A multi sensor approach for forest fire mapping	Prof. Avik Bhattacharya
213310012	Saurav Pandya	Application of Histogram of Oriented Gradients for Urban Object Detection and comparison with an R-CNN variant	Prof. B Krishna Mohan
213310013	Gaurav Singh	Impact of Dust Activity on Martian Atmosphere	Prof. Deepak Singh
213310014	Vijay Bala Murugan I	Real-Time Stream Processing of Spatio- temporal IoT Data	Prof. Surya Durbha

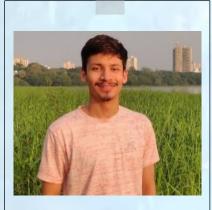
213310016	Ran <mark>ja</mark> n Kumar Gupta	Military Targets Identification/Classification using high resolution SAR Imagery	Prof. Gulab singh
213310017	Ashutosh Yadav	Comparative studies on kalman filter and ANN based IRNSS data analysis	Prof Shirish Gedam
213310018	Swabhiman Dehariya	Landscape mapping and implication for mineral exploration: examples from India	Prof. Alok Porwal
213310020	Mainak Singha	Multimodal Fusion in Remote Sensing	Prof. Biplab Banerjee
213310021	Gunjan Suraj Kuhikar	Competitive Machine learning approach to retrieve crop biophysical parameters from C-Band SAR data.	Prof. Avik Bhattacharya
213310022	Shashikant Singh	Hapke mixture modelling applied to VNIR- SWIR spectra of mineral mixtures (with special reference to planetary geological studies)	Prof. Alok Porwal
213310023	Manoj Kumar Bonu	Deep Learning and scattering nature based PolSAR data classification over man-made and natural targets	Prof. Gulab singh
213310024	Keshav Agrawal	Multi-agent driven Critical Infrastructure Protection during extreme events	Prof. Surya Durbha
213314001	Rudra Kanti Goswami	LiDAR Simulator	Prof. B.K. Mohan & Prof. B. Lohani
213316001	Saail Kashinath Narvekar		
203316001	Rohit Prakash Pingale	Drone Sensing for crop stress identification	Prof. J. Adinarayana
203316002	Bhupendra Singh Solanki	Domain Adaptive Few Shot Learning	Prof. Biplab Banerjee

For more information go to -- <a href="https://www.csre.iitb.ac.in/m-tech-students.php">https://www.csre.iitb.ac.in/m-tech-students.php</a> Email Id of any student above is <a href="mailto:ROLLNO@iitb.ac.in">ROLLNO@iitb.ac.in</a>





















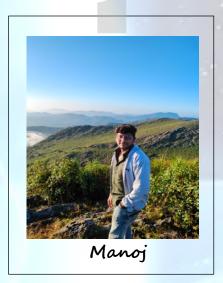


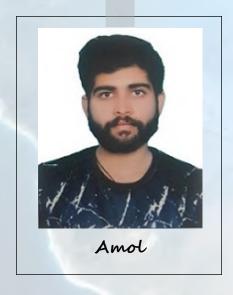
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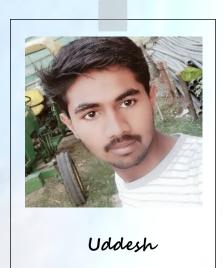


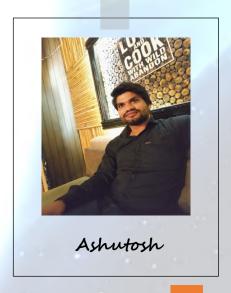


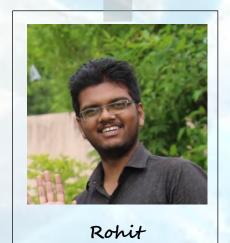






















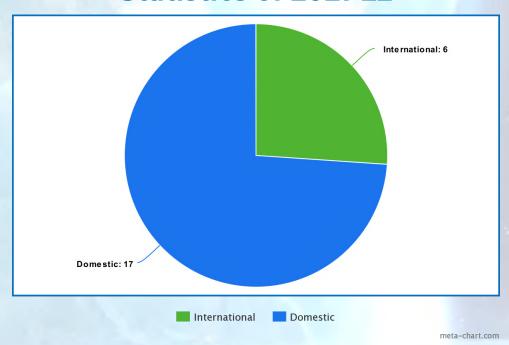




Shashikant

### Placements

### Statistics of 2021-22



Percentage of Students Placed = 100 %

**Average CTC (LPA) Domestic: 19.69 INR** 

**Average CTC (LPA) International: 33.93 INR** 

**Maximum CTC (LPA) Domestic: 32 INR** 

Maximum CTC (LPA) International: 20 TWD / 53.5 INR

### Placement Team

Placement Cell (a body of student representatives) sends invitations to companies/organizations along with relevant information to conduct campus interviews for their requirements. Following are the students from our department who are in the institute's placement team.

Company Coordinator	Abhilash Nagineni	213310009@iitb.ac.in 8309768760	
Company Coordinator	Keshav Agrawal	213310024@iitb.ac.in 9602654571	
Company Coordinator	Sudhir Kumar K	213310007@iitb.ac.in 8895973769	

Company Coordinator	Uddesh Sahu	213310004@iitb.ac.in 8103276675	
Company Coordinator	Vijay Bala Murugan I	213310014@iitb.ac.in 9965510820	
Department Placement Coordinator	Abhijendra Anand	213310010@iitb.ac.in 8109233812	
Department Placement Coordinator	Rohit Prakash Pingale	203316001@iitb.ac.in 9011098005	

### Department Council

GENERAL SECRETARY	Ranjan Kumar Gupta	
TECHNICAL SECRETARY	Gaurav Singh	
CULTURAL SECRETARY	Shubham Gupta	
ALUMNI SECRETARY	Amol Narang	

SPORTS SECRETARY (GIRLS)	Gunjan Suraj Kuhikar	
SPORTS SECRETARY (BOYS)	Ashutosh Yadav	
REA SECRETARY	Manoj Kumar Bonu	
WEB SECRETARY	Saail Kashinath Narvekar	

#### Cultural at CSRE

Every year CSRE is blessed with students having a plethora of talent. The diversity in CSRE is not just only in terms of academics, but also in the cultural talents of the students. CSRE students have shown enthusiasm in every genre like dancing, singing, dramatics, photography, fine arts, speaking arts, etc. To keep the cultural atmosphere going, a number of events are in place at the institute and departmental level. To list some of the events, traditional days on festivals, Teachers' day celebration, Gandhi Jayanti celebration and a lovely farewell party for graduating batch. With each year passing by, participation and achievements at the PG Cultural events are on the rise.



Prof. Surya Durbha performing a song 'Mere Naina', online on the teachers' day eve

#### Positions held by CSRE students at Institute Level (Cultural Council):

Himanshu Chaubey

- (PGCult Film and Media Coordinator)

**Amol Narana** 

- (PGCult Film and Media Coordinator)

Rudra Kanti Goswami

- (PGCult Dance Coordinator)

Shubham Gupta

- (PGCult Design Coordinator)

### Performance In Culturals:



Swabhiman Dehariya (Izhaar)

Amol Narang (Izhaar)





Gunjan Suraj Kuhikar (AOTM, January)

### Sports at CSRE

CSRE, though a relatively small academic unit of IIT Bombay, has always been active in sports. PG Sports witnesses the confluence of sports enthusiasts and celebrates excellence, endeavor and team spirit. This is a much needed diversion from the rigorous routine academics, bringing with it promises of an energizing and exhilarating experience. Students had shown great enthusiasm towards Table Tennis, Badminton, Kho-Kho, Cricket, Cycling, Lawn Tennis, Athletics etc. It was not just about winning all the time but having some great time playing together, making great memories that lasts forever and trying to give our best.

we organized online chess competition to engage ourselves.

- Girls Chess Team (Ritu, Surabhi Jain, Sana Firdaus) secured Bronze Medal in Chess PG-GC (2019-20)
- ♣ Kaushik Konwar secured Bronze Medal at 54th inter IIT sports meet (2019-20) held
  at IIT Kharagpur while representing IIT Bombay Team in weightlifting.
- Kaushik Konwar secured Gold Medal at Powerlifting Open 2019, IITB.
- Kaushik Konwar (Institute Weightlifting team) represented IIT-B as vice-captain and secured 4th position in Inter IIT 2018-19 held at IIT Guwahati.
- ♣ Kaushik Konwar secured Gold medal and awarded player of the GC in general weightlifting championship and also secured bronze medal.





Positions held by CSRE students at Institute Level (Sports Council):

Vijay Bala Murugan I - (PG Sports, Design Coordinator)

### various clubs in the Institute

#### Cultural

- 1. Pixels (Photography Club)
- 2. Rang (Fine Arts Club)
- 3. Insync (Dance Club)
- 4. Fourth Wall (Dramatic Club)
- 5. <u>SilverScreen</u> (Film and Media Club)
- **6.** We Speak (Speaking Arts Club)
- 7. Vaani (Indian Languages Club)
- 8. Roots (Classical and Folk Arts Club)
- 9. The Design Club (Design Club)
- 10. <u>Literati</u> (Literary Arts and Quiz Club)
- 11. <u>StyleUp</u> (Fashion Club)
- 12. SAAZ (Hindi Music Club)
- 13. TACCATO (Western Music Club)
- 14. Book Club

#### **Technical**

- 1. Tinkerer's Lab
- 2. Technovation
- 3. Aeromodelling Club
- 4. Electronics Club
- 5. KRITTIKA— the Astronomy Club,
- 6. Maths and Physics Club, The Robotics Club,
- 7. WnCC—Web and Coding Club
- 8. TechGSR Tech Geek Social Responsibility: a Socio Tech non-profit Student body
- PRATHAM: IIT Bombay's student Satellite program; home to one of the country's first student satellite projects
- **10.** IIT Bombay Racing: Racing Team builds actual race-cars that participate (and win) in international student competitions like Formula Student.

11. UMIC: The Innovation Cell at IIT Bombay aims towards the successful completion of large scale student projects

### **Sports**

- 1. Aquatics
- 2. Athletics
- 3. Badminton
- 4. <u>Basketball</u>
- 5. Board Games
- 6. Cricket
- 7. Football
- 8. Hockey
- 9. Indian Games (Kho-Kho, Kabaddi)
- 10. Lawn Tennis
- 11. Squash
- 12. Table Tennis
- 13. Volleyball
- 14. Weightlifting
- 15. Adventure Sports
- 16. Dark Knight (Chess Club)
- 17. Rubik's Club
- **18.** <u>Yoga</u>

### Resources Engineering Association (REA)

REA (Resource engineering association) is a CSRE specific body, which started 10 years ago with an aim to create and improve awareness on the significance of Geospatial Technologies by bringing together the minds oriented in the same direction, and allows the students to think beyond the CSRE classroom. REA is CSRE's own body that has members including all faculty members, current students and alumni of CSRE. This association provides funds for students' activities like sports and cultural programs, inhouse functions, seminars, guest talks, conferences (national and international) etc. REA has successfully organized three national conferences, GEOMATRIX, on various advancement in geospatial technologies and applications. With over 200 members and still growing, REA is planning to organize some special and interesting events to enhance student skills. We are looking forward to your active participation in these events.



Manoj Kumar Bonu REA Secretary

### Student Wellness Centre (SWC)



"Some bridges are made to cross your sadness"



After securing admission at the Institute, you may feel that a lot of parameters around you are different. You would have more responsibilities to handle at an academic level. Take heart, you will not be the only one. There are a few issues that almost everyone in the Institute faces initially like academic concerns, social (family and peer) pressure etc, leading to feelings of loneliness, low confidence, anxiety, stress, anger and sadness, to name a few.

It is important to understand that students often lose their focus and give in to these pressures. If not attended to at the right time, this could lead to poor performance -- both academically and personally.

To help you refrain from losing focus and being unhappy, counsellors at **Student Wellness Centre (SWC)** encourage you to approach them for any problem that you are facing-be it academic, emotional, social or financial- without hesitation.

Counselling provides an opportunity for individuals to learn to make better choices, improve interpersonal skills, develop confidence and increase educational effectiveness. In a one-on-one meeting with a counsellor, students are helped to explore and express feelings, examine beliefs and ways of thinking about their present situation, reflect on patterns of behaviour, and work toward making healthier and happier changes.

Therefore, if needed feel free to contact them. Know more about SWC here.

# About Gender Cell



IIT Bombay's Gender Cell is an institutional body which works towards promoting equality, non-discrimination and gender justice on the campus. It inquires into complaints of sexual harassment through its Internal Complaints Committee (GC-ICC) Sexual harassment includes any one or more of the following unwelcome acts or behaviour:

- Physical contact and advances
- A demand or request for sexual favours
- Making sexually coloured remarks
- Sending, displaying or showing of pornographic material in physical form or through any electronic media
- Any other unwelcome physical, verbal or non-verbal conduct of sexual nature,
   and
- Any other acts or omissions that are of like nature to the instances above.

In case you face any undesirable incident, you may write to IIT Bombay's Gender Cell at **gendercell@iitb.ac.in** and they will get back to you within **48 hours**. You may also contact any of their student members or PoSH volunteers. You may visit their office or **call 5052** during office hours. You should complain **within 3 months** of the unpleasant incident. Know more about Gender Cell and its policies **here**.

### Academics

## **Course Structure and Grading Policy:**

http://www.iitb.ac.in/newacadhome/MTechRules.pdf

**Attendance**: Attendance for regular classes is generally taken by the concerned professor during lecture hours, either by biometrics or on paper. Attendance for TAship is to be given for every working day biometrically.

**LDAP ID**: It is the unique identification of each individual in IIT Bombay. By default the LDAP ID assigned to you will be your roll number and the associated password will be generated after you have come to the institute and the requisite registration processes are completed.

**Webmail**: This is your personalized email in IITB. You will get your Id when you get enrolled in IITB. Link: <u>webmail-sso.iitb.ac.in/</u>

**TA work**: TA duty will begin immediately after joining the course. The faculty advisor will appoint TA duty to all the M. Tech. entrants. Once allocated, the students should report to the respective TA supervisor immediately for the assigned work.

**Leave Taking**: For taking a leave, leave application should be submitted to office one week before its commencement. Permission is needed from the TA Guide or faculty advisor. Total official leaves for TAs are 15 days in a year.

**Application Software Centre (ASC)** – Administration: ASC is the main interactive website for all the administrative requirements of a student. It includes payment of fees, registration and deregistration from courses, checking grades awarded in subjects, brief contents of all the and a lot more information. For more information, please visit http://asc.iitb.ac.in/

**Moodle - Academics**: This website provides academic interaction between students and faculty for all courses enrolled by a student. One can download study materials/ books/ notes uploaded by a professor/ TA and students can also submit their projects. For more information, please visit http://moodle.iitb.ac.in

**Library**: The website for the central library offers a search engine for books available in the library. One can check the number of books issued at any given time, renew them and "queue" up for any book already drawn by some other individual. For more information, **please visit** http://www.library.iitb.ac.in/

**Gymkhana**: Gymkhana is an organization to foster and develop all student activities in the institute. Please visit https://gymkhana.iitb.ac.in/ for more information.

Registration: This document contains step by step guide to registration for freshmen: <a href="https://docs.google.com/document/d/1lilyR49FuNJE7l2cgrT-iWWPCFltvNVR4A57N1hA-NA/edit#heading=h.oxqvfe1wel35">https://docs.google.com/document/d/1lilyR49FuNJE7l2cgrT-iWWPCFltvNVR4A57N1hA-NA/edit#heading=h.oxqvfe1wel35</a>

# Important Links

#### **Useful Links:**

- Official site of IIT Bombay: <a href="http://iitb.ac.in/en/about-iit-bombay">http://iitb.ac.in/en/about-iit-bombay</a>
- ISCP: https://gymkhana.iitb.ac.in/~scp/scp/
- All student activities: https://gymkhana.iitb.ac.in/
- Sports affairs: <a href="https://gymkhana.iitb.ac.in/~sports/">https://gymkhana.iitb.ac.in/~sports/</a>
- Hostel affairs: https://gymkhana.iitb.ac.in/~hostels/
- Cultural: https://gymkhana.iitb.ac.in/~cultural/
- Entrepreneurship cell: <a href="https://www.ecell.in">https://www.ecell.in</a>
- SARC: http://www.sarc-iitb.org/#
- Software by IITB: <a href="http://ftp.iitb.ac.in/">http://ftp.iitb.ac.in/</a>
- Lost and found: https://gymkhana.iitb.ac.in/~hostels/lostnfound.php
- Accessing IITB Internal Sites with VPN: <a href="https://www.cc.iitb.ac.in/page/services-vpnssh">https://www.cc.iitb.ac.in/page/services-vpnssh</a>
- Configuring IITB-Wireless in laptop/android/desktop:
   https://www.cc.iitb.ac.in/page/configurewireless
- Access GPO mail on mobile mail:
  - http://homepages.iitb.ac.in/~yatindestel/docs/GPO%20in%20Gmail.pdf
- Free Licensed Software: https://www.cc.iitb.ac.in/page/services-software
- How to forward GPO mail to Gmail: <a href="http://camp.iitb.ac.in/cgi-bin/index.cgi">http://camp.iitb.ac.in/cgi-bin/index.cgi</a>
- Link for External ASC site: https://portal.iitb.ac.in/asc/Login
- Link for Internship Portal: http://placements.iitb.ac.in/internship/login.jsp
- Link for placement portal: <a href="http://placements.iitb.ac.in/placements/login.jsp">http://placements.iitb.ac.in/placements/login.jsp</a>
- Link for academic calendar: http://www.iitb.ac.in/newacadhome/toacadcalender.jsp
- Link for academic timetable: <a href="http://www.iitb.ac.in/newacadhome/timetable.jsp">http://www.iitb.ac.in/newacadhome/timetable.jsp</a>
- Link for IITB Holiday List: <u>IIT Bombay Holidays List</u>
- Link for circulars: http://www.iitb.ac.in/newacadhome/circular.jsp

# Some useful Apps

**InstiApp**: InstiApp is an Android App that helps you navigate through the IIT Bombay Campus. It is a one stop solution for all the queries above and beyond. An app of the insti, for the insti, and by the insti, it connects all the aspects of one's insti life, weaving around hostels, academics, co-curricular activities and recreation.

Download Link: <a href="https://play.google.com/store/apps/details?id=app.insti&hl=en\_IN">https://play.google.com/store/apps/details?id=app.insti&hl=en\_IN</a>

**Instimap:** InstiMap is a searchable map of the campus, specially designed for first time visitors and new entrants, to find their way around IIT Bombay with ease. It is available on instiApp - an Android App that helps you navigate through the various events on IIT Bombay Campus. It is available at: <a href="https://insti.app/map">https://insti.app/map</a>

**m-Indicator**: This app contains the Local Train Timings of Mumbai and also details the local train routes for IIT Bombay. One can also find the various bus routes and the bus numbers on this app.

Download Link:

Download Link:

https://play.google.com/store/apps/details?id=com.mobond.mindicator

**OpenVPN Connect App**: OpenVPN Connect is the official VPN application for Android developed by OpenVPN, Inc. It is a universal client serving the following OpenVPN products: 

⇒ Access Server – server solution for businesses 

⇒ OpenVPN Compatible Server – solution for self-hosted servers It can be used for connecting with IITB Internal sites using VPN. Detailed instructions are in page XX.

https://play.google.com/store/apps/details?id=net.openvpn.openvpn&hl=en IN

**MYBYK App**: Whether you want to ride a cycle at home or use it to commute within your campus, whenever you need a cycle, find a MYBYK near you. Unlock using your smartphone and pedal your way to a healthy life.

Download Link: https://play.google.com/store/apps/details?id=in.greenpedia.mybyk

**SHIRU CAFÉ:** Order your free drink in the app. Simply launch the app and tap the drink you would like to order.

Download Link: https://play.google.com/store/apps/details?id=jp.co.enrission.shirucafe

**SAFE App:** This is very useful and important app for conducting online quizzes and exams in remote scenario.

**CHALO APP**: Chalo is a free app that allows passengers to live track their bus and tells them at what time the bus will reach the desired stop. Besides, travelling with a mobile bus pass is more convenient than paying cash.

**UTS APP**: Used to book tickets for local train. Download it from Google Play Store.

**CAMP**: The following things will be available in CAMP Website:

- Changing Password
- Changing User ID (Only Once)
- Modifying Personal Details
- Set / Reset mail Auto Reply Text
- Set / Reset mail Forwarding Address
- Department Sys-Ads List
- Hostel Sys-Ads List
- Find your User ID from Roll number / Employee Number
- Link: https://camp.iitb.ac.in/

# Advice for Curriculum

Course materials for 1st semester—Professors provide you all the lecture materials.

**Information about courses**-- <a href="https://portal.iitb.ac.in/asc/Courses">https://portal.iitb.ac.in/asc/Courses</a>

**Important Softwares** — There are lots of software which needs to be installed on your system which are very important academic point of view. Installation instructions and sources will be given by course instructor.

- 1. ENVI- Required in coursework lab.
- 2. MATLAB— MATLAB is very powerful software and it is required in project work or for coding. Institute offers licenses of MATLAB to students which can be availed by you. As this software is very big and for normal use it is recommended to use MATLAB online which is very easy and doesn't require any installation. https://www.mathworks.com/products/matlab-online.html
- 3. ArcGIS—Required for coursework lab
- **4. QGIS**—It is open source software and capable of doing everything which ArcGIS can do. It can be easily download from QGIS website— https://agis.org/en/site/forusers/download.html

**Coding Knowledge—**As this department is an interdisciplinary department so student of various background comes here of whom only handful are familiar with coding so others don't worry you can learn it from scratch. Coding knowledge is required in projects and placement point of view. Python is easy and fast to learn so it is recommended.

Best and easy environment to use is Google Colab which doesn't require any installations and management. <a href="https://colab.research.google.com/">https://colab.research.google.com/</a>

Where you can learn python—

- https://www.geeksforgeeks.org/python-programming-language/
- https://www.youtube.com/playlist?list=PLsyeobzWxl7poL9JTVyndKe62ieoN-MZ3
- https://github.com/wncc/CodeInQuarantine

**Additional materials—**Up to above is more than enough for 1st semester but still if you manage to have time then you can check out advanced topics like machine learning and deep learning over which you will have courses and projects in next semesters—

#### SQL

PostgreSQL YouTube PostgreSQL Tutorials: Learn PostgreSQL From Beginning to Advanced (Beginner's List)

#### **Machine Learning**

- Analytics Vidhya: <a href="https://courses.analyticsvidhya.com/courses/getting-started-with-decision-trees">https://courses.analyticsvidhya.com/courses/getting-started-with-decision-trees</a>
- 2. Towards Data Science: Towards Data Science
- 3. Ali Ghodsi Machine Learning YouTube Videos: Fall 2015 STAT 441/841 CM 763: Classification
- **4.** Understanding Machine Learning Shai Ben-David: <u>Understanding Machine Learning Shai Ben-</u>David
- 5. Machine Learning 2013
- 6. NPTEL Machine Learning: NPTEL MOOC Machine Learning 2016
- 7. StatQuest: Machine Learning
- 8. Stanford machine learning Andrew ng: <a href="https://www.youtube.com/watch?v=PPLop4L2eGk&list=PLLssT5z\_DsK-h9vYZkQkYNWcItqhIRJLN">https://www.youtube.com/watch?v=PPLop4L2eGk&list=PLLssT5z\_DsK-h9vYZkQkYNWcItqhIRJLN</a>
- 9. Machine learning by Andrew Ng Stanford university Lecture Collection | Machine Learning

#### **Deep Learning**

- 1. edX: <a href="https://www.edx.org/learn/deep-learning">https://www.edx.org/learn/deep-learning</a>
- **2.** Coursera: https://www.coursera.org/courses?query=deep%20learning

#### Additional courses can be learnt by taking some courses over websites like—

- https://www.coursera.org/
- https://www.udemy.com

#### Another good source will be---https://shala2020.github.io/

This course was run by IITB faculties to benefit students during quarantine time. It covers topics like machine learning, deep learning from basic level to advanced. It has all recorded video lecture along with notes and even has assignments which can be solved for self-assessment.

#### Gentle advice —

The projects and assignment of courses requires heavy performance computer and high-speed net. For increasing speed of system, you can replace HDD with SSD. If you are planning to buy new laptop then buy one with SSD or else you can upgrade old one with SSD. SSDs can be bought over Amazon or Flipkart. Information about SSDs you can see over Google or YouTube.

SSD will increase speed by about 10x which will be highly beneficial for your academic purpose

# IITE Map



Link for Map: https://www.iitb.ac.in/sites/www.iitb.ac.in/files/article/images/IITB\_ISO-Print Map\_WEB\_RES%26ACD.jpg

Academic & Non academic	EAC (Condents Author Cons. D.)	Auditoriums and Halls	Hostels	A- 13   Bungalow 13 C3 _A13	HI-8 (85-96) B5
ACRE / Advanced Centre	SAC/Students Activity Centre. B4 44 SAMEER A5 45	Convocation Hall B4 82	Hostel 1A4 _ H1	A- 14   Bungalow 14 B4A14	HI-9 (97-108) C1
or Research in Electronics B41	SINE/CSREB416	G. Gaitonde Lecture Hall B4 27	Hostel 2 A4. H2	A- 15 Bungalow 15 B4 _A15	HI- 10 (109-120) C1
erospace Engineering B42	SOM/Shailesh J. Mehta	Lecture Hall Complex 1 B4 30	Hostel 3 A4 H3	A- 16   Bungalow 16 B4A16	HI- 11 (121-134) B1I
erospace Engg. Annex B43	School of Management B4 _ 29	Lecture Hall Complex 2B431	Hostel 4. A3 H4	A- 17   Bungalow 17 B4 _A17	H1-12 (135-151) B5
io-science & Bio-engg B4 4	Sophisticated Analysis	Lecture Hall Complex 3 B4 32	Hostel 5	A- 18   Bungalow 18 84 _A18	HI- 13 (152-168) B5
o-science & bio-enggbii4	Instrument Facility (SAF)B41	PC Saxena Auditorium (LT) B4 B3	Hostel 6 A3. H6	A- 19   Bungalow 19 A4 _ A19	H1- 14 (169- 176) (1A-2A) B5
io-engineering CentreB45	SRE Substation UnitB446	Seminar Hall	Hostel 7A3_ H7	B. T O	LE DO T. C. A. IR. M. A. C.
io-sciences &	Stores and Estate office B547	VMCC/Victor Menezes	Hostel 8B3. H8	B-Type Quarters (Residential)	H1 BB-Type Quarters (Residential)
io-engineering	Systems and Control Engg B4 _ 5	Convention Centre B4 85	Hostel 9 A3 _ H9	8-1 (1-6)C3 _25 8-2 (7-10)C3 _26	H1 88 (1-26)
epartment (New) C4_ 6	Wadhwani Research Centre	Food	Hostel 10 Girls' Hostel C3_ H10	8-3 (11-14) C327	H2-Type Quarters (Residential)
	for Bio-sciences & Bio-engg_C4 _ 6	Brewberry Cafe	Hostel 10 Girls' Annex C3 H10+	8-4(15-18) C3 28	H2-1 (1-8) C2I
ad Centre   Chem. Dept.  B4_7 entral Library B4_8	ibi bio sciences d'alb enggeu+ _0	Campus Hub A3 B7	Hostel 10A Girls' (Proj. Staff) B5 H10A	8-5(19-22)C3 _29	H2-2 (9-16) C2
ESE/Centre for	Labs & Workshops	Gulmohar Cafeteria B3 43	Hostel 11 Girls' Hostel B3 H11	B-6(23-26)C3 _30	H2-3 (17-24) C2_
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ivil Engineering B411	Concrete Technology LabB5 _51	Uphar C4 _ 91	Hostel 16 A4 _ H16	B- 11 (43 - 46) C335	H2-8 (57-64) C2_
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ngineering Centre (New) B4 13		ATM - Canara Bank B3ATM	Araveli (207-267) A5_ 47	8-14(55-58)03_38	H2- 11 (81 - 88) C1
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ngineering Department B414	Energy Systems LabB454	ATM - State Bank C2 _ATM		8-16 (63-66)C240	H2-13 (97-104)CT
enstruction Division B515	Fluid Mechanics and	ATM - State Bank A3 ATM Canara Bank B3 43	Guest House 1 / Jalvihar B3 G1	B- 17 (67-72) C341	H2- 14 (105-112) C1
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ectrical Engg. Annex B4 17	Heat Pump Lab B4 _60		Shivalik (187-240) C366	8- 23 (207-267)A5 _47	H2-21 (169-176) B4
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ffice (Power House) B522	(Civil Engg. Dept.) 85 _ 51	Indoor Sports Complex B395	Tusi-A ***   B***   C*** A5 119	BTR-8**9(4, 5, 6   10, 11, 12) _C2 _49	H2-27 (209-216) B1
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etallurgical Engg. &	Rock Cutting LabB475	Sarovar Udyan C2115	28-16 (91-96)C116	C** & D*** (D1-D12)8467	Type1-7 (73-84)B5
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ano Electronics Building B4 38	52 BayB567	Shishu Vihar B3 117	28- 19 (109- 114)C1 19	CTR Building- 19 (115 - 126)C268	Type1- 10 (109-120) A5
ano Electronics Bullang 64 38 ano Tech. & Science	\$3 Bay B4 _ 77	Temple (Padmavati Devi) 81 118	28-20 (115-134) B520	CTR Building- 20 (127- 138)C269	Type1- 11 (121 - 132) A4
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thematics (Maths) B3_ 39	Solar Lab B4 _ 54		Name and the second	Guest House/ Accommodation	Type1- 17 (193 - 208) B5
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r Aerospace Innovation	Suman Mashruwala Advanced		A-1 Bungalow 1 (Director's) C3. A1	Guest House 2/ Vanvihar B3 G2	Type1- 19 (225- 259) A5_
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ral Gasification Research	Thermal Hydraulic		A- 5   Bungalow 5C3A5	H1-1(1-12)C1 _71	DIR Dunchare IR and A collaboration
ntre (UCG) B4 41	Test FacilityB5 _81		A- 6 Bungalow 6	H1-2 (13-24) C172	QIP Quarters (Residential)
hysics Department B442	Tinkerers Lab (STAB)B473		A-7 Bungalow7C3_A7	H1-3 (25-36)C173	QIP-1(1-16). B5_
acement Office B3_ 43	Treelabs B4 _ 73		A-8 Bungalow 8	H1-4 (37-48)C174	QIP-2 (17-35) B5_
wer House B5_ 22	UG Lab/52 Bay		A-9 Bungalow 9. C2 A9	H1-5 (49-60)B575	Demolished Buildings:
e-fab Building B540	UG Lab (1" Year) B540		A-10   Bungalow 10	H1-6 (61 - 72) B5 _ 76 H1-7 (73-84) B5 _ 77	Type C-1, Type C-3, Type C-4,
nting Press B44					

# Gallery





















We whole-heartedly welcome you to CSRE...

# Designed & Maintained by CSRE ISCP team 2022-23