



भारतीय प्रौद्योगिकी संस्थान कानपुर
Indian Institute of Technology Kanpur

YOUR IITK ACADEMIC COMPASS

2025 - 26



CONTENTS

SECTION 1: WELCOME NOTE!	4
SECTION 2: TRANSITIONING TO ACADEMICS AT IITK.....	6
SECTION 3: ACADEMIC PATHWAY AT IITK- FLEXIBLE, COMPREHENSIVE AND CONTEXTUAL.....	8
SECTION 4: LEARNING AND GROWING WELL.....	13
SECTION 5: MENTAL, EMOTIONAL, & SOCIAL WELL-BEING	27

© 2025 Indian Institute of Technology Kanpur. All rights reserved.

No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher, except in the case of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law.

This brochure is curated and edited by Dr. Ashesha Sinha and designed by Mr. Sumit Raj.



SECTION 1: WELCOME NOTE!

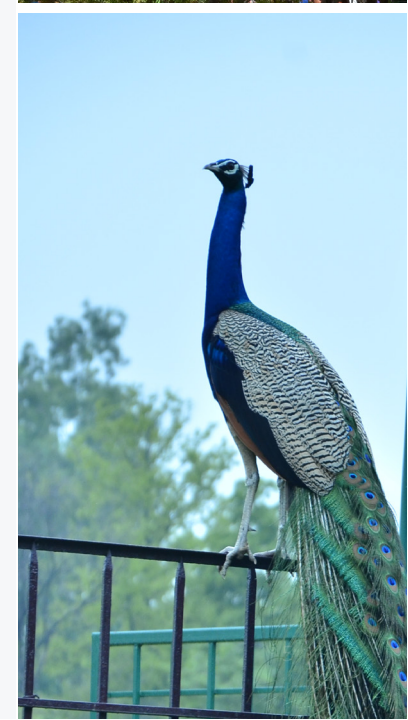
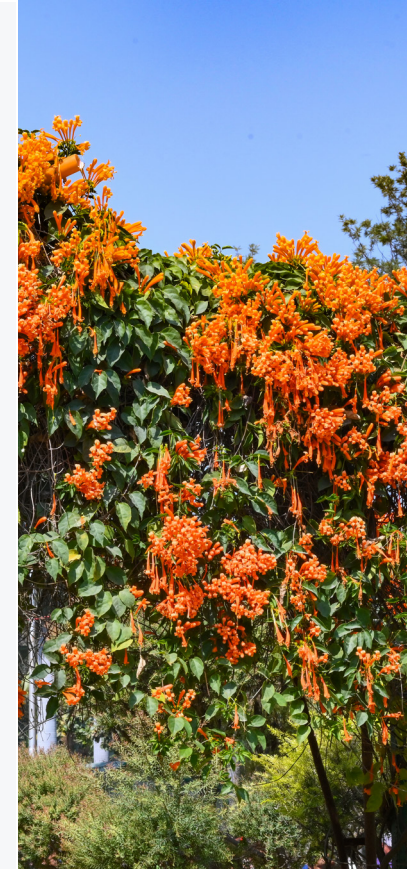
Congratulations on clearing the JEE. We welcome you to a vibrant academic community at IIT Kanpur (IITK). In the next few years, you will transform and grow as a scholar and a responsible individual, learning from remarkable academicians, expanding your knowledge, and forming life-long friendships. We wish you all the best as you evolve into a well-rounded citizen who will contribute to society meaningfully.

IITK gives you more than just a degree—it helps you grow in many ways, and learning happens inside as well as outside the classroom. It is a place to try new ideas, learn unique skills, work with others, take the lead, and become thoughtful and well-informed. To do well here, you must stay curious, be disciplined, and manage your time well to handle your studies and participate in other activities.

The curriculum at IITK ensures academic rigour and flexibility. You should look forward to learning across various disciplines, including engineering, humanities and sciences. Every semester, you will benefit from learning through multiple courses from the Institute Core, Department Core and various Electives. Along with your co-curricular activities, details of which are available through the Students' Gymkhana, you can pursue an academic journey aligned with your interests and aspirations.

We understand that transitioning into a new environment—away from home—can sometimes feel overwhelming. The combination of newfound freedom, personal responsibility, and academic rigour at IITK can be daunting. It is perfectly natural. What matters is how you deal with it by integrating studies with your overall well-being.

This brochure aims to help you stay focused on academics while exploring numerous opportunities at the institute. Some of you may be driven chiefly by the desire for professional recognition through impactful research, innovation, or academic distinction, while others may be driven by financial stability through professional growth. At the same time, some of you may be driven by the desire for deep intellectual growth. Whatever your goals may be, IITK has ample resources to support them. To make the most of the institute's offerings, you must first align yourself with its academic system. Therefore, let us begin by understanding how you can transition into the IITK system as you start your educational journey here.



SECTION 2: TRANSITIONING TO ACADEMICS AT IITK

For the past couple of years, your attention might have been mainly on an exam-oriented syllabus and developing skills to clear competitive examinations. That has worked well so far, but now it is time to move beyond it and cultivate deep, lasting knowledge and understanding to become experts in solving real-life problems. To do this, you need to be open to new ideas, stay inquisitive, think clearly, and try to find links between different concepts and their applications. As you are transitioning to become an expert, you do not simply ask, “What is the answer?” but explore and analyse, “Why is this the

answer?”, “What are its implications in other situations?”, and “how can this knowledge be applied elsewhere?” It is this mindset you should adopt, and in the process, you will develop intellectually and become equipped to tackle real-world challenges with clarity and confidence. Also, your ability to articulate how you arrive at a solution and communicate your findings effectively, beyond merely arriving at the correct answer, will be equally, if not more, important.

A strong beginning in your first semester at IITK will drive future performance, opening doors to opportunities like internships, research, and scholarships. On the other hand, lagging in the early phases can make it hard to catch up later. While it is essential to prioritise



your academics, you would simultaneously want to participate in extracurricular activities. A wise approach is to initially limit the number of activities you join to one or two and add more only if your studies are going well.

A common misconception among first-year students is that familiarity with the material in their chosen course means they already understand it well. However, it is crucial to recognise that at IITK, the depth, pace, and academic rigour with which teaching in these fundamentals transpires far exceeds what you may have previously experienced. To keep pace with it, remember to attend all the lectures, revisit fundamental concepts regularly, and put in your best effort to solve assignments before the tutorials. If you struggle with any topic or the concept is unclear, approach your instructor or tutor during office hours or after the class. Additionally, if language poses a challenge, build your technical vocabulary using textbooks and trusted platforms such as NPTEL, which will greatly help. Translational tools available on the internet can also be helpful when you do not understand something stated in English.





SECTION 3: ACADEMIC PATHWAY AT IITK- FLEXIBLE, COMPREHENSIVE AND CONTEXTUAL

As mentioned earlier, IITK education puts a lot of emphasis on fundamental understanding based on first principles. Instead of training you narrowly for short-term goals, it encourages and demands critical thinking, problem-solving from the ground up, and lifelong learning. This foundation prepares graduates for diverse paths, e.g. technical roles, research, entrepreneurship, policy, or academia, by instilling habits of rigorous analysis, clear communication, and methodical inquiry.

3.1 Building the Foundation in the First Two Years

The first two years at IITK form the foundation of your academic journey. The majority of courses

in these years are Institute Core (IC) courses that broaden your base across basic sciences (physics, chemistry, mathematics, and life sciences), and introduce you to Engineering Sciences (computing and electronics) and Engineering graphics. Most of these courses have laboratory work associated with them. These courses form a bridge between students' school education and professional education. As such, they are essential for preparing students for professional-level courses in your respective departments. Complementary subjects like English and Physical Education in the first year support skills advancement. English helps strengthen technical writing and presentation abilities. On the other hand, Physical Education contributes to maintaining your health and fostering team spirit. Irrespective of your educational goals or the field of study, your ability to model, analyse, and interpret systems derives from the conceptual depth built in the early semesters through these courses. Thus, the purpose of ICs is twofold: to ensure you possess a firm grasp of the core scientific principles and to nurture the cognitive flexibility required to apply these across diverse scientific and engineering contexts.

The first year of the UG programme is mainly devoted to strengthening your fundamentals in basic sciences, along with computing and engineering graphics courses. In the second year, in addition to ICs, you start taking discipline-specific education through **Departmental Core (DC)** and **Engineering Science Option (ESO)** and **Science Option (SO)** courses selected by the departments. The second year is meant to foster



wide adaptability, preparing your background for a rapidly evolving world where you will solve novel and futuristic problems by developing new tools. The ability to do this requires a sound knowledge of relevant scientific principles.

Alongside technical courses, in your second year, you also start taking courses in **Humanities and Social Sciences (HSS)**, offered in disciplines such as English, Fine Arts, Philosophy, Psychology, and Sociology. You will take a Level-I HSS course in the second year and three Level-II HSS courses between the third and fourth years. In addition, you must take one course in Economics, Management, or the Environment. Referred to collectively by the acronym **SCHEME**—Social sciences, Communication, Humanities, Economics, Management and Environment—courses, they play a vital role in the undergraduate education at IITK as these courses help you understand the social, ethical and environmental contexts in which technical knowledge operates. Furthermore, these courses allow academic exploration beyond one's core field, helping provide a broad perspective and shaping personal and professional growth.

3.2 Importance of the First Two Years

Technology changes rapidly, and the tools you will use in the future may not even exist today. However, the fundamentals remain the same. That is why IITK strongly emphasises building a solid foundation in the first two years. These early courses are not just about content—they shape your way of thinking to be scientific, analytical, and curious. This phase is also when your true academic interests begin to take shape, guiding your choice of electives and projects in the later years. By emphasising breadth as well as depth and principles along with practice, the curriculum prepares IITK graduates to do well in current times and the future as adaptable thinkers and leaders.

3.3 From Core Concepts to Subject Expertise

Having completed the first two years, you start doing courses related primarily to your discipline from the third year onwards. Here you take courses in **Departmental Core (DC)**, **Departmental Electives (DE)** and **Open Electives (OE)**. While the core courses are common to all the



students in a discipline, the elective courses are chosen by you from your department (**DE**) and across the Institute (**OE**). Whereas **DE** may provide both breadth and depth in your own subject, **OE** offers you an opportunity to get exposure across various disciplines.

3.4 Opportunities for Additional Specialisation, Enrichment and Extended Learning

IITK provides various avenues to expand your academic horizons beyond the core curriculum. These include optional programs that allow you to deepen expertise, diversify knowledge, or extend your degree timeline strategically.

i. Minors

You can earn one or more Minors by completing courses and meeting credit requirements specific to the Minor program. Notably, Minors can even be claimed retrospectively once all required courses have been completed.

ii. Honours

Students who want to deepen their technical knowledge can apply for the Honours (BTH/ BSH) program, which involves taking additional departmental electives and completing two undergraduate projects.

iii. Management track

Those interested in integrating technical knowledge with management skills can apply for the integrated Bachelor of Technology/ Science and Management (BTM/BSM) program, with the application process beginning at the end of the fifth semester.



iv. Dual degree (Integrated Master's Program)

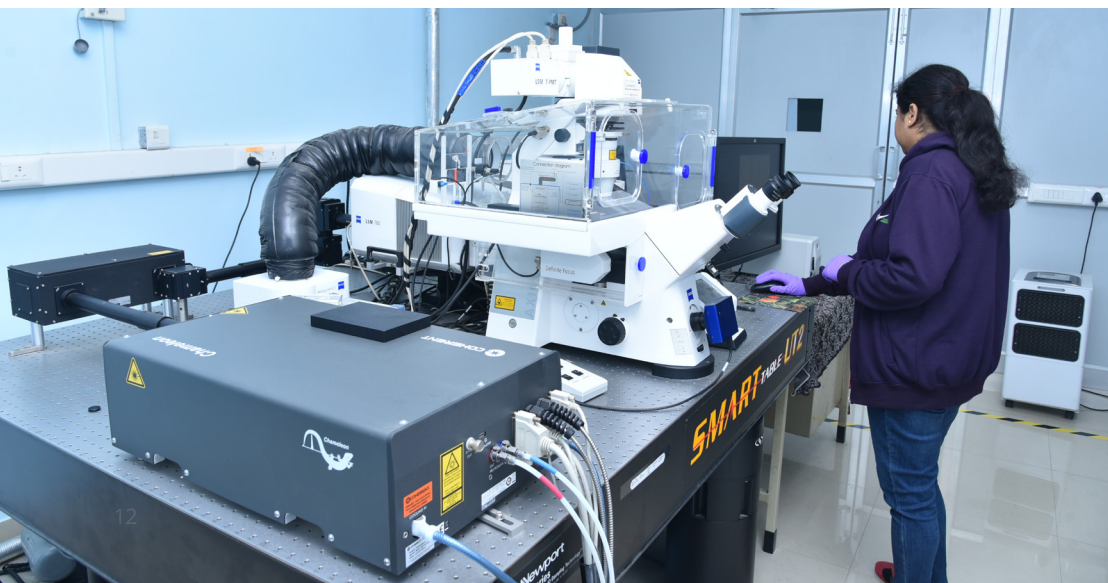
For those who wish to continue beyond the 4-year program, IITK offers an opportunity to pursue an MTech or MS in just one additional year.

v. Double Major

You can also complete a second Major in another discipline in a 4+1 years format, subject to meeting specific academic criteria. The additional year is used to complete the courses required for the second Major.

Section 4: Learning and Growing Well

There is a vibrant community of faculty members, teaching assistants and academic staff, along with your peers, who will all support you in learning. To make the most of this external support, you





must combine it with your inner strengths—self-motivation and the willingness for personal and professional growth. The latter involves developing strong time management skills and adopting effective study techniques. Only when all these factors come together will you get the rewarding experience of growing well. One by one, we discuss each of these aspects below.

4.1 Partners in Learning

Your learning is guided by faculty members who are instructors in all the courses, teaching assistants, and academic staff who provide valuable support throughout your educational journey at IITK. In addition, your peers have an equally important role as partners in the learning process. We urge you to know each of them and take full advantage of the support they provide.

i. Faculty members

Faculty members are selected through a rigorous process that examines their academic record, research work, and teaching abilities. It means they are highly qualified and knowledgeable individuals who were like you, once. They have already undertaken the academic path you are about to begin. As a result, they know what a challenging academic life feels like and are still part of it. They have chosen this career because they genuinely enjoy learning and sharing their knowledge with you. That is why they put a lot of effort into preparing their lectures, tutorials, and laboratory sessions. You must, therefore, build an open channel of communication with them. Only then will your classroom experience become more meaningful and enjoyable.

Above all, remember that faculty members are not only your teachers but also fellow human beings. Treat them just as you would like others to treat you—with respect and understanding.

ii. Teaching assistants (TAs)

Another set of people you will interact with, mainly in laboratory sessions and occasionally during classes, are the Teaching Assistants (TAs). These are the postgraduate students pursuing higher degrees at IITK. Thus, they are senior students who have already completed the undergraduate studies you are now starting. They bring valuable experience and insight, so give them due regard and make the most to learn from them.

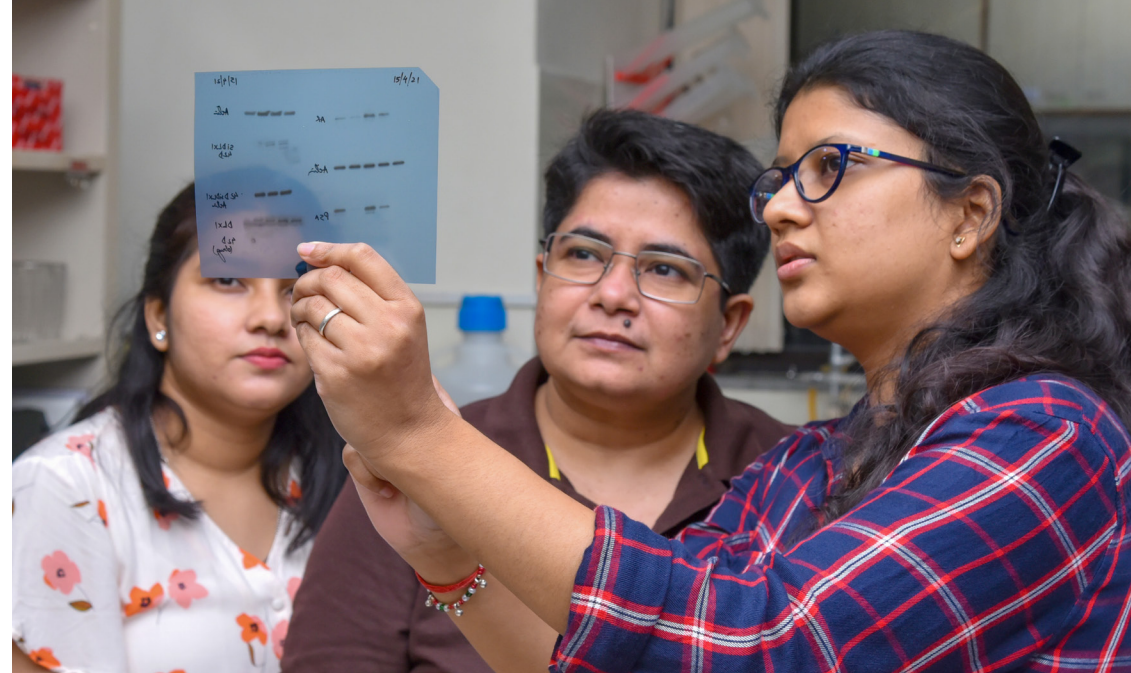


iii. Academic staff

They are responsible for running laboratories and workshops and serve as an essential link between what you learn in the classroom and its application in a real situation. They are technically trained and know the experimental setups and machines well. They are, therefore, essential for your growth as a hands-on scientist or engineer, so it is important to acknowledge their contribution and respect them.

iv. Peer group

The students who study with you are also valuable sources of learning. Since each of you has different perspectives and problem-solving approaches, interacting with your peer group through discussions, group projects, and informal study sessions will help you to learn from one another's experiences. Moreover, if you explain complex concepts to your peers, in addition to helping them, it also reinforces and deepens your grasp of the subject.



4.2 Self-motivation

Like everything meaningful in life, your academics at IITK will also have ups and downs. Sometimes you will feel excited and happy about your accomplishment; at other times, when things do not go well, especially when you struggle to understand some topic, miss a deadline for an assignment or underperform in a test, you will feel demotivated and start doubting yourself. In these instances, remember that this is part of the learning process, and all is not lost here.

Here is how you can stay motivated during challenging times-

i. Set clear goals

Set yourself both short-term and long-term goals. In cricketing parlance, your long-term goal may be scoring a century or getting five wickets, while the short-term goal will be batting through each session or giving your





best to each bowling spell. Similarly, your long-term academic goal could be graduating with a strong academic record. To achieve this, in the short run, you would perform well every semester by attending the classes regularly, reviewing concepts periodically or preparing for your next quiz or test. You can always look forward to the next chance if you do not perform well on a test or quiz. It happens in cricket when you get out or do not get a wicket; there is always the next innings or next match where you try again.

To continue moving forward, you must ask yourself where you want to see yourself at the end of a semester, end of the year, end of four years and after ten years. Keep that in mind and act accordingly.

ii. Reflect and learn

If you have not done well in a quiz or a test, ask yourself what you could have done differently. There can be several reasons why your test did not go as you would have wished. Sometimes it

is relying on your previous knowledge, which may not be accurate or sufficient to perform well at IITK. Otherwise, it is also possible that you did not spend enough time or use the appropriate techniques to learn the study-material. Use this insight and adapt your approach. Only when you take your experience as feedback and not as a failure will you learn and grow from it.

iii. Trust yourself and the process

In some courses, you may feel you do not get good grades no matter how hard you work. In such a case, you sometimes want to give up on that subject, justifying that it has no value in your education. Here, you should trust yourself and the intention of the course designer, who put it in the curriculum because it has value. Every subject in your curriculum has been selected for a reason. So, keep working at it diligently, practice expressing your thoughts well, and solve problems in that area. Thus, you will build confidence and realise the worth of the course with every step in this direction.





4.3 Time Management & Study-Life Balance

At IITK, if you are registered for N credits, you are expected to spend at least N hours per week on academic activities. Typically, with 54–56 credits, this amounts to around 9 hours of daily academic work, which includes attending classes, laboratory work, and self-study, leaving Sundays for rest and rejuvenation. Factoring in 7 hours of sleep and 4–5 hours for daily routines, you are left with about 3–4 hours of leisure time. Clearly, your schedule is packed, but with efficient time management and discipline, you can enjoy the many opportunities IITK offers. For this, consider the following points-

i. Attending classes is essential

Many students assume they can skip classes and review notes or watch similar lectures online later. However, this laid-back approach often leads to trouble. Lectures and tutorials are your designated study time, so you should make the most of them. Being in class offers

unique insights from instructors you cannot generally obtain elsewhere. Also, instructors modify and improve their teaching based on real-time feedback from students. Furthermore, peer discussions and questions raised in class deepen your understanding and clarify subtle doubts. So, make a habit of taking notes of all the ongoing discourse in the class.

Missing the classroom interactions puts you at a disadvantage. Skipping classes frequently is a sign of poor time management, often leading to falling behind schedule. Eventually, it creates a cycle that is hard to break and results in missing large parts of the course.

ii. Be regular and plan

Academics at IITK are rigorous, with regular assignments, weekly quizzes, and mid- and end-semester examinations as part of a continuous evaluation system. While this may sound overwhelming, it becomes manageable if you attend classes regularly, complete assignments on time, and begin projects early, breaking them into smaller, achievable tasks. A recent survey of graduating students underscored the benefit of this continuous and diverse evaluation, which they said helped them learn the concepts and stay current. For this to work for you, planning each week adequately by listing things to do can help you stay organised and avoid feeling overburdened with work.

iii. Take breaks

As mentioned earlier, keeping a day (Sunday) free

for yourself is rejuvenating. So, take a break on Sunday, and you can start preparation for the next week from Sunday evening onwards.

iv. Follow one extracurricular activity at a time

IITK offers many opportunities and facilities to do extracurricular activities, and you may find many of them that interest you. However, given your limited time, it is best to take up one activity per semester. That way, you will be balancing your studies and your hobbies judiciously. If you can handle more activities, do it, but keep the number small and time limited for each activity.

v. Put an upper limit on leisure activities

Having fun with friends, sitting with them in the canteen, watching movies, and other similar activities are essential to your social life and overall well-being. Do it but decide beforehand that you will do it up to a particular time and stick with that. When that time is up, leave to attend to your other responsibilities.

4.4 Study Techniques & Academic Integrity

i. Bridging the gap between understanding and applying

We have experienced that many students understand concepts well in class but struggle to apply them during the examination. Often, this is because their knowledge remains isolated. Science and engineering problems typically require an integrated understanding. To address this, connect new concepts to what you already

know and group them meaningfully into chunks—a strategy called **association and chunking**. This approach helps build cohesive knowledge blocks, making it easier to recall and helping you develop mastery over the subject.

ii. Academic integrity: plagiarism, paraphrasing and copying

You are encouraged to use online resources, books, and research journals for your assignments and projects. However, use the content responsibly by giving proper reference to the source. If you cut and paste information and pass it off as your own, it becomes **plagiarism**, which is unethical and illegal. While plagiarism can take many forms, it broadly includes any work that is not original or properly acknowledged (more details in the lectures of ETH111).

Citing a source is important, but you must also present the information in your own words. It is known as **paraphrasing**, and while it is acceptable with published material, rewriting a friend's assignment is seen as **copying** and is not permissible. When you copy, you take away the credit for the content and the hard work involved in arranging the material, understanding it, and presenting it appropriately. In fact, copying is so frowned upon in the academic community that its consequences can be severe, ranging from failing the assignment to being deregistered from the course, which usually results in delays in completing the program.



iii. Use of Artificial Intelligence (AI)

An important question is whether to use AI tools, including ChatGPT, Gemini, etc, for academic purposes. There are varied opinions on this, but there is unanimous agreement that using AI to do assignments or write project reports is inappropriate for two key reasons: first, relying on AI-generated content without understanding the reasoning or source behind it is careless and misleading. Secondly, it creates a false sense of competence, giving the impression of knowledge that the user may not possess. Therefore, as a golden rule, ask yourself a simple guiding question: “Will this help me learn better?” If you answer this honestly, you will know when and how to use AI wisely during your time at IITK.

Be aware that several software programs can

be used to detect plagiarised write-ups and content generated using AI tools such as GPTs, which results in one getting penalised if found guilty.

iv. Avoiding Malpractices

Malpractices like plagiarism, copying or writing down assignments from GPTs often result from several reasons, including a lack of understanding and language barrier, a lack of interest in the subject and a decline in motivation, poor time management or fear of underperformance. So, we suggest a few honest and effective practices to avoid the wrong track-

1. **Stay motivated** with a long-term vision for personal and national development.
2. **Request deadline extensions** early when needed.
3. **Break tasks into smaller parts** and manage time efficiently.
4. **Avoid procrastination** and manage anxiety through yoga, meditation and physical activity.
5. **Understand academic ethics** through lectures in ETH111.

v. Strengthening Communication and Overcoming Language Barriers

To increase your comprehension, overcome language barriers and learn a second language at IITK, you can do the following-



1. **Write regularly** in your own words, starting with keywords, then form meaningful sentences.
2. **Practice summarising and expanding texts**, e.g., condense a 500-word paragraph into 100 words or elaborate it to 1000.
3. **Interact with peers** from diverse backgrounds and speaking different native languages in hostels, departments, and through institute activities.
4. **Play team sports** with linguistically diverse groups to build language skills in an informal setting.
5. **Overcome fear** of speaking in a second language by surrounding yourself with supportive peers.
6. **Be open to new ideas** and approaches.
7. **Seek help from tutors and instructors**, who may have faced similar challenges and can offer valuable advice from experience.



Section 5: Mental, Emotional, & Social Well-being

Thriving at IITK means doing well academically, and you can do that only when you also care for your mental, emotional and social well-being. You will be adapting to new ways of living in your first year here, like sharing hostel rooms, working in a laboratory with others, playing on teams, and engaging with people from varied backgrounds. These experiences enrich and foster personal growth but can also be emotionally demanding, causing homesickness, loneliness or fatigue. At the same time, since academia is not an easy path, you are required to consistently put in the effort and follow a disciplined routine to meet deadlines. So, when the pressures of deadlines or adjustment with your environment, or both, begin to weigh you down, you must not ignore how you feel and





take care of it. In these challenging moments, the first instinct is often to reach out to those closest to you—parents and siblings. That is the best place to start. At the same time, you can also turn to the people around you, locally—your friends and peers, who will lend an ear and be there for you. Moreover, if the difficulties persist, feel free to seek professional guidance available at IITK. The institute has a robust support ecosystem, including faculty advisors, student mentors, the Counselling Service, and the institute psychiatrist, who are readily available to address your needs. Only when you take care of your mental and emotional well-being and have healthy social connections around you will you stay focused, resilient, and make the most of your journey at IITK.

WISHING YOU A JOURNEY OF
GROWTH, LEARNING, AND
LASTING INSPIRATION AT
IIT KANPUR



भारतीय प्रौद्योगिकी संस्थान कानपुर
Indian Institute of Technology Kanpur