MISSION AND VISION
Since ages, scholars have been crossing geographical boundaries to disseminate and garner knowledge. At IIT Kanpur, we encourage this phenomenon of equilibration. Overseas visits, whether brief or extended, not only help in generating and sharing technological ideas and fructifying them via collaborative efforts, but also, and importantly, enable one to comprehend and relate to different cultural environments. India is, and has always been a fascinating country, unique in terms of the diverse cultures and lifestyles its citizens pursue. Well-known tourist destinations, like Agra, Khajuraho, Jaipur, Delhi, Nainital, Varanasi, Lucknow, Bhopal and many others are just a few hours away from Kanpur.

The Indian Institute of Technology (IIT) Kanpur is an autonomous, non-hierarchical, matrix system where colleagues and students enjoy complete freedom to pursue their interests. The faculty at the institute is engaged in both classical and concurrent areas of research; and the students are provided with a comprehensive academic exposure, even as the strict standards which have been in place since the inception of the institute, are maintained. In addition, the institute offers a variety of non-academic, extra-curricular avenues as well as adequate freedom for a student to avail of them to develop an all-round personality.

Campus life at IIT Kanpur is socially rich. Residents interact via numerous academic and non-academic clubs. One can pursue aeromodeling, robotics, photography, astronomy, music or dance. The adventure club organises a variety of activities, including planning a trek or cycling expedition every year to the Himalayas. The institute houses numerous up-to-date sports facilities as well as well-equipped gyms.

The offices of Faculty Affairs, Academic Affairs, Student Affairs, Research and Development, and Resource and Alumni work together to assist in the functioning of the institute, to facilitate our on-campus stay and that of our visitors.

Please let us know about your research or study plans and the duration of your intended stay, whether short or long. We will be happy to assist you in your academic interests as well as in your efforts towards EXPERIENCING INDIA.
IIT Kanpur invites faculty members and their families from overseas to spend a few weeks, a semester or a year on campus as per their convenience. Our overseas colleagues can offer capsule courses (two weeks to a month’s duration), regular (semester) courses, a series of seminars, plan a book, or collaborate in research at IIT Kanpur. Our students whether at the undergraduate or postgraduate level are both enthusiastic and diligent, and many are eager to step into contemporary and challenging areas of research. Visits of overseas researchers and subsequent interaction with them will further stimulate our students’ intellectual craving.

We provide Visiting Faculty positions to our overseas colleagues and also, well furnished 2/3 BR on-campus accommodation for them and their families. For short stays, we offer well-equipped 1BR accommodation in our Guest House. Our guest colleagues and their families can use this opportunity to travel extensively across INDIA!

We welcome our alumni, serving as academics abroad, and their families to visit their alma mater, offer courses, and share their experience with the present students.
STUDENTS

IIT Kanpur hosts numerous students from all parts of the country on campus and offers Bachelor’s, Master’s and Doctoral Programs in the departments of Aerospace Engineering, Biological Sciences and Bioengineering, Chemical Engineering, Civil Engineering, Computer Science, Electrical Engineering, Industrial and Management Engineering, Material Science and Mechanical Engineering. The Institute offers similar programs in Physics, Chemistry, Mathematics, and in the Humanities and Social Sciences. In addition, we have inter-disciplinary programs in Environmental Sciences, Design, Laser Technology, Material Sciences and Nuclear Engineering. (http://www.iitk.ac.in/doaa)

Our colleagues, trained within the IIT System and/or from reputed Universities in the US, Canada, Europe and Asia, are competent in their respective fields, and are extremely dedicated to teaching and research. Our firm belief in the uninhibited exchange of knowledge and information is exemplified in the numerous high quality video and web courses available freely online through the NPTEL portal (http://www.nptel.iitm.ac.in).

We encourage overseas students to participate in the semester/year long exchange programs at IIT Kanpur. We have and seek Memoranda of Understanding with our partner universities under which we usually waive the tuition fees. We also provide assistantships to exceptional students. Accommodation is available on campus and living expenses are quite nominal. Students can not only access contemporary computational, experimental, library and sports facilities, but also, they can use the opportunity to travel in and explore the country, to appreciate our rich and diverse traditions and cultural heritage.
CULTURAL

Student life at IIT Kanpur is an eclectic mix of academic and extra-curricular pursuits. It encompasses a wide range of activities related to science and technology, films and media, art and culture, games and social welfare. Besides, it offers a unique opportunity to interact with other Indian students and experience the rich and diverse culture of India.

To complement an exacting academic training, IIT Kanpur offers a plethora of opportunities to students for their all-round personality development. Via the five councils within the Gymkhana, students educate themselves in honing their organizational skills by managing major annual festivals/events. ANTARAGNI (the fire within) is a large scale cultural festival of high repute involving around 3000-1200 students from across the country. Personality contests (Ms and Mr ANTARAGNI), a Kavi Sammelan (assembly of poets), classical music and dance nights, professional nights and rock shows are some of its major highlights. It is via events such as ANTARAGNI, GALAXY (inter-hostel cultural competition), and MUSICAL EXTRAVAGANZA that students showcase their talent in vocal and instrumental music, dance, production of plays and acting encompassing Indian and Western classical, and contemporary genres. Students are active both on and off stage.

Their raw energy and enthusiasm is so compellingly magnetic that even faculty members get drawn on-stage to contribute to the fun.
TECHNO-ENTREPRENEURAL

One needs to get one’s hands dirty to learn more and better, through and outside the classes offered within the institute. After all, it is within failure that real learning is hidden, for otherwise, success would seem routine, mundane and meaningless! The Science and Technology Council hosts numerous clubs pertaining to robotics, business, aero-modeling, programming, astronomy, electronics, gliding (we are a rare institute in India to own an air strip), HAM and biological research. The council also hosts a Rubik's cube hobby club.

One does not need any pre-requisites apart from enthusiasm to be a member of a club. Students formally pursuing Economics or Chemistry, for instance, can be a part of the robotics, aero-modeling or electronics clubs. The council organizes TECHKRITI, a techno-entrepreneurial festival held in March every year, wherein students from across the country showcase their engineering insights by competing in more than 30 events involving robo-games, software, electronics and other disciplines.

FUN

The non-academic life on campus is as enriching and enlightening as the academic experience in IIT Kanpur. Living far away from home, for the first time in most cases, youngsters find new, extended families in their wings, hostels, departments and classes. The intimate bonds forged while eating, studying and playing together, and through “bulla sessions” (late night discussions) grow stronger with passing years. This camaraderie is witnessed best during the Silver/Golden Jubilee Reunions when the grownups turn back nostalgically to the days of their youth, touch base, dance and dine together, as if they always belonged here. They are a delight to watch by their own kids who are around the same age as their parents were when they first walked into the Campus. Many leave campus only temporarily to return and serve as Professors. Apart from the professional programs students graduate in, many become proficient guitar and drum players, dancers, singers, sportsmen, debaters and orators – they exploit the freedom and opportunity to explore facets of their personalities they were totally oblivious of when they entered the campus. Students are and will always be family.

SPORTS

All work and no play is no way to relish an academic stay. IIT Kanpur offers numerous avenues through which students, faculty and staff can raise their endorphin levels and relax after gruelling hours of classes, labs and research work. The institute has two large cricket grounds, hockey and soccer fields, outdoor and indoor basketball and badminton courts, tennis and squash courts, gymnasium, swimming pool, and a large facility for indoor games such as table tennis and chess. Students indulge not only in recreational sports, but also in competitive sports. The Students’ Gymkhana organizes UDGHOOK, JOSH, VARCHASVA and many such events annually. UDGHOOK and VARCHASVA are inter-Collegiate and inter hostel competitions while in JOSH, anyone on campus can participate. Like ANTARAGNI, UDGHOOK is hosted on a large scale inviting about 600-800 participants from across the country and requires an organizational effort from a large team of students. In addition, the Sports Council within the Students’ Gymkhana hosts chess, Taekwondo and adventure sports clubs. In most sports, students get assisted or trained professionally. A team of about 150 students is chosen to represent the institute in the Inter IIT Sports Meet held every year in December.
ADVENTURE

Excitement is not always limited to life within the IIT Kanpur campus! At least, this is what the Adventure Club ensures. We are not very far from the foothills of the Himalayas and we take full advantage of it!

The Club plans cycling, rafting and trekking expeditions every year. Each trip lasts for about 15-20 days or more. Before embarking, participants, as many as there can be, undergo requisite training to condition themselves to withstand the rigors of the demanding environment and journey so that they do not miss out on a lifetime opportunity to experience contentment in quanta, if not in totality. What could be better than such excursions being subsidized significantly by the Institute, or through other sources! The Students’ Gymkhana acts as a platform offering numerous opportunities to the students to pursue their interests. Their calendar of events can be accessed at: http://students.iitk.ac.in/gymkhana/index.html
### AEROSPACE ENGINEERING

The 20 faculty members in the department are involved actively in various areas of Aerospace Engineering including Fundamental/Experimental Aerodynamics (in particular, transition and turbulence), Computational Fluid Dynamics, Aircraft Structures, Flight Mechanics, and Propulsion and Combustion. In addition, the department is active in research on Composite/Smart Materials, Structural dynamics & Aeroelasticity, Vibration and Control Dynamics, Guidance of Atmospheric Flights Vehicles and Spacecrafts, Flight Testing and Helicopter dynamics.

The Aerospace programme offers opportunities to learn more about aircrafts and helicopters through research, analysis, observation and testing. Aerospace Engineering is an ever-evolving discipline posing numerous challenges thereby keeping one excited and engaged forever.

Facilities such as flight testing and helicopter laboratories, a National Wind Tunnel Facility, a High Performance Computing Laboratory and a private airstrip (1000 m runway) with four powered aircrafts and gliders are unique to IIT Kanpur.

http://www.iitk.ac.in/aero/
CHEMICAL ENGINEERING

The department of Chemical Engineering (ChE) with 21 faculty members at present, has grown from strength to strength in the past five decades; from an early emphasis on developing and perfecting the undergraduate curriculum to nurturing a fledgling post-graduate research program to contributing significantly to applied and fundamental ChE research. It ushered in a new paradigm in undergraduate education, one that fosters the creative thinking process in a very open and vibrant academic environment.

The highly motivated faculty members are earnestly involved in research in frontier areas of complex fluids, micro-reactors, nano-technology, adhesion, molecular simulation and bio computation along with making wide forays into traditional areas of fluid dynamics, conventional/new separation processes, catalysis, polymer engineering, and process design and control.

ChE@IITK attracts some of the best talent in the country so that our students are naturally highly sought after by industry (private/government) and academia. The campus has a placement office for on-campus recruitment visited by companies in core and finance sectors. Several graduates go abroad for higher studies and post-doctoral research, and thereafter join industrial R & D or academic institutes. A recent and welcome trend is some students opting for entrepreneurial ventures.
CIVIL ENGINEERING

Within this discipline, in-depth investigations are carried out in numerous sub-areas of foundation systems, geomaterials, railway geotechnology, mechanics of rivers, water management and treatment, hydrology, environmental chemistry, atmospheric pollution, transportation, remote sensing, LIDAR/laser scanning, GPS applications, archaeology, urban mapping, flood and noise propagation, geomorphology and sedimentology, subsurface stratigraphy, tectonic geomorphology and paleoseismology, petrology and geochemistry, mechanics/dynamics, earthquake engineering, concrete, masonry, and steel structures. The Masters program in Environmental Engineering and Management, the Centre for Application of Science and Technology, the Railway Technologies Cell, and the Information Centre on Earthquake Engineering are some special initiatives.

Offering a comprehensive research program with 31 faculty members, the department houses seven major groups: Geosciences, Geoinformatics, Geotechnical, Environmental Engineering, Structural and Transportation Engineering, and Hydraulics. The faculty members are quite active in the solving of application oriented/real life problems in Civil Engineering via consultancy projects.

http://www.iitk.ac.in-ce/
IIT Kanpur was the first institution in India to introduce education in Computer Science in 1963 with an IBM 1620 system in a Computer Classroom, and today the department of CSE continues this pursuit of excellence in research and teaching. There are about 25 faculty members working in various fields including Databases and Data Streaming, Mobile/Wireless, Computer Networks, Computer Architecture and Embedded Computing, Security, Compilers and Programming Languages, Natural Language Processing, Theoretical Computer Science, Discovery, Learning and Cognition, Software Engineering, Algorithms, Graphics, VLSI Design and Testing, Graph Theory, Computational Geometry, Operating Systems, Grid and High Performance Computing, Biometrics and Vision, and Internet and Web Technologies.

The Department maintains state-of-the-art facilities pertaining to networks, servers, and clients. The hardware laboratory, used for UG education and research, is well equipped for embedded computing and provides several FPGA based stations for programmability. The Sun Grid has 20 workstations (Opteron, 64 bit AMD processors) available to all to explore high performance technical computing.

The Computer Center assists the entire campus community round the clock with e-mail, web, DNS, FTP, and internet access; and assists faculty members and students with various advanced and special purpose software. The operations are managed by 6 computer engineers and 7 technical staff members.
DESIGN PROGRAMME

The Design Programme offers a well-structured course-template for students to synthesize technology and aesthetics in the service of human needs. The programme encourages creativity, innovation, craftsmanship, and personal expression leading to evolution of products and services in the fields of engineering design and visual communication. A number of projects interspersed between the courses provide adequate opportunities for brain-storming yielding products and services to meet social, environmental and business needs. The state-of-the-art technology learning laboratories prepare the students for careers in industry, and also for higher studies through hands-on-experience. It being an interdisciplinary programme, students take courses outside the design programme as well, from the broad spectrum of courses that IITK provides.

The students in the Design Programme are from varied backgrounds and have unique talents. This diversity is threaded together by mutual understanding and cooperation. Creative minds come together with enthusiasm to find innovative ways of problem solving. The Design Programme is well equipped to support its students in their academic pursuits. With dedicated model making, materials exploration, fine art studios and classrooms, students are given unobstructed access to advanced equipment and computer facilities. Workshops are conducted by experts from the industry, academia and other disciplines from within the institute to nurture the creative minds. These workshops help students understand various design processes and their execution within a time frame.

Students in research are encouraged to participate in a lot of user testing and field surveys. Importance is given to cognition, ergonomics, culture and sustainability.

http://www.iitk.ac.in/design/
ELECTRICAL ENGINEERING

The Department has a rich tradition of teaching and research in electrical engineering education in India. Interests pertain to fundamental research, and sponsored and consultancy projects. The infrastructure is upgraded regularly through the support of the institute and industries. Within the four major specializations of

(i) Power and Control
(ii) Signal Processing, Communications and Networks
(iii) RF, Microwaves and Photonics
(iv) Microelectronics, VLSI and Display Technologies, the teaching and research focus is on a wide range of sub-disciplines including wireless communication, computer networking, control systems, digital image processing, electronic instrumentation, high voltage engineering, HVDC transmission, microwaves, optical fibre communication, power systems, power electronics and organic electronics. The associated laboratory infrastructure is comprehensive and is modernized on a regular basis.

http://www.iitk.ac.in/ee/
Numerous PG students who have graduated via the programme are now leading professionals in water treatment and control. Several sponsored and consulting projects in health-based air quality index, atmospheric dispersion of pollutants, air pollution monitoring and control, drinking water supply, heavy metal pollution, industrial waste treatment, biological processes, bio sorption, virology, environmental systems modeling, and softwares have been completed successfully.

For environmentally sustainable economic development, the Institute has launched a unique programme within the EEM to meet the growing human resource requirements of high quality to provide leadership in various sectors. These areas are: policy and planning, implementation and legal aspects, sustainable industrial development, environment-friendly infrastructure management, resource cleanup through remediation of land, water and air resources, over and above the traditional ‘end of pipe’ pollution control measures.

The Environmental Engineering and Management (EEM) Programme is one of the well recognized multi-disciplinary programmes in environmental management, both in India and abroad. The EEM group is supported by other departments including Chemical Engineering, Chemistry, and the Facility for Ecological and Analytical Testing (FEAT). Its objectives are:

(i) To apply principles of public health and environmental protection to ever changing concerns (e.g., global market scenario, trans-boundary issues, public awareness and regulatory requirements) for the benefit of society;
(ii) To produce competent engineers and scientists who can lead the profession in the world market; and
(iii) To facilitate and promote specialized research in the inter-disciplinary areas of environmental engineering and sciences.
MATERIALS SCIENCE AND ENGINEERING

The activities of the Department of Materials Science and Engineering are coordinated by 21 faculty members. Various laboratories on Physical Metallurgy, Materials Science, Material Testing, Engineering Metallurgy, and Extractive metallurgy are modernized with equipment like Transmission Electron Microscope, 3D printing, Scanning Electron Microscope, Spark Plasma Sintering, High Temperature DTA/DSC/TGA, Microwave Sintering, Pulsed Laser Deposition, Sputtering Unit, Evaporation System, Spin Coating, etc. with Electrical-, Dielectric and Ferroelectric-, Optical-, Magnetic- Mechanical-, Biological-, Tribological-, Phase-, and Micr structural-characterization facilities. The Department is affiliated with many professional bodies, e.g.: Metallurgical Society, Indian Institute of Metals (Kanpur Chapter), and Material Advantage (IITK Chapter).

The Department of Metallurgical Engineering, founded in the year 1960, initially started functioning in the HBTI campus. It started professional teaching from 1963 when the institute shifted to the present premises. By 1980, a mature UG and PG program in metallurgical engineering was in place at IIT Kanpur, wherein teaching and research in the following areas were pursued vigorously: Archeo-metallurgy, Extractive metallurgy, Electronic materials, Corrosion and its prevention, Mineral processing, Modeling & simulation, Phase relations, Powder metallurgy, Steel making, Texture, and Zirconia ceramics.

The research and teaching in emerging areas of materials science and engineering are extensively pursued such as: Grain boundary engineering, Severe deformation processing, Phase transformation, Mechanical behaviour of materials, Multi-component diffusion, Computational materials science, Diffusion, Thermodynamics, Physical metallurgy, Ceramic processing, Stereology, Crystallography, Transmission electron microscopy, Finite element method, Sintering, Powder metallurgy, Opto-electronic materials and devices, Semiconductor materials, Organic electronics, Steel making, Glassy alloys, Solid oxide fuel cells, Quasicrystals, Protein patterning, and Biomaterials amongst others.
MATERIAL SCIENCE PROGRAMME

The Programme plans to expand in the areas of electronic materials, advanced ceramics and polymers by offering new courses and developing state-of-the-art equipment. The possibility of offering specialization in the above areas at the post graduate level is also being considered. Broad areas of current and future research include, Nanoscale materials, Semiconductor materials and processing, Innovative Ceramic Processing, Structural Ceramics and Composites, Functional (Electronic, Photonic, Dielectric, Microwave and Magnetic) Ceramics, Surface and Interface Phenomena, Magnetic Materials and Polymer Science and Engineering. Research is also ongoing in fields including processing and characterization of ferroelectric thin films, nanomaterials for emerging technologies, organic materials for nanoelectronics, and photoelectronic characterization of localized states in semiconductors.

MECHANICAL ENGINEERING

Since 1959, the Department of Mechanical Engineering has strived to stay abreast of the best pedagogical practices. Through a rich curriculum developed over years, students get exposed to high end numerical and experimental techniques in solid and fluid mechanics, and manufacturing sciences. The Department has contributed significantly in research on composite materials, blast loading of structures, theories of vibration and damping, mechanics of failure, and theoretical and experimental studies on chaos. Ultra high-speed imaging techniques exist to study fast deformations and in-cylinder engine combustion. The department has an excellent record in the research areas of high performance computational and optical experiment frameworks to study fluid mechanics and thermal problems, fundamental engine research to improve emission and efficiency, thermal management and heat pipes, hydrogen generation and utilization, laser based flow visualization and micro-fluidics. Investigation of interaction between tools and work-pieces, development of robust techniques for fine finishing of composite surfaces, and application of sophisticated numerical techniques to model plastic flow in forming processes are some areas that distinguish the department. These experiences have led to forays into micro and nano engineering of materials.

The department is served by about 40 faculty members with extensive professional and academic achievements. It houses state-of-the-art experimental and computational infrastructure in almost all relevant areas. Cutting edge research is done in the mechanics of materials including metals, polymers, smart and biological materials. Research on turbulence, flow visualization, very large scale computational techniques and fuel cells is also contemporary. Nonlinear dynamics and vibrations remain a strong area of focus in addition to MEMS, robotics, genetic algorithms and biofuels and alternate fuels. Contributing richly to the atomic, space, defence, railways and automobile sectors and industrial sectors, with its diversity in activities, strong inter-disciplinary research and modern infrastructure, the department continues to chart, redefine and discover research trajectories that enrich and expand mechanical engineering.
NUCLEAR ENGINEERING AND TECHNOLOGY

Besides offering M.Tech and Ph.D degrees in the area of Nuclear Engineering & Technology, the programme provides research and development expertise in the experimental and theoretical studies of fusion and plasma physics, radio isotope applications in manufacturing engineering, computer aided tomography, reactor safety studies, heat transfer in nuclear sub-systems, and development of radiation detectors. This programme has worked with BHEL, Tata Consulting Engineers, Defence laboratories and several divisions of the Department of Atomic Energy.


The facilities in the nuclear engineering programme are unique for an academic institution. Many other academic departments as well as industrial organizations are using them. The facilities include a 2 MeV Van de Graff accelerator with proton, neutron, and alpha sources, a 5 Curie Pu-Be neutron source for activation analysis, radiation detection equipment and survey meters, radio isotope gages for corrosion studies, level indication and moisture content evaluation.

http://www.iitk.ac.in/net/
INDUSTRIAL AND MANAGEMENT ENGINEERING

Set up in 1974, the Department of Industrial and Management Engineering (IME) has engaged itself in a diverse set of activities including teaching, industry consultancy, management development programs, academic research and public sector projects. The department has 22 faculty members and offers M. Tech., Ph. D. and MBA degrees.

A 2-year MBA programme was commenced in July 2001. Open to engineering graduates of any branch, the programme consists of four semesters of course work with the intervening summer to be spent on a summer internship project in management in a host industry. Admission is through a Common Admission Test (CAT) followed by a personal interview/group discussion. Specializations offered in MBA include sectorial areas of Service and Manufacturing and functional areas of Operations, Systems, Marketing, and Finance.

BIOLOGICAL SCIENCES AND BIO ENGINEERING

Established in 2001, this relatively new department of Biological Sciences and Bio Engineering (BSBE) aims to provide a multidisciplinary research and teaching program in modern biology and bioengineering. The department offers undergraduate (B. Tech) and postgraduate programs (M.Tech and Ph.D) with 13 Faculty members who work in diverse areas of basic and applied biology.

The undergraduate curriculum in the BSBE Department aims to expose students to exciting new fields in biology while also providing opportunities for obtaining valuable hands-on research experience. The program provides a unique fusion of biology with other basic and engineering sciences.

The M.Tech program at BSBE meets a variety of career objectives in research and industry. The program is also supported by the Department of Biotechnology (DBT), Govt. of India. The Ph.D. program in BSBE is intended for students interested in carrying out distinguished scholarly activities. Excellence in research apart, the program envisages the comprehensive development of students for leadership in science and engineering in both industry and academia.

BSBE@IITK has developed extensive research facilities and infrastructure for teaching and research. Up-to-date equipment like the Laser Scanning Confocal Microscope, Affymetrix Microarray Facility, Beckman Coulter automated DNA sequencer, Fluorescence Microscopy, SGI fuel Workstation and many others help support such activities.

http://www.iitk.ac.in/bsbe/
The Department has 29 faculty members, more than 350 students and about 25 technical and non-technical staff. Students getting trained in the Integrated M. Sc. programme have a unique background of Physics, Mathematics, Computer Science, Technical Arts, and Electronics, in addition to Chemistry. They naturally excel in academics and in industry. The 2-year M. Sc. programme trains top-ranked graduates from all over the country. It imparts a modern orientation to the sound training they have already received. The Department also has a post-graduate programme leading to a Ph.D. degree.

The Chemical Society is an activity-based group involving all the members of the Chemistry Department. It arranges various seminars of general interest including a special seminar series titled Student Hosted Colloquium. The commitment to research is reflected in the large number of projects sponsored by the Ministry of Human Resources and Development, the Department of Science and Technology, the Department of Atomic Energy, the Department of Space, and the Council of Scientific and Industrial Research.

The Department has excellent laboratory facilities. They include EPR Instrument Facility, Micro-analytical facility, Analytical NMR (JEOL-60), High Field NMR (JEOL-400), UV/VIS spectrophotometer, IR spectrophotometers (ordinary and FT) HPLC and other chromatography, Electrochemical setup for cyclic voltammetry, Mossbauer spectrometer, Nanosecond single photon counting fluorimeter, Spectrofluorimeter, Ultra-centrifuge, Magnetic susceptibility measurement instrument, Light scattering photometer, CHNSO analyser, Single Crystal X-Ray Diffraction Measurement, and the Facility for Environmental and Analytical Testing (FEAT).

http://www.iitk.ac.in/chm/
HUMANITIES AND SOCIAL SCIENCES

In the era when the Indian Institutes of Technology were founded as centers of excellence, IIT Kanpur took the lead in education in both the humanities and social sciences, at the undergraduate and postgraduate levels, by integrating these discourses into the engineering curriculum. The study of human sciences plays an important role in the education of scientists and engineers by making their education well rounded, going beyond specialized training in a particular area of technology and enabling them to think critically for themselves. Often, students are genuinely surprised to find that humanities and social sciences provide alternative modes of cognition and that not all problems of society have a technical solution. Technology, after all, does not exist in a vacuum. It is developed and deployed in a milieu that has both socio-cultural and economic needs and constraints.

The HSS Department has 31 faculty members who teach a range of courses in Economics, English and Linguistics, Fine Arts, Philosophy, Psychology and Sociology. In addition to teaching and thesis supervision, faculty members offer short-term courses to students and faculty of other educational institutions through workshops and seminars. Research and consultancy projects are also taken up for governmental and non-governmental organizations. The rich outcome of these research endeavours can be seen in the large number of books and articles published by the faculty members and the students in reputed national and international journals.

With the exception of Fine Arts, doctoral programmes are available in all other disciplines of the Department. The successful completion of around 200 doctoral theses testifies to the high academic standards that the Department has set for itself. Currently, there are over 50 doctoral students registered in the various doctoral programmes.

http://www.iitk.ac.in/hss/
The Department has 34 faculty members who, apart from teaching various core and professional courses, are actively involved in research in some ever-expanding and challenging areas like Analysis, Combinatorics and Graph Theory, Commutative Algebra, Computational Acoustics and Electromagnetics, Computational Fluid Dynamics, Mathematical Biology, Numerical Analysis and Scientific Computing, Optimization Theory, Rough Set Theory and Modal Logic, Topology and Geometry, Statistical Signal Processing, Stochastic Ordering, Ageing and Applications, Ranking and Selection Problems, Entropy Estimation, Non-parametric and Robust Methods of Estimation, Life Tests Modelling, Regression and Econometric Modelling, Data Mining in Finance, etc.

The department attracts young minds who think logically and symbolically about qualitative, spatial and abstract relationships, and display keen awareness for the quantitative information in the world around them. The department curriculum helps them to perceive, visualize and generalize numeric and non-numeric patterns and signals present therein. It also prepares them to communicate and justify mathematical concepts in creative and intuitive ways so that they can transfer learning to novel and complex situations and probe challenging questions where they are required not only to apply but also to extend concepts.

Facilities of the department include a departmental library, a departmental and a core computing laboratory. Together these laboratories are equipped with over 80 PCs with the Windows and Linux operating systems. All the PCs have advanced configurations (Core i7 and Core 2 Quad processor) and possess some of the latest state-of-the-art software.

http://www.iitk.ac.in/math/
In the last five decades, the Department of Physics at IIT Kanpur has steadily been making important research contributions in various frontline areas of physics. Roughly half the faculty members are studying the physics of Condensed Matter System, while the other half includes active groups working in theoretical High Energy Physics, Laser & Quantum Optics, and Ion Beam and Nuclear Solid State Physics. With this highly desirable combination of teaching and research, the Department contributes to setting a high standard for the discipline in the country.

The Department has at present 34 faculty members and two Distinguished Honorary Professors. The faculty is assisted by a team of Senior Scientific Officers, Research Associates and Postdoctoral Fellows as part of the academic staff. Apart from research in the frontier areas of Physics, the Department has, over the years, produced physicists who have made fundamental contributions to the subject.

Specific areas of research include Low Temperature Physics, Low Dimensional Systems, Amorphous Semi-conductors, Solid State Ionics, Physics of Photonic and Electronic Materials, Laser and Plasma Applications, Photonics and Biophotonics (BIOPSYL), Quantum and Nano-optics, Quantum Optics and Entanglement, Ion Beam Complex for Science, Engineering and Technology, Nuclear Solid State Physics, Waves and Beams, Condensed Matter Theory, High Energy Physics, Quantum Optics, and Computational Physics. The Physics Workshop forms the backbone of experimental research in the Department. Most fabrication, modification and maintenance of the experimental apparatus and accessories are done by well trained personnel. The Physics Society IIT Kanpur promotes interaction between members of the Department – faculty, students and staff – in both academic and non-academic fields. The Society is run by the students under the guidance of faculty advisers.
CENTRE FOR LASERS AND PHOTOactics

The Center for Lasers and Photonics (CELP) is an interdisciplinarity center of excellence that combines cutting-edge technology from engineering and theoretical advances in science to create new horizons in the field of photonics science and engineering. Both M. Tech and Ph.D. degrees in Photonics Science and Engineering (PSE) are offered by the center. Faculty members from the departments of Electrical Engineering, Aerospace Engineering, Civil Engineering, Physics, Chemistry, Mechanical Engineering and others with extensive professional and academic experience participate in the activities of the centers. Through multiple course work and internships students develop skills in both simulation based modelling and experimentation.

Our alumni are working in prestigious organisations such as ISRO, LASTEC, CAT Indore, BARC, Indian Railways, Indian Air Force, BEL, TATA Steel, Niksun, Meccon, Tejas Network, BPCL, BHEL, Nokia, R & D, Sasken Communication, Samsung, Finisar and Mathworks.

BROAD RESEARCH THEMES:
- Optical imaging
- Laser Spectroscopy
- Bio-Photonics
- Photonic Integration
- Quantum Optics
- Material Processing
- Optical Communication

RESEARCH LABORATORIES:
- Optical instrumentation laboratory
- Micro fluids and Sensors Laboratory
- Bio Photonics Laboratory
- Ultrafast Laser Laboratory
- Optoelectronics & Nanofabrication Laboratory
- Quantum optics Laboratory
- Photonics Laboratory
- Combustion Laboratory
- Laser and Plasma Applications Laboratory
- Diffuse Light Imaging Laboratory
- Femto Second Laser Facility

http://www.iitk.ac.in/ceI
We are a mini-academic-city, a self-sustained, lush-green campus spread across 1055 acres with about 14,000 inhabitants -- faculty members, students, staff and helping hands. The campus is well-equipped with infrastructure which caters to our academic, culinary, residential, recreational, shopping and other needs.

We experience all seasons -- the scorching heat of the summer, the wet, humid afternoons of the rainy season, and the chilly and hazy nights of the winter when streaks from the street lamps, filtered through the mist, offer a breathtaking, visual treat. Our hallmark is the presence of peacocks on campus, often lurching on the green grounds or resting on high branches. One does not mind the hard work amidst the consistently energizing and calming, innate picturesque ambience of the campus, and while witnessing the twilight, one eagerly awaits the promise the next day holds.
India is an EXPERIENCE! A visit to IIT Kanpur comes with a unique advantage of exploring the rich and diverse heritage of northern India. The city played a vital role in India’s first war of Independence in 1857. Situated on the banks of the river Ganges, the city is home to several historical sites, e.g. Bithoor, Ghatampur and Shivrajpur. Many interesting places around the city are easily accessible via road/rail and are just a day’s journey away.

Be it the mystic ghats of Varanasi, the ancient ruins at Kaushambi, the architectural splendor of Khajuraho, the clouds touching down in Nainital, the calm sunsets or the enlivening waterfalls in Panchmari, or the transcendent beauty of the Himalayas, every experience will leave you enriched and craving for more!

A quick trip to Lucknow, the city of the Nawabs famous for its Awadhi cuisine and handicrafts, is a must.

Apart from the rich wealth that lies outside the campus boundaries, equally enthralling cultural events are organized within the precincts of the Institute. Occasionally, IIT Kanpur hosts many eminent artists – classical and contemporary – who are leading exponents of music, dance and theatre. SPICMACAY promotes cultural activities through regularly held classical and folk performances in music and dance. The rich culture, tradition, philosophy, history, diversity and festivals of INDIA can only be experienced firsthand! Words, at best, offer only an asymptotic description of the feeling!
India is Unity in Diversity. Indian culture itself is a collage of religions, languages, customs, dance, music, cuisines and festivals. India is the birthplace of Hinduism, Buddhism, Jainism and Sikhism and home to some of the most ancient civilizations. Mythology and classical literature form the basis for most of the performing arts. A number of classical dance forms can be traced to different parts of the country. The most popular dance forms are Bharatanatyam (Tamil Nadu), Kathakali (Kerala), Odissi (Orissa), Kathak (Uttar Pradesh), and Manipuri (Manipur). There are several other semi-classical and folk forms that contribute to the plethora of Indian dances.

Indian classical music, including Folk, Karnatic and Hindustani, developed over a period of several eras, remains essential to the lives of Indians today as sources of religious inspiration, cultural expression, emotional bonding and entertainment. The music of Indian movies is admired by the masses.

India is a country of festivals. Every month arrives with some fair or festival. Makar Sankranti, Basant Panchami, Holi, Ram Navami, Maha Shivaratri, Diwali, Eid, Mahavir Jayanti, Buddha Purnima, Guru Purv and Christmas; Every festival has its own special customs and rituals – pujas, lighting lamps, throwing colour, feasting or even fasting. The festivals of every religion have significance and are celebrated in a boisterous way.

India is known for its love for food and spices. Indian cuisine varies from region to region, reflecting the local produce, cultural diversity, and varied demographics of the country. The diversity of Indian cuisine is characterized by the differing use of many spices and herbs, and a wide assortment of recipes and cooking techniques. Who does not get attracted to the liveliness, warmth and generosity of India! COME FEEL INDIA