General doubts for BIOLOGICAL SCIENCE AND BIOENGINEERING at IIT KANPUR

Q1. What is the structure of the core curriculum in this department?

The BSBE department offers a well-structured core curriculum, with all Department Compulsory(DC) courses completed between the 3rd and 6th semesters. This allows students to explore Open Electives and Minors. Labs are limited to the 4th and 5th semesters, ensuring focused practical learning. A key feature is that DC courses have no prerequisites, so backlogs don't hinder progress in other courses. The departmental so provide a wide range of electives, from advanced biology and entrepreneurial subjects to interdisciplinary fields like bio-electronics and bioinformatics. Students gain both theoretical knowledge and hands-on lab experience across diverse areas such as bioinformatics, molecular biology, and tissue engineering, building a strong foundation for higher studies.

Q2. How flexible is the curriculum of this department in terms of open electives (OEs) and minors?

The department template is extremely flexible when it comes to Open Electives (OEs) and Minors. All the compulsory courses (DCs and ESOs) are completed by the end of the 3rd year (6th semester). Therefore, students can even consider semester exchange programs without any significant hurdles. Apart from the 4th and 5th semesters, which are relatively packed due to labs, the other semesters have numerous available slots. These slots can be utilized by students to take up OEs and Minors based on their interests and academic goals. The department template mandates the completion of six OE courses, but students can take more if it aligns with their academic trajectory. The department template provides ample space for such academic explorations. To give an example, if a student plans their template carefully, there is a possibility of completing 4 different minors without having to deal with a 60+ credit semester during their degree. This is the level of flexibility that the department template offers.

Q3. What is the teaching style, and how approachable are the professors in your department?

Professors in the department are highly approachable and understand that many students come from non-biology backgrounds. Courses begin with basic concepts before advancing, making the material accessible to all.

Lectures are supported with slides, reading material, and research papers. Professors are open to discussions and easily reachable via email for academic, career, or personal support. They care deeply about students' well-being and regularly seek feedback to improve the learning experience.

Overall, they are knowledgeable, passionate, and committed to student success.

Q4. Are there interdisciplinary opportunities in the department?

BSBE offers extensive interdisciplinary opportunities across departments like Computer Science, Electrical, Mechanical, Chemical, Materials Science, and Civil Engineering. Professors in various fields work on biology-related topics, opening doors for collaboration.

Students can explore areas like Biophysics, Bio-devices, Bioinformatics, Computational Biology, Systems Medicine, and Bio-entrepreneurship. Whether you're interested in core biology, interdisciplinary research, or entrepreneurship, the department provides a wide range of options.

Q5. How difficult is the coursework in the first two / three years?

The BSBE coursework is relatively manageable, offering a high return on investment, good grades with consistent effort. Students who stay regular with lectures, discussions, and assignments generally perform well.

While biology involves memorization, exams focus more on conceptual clarity and analytical thinking rather than rote learning. Last-minute cramming isn’t effective, so building a clear understanding is crucial.

Though some content aligns with 11th–12th-grade biology, professors start with basics. Still, students without a biology background may need to put in extra effort initially. Overall, the workload is light and well-structured, making the coursework very manageable.

Q6. What are the typical class sizes and student-to-faculty ratio?

For Department Compulsory (DC) courses, class sizes range from 40–60 students, usually taught by 1–2 professors, ensuring a favorable student–faculty ratio. For larger courses like ESO206 (Biotechnology), there are about 2 professors for 150–200 students.

Department Elective (DE) class sizes vary widely, from fewer than 10 to around 80 students. Typically, one professor teaches a course, though some are co-taught by two faculty members.

Q7. How easy or difficult is it to branch out of/into this department?

It is quite easy to hop in BSBE, however difficulty of moving out depends on the branch you desire to move in. It is not at all difficult to branch change into or out of the department. None of the Department Compulsory (DC) courses are prerequisites for one another. Therefore, a student can easily complete the template requirements even if they branch change into the BSBE department in a later semester.

Thus, from the department course curriculum point of view, it is very easy to branch in or out of this department.

Q8. What advice would you give to me if I aim for a branch change out of this department after the end of my first year? Should I do it, and how could I do it?

At first, the idea of majoring in Biology may seem overwhelming, but BSBE isn't the typical "boring" Biology—it offers exciting, evolving content in one of the most upcoming fields globally. Branch change is allowed after the 2nd, 3rd, and 4th semesters, based on your first-year CPI, which is calculated from common Institute Compulsory courses.

If you're aiming for highly competitive branches like CSE, MTH, SDS, or EE, you'll need a CPI of 9 or above. For other branches, the decision should depend on your personal interests and goals.

That said, BSBE has its strengths: lighter workload, flexibility in the template for projects, skill development, or exam prep (like UPSC/CAT), and strong opportunities in academics, entrepreneurship, and placements. Branch change should be driven by genuine interest—not the misconception that BSBE lacks opportunities.

Q9. Is this department good for pursuing higher studies abroad or go for placements?

Opportunities after B.Tech in BSBE depend heavily on the path you choose. While immediate core job options are limited, opportunities expand significantly with higher education—forming an “inverse pyramid” where both academic and industry prospects multiply at the postgraduate level.

BSBE is especially strong for students aiming for higher studies abroad. Fields like Bioengineering and Biomedical Engineering are in high demand internationally, and students often secure top MS/PhD admits. Even during undergrad, many land research internships at prestigious universities in countries like the USA, UK, Germany, Japan, and Australia.

In terms of placements, core opportunities in India are still developing. While current core placements are limited, faculty and the Student Placement Office (SPO) are working to attract more biotech companies and startups, so the outlook is improving. For non-core roles—like finance, consulting, analytics, software, product management, and AI/ML, the department’s flexible template allows students to build domain-specific skills, work on relevant projects, and prepare effectively for internships and placements.

Q10. What are the typical career paths taken by graduates from this branch?

BSBE graduates can pursue academia as professors or work in R\&D roles in industry. The flexible curriculum also allows time to develop skills for diverse non-core fields like finance, consulting, analytics, software, product management, and AI/ML. Many students prepare for exams like UPSC or CAT, while others pursue Master’s or PhD programs in India or abroad.

Q11. How is the peer group and competition level in this department?

The BSBE peer group is close-knit with healthy competition. Many study together, especially before exams. I’ve received strong support from seniors and professors, making it easier to improve CPI and earn good grades through consistent effort and engagement.

Q12. How collaborative or competitive is the environment?

It’s quite a balance of both although a great bend towards the collaborative side. Of course, there is competition within the department, which I believe is healthy and essential for growth.

However, the peer learning culture is strong in the department. Most of the courses include group presentations or project components, where students work together in teams. Lab courses also involve group work. This helps strengthen bonds with my peers.

The environment fosters peer learning and collaboration, alongside healthy competition, making the overall academic experience both supportive and enriching.

Q13. Are there department-specific clubs, forums, or events?

Yes, we have BioSoc — the BSBE Departmental society. It organizes numerous fun and engaging events throughout the year, such as Freshers' events, Professor Open House, Sports Day, BSBE Day, interactive workshops and seminars, and more.

Q14. How well-equipped are the labs and infrastructure?

The UG lab we have for the lab courses is quite equipped for a beginner with hopefully getting better equipment in the coming time. The BSBE Department has overall excellent infrastructure.

The lecture halls, seminar rooms, and meeting rooms are well-equipped with advanced audio-visual facilities, providing an excellent experience during classes, seminars, and lab meetings.

The department labs are also outfitted with the latest devices and instruments required for experiments.

The undergraduate lab has all the necessary equipment and instruments, giving students valuable hands-on experience as part of their course labs.

Q15. Are there department trips, seminars, or workshops?

We have a great load of optional seminars one may attend. The Department regularly conducts a variety of seminars and interactive workshops—some organized by BioSoc, the departmental society, and others directly by professors.

These include State-of-the-Art (SOTA) seminars, thesis defences, and other academic and industry oriented sessions. Students have ample opportunities to attend these events and gain valuable knowledge and exposure beyond their coursework.

General advice about the department

Many students worry about joining BSBE due to lack of biology background and placement opportunities.

1. Biology Background: Professors start with basics in early courses, helping students catch up with extra effort and build strong fundamentals.

2. Placements: Core bioscience placements in India are limited but growing, with expanding biotech startups and entrepreneurship. Non-core placements remain strong.

Overall, BSBE offers a balanced workload and ample time for activities, sports, and skill development. It's a great department with promising opportunities.