**What is this branch?**

The Data Science and Engineering program combines knowledge in Artificial Intelligence (AI), Big Data, and Statistics & Mathematics to solve challenging real world problems in many areas. This new field will become increasingly important as widespread sensors (IoT) collect vast amounts of data that is available in the Cloud.

Data Science and Engineering is joint program launched by **School of Basic Sciences** and **School of Computing and Electrical Engineering**. This four year B. Tech. program is a unique program that emphasizes the integration of theory and practice. Labs and practicums are integral part of the course to provide the students an all-inclusive learning experience.

**Why this branch?**

This degree will equip students with advanced skills to thrive in a rapidly changing world that is increasingly driven by data. A Bachelor’s degree in Data Science and Engineering will open up several career paths to students as ***Data Engineers, Data Architects, Data Analysts and Business Analysts****,* among others. These fields have a **high demand** **for trained professionals** who can collect process and study large data sets and discern underlying patterns and derive other insights. The study of Data Science and Engineering as a discipline is becoming essential to cater to the growing need for professionals and researchers to deal with the future challenges of the country.

**What you will study in this branch?**

Students would study courses related to Programming, Data Structures, Databases, Distributed Systems, Machine Learning, Optimization, Statistics, Algorithms, Linear Algebra, and Analysis etc.

The **curriculum is flexible** and the students have ample opportunities to choose courses of their interests from **other branches such as Computer Science, Electrical Engineering, and Applied Statistics & Mathematics** etc.

**What will be real-world applications?**

Some of the cutting-edge fields where the graduate of Data Science and Engineering are desired for solving challenging real-world problems are

* Artificial Intelligence
* Robotics
* Business analytics
* Finance
* Health Care & biomedicine
* Bioinformatics
* Agriculture and Precision Farming
* Social media and social network analysis
* Smart cities
* Education and electronic teaching
* Energy, sustainability and climate

**Where are the placements?**

In the current scenario there is a very high demand of the engineers trained in Data Science and Engineering. The graduate of this course **can target most of the companies that a typical B. Tech. Computer Science graduate targets**. In addition, the companies that are looking for a trained Data Scientist or Engineer, the DSE graduate would have an **edge** over graduate of all other branches such as CSE, EE etc.

The program would make the students well trained with ample knowledge of various aspects of data science and engineering required to provide technological solutions to face next generation challenges.

**What will be skill sets acquired?**

The graduate would be acquiring skills in the related areas of ***Computer Science, Applied Statistics and Applied Mathematics***. The curriculum for this course has been carefully designed keeping in mind the requirement of the industry. Programming, Data Structures, Databases, Cloud-based Systems, Machine Learning, Optimization, Statistics, Algorithms, and Linear Algebra etc. would be the skill sets acquired by the candidates after the completion of the program.

**How are DSE and CSE related?**

Computer science student thinks of computations and learns about different aspects that make computation more effective. Data science student thinks of processing and modeling data from the different sources and each coming at different rates. These are two different sides of a similar coin.

Data Science and Engineering is primarily aimed at producing engineers with sufficient knowledge of ***Computer Science, Applied Statistics and Applied Mathematics*** to give solutions to the problems involving Big Data in various domains.

**Is this branch suitable for girls?**  
Yes. The branch is very much suitable for female students.

**Is new branch will have enough facilities established?**

DSE would require the same labs that are used by CSE students. All the required labs and facilities are in place for Data Science and Engineering Program. IIT Mandi has state of the art infrastructure, class rooms, well established labs, computing facility, central library and other teaching resources to have a world class learning experience for the students.