



Shri Vile Parle Kelavani Mandal's

DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING

(Autonomous College Affiliated to the University of Mumbai)

NAAC Accredited with "A" Grade (CGPA : 3.18)



AI & DS

Description of your respective branch:

1. About Us

“Artificial Intelligence is the new electricity,” rightly said British-born American computer scientist Professor Andrew NG. The fusion of AI and DS has offered unique solutions with the potential to digitally transform businesses. D.J. Sanghvi College of Engineering proudly presents four-year B. Tech course on Artificial Intelligence and Data Science, one of the emerging areas identified by AICTE and MHRD with an ultimate goal to nurture the academic excellence, industry exposure and outstanding career opportunities to our students. This inter-disciplinary course aims at providing insights to core technologies, such as Artificial Intelligence, Data Mining/Modelling and Machine Learning along with Big Data Analytics and Cloud Computing. The students will have career opportunities in Healthcare, Business, e-commerce, Social Networking, Computational Linguistics, Biotechnology, Genetics, and any field that involves data. The major focus of this programme is to train students on statistical tools, mathematical models, machine learning, knowledge discovery, and data visualization skills, so that they will be able to apply AI techniques into real world applications and perform intelligent data analysis.

Proposed Course Curriculum:

This course is designed to teach the underlying concept of AI, Machine Learning and Data Science and how they can be used to **solve real-world problems**. Students are expected to gain a deep knowledge of the math of machine learning, including relevant tools and languages and popular algorithms and their applications.



First Year	Common for all Branches Programming languages. [C&JAVA]
Second Year	<ol style="list-style-type: none">1. Intro to AI & DS2. Data Structures3. Computer Networks4. Database Management Systems5. Statistics for Data Science (R/python) (hypothesis/optimization)6. Programming with Python7. Innovative Product Development8. Constitution of India
	<ol style="list-style-type: none">1. Machine Learning2. Analysis of Algorithms3. Operating System4. Data Warehousing & Mining5. Web Development Lab6. Innovative Product Development7. Universal Human Value
Third Year	<ol style="list-style-type: none">1. Advanced AI2. Natural Language Processing3. Big data Infrastructure4. SAS(Visual & Predictive Analytics)5. Business Communication6. Innovative Product Development7. Departmental Elective 1
	<ol style="list-style-type: none">1. Fuzzy Systems and Applications2. Cloud Computing3. Network & data Security4. Environmental Studies5. Innovative Product Development6. Departmental Elective 2
Final Year	<ol style="list-style-type: none">1. Neural Networks & Deep Learning2. Image and Video processing3. HPC & GPU Architecture4. Institute Elective5. Minor Project6. Departmental Elective 3
	<ol style="list-style-type: none">1. Design of Recommendation Systems2. Probabilistic Graph Models3. Stream Processing and Analytics4. Institute Elective5. Departmental Elective 46. Project



Students interested to be specialized in any domain can chose their elective subjects accordingly. We have divided the Elective subjects into 6 Categories- IOT, Mobile/Game Development, Cyber Security, Computational Linguistics, Bio and Genomic Data Science, Financial Data Science.

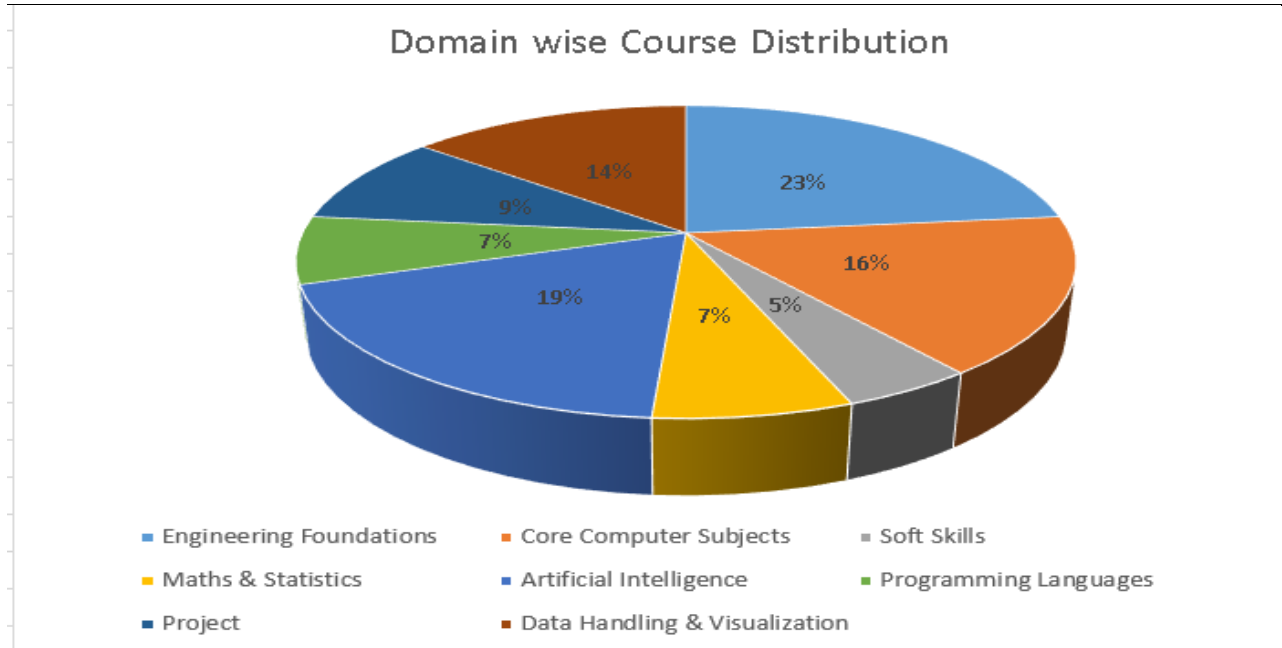
ELECTIVE specialisations	Sem V	Sem Vi	Sem VII	Sem VIII
IOT	Intro to IOT & Sensor Technologies	Interfacing and Programming with IoT Gateway	IoT cloud and data analytics	Industrial IoT 4.0/ IOT infrastructure Management
Mobile Apps	Mobile Application Development	Game Design and Programming	Agile Software Development	Middleware Technologies
Cyber security	Artificial Intelligence In Cybersecurity	Cybersecurity Risk Management and Mitigation/ Intrusion Detection and Prevention	Block chain & Cryptocurrencies Fundamentals	Virtualization and Cloud Security
Computational Linguistics	Finite Automata	Natural Language Dialog Systems	Natural Language Semantics	Indian Grammatical Tradition/Information Dynamics in Language
Bio & Genomic Datascience	Principles of Digital Biology	Introduction to health informatics	Bioinformatics: Algorithms and Applications	Intro to genomic data science
Financial DataScience	Financial Markets and Investment Strategy Specialization (coursera)	Applying Data Analytics in Finance	Time Series Analysis	Advanced Models for financial decision Making/ Prob Graph Models

Pie chart-based syllabus distribution [depending on core areas of focus]

Subject Group	Total No. of Subjects
Engineering Foundations	10
Core Computer Subjects	7
Soft Skills	2
Maths & Statistics	3
Artificial Intelligence	8



Programming Languages	3
Project	4
Data Handling & Visualization	6



FAQ's

1. Why will my ward choose your branch?

Our interdisciplinary, student-centric and industry-focused programme gives skills to the students across fields, such as statistics, computer science, machine learning and logic. In this era of big data, managing big data was a concern and the biggest challenge for all the industries until 2010. But now, Artificial Intelligence and Data Science Programme has extended its wings



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and equip students with the skills to perform intelligent data analysis, which is a key component in numerous real-world applications.

2. What are the placement opportunities for your branch?

An AI Expert develops intelligent software and systems based on how human minds think, learn, decide, and solve a problem. It enables machines to perform human-like functions by learning through experience. Since almost all kinds of organizations today are generating exponential amounts of data around the world, it becomes difficult to monitor and store this data. Data scientists help companies interpret and manage data and solve complex problems. These jobs not only offer great salaries but also a lot of opportunity for growth.

- Machine Learning Engineer
- Business Intelligence Developer
- Research Scientist
- Big Data Engineer/Architect
- Data Analyst
- Data Engineers
- Database Administrator
- Data Scientist
- Data Architect
- Statistician
- Business Analyst
- Data and Analytics Manager

Below listed are some of the companies, where our institution offers placements.

Morgan Stanley, JP Morgan Chase, Cimpres, Quantiphi, IBM, L&T, Amdocs, Infosys, Edelweiss, GEP, L &T Finance Ltd and many more...

3. Prerequisites/ Interests required from a particular student for choosing the branch.



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Inclination towards Mathematics, good analytical problem solving skills and Interpretation skills.

4. If my ward chooses your branch, what are his/her higher study prospects?

He/She can either do an M.Tech from any top Indian colleges by appearing for GATE or can take the GRE Exam and go for a MS and a PhD to universities abroad which will give him/her a lot more exposure as AI and DS is a field which is still in a very nascent stage of development in India. Moreover, you can also apply for the various scholarships which will finance your education and learning, partly or completely. Most of the IIMs and some topmost Management schools offer MBA in Data Science and Business Analytics too.

He/She can pursue a Research Oriented course in the premier institutes like IISc, IIT, which will enable him/her to showcase the expertise in various challenging fields like National Level (Government Funded) projects for defence, society relevant areas.

5. What is the overlap of subjects between different branches offered from Computer & IT?

Comparing with Computer Engineering, almost 50 % of overlap is estimated. In addition, we will be concentrating on the subjects related to design of Intelligent Systems and Data Analytics.