



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)



Dwarkadas J. Sanghvi College of Engineering

Honours/Minor Degree Programs Booklet

**(For batches admitted from A.Y. 2022-23
and onwards)**

Honours and Minor Degree Programs

in

Engineering and Technology

1. Introduction:

As per the AICTE's Approval Process Handbook-2020-21: Chapter VII- clause 7.3.2 (Page 99-101), all branches of Engineering and Technology shall offer Elective Courses in the EMERGING AREAS viz., Artificial Intelligence (AI), Internet of Things (IoT), Blockchain, Robotics, Quantum Computing, Data Sciences, Cyber Security, 3D Printing and Design, Augmented Reality/ Virtual Reality (AR/VR), as specified in Annexure 1 of the Approval Process Handbook.

- a) Under Graduate Degree Courses in EMERGING AREAS shall be allowed as specialization from the same Department. The minimum additional Credits for such Courses shall be in the range of 18-20 and the same shall be mentioned in the degree, as Honours/Minor in that particular area. For example, doing extra credits for Robotics in Mechanical Engineering shall earn B.Tech. in Mechanical Engineering with Honours in Robotics.
- b) Minor specialization in EMERGING AREAS in Under Graduate Degree Courses may be allowed where a student of another Department shall take the minimum additional Credits in the range of 18-20 and get a degree with minor from another Department.

It is also made very clear by AICTE that areas in which Honours / Minor Degree may be offered are numerous. It is up to the Universities with the help of their Academic Board/Council to decide whether Honours / Minor Degree is to be offered or not in any particular area, which is not mentioned above. AICTE approval is not required for offering Honours / Minor Degree in any such area, however the criteria that "Honours / Minor Degree will cumulatively require additional 18 to 20 credits in the specified area in addition to the credits essential for obtaining the Under Graduate Degree in Major Discipline (i.e. 160 credits)"

2. Proposed Honours and Minor Degree:

Honours and Minor degree program is introduced in order to facilitate the students to choose additionally the specialized courses in the emerging areas of their choice and build their competence in such domains.

Table 1: Honours / Minor Degree Programs

Based on AICTE guidelines, DJSCE had proposed to offer following Honours/ Minor degree program corresponding to each engineering program starting from the A. Y. 2022-23.
Honours / Minor Degree Programs (Table 1 to 2).

Table 1:

Sr. No.	Name of Honours Degree Program	Program offering as a Honours Degree Program
1	Green Technology and Sustainability Engineering	Chemical Engineering
2	Intelligent Automation and Applied Analytics	Electronics Engineering
3	Artificial Intelligence and Machine Learning	Electronics and Telecommunication Engineering
4	Intelligent Connectivity : 5G & IoT	Electronics and Telecommunication Engineering
5	DevOps (Development and Operations)	Information Technology
6	Intelligent Computing	Computer Engineering
7	Electric Vehicles	Mechanical Engineering
8	Robotics	Mechanical Engineering
9	Computational Finance	Computer Science and Engineering (Data Science)

Table 2:

Sr. No.	Name of Minor Degree Program	Program offering Minor Degree Program	Programs, who can offer as a Minor Degree Program
1	Green Technology and Sustainability Engineering	Chemical Engineering	Electronics Engineering Electronics and Telecommunication Engineering Information Technology Computer Engineering Mechanical Engineering Computer Science and Engineering (Data Science)
2	Intelligent Automation and Applied Analytics	Electronics Engineering	Chemical Engineering Electronics and Telecommunication Engineering Information Technology Computer Engineering Mechanical Engineering Computer Science and Engineering (Data Science)

3	Industry 4.0 & IoT	Electronics and Telecommunication Engineering	Chemical Engineering Electronics Engineering Information Technology Computer Engineering Mechanical Engineering Computer Science and Engineering (Data Science)
4	Artificial Intelligence and Machine Learning	Information Technology	Chemical Engineering Electronics Engineering Computer Engineering Mechanical Engineering Computer Science and Engineering (Data Science)
5	Web Application Development	Computer Engineering	Chemical Engineering Electronics Engineering Electronics and Telecommunication Engineering Information Technology Mechanical Engineering Computer Science and Engineering (Data Science)
6	Electric Vehicles	Mechanical Engineering	Chemical Engineering Electronics Engineering Electronics and Telecommunication Engineering Information Technology Computer Engineering Computer Science and Engineering (Data Science)
7	Robotics		
8	Data Science	Computer Science and Engineering (Data Science)	Chemical Engineering Electronics Engineering Electronics and Telecommunication Engineering Information Technology Computer Engineering Mechanical Engineering

Honours/ Minor degree program offered from the A. Y. 2023-24 at DJSCE corresponding to each Engineering Program are as follows (Table 3 & Table 4).

Table 3:

Sr. No.	Name of Honours Degree Program	Program offering as a Honours Degree Program
1	Immersive Technologies	Artificial Intelligence and Machine Learning
2	Computational Biology	Artificial Intelligence (AI) and Data Science
3	Smart Computing	Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)

Table 4:

Sr. No.	Name of Minor Degree Program	Program offering Minor Degree Program	Programs, who can offer as a Minor Degree Program
1	Green Technology and Sustainability Engineering	Chemical Engineering	Artificial Intelligence and Machine Learning Artificial Intelligence (AI) and Data Science Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
2	Intelligent Automation and Applied Analytics	Electronics Engineering	Artificial Intelligence and Machine Learning Artificial Intelligence (AI) and Data Science Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
3	Industry 4.0 & IoT	Electronics and Telecommunication Engineering	Artificial Intelligence and Machine Learning Artificial Intelligence (AI) and Data Science Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
4	Artificial Intelligence and Machine Learning	Information Technology	Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
5	Web Application Development	Computer Engineering	Artificial Intelligence and Machine Learning Artificial Intelligence (AI) and Data Science Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
6	Electric Vehicles	Mechanical Engineering	Artificial Intelligence and Machine Learning Artificial Intelligence (AI) and Data Science Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
7	Robotics		
8	Data Science	Computer Science and Engineering (Data Science)	Artificial Intelligence and Machine Learning Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)

3. Honours and Minor Degree Eligibility Criteria for Students (Batch 2022-23):

In view of the guidelines issued by AICTE in APH 2020-21 for offering Honours and Minor degree in the various engineering programs, the following recommendations are proposed on the eligibility criteria for students opting for same;

- i) **Eligibility criteria for opting the Honours/ Minor Degree program:**
 - a. **Students with no backlog (live or dead KT) in semester I, II, III and IV.**
 - b. **The CGPI (based on semester I, II, III and IV) of the students must be 7.50 and above.**
 - c. **For direct second year (DSE) admitted students - No backlog in semester III and IV, CGPI must be 7.50 and above.**
- ii) **It is optional for learners to take Honours/Minor degree program.**
- iii) **Each eligible student can opt for maximum one Honours or one Minor Program at any time.**
- iv) **The Honours/ Minor degree program can be opted only during regular engineering studies.**
- v) **The student shall complete the Honours/ Minor degree program in stipulated four semesters only.**
- vi) **Students shouldn't be involved in any Unfair Means activity.**

4. Examination and Evaluation of Honours/Minor Degree Courses:

Assessments and result declaration are entirely done by DJSCE. Honours/Minor degrees courses will be offered in the Third and Final Year of engineering as specialisation in emerging areas.

By keeping in mind availability of expertise of faculty with the institute, the following is proposed as modalities of Examination and Evaluation.

- a. The continuous assessment and End Sem. Examination (ESE) evaluation shall follow the same pattern as adopted for corresponding semester started by the institute.
- b. Question paper will be set and delivered by institute for all Honours /Minor program.
- c. End semester Assessment will be done as per the laid down practices by following all applicable ordinances and regulations of institute.
- d. Honours /Minor degree courses treated as Credit type of courses, wherein passing marks set will be 40%. If any student scores equal or more than passing marks in particular course can be declared as pass.
- e. In case, a learner who has opted for Honours or Minor degree program and fails in the re-examination becomes a TNG (Term Not Grant) or Attendance defaulter or proved guilty in Unfair-Means case or not eligible for admission to the next year of the B.Tech. program and gets a year drop due to progression rules, s/he will not be eligible to continue the Honours or Minor Degree program and the program will then be automatically discontinued for such learners.
- f. Credits earned by students in Honours/Minor degree shall not include in overall CUMMULATIVE GRADE POINT AVERAGE.

- g. Honours /Minor degree shall be conferred in addition to basic degree only after successful completion of all courses.

5. Award of Honours / Minor Degree:

The proposed nomenclatures of the degrees along with the award of Honours/Minor Degree are as follows:

- a) B. Tech. in Chemical Engineering with Honours in Green Technology and Sustainability Engineering.
- b) B. Tech. in Electronics Engineering with Honours in Intelligent Automation and Applied Analytics.
- c) B. Tech. in Electronics and Telecommunication Engineering with Honours in Artificial Intelligence and Machine Learning.
- d) B. Tech. in Electronics and Telecommunication Engineering with Honours in Intelligent Connectivity: 5G & IoT.
- e) B. Tech. in Information Technology with Honours in DevOps (Development and Operations)
- f) B. Tech. in Computer Engineering with Honours in Intelligent Computing.
- g) B. Tech. in Mechanical Engineering with Honours in Electric Vehicles.
- h) B. Tech. in Mechanical Engineering with Honours in Robotics.
- i) B. Tech. in Computer Science and Engineering (Data Science) with Honours in Computational Finance.
- j) B. Tech. in Artificial Intelligence and Machine Learning with Honours in Immersive Technologies.
- k) B. Tech. in Artificial Intelligence (AI) and Data Science with Honours in Computational Biology.
- l) B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Honours in Smart Computing.

Minor Honours Degree shall be awarded with the degree designated as

Chemical Engineering	
St. No.	Particulars
1	B. Tech. in Chemical Engineering with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Chemical Engineering with Minor in Industry 4.0 & IoT.
3	B. Tech. in Chemical Engineering with Minor in Artificial Intelligence and Machine Learning.
4	B. Tech. in Chemical Engineering with Minor in Web Application Development.
5	B. Tech. in Chemical Engineering with Minor in Electric Vehicles.

6	B. Tech. in Chemical Engineering with Minor in Robotics.
7	B. Tech. in Chemical Engineering with Minor in Data Science.

Electronics Engineering	
Sr. No.	Particulars
1	B. Tech. in Electronics Engineering with Minor in Green Technology and Sustainability Engineering.
2	B. Tech. in Electronics Engineering with Minor in Industry 4.0 & IoT.
3	B. Tech. in Electronics Engineering with Minor in Artificial Intelligence and Machine Learning.
4	B. Tech. in Electronics Engineering with Minor in Web Application Development.
5	B. Tech. in Electronics Engineering with Minor in Electric Vehicles.
6	B. Tech. in Electronics Engineering with Minor in Robotics.
7	B. Tech. in Electronics Engineering with Minor in Data Science.

Electronics and Telecommunication Engineering	
Sr. No.	Particulars
1	B. Tech. in Electronics and Telecommunication Engineering with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Electronics and Telecommunication Engineering with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Electronics and Telecommunication Engineering with Minor in Web Application Development.
4	B. Tech. in Electronics and Telecommunication Engineering with Minor in Electric Vehicles.
5	B. Tech. in Electronics and Telecommunication Engineering with Minor in Robotics.
6	B. Tech. in Electronics and Telecommunication Engineering with Minor in Data Science.

Information Technology	
Sr. No.	Particulars
1	B. Tech. in Information Technology with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Information Technology with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Information Technology with Minor in Industry 4.0 & IoT.
4	B. Tech. in Information Technology with Minor in Web Application Development.
5	B. Tech. in Information Technology with Minor in Electric Vehicles.
6	B. Tech. in Information Technology with Minor in Robotics.
7	B. Tech. in Information Technology with Minor in Data Science.

Computer Engineering	
Sr. No.	Particulars
1	B. Tech. in Computer Engineering with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Computer Engineering with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Computer Engineering with Minor in Industry 4.0 & IoT.
4	B. Tech. in Computer Engineering with Minor in Artificial Intelligence and Machine Learning.
5	B. Tech. in Computer Engineering with Minor in Electric Vehicles.
6	B. Tech. in Computer Engineering with Minor in Robotics.
7	B. Tech. in Computer Engineering with Minor in Data Science.

Mechanical Engineering	
Sr. No.	Particulars
1	B. Tech. in Mechanical Engineering with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Mechanical Engineering with Minor in Green Technology and Sustainability Engineering.

3	B. Tech. in Mechanical Engineering with Minor in Industry 4.0 & IoT.
4	B. Tech. in Mechanical Engineering with Minor in Artificial Intelligence and Machine Learning.
5	B. Tech. in Mechanical Engineering with Minor in Web Application Development.
6	B. Tech. in Mechanical Engineering with Minor in Data Science.

Computer Science and Engineering (Data Science)	
Sr. No.	Particulars
1	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Industry 4.0 & IoT.
4	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Artificial Intelligence and Machine Learning.
5	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Web Application Development.
6	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Electric Vehicles.
7	B. Tech. in Computer Science and Engineering (Data Science) with Minor in Robotics.

Artificial Intelligence and Machine Learning	
Sr. No.	Particulars
1	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Industry 4.0 & IoT.
4	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Web Application Development.
5	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Electric Vehicles.

6	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Robotics.
7	B. Tech. in Artificial Intelligence and Machine Learning with Minor in Data Science.

Artificial Intelligence (AI) and Data Science	
Sr. No.	Particulars
1	B. Tech. in Artificial Intelligence (AI) and Data Science with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Artificial Intelligence (AI) and Data Science with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Artificial Intelligence (AI) and Data Science with Minor in Industry 4.0 & IoT.
4	B. Tech. in Artificial Intelligence (AI) and Data Science with Minor in Web Application Development.
5	B. Tech. in Artificial Intelligence (AI) and Data Science with Minor in Electric Vehicles.
6	B. Tech. in Artificial Intelligence (AI) and Data Science with Minor in Robotics.

Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)	
Sr. No.	Particulars
1	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Intelligent Automation and Applied Analytics.
2	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Green Technology and Sustainability Engineering.
3	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Industry 4.0 & IoT.
4	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Artificial Intelligence and Machine Learning.
5	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Web Application Development.

6	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Electric Vehicles.
7	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Robotics.
8	B. Tech. in Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology) with Minor in Data Science.

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