Dwarkadas J. Sanghvi College of Engineering

Honors/Minor Degree Programs Booklet

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

<div align="center">**Honors and Minor Degree Programs**

in

Engineering and Technology</div>

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 Honors/Minor in that particular area. For example, doing extra credits for Robotics in Mechanical Engineering shall earn B.Tech. in Mechanical Engineering with Honors 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 Honors / Minor Degree may be offered are numerous. It is up to the Universities with the help of their Academic Board/Council to decide whether Honors / Minor Degree is to be offered or not in any particular area, which is not mentioned above. AICTE approval is not required for offering Honors / Minor Degree in any such area, however the criteria that "Honors / 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.   **Honors and Minor Degree:**

Honors 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: Honors / Minor Degree Programs

Based on AICTE guidelines, DJSCE had proposed to offer following Honors/ Minor degree program corresponding to each engineering program starting from the A. Y. 2022-23.

Honors / Minor Degree Programs (Table 1 to 2).

Table 1:

Sr. No.	Name of Honors Degree Program	Program offering as a Honors 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)

			Chemical Engineering
3	Industry 4.0 & IoT	Electronics and Telecommunication 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

Honors/ 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 Honors Degree Program	Program offering as a Honors 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
7	Robotics		Computer Science and Engineering (IoT and Cyber Security with Block Chain Technology)
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. Honors and Minor Degree Eligibility Criteria for Students (Batch 2022-23):

In view of the guidelines issued by AICTE in APH 2020-21 for offering Honors 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 Honors/ 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 leaners to take Honors/Minor degree program.** iii) **Each eligible student can opt for maximum one Honors or one Minor Program at any time.** iv) **The Honors/ Minor degree program can be opted only during regular engineering studies**.

v) **The student shall complete the Honors/ Minor degree program in stipulated four semesters only.**

vi) **Students shouldn't be involved in any Unfair Means activity.**

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

Assessments and result declaration are entirely done by DJSCE. Honors/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 Honors /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. Honors /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 Honors or Minor degree program and fails in the reexamination 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 Honors or Minor Degree program and the program will then be automatically discontinued for such learners.

f.   Credits earned by students in Honors/Minor degree shall not include in overall CUMMULATIVE GRADE POINT AVERAGE.

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

5.   Award of Honors / Minor Degree:

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

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

Minor Honors Degree shall be awarded with the degree designated as

Chemical Engineering	
Sr. 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.

Academic Year 2024-25 Semester III onwards (As recommended by NEP 2020)

1. Students enrolled for the regular B. Tech. program can opt for B.Tech Honors or remain with the regular B. Tech. Program. (which means a particular batch will have the students of Regular / Honors programs).

2. The eligibility criteria for students to opt for Honors Programs in the Second Year onwards is as mentioned below:
   a) The CGPA based on semester I and II should be 7.50 and above.
   b) Students should have no backlog (live or dead F grades) in Semesters I & II.
   c) For direct second year (DSE) admitted students - aggregate percentage must be 70% and above.
   d) It is optional for students to opt for Honors degree program.
   e) The Honors degree program can be opted only during regular engineering studies.
   f) The student shall complete the Honors degree program in stipulated four Semesters only (wherever the module is offered as per the course structure of the respective branch of study).
   g) Students shouldn't be involved in any Unfair Means activity as per the Examination Regulations of DJSCE.

3. The Students opting for Honors Degree will complete extra 18- 20 credits apart from the regular credits.

4. The subject allocation (module booking) for the Honors degree will be done from Semester III to VIII (i.e. one subject in each semester), depending on the course structure of the respective branch of study.

5. The credits for the Honor Subjects will not be calculated with the result of the regular subjects, i.e. the credits of these subjects will not be considered in the calculation of the Semester Grade Point Average / Cumulative Grade Point Average (SGPA/CGPA).

6. The Honors subjects will be mentioned in a separate grade card apart from the eight emester-wise grade cards.

7. The results for the subjects (Honor) will be declared with the respective semesters on the student portal and the students can apply for revaluation of these subjects.

8. There will be NO GRACE given to these subjects booked under Honor.

9. There will be ONLY ONE RE-EXAM ATTEMPT given for the subjects booked under honors.

10. In case a student fails or remains absent, in Honor subject in any of the semester, even after one re-examination opportunity given, s/he will be discontinued from Honor subjects in the subsequent semester and will continue to be in the regular B.Tech program, hence in the ATKT rules for eligibility to the next year of the program (i.e. progression rule) only subjects of the regular B. Tech. Program will be considered.

11. In the transcripts, all the Honor subjects and their statement of marks and grades will be mentioned on a separate grade card after semester VIII i.e. the last grade card the ninth one and this will be issued only after successful completion of all the subjects / modules of Honor.

12. In case a student, who has opted for Honor/ Minor, and becomes a TNG (Term Not Grant) or Attendance defaulter or gets an year back due to progression rules, s/he will not be eligible to continue the Honors program.

13. Passing criterion and Grading for all the subjects under Honors Program will be same as the subjects under Regular B. Tech. Program

Various Honors Degree Program offered following AY 2025 – 26 onwards:

B.Tech Degree Program	Honors Degree Program Offered
Electronics and Telecommunication Engineering	Artificial Intelligence and Machine Learning
	VLSI
	Robotics & Automation
	Intelligent Connectivity: 5G & IoT
Information Technology	DevOps (Development and Operations)
Computer Engineering	Data Science
	Intelligent Computing
	Financial Computing
Mechanical Engineering	Electric Vehicles
	Robotics
Computer Science and Engineering (Data Science)	Computational Finance
Computer Science and Engineering (IoT and Cybersecurity with Block chain)	Smart Computing
	Data Analytics
Artificial Intelligence and Data Science	Computational Biology
	Business Intelligence
Artificial Intelligence and Machine Learning	Immersive Technologies
	Fintech

Department of Electronics and Telecommunication Engineering

Basic Degree: B. Tech in Electronics and Telecommunication Engineering with Multi-Disciplinary Minor
Honors Programs: B. Tech in Electronics and Telecommunication Engineering with Multi-Disciplinary Minor and Honors in Artificial Intelligence and Machine Learning
B. Tech in Electronics and Telecommunication Engineering with Multi-Disciplinary Minor and Honors in VLSI
B. Tech in Electronics and Telecommunication Engineering with Multi-Disciplinary Minor and Honors in Robotics & Automation
B. Tech in Electronics and Telecommunication Engineering with Multi-Disciplinary Minor and Honors in Intelligent Connectivity: 5G & IoT

Department of Information Technology

Basic Degree: B. Tech in Information Technology with Multi-Disciplinary Minor
Honors Programs: B. Tech in Information Technology with Multi-Disciplinary Minor and Honors in DevOps (Development and Operations)

Department of Computer Engineering

Basic Degree: B. Tech in Computer Engineering with Multi-Disciplinary Minor
Honors Programs: B. Tech in Computer Engineering with Multi-Disciplinary Minor and Honors in Data Science
B. Tech in Computer Engineering with Multi-Disciplinary Minor and Honors in Intelligent Computing
B. Tech in Computer Engineering with Multi-Disciplinary Minor and Honors in Financial Computing

Department of Mechanical Engineering

Basic Degree: B. Tech in Mechanical Engineering with Multi-Disciplinary Minor
Honors Programs: B. Tech in Mechanical Engineering with Multi-Disciplinary Minor and Honors in Electric Vehicles
B. Tech in Mechanical Engineering with Multi-Disciplinary Minor and Honors in Robotics

Department of CSE(DS) Engineering

Basic Degree: B. Tech in Computer Science and Engineering (Data Science) with Multi-Disciplinary Minor
Honors Programs: B. Tech in Computer Science and Engineering (Data Science) with Multi-Disciplinary Minor and Honors in Computational Finance

Department of AI & DS Engineering

Basic Degree: B. Tech in Artificial Intelligence and Data Science with Multi-Disciplinary Minor
Honors Programs: B. Tech in Artificial Intelligence and Data Science with Multi-Disciplinary Minor and Honors in Computational Biology
B. Tech in Artificial Intelligence and Data Science with Multi-Disciplinary Minor and Honors in Business Intelligence

Department of AI & ML Engineering

Basic Degree: B. Tech in Artificial Intelligence and Machine Learning with Multi-Disciplinary Minor
Honors Programs: B. Tech in Artificial Intelligence and Machine Learning with Multi-Disciplinary Minor and Honors in Immersive Technologies
B. Tech in Artificial Intelligence and Machine Learning with Multi-Disciplinary Minor and Honors in Fintech

Department of CSE (ICB) Engineering

Basic Degree: B. Tech in Computer Science and Engineering (IOT and Cyber Security with Block Chain Technology) with Multi-Disciplinary Minor
Honors Programs: B. Tech in Computer Science and Engineering (IOT and Cyber Security with Block Chain Technology) with Multi-Disciplinary Minor and Honors in Smart Computing
B. Tech in Computer Science and Engineering (IOT and Cyber Security with Block Chain Technology) with Multi-Disciplinary Minor and Honors in Data Analytics

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