

Notice for Fifth Semester Students

Options for B.Tech. Honours with MDM/ B.Tech Honours with Research and MDM / B. Tech with Double Minor(Multidisciplinary and Specialized Minor).

Eligibility Criteria for interested students' admission to the UG Bachelor's Degree with Honours/ Research/ Double Minor:

1. Students with minimum CGPA of 7.5 without backlog courses at the end of fourth semester and should have earned 84 credits are eligible for admission to Bachelor's Degree with Honours/ Bachelor's Degree with Research/ Bachelor's Degree with Double Minor.
2. Students will be allotted anyone degree option from **B.Tech. Honours / B.Tech Honours with Research / B. Tech with Double Minor (Multidisciplinary and Specialized Minor) according to their preferences.**
3. For Double Minor Degree, students have to select the Double Minor subjects from the other Department (Branch).
4. Students have to select subjects for B.Tech Honours from their own Department (Branch).
5. Students have to select subjects for B.Tech Honours with Research from their own Department (Branch).
6. Students have to complete and earn additional 18 credits in the prescribed duration of their regular degree course for the award of additional degree. If they fail to earn additional credits in prescribed duration, then they will be eligible for B. Tech degree with chosen minor after earning regular 167 credits of B.Tech degree with chosen minor.

All interested and eligible students are informed to apply in the given format for the same with the recommendation for Head of Dept. to Prof. N. S. Pathak (Instru. Dept.) on or before 02/08/2025, 05.00 pm.

List of Courses for various Degree are presented in the following table. Students have to complete these courses defined in the table in the prescribed duration of their regular degree course in online mode only. Students shall go through it before opting any one additional Degree Program.

1. B.Tech (Honours) – All Following Courses will be Online Courses (Swayam/ MOOCS/NPTEL/Online) of 03 Credits Each.

Department/ Branch	Specializa tion	fifth Semester		Sixth Semester		Seventh Semester	
Civil Engineering		Course Code	Title	Course Code	Title	Course Code	Title
	A.Archite- cture and Planning	CE1521	Building Materials as a Cornerstone to Sustainability	CE1621	Urban Governance and Development Management	CE1721	Urban Utilities Planning: Water Supply, Sanitation and Drainage
		CE1522	Sustainable Architecture	CE1622	Architectural Approaches to Decarbonization of Buildings	CE1722	Urban Landuse and Transportation Planning

	B. Transporta- tion Engg.	CE1521	Pavement Materials	CE1621	Remote Sensing: Principles and Applications	CE1721	Geometric Design of Highways
		CE1522	Pavement Construction Technology	CE1622	Sustainable Transportation Systems	CE1722	Introduction to Multimodal Urban Transportation Systems (MUTS)
	C. Structural Engg.	CE1521	Advanced Concrete Technology	CE1621	Admixtures and Special Concretes	CE1721	Advanced Reinforced Concrete Design
		CE1522	Mechanics of Solids	CE1622	Advanced Structural Analysis	CE1722	Advanced Prestressed Concrete Design
Mechanical Engineering	-	ME1521	Students should select Swayam/NPTEL courses available online other than program core and elective courses offered by the Department with the prior permission of BoS chairman(HOD) from THERMAL/ PRODUCTION / DESIGN area.	ME1621	Students should select Swayam/NPTEL courses available online other than program core and elective courses offered by the Department with the prior permission of BoS chairman(HOD) from THERMAL/PRODUCTION/ DESIGN area.	ME1721	Students should select Swayam/NPTEL courses available online other than program core and elective courses offered by the Department with the prior permission of BoS chairman(HOD) from THERMAL/PRODUCTION/ DESIGN area.
		ME1522		ME1622		ME1722	
Electrical Engineering	-	EE1521	Advanced Electrical Drives (NPTEL, IIT Kanpur, Dr. S. P. Das)	EE1621	Transmission Lines and Electromagnetic Waves (NPTEL IIT Madras, Ananth Krishnan)	EE1721	Digital Control Systems (NPTEL, IIT Guwahati, Dr. Indrani Kar)
		EE1522	Operation and Planning of Power Distribution Systems (NPTEL, IIT Guwahati, Dr. Sanjib Ganguly)	EE1622	Industrial Automation and Controls (IIT Kharagpur, Alok Kanti Deb)	EE1722	Power Quality (NPTEL, IIT Delhi, Bhim Singh)
Eelectronics and Telecommu- nication Engg.	ADVANCED SIGNAL POCESSING	ET1521	DSP Architecture	ET1621	Wavelet Signal Processing	ET1721	Pattern Recognition and Computational Intelligence
		ET1522	Digital Image and Video Processing	ET1622	Advanced Digital Signal Processing	ET1722	Adaptive Signal Processing
Eelectronics and Telecommu- nication Engg.	SOFT COMPU- TING	ET1551	Artificial Intelligence	ET1651	Computer Vision	ET1751	Optimization Methods in Machine Learning
		ET1552	Introduction to Soft Computing and Machine Learning	ET1652	Natural Language Processing	ET1752	Hardware for Deep Learning

Computer Science and Engineering	-	CS1521	Parallel Computer Architecture	CS1621	Fundamentals of Information Retrieval	CS1721	Distributed System
		CS1522	Introduction to Enterprise Resource Planning	CS1622	Functional and Logical Programming	CS1722	Advanced Computer Architecture
Instrumentation Engineering	-	IN1521	Neural Based Control	IN1621	Speech and Audio Signal Processing	IN1721	Process Equipment Design
		IN1522	Digital Image Processing	IN1622	Wavelet transform and Its Application	IN1722	Applied Instrumentation system Design
Information Technology	-	IT1521	Qualitative Research Methods and Research Writing	IT1621	Privacy and Security in Online social media	IT1721	Games and Information
		IT1522	Social Networks	IT1622	Research Methodology in Natural Sciences	IT1722	Business Intelligence & Analytics

2. B.Tech (Double Minor)

All Following Courses will be Online Courses (Swayam/ MOOCS/NPTEL/Online) of 03 Credits Each.

Department/ Branch	Specialization	fifth Semester		Sixth Semester		Seventh Semester	
Civil Engineering	Geotechnical Engineering	Course Code	Title	Course Code	Title	Course Code	Title
		CE1541	Geotechnical Engineering	CE1641	Foundation Engineering	CE1741	Ground Improvement Technology
		CE1542	Geotechnical Investigations	CE1642	Geotechnical Constructions	CE1742	Geoenvironmental Engineering
Mechanical Engineering	Mechanical Engineering	ME1541	Supply Chain Management	ME1641	Energy Conservation and Management	ME1741	Operations Research
		ME1542	Thermal and Fluid Engineering	ME1642	Industrial Robotics	ME1742	CAD-CAM
Electrical Engineering	Electrical Engineering	EE1541	Electrical Circuit Analysis	EE1641	Electrical Power	EE1741	Control Systems
		EE1542	Electrical Machines	EE1642	Power Electronics	EE1742	Electrical Drives and Control
Eelectronics and	Embedded System	ET1541	Embedded System Design with ARM	ET1641	RTOS	ET1741	Industrial IoT

Telecommu- nication Engineering		ET1542	Embedded System Interfacing	ET1642	Embedded System Design Verification	ET1742	IoT Edge
Computer Science and Engineering	Informatics Engineer- ing	CS1541	Computer Vision	CS1641	Natural Language Processing	CS1741	Digital Forensics
		CS1542	Business Intelligence & Analytics	CS1642	Affective Computing	CS1742	Automatic Speech Recognition
Instrumenta- tion Engineering	Industrial Automa- tion	IN1541	Sensor Design	IN1641	Industrial Drives	IN1741	Process Equipment Design
		IN1542	Robotics and Control	IN1642	Advance Programming for Various PLC/SCADA /DCS system	IN1742	AI based Control applications
Information Technology	Cyber Security	IT1541	Information Theory for Cyber Security	IT1641	Steganography and Watermarking	IT1741	Database Security and Access Control
		IT1542	Data Encryption and Compression	IT1642	Security Assessment and Risk Analysis	IT1742	Blockchain Technology

Important Note: If any of the course mentioned in the table is not available in online mode through NPTEL/SWAYAM etc. then BoS Chairperson is empowered to change courses mentioned in table as per availability.

3. B.Tech (Honours with Research Project) -

Guidelines for the Honours with Research Project

The purpose of this course is to introduce students to the process of conducting research projects/work in their department.. The students will be helped to conceptualise, design and execute a research project under the guidance of a teacher guide allotted to them.

Stage-1: Student have to complete online course related to topic/perquisite course prescribed by the assigned guide/BOS

OR


The focus will be on discussions and analysis of assignments. Learners will be encouraged to read books and research journals related to his/her research topic (literature review, theory and hypotheses etc) and share them in the seminars and evaluated by two member Team of department and same to be enter in ICA format.

Stage-2: Sample steps:

- Research design/Methodology
- Sampling tool of data collection
- data processing and analysis
- Plan of research report
- Publish review paper in peer view journal/Scopus indexed journal and seminar on it The faculty supervisor will assess the method and procedures used by the learner At end evaluated by two member Team of department

Stage-3:

- If applicable initiate Actual implementation
- Data Analysis and Interpretation: The outcome of the research is presented in tabular form with the help of statistical procedures. The data are analysed and interpreted and presented in the form of a research report and presentation/seminar.
- Report writing
- Publish paper on findings in peer view journal/Scopus indexed journal.
- Two member Team of department will assess the Findings method and procedures
- The faculty supervisor will assess the presentation of major findings depending on the methodology used, presentation of results, interpretation of the results with discussion, summary of the proposed research problem and conclusion.
- Two member Team of department (may evaluated by Guide and external expert) will assess the Findings method and procedures etc.


Dr. G. G. Bhutada
Chairman
MDM & Double Minor Committee

Application Format for **Options for additional Degree B.Tech. Honours / B.Tech Honours with Research / B. Tech with Double Minor (Multidisciplinary and Specialized Minor).**

Name of the student: _____

Registration Number: _____ ,

Mobile No. _____

Department: _____

CGPA after IVth semester: _____ (Attach copy of grade card with this application)

I wish to apply for the additional degree program as following,

Option for additional degree program. (Students should give any one option for the additional degree program **B.Tech. Honours / B.Tech Honours with Research / B. Tech with Double Minor**): _____

For students opting for **B. Tech with Double Minor**: I wish to apply for B. Tech with Double Minor from Department of _____.

Declaration by student:

I the undersigned _____, registration no. _____ of class Third Year (_____) declare that the above information given by me is true and i have understood the information regarding the additional degree program completely and abide the rules for same. I know if I failed to earn additional credits or not found interest in future, I will be eligible for B. Tech degree of my department with chosen minor only.

Signature of Student

Signature of Head of Department