

- This list is intended for students **whose names do not appear in the first table.**
→ These students are allowed to select any topic from the second table and work on it.

Important:

- Each group must not exceed ten (10) members.
- Students must organize themselves and inform the instructor of their selected topic and group composition.

Major	Presentation Title	Research Key Words	Key Points (as Subtitles)	Five Suggested Topics
Process Engineering	Sustainable Innovations in Process Engineering	Green processes, energy efficiency, pollution control, sustainable industry	- Introduction to Sustainable Process Engineering - Green Processes for Industry - Strategies for Energy Efficiency - Pollution Control Technologies - Case Studies in Clean Process Innovation	- Bio-based Chemical Production - Water Recycling in Industry - Carbon Capture in Chemical Plants - Process Intensification Techniques - Zero-Waste Manufacturing Processes
Process Engineering	Green Chemistry and Industrial Process Sustainability	Eco-friendly materials, waste minimization, process optimization, circular economy	- Introduction to Green Chemistry Principles - Eco-Friendly Materials and Their Impact - Waste Minimization Techniques - Process Optimization for Sustainability - Industry Case Studies: Circular Economy in Action	- Sustainable Catalysis in Industry - Green Solvent Alternatives - Biodegradable Polymers - Lifecycle Assessment in Chemical Engineering - Cleaner Production and ISO 14001

Major	Presentation Title	Research Key Words	Key Points (as Subtitles)	Five Suggested Topics
Civil Engineering	Sustainable Water Management in Urban Areas	Water conservation, smart water grids, stormwater management, sustainable cities	- Challenges in Urban Water Management - Smart Water Grids and Technologies - Stormwater Capture and Reuse - Innovations for Water Sustainability - Case Studies in Smart Water Projects	- Smart Irrigation Systems - Water Recycling Plants - Rainwater Harvesting for Cities - Green Infrastructure for Flood Control - IoT Solutions in Water Management
Civil Engineering	Advanced Materials for Sustainable Construction	High-performance materials, green composites, durability, eco-construction	- Introduction to Advanced Construction Materials - Green and Recycled Materials - High-Performance Concrete and Alternatives - Enhancing Durability and Lifespan of Structures - Case Studies: Innovative Material Applications	- Self-Healing Concrete - 3D Printed Concrete Structures - Carbon-Negative Building Materials - Bio-Based Insulation Solutions - Smart Coatings for Buildings
Electrical/ Mechatronics Engineering	Interdisciplinary Applications in Mechatronics	Mechatronics, automation, control systems, mechanical systems, energy management	- The Role of Mechatronics in Modern Engineering - Integration of Mechanical and Electrical Systems - Automation and Control: Key	- Robotics in Industry 4.0 - Smart Home Automation Systems - AI and Machine Learning in Mechatronics - Advanced Sensor Technologies - Microcontroller Applications (Arduino, Raspberry Pi)

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			Concepts - Energy Management in Mechatronic Systems - Real-World Examples of Interdisciplinary Applications	
Electrical /Mechatronics Engineering	Smart Technologies in Industrial Automation	Smart factories, PLCs, sensors, control engineering, IoT in industry	- Overview of Smart Industrial Technologies - PLCs and Sensor Integration - Industrial Control Engineering Basics - Internet of Things (IoT) in Industry - Emerging Trends: Industry 4.0	- Cybersecurity in Industrial Systems - Edge Computing for Smart Industries - Industrial Wireless Networks - Predictive Maintenance with IoT - Augmented Reality in Maintenance Operations
Mechanical Engineering	Advanced Mechanical Systems for Modern Industries	Mechanical systems, material strength, automation in mechanics, energy efficiency	- Advanced Mechanical Systems: An Overview - Material Strength and Engineering Innovations - Automation in Mechanical Industries - Applications in Automotive and Aerospace	- Autonomous Vehicles and Mechanics - Renewable Energy Devices - Advanced Robotics and Mobility - Smart Materials in Mechanical Design - Mechanical Systems for Extreme Environments
Mechanical Engineering	Mechanical Innovations for the Next Generation of Manufacturing	Smart manufacturing, robotic systems, Industry 4.0,	- Smart Manufacturing and Robotics - Integration with Industry 4.0 -	- Additive Manufacturing (3D Printing in Mechanics) - Collaborative Robots (Cobots) - Digital Twins in Manufacturing -

Major	Presentation Title	Research Key Words	Key Points (as Subtitles)	Five Suggested Topics
		advanced manufacturing technologies	Advanced Manufacturing Technologies - The Future of Manufacturing Industries	Sustainable Manufacturing Systems - Human-Robot Interaction in Factories
Mixed (Electrical + Mechanical + Civil + Process)	Development and Challenges of Electric Vehicles	Electric vehicles, battery technology, charging infrastructure, energy management, automotive innovation	- Evolution of Electric Vehicles - Battery Technologies and Innovations - Charging Infrastructure Challenges - Future Trends in Electric Mobility	- Hydrogen Fuel Cell Technologies - Energy Storage Systems for Grid and Vehicles - Vehicle-to-Grid (V2G) Technologies - Lightweight Materials for EVs - Renewable Charging Stations for EVs