GMR Institute of Technology
An Autonomous Institute Affiliated to JNTU-GV

GMRIT Training Tomorrow's Engineers Today

Department of Electrical & Electronics Engineering
Mapping of Suggested Courses with Sustainable Development Goals (SDGs)

At GMR Institute of Technology (GMRIT), the Department of Electrical and Electronics Engineering (EEE) not only delivers a robust and well-structured academic curriculum but also integrates a wide range of co-curricular and extracurricular activities. These initiatives are thoughtfully crafted to enhance the overall learning experience, nurturing students' technical competence, professional skills, and personal growth. Furthermore, the department's efforts are closely aligned with the United Nations Sustainable Development Goals (SDGs), ensuring that students develop a sense of social responsibility and are prepared to contribute positively to sustainable and inclusive global development.

Integrated Co-curricular and Extra-curricular Activities:

- Full Semester Internship at Industries (4 months)
- Summer Internship (4 weeks)
- Employability skills training (Soft skills, Aptitude skills, Domain skills)
- Guest Lectures, Group Discussions, Technical Quizzes, Seminars by Alumni and Industry Experts
- Student Professional Chapters: IEEE, ISTE, IE
- Student Clubs: Technical Club, Dance Club, Music Club, Film Club, etc.
- NSS & NCC activities and Yoga & Meditation classes
- Participation in Smart India Hackathons (SIH)
- Participation and Organization of International Conferences

Mapping of EEE Curriculum and Activities to SDGs:

SDG No.	Name of the SDG	Name of the course /activity suggested relevant to the SDG	Justification
1	No poverty	Renewable Energy Sources	• The course *Renewable Energy Sources* promotes affordable, sustainable energy access for rural and underprivileged communities. • This supports poverty reduction by enabling local development and lowering energy-related expenses.

		Energy Audit Conservation and Management	• The Energy Audit, Conservation and Management course equips students to identify and implement cost-saving energy solutions in industries and buildings. • This helps reduce operational costs, contributing to economic stability and poverty alleviation through energy efficiency.
		Professional Ethics and Human Values	• The course Professional Ethics and Human Values foster integrity, empathy, and social responsibility among students. • It encourages ethical practices that support inclusive growth and poverty reduction through equitable decision-making.
2	Zero hunger	Sustainable Energy	• The course Sustainable Energy promotes clean energy solutions for agriculture, such as solar-powered irrigation and food processing. • This enhances food production and storage, contributing to food security and supporting the goal of zero hunger.
3	Good health and well-being	Electromagnetic Field Theory	• The course Electromagnetic Field Theory lays the foundation for understanding medical imaging, diagnostics, and therapeutic devices. • This supports advancements in healthcare technology, contributing to improved health and well-being.
4	Quality education	Professional Ethics and Human Values	• The course Professional Ethics and Human Values instill moral responsibility, empathy, and lifelong learning among students. • It promotes inclusive, value-based education, aligning with the goal of quality education for all.
		Ethics and Integrity	• The course Ethics and Integrity cultivate honesty, accountability, and ethical behavior in personal and professional life. • It supports quality education by fostering responsible citizens committed to ethical practices and social justice.
5	Gender Equality	Sustainable Energy	• The course Sustainable Energy encourages inclusive participation in the energy sector, promoting equal opportunities for women. • It supports gender equality by empowering women through access to clean energy and related livelihoods.
6	Clean water and sanitation	Nil	Nil
7	Affordable and clean energy	Power Generation, Transmission and Distribution	• The course Power Generation, Transmission and Distribution provide knowledge on efficient and reliable energy systems. • It supports affordable and clean energy by promoting sustainable practices in energy generation and delivery.

		Green Energy Technologies	• The course Green Energy Technologies focuses on clean, renewable energy solutions like solar, wind, and bioenergy. • It directly supports affordable and clean energy by promoting eco-friendly technologies and reducing dependence on fossil fuels.
		Power System Dynamics & Control	• The course Power System Dynamics & Control enhances the stability and efficiency of power grids with renewable integration. • It supports affordable and clean energy by ensuring reliable and resilient energy systems.
		Renewable Energy Sources	• The course Renewable Energy Sources covers sustainable energy technologies such as solar, wind, and biomass. • It directly aligns with affordable and clean energy by promoting low-cost, eco-friendly energy alternatives.
		Sustainable Energy	• The course Sustainable Energy emphasizes long-term, eco-friendly energy solutions and efficient energy use. • It supports affordable and clean energy by encouraging sustainable practices and reducing environmental impact.
8	Decent work and economic growth.	Engineering Economics and Project Management	• The course Engineering Economics and Project Management equips students with skills in cost analysis, budgeting, and efficient project execution. • It supports decent work and economic growth by promoting entrepreneurial thinking and effective resource management.
		Electrical Installation, Safety and Auditing	• The course Electrical Installation, Safety and Auditing ensure safe work environments and promotes compliance with safety standards. • It supports decent work and economic growth by reducing workplace hazards and improving system reliability in the electrical sector.
		Communication Etiquette in Workplaces	• The course Communication Etiquette in Workplaces enhances professional interaction, collaboration, and interpersonal skills. • It supports decent work and economic growth by fostering a respectful and productive work environment.
9	Industry, innovation, and infrastructure	Power System Protection	• The course Power System Protection focuses on safeguarding electrical infrastructure through advanced protection techniques. • It supports industry, innovation, and infrastructure by ensuring reliable and resilient power systems essential for industrial growth.
		Micro and Smart Grid Technologies	• The course Micro and Smart Grid Technologies introduce advanced, decentralized energy systems with real-time monitoring and control.

			It supports industry, innovation, and infrastructure by enhancing grid resilience, efficiency, and integration of renewable energy.
		Control and Instrumentation of Smart Grid Systems	• The course Control and Instrumentation of Smart Grid Systems focus on advanced control, automation, and monitoring of modern power grids. • It supports industry, innovation, and infrastructure by enabling intelligent, efficient, and reliable energy management systems.
		Communication and Security in Smart Grid	• The course Communication and Security in Smart Grid addresses secure data transmission and reliable communication in modern power systems. • It supports industry, innovation, and infrastructure by ensuring safe, efficient, and intelligent operation of smart grid networks.
		Intellectual Property Rights and Patents	• The course Intellectual Property Rights and Patents educate students on protecting innovations and fostering creativity. • It supports industry, innovation, and infrastructure by encouraging research, technological advancement, and economic growth.
		Design The Thinking	• The course Design Thinking nurtures creativity, problem-solving, and user-centric innovation. • It supports industry, innovation, and infrastructure by fostering the development of practical, innovative solutions to real-world challenges.
10	Sustainable cities and communities	Electrical Vehicle Technologies	• The course Electrical Vehicle Technologies promotes clean and efficient transportation solutions for urban mobility. • It supports sustainable cities and communities by reducing emissions, lowering noise pollution, and enhancing energy efficiency.
		Hybrid Renewable Energy Systems Design	• The course Hybrid Renewable Energy Systems Design focuses on integrating multiple renewable sources for reliable and efficient energy supply. • It supports sustainable cities and communities by enabling decentralized, clean energy solutions that reduce environmental impact.
		Fundamentals of Electrical Vehicle Technology	• The course Fundamentals of Electrical Vehicle Technology introduces eco-friendly transport systems and sustainable mobility solutions. • It supports sustainable cities and communities by reducing reliance on fossil fuels and minimizing urban air pollution.
11	Reduced inequality	Women in Leadership	• The course Women in Leadership empowers students to understand and address gender disparities in professional settings.

			• It supports reduced inequality by promoting inclusive leadership and equal opportunities for women across sectors.
12	Responsible consumption and production	Power System Analysis and Control	• The course Power System Analysis and Control focus on efficient operation, monitoring, and control of electrical power systems. • It supports responsible consumption and production by optimizing energy use, minimizing losses, and promoting system sustainability.
		Utilization of Electrical Energy	• The course Utilization of Electrical Energy emphasizes efficient use of electricity in industrial, domestic, and transportation sectors. • It supports responsible consumption and production by promoting energy efficiency and reducing resource wastage.
		Electric Vehicle Drive Train Systems	• The course Electric Vehicle Drive Train Systems focuses on efficient power conversion and energy utilization in electric mobility. • It supports responsible consumption and production by minimizing energy losses and promoting sustainable transport technologies.
		Power Electronic Applications to Green Energy Systems	• The course Power Electronic Applications to Green Energy Systems deals with efficient energy conversion and control in renewable systems. • It supports responsible consumption and production by enhancing the performance and integration of clean energy technologies.
		Battery Management Systems	• The course Battery Management Systems focuses on safe, efficient, and optimized use of battery storage technologies. • It supports responsible consumption and production by extending battery life, reducing waste, and ensuring sustainable energy use.
		Energy Audit, Conservation and Management	• The course Energy Audit, Conservation and Management trains students to assess and optimize energy usage in various sectors. • It supports responsible consumption and production by promoting energy efficiency, reducing waste, and encouraging sustainable practices.
13	Climate action	Environmental Studies	• The course Environmental Studies raises awareness about environmental issues and sustainable practices. • It supports climate action by educating students on climate change, mitigation strategies, and the importance of environmental conservation.
		Power System Deregulation	• The course Power System Deregulation explores market-based electricity systems promoting competition and efficiency. • It supports climate action by encouraging the integration of renewable energy and reducing carbon emissions through optimized power distribution.

		Climate Changes and Circular Economy	• The course Climate Changes and Circular Economy focus on reducing environmental impact through resource efficiency and waste minimization. • It supports climate action by promoting sustainable production models and strategies to mitigate climate change effects.
14	Life below the River	Nil	Nil
15	Life on land	Nil	Nil
16	Peace, justice, and strong institution	Introduction to Journalism	• The course Introduction to Journalism emphasizes truthful reporting, media ethics, and the role of press in democracy. • It supports peace, justice, and strong institutions by promoting transparency, accountability, and informed civic engagement.
		Mass Media Communication	• The course Mass Media Communication focuses on effective information dissemination and media ethics. • It supports peace, justice, and strong institutions by fostering informed societies, promoting transparency, and upholding democratic values.
		Social Responsibility	• The course Social Responsibility encourages active citizenship, ethical behavior, and community engagement. • It supports peace, justice, and strong institutions by promoting inclusivity, accountability, and respect for societal values.
17	Partnership for the goals.	Nil	Nil

HoD-EEE