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SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

ELITE

-ELECTRIFING THE FUTURE

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DEPARTMENT VISION

To become centre of excellence in Electronics and Communication Engineering to meet the challenges of industry and the society

DEPARTMENT MISSION

DM1: Impart high quality education to enable students to face challenges Of Electronics and Communication Engineering.

DM2: Provide all possible support to promote activities in the related areas of VLSI, Communications, Signal Processing, and Micro Processors & Micro Controllers.

DM3: Inculcate ethical, professional values and life-long learning skills to address the societal needs.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: Graduates shall accomplish Excellence in professional career and pursue higher studies with innovation.

PEO2: Graduates shall be competent professionals by inculcating values with profound knowledge in Electronics and Communication Engineering.

PEO3: Graduates shall have an attitude to apply technical knowledge to solve real time industrial problems and develop lifelong learning attitude.

PEO4: Graduates shall aware of multi disciplinary knowledge in the context of teamwork.

DEPARTMENTOF ELECTRONICS AND COMMUNICATIONENGINEERING

The goal is to impart value-based technical education and train students to become well-rounded engineers in the field of Electronics and Communication Engineering, equipping them for successful careers in industry, research, or higher education. The program commenced in the academic year 2008–09 with an initial intake of 60 students. Currently, the intake for the ECE Department is 120 students. The department has a faculty strength of 23 well-qualified, experienced, and dedicated postgraduate members, including five Ph.D. holders, with several others pursuing their doctorates in various specializations. Additionally, the department is supported by five technical staff members.

The department actively encourages students to pursue postgraduate studies and prepares them for leadership roles in research and development. In addition to the undergraduate program, the department has been offering an M.Tech course in VLSI System Design since the academic year 2012–13, with an intake of 18 students.

The ECE department boasts well-established infrastructure, including five specialized laboratories: Microwave Engineering Lab, Microprocessor & Microcontroller/Simulation Lab, Communications Lab, Electronic Devices and Circuits (EDC) Lab, and a dedicated Research & Development (R&D) Lab.

The department has an E-Yantra Laboratory, established in 2019 and sponsored by the Ministry of Human Resource Development (MHRD). This lab serves as a collaborative platform between IIT Bombay and SVIET, Nandamuru. All laboratories in the department are fully equipped to support advanced technologies and modern engineering practices.

The ECE department also extends its support to the Atal Tinkering Lab at Z.P.H. School, Guduru. It hosts professional chapters such as the IETE Student Forum. All departmental activities are conducted under the IETE banner. In addition, the student association *Versatile Electronic Designers' Association* (VEDA) organizes various technical events such as seminars, quizzes, poster presentations, paper presentations, and project expos.

Each semester, the department arranges a minimum of two guest lectures and one workshop to further enrich the academic experience. Students are actively encouraged to participate in international, national, and state-level technical contests.

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STUDENT ARTICLE

Industrial Immersion: AMTZ & Hindustan Shipyard, Vizag

Introduction & Objectives

On 3 February 2023, a motivated group of 70 Electronics & Communication Engineering students embarked on an industrial excursion to two major Visakhapatnam industrial hubs:

1. **Andhra Pradesh MedTech Zone (AMTZ)** – India's premier medical device manufacturing park.
2. **Hindustan Shipyard Limited (HSL)** – A deep-rooted PSU specializing in shipbuilding and repair.

Our aim was to observe live operations in med-tech manufacturing and shipyard engineering—bridging academic principles with real-world practice.

Part 1: AMTZ Tour & Insights

Campus Overview & Facilities: AMTZ's sprawling 270-acre campus features over 10 manufacturing units and state-of-the-art labs—BIOME for biomaterials, ELECTRA for EMC/Safety testing, ADDIT for 3D prototyping, COBALTA for gamma irradiation, and more

Electrical Engineering Relevance

- **ELECTRA Lab**: We witnessed electromagnetic compatibility and electrical safety tests crucial for medical devices—connecting theoretical EM shielding and PCB integrity principles with actual certification practices .
- **ADDIT (3D Printing)**: Observed prototypes of medical implants where electrical actuators and sensors interface with structural components .

Key Learning Points

Part 2: Hindustan Shipyard Exploration

HSL Overview: Founded in 1941, HSL is a major defence PSU with dry docks, slipways, and facilities to build/repair vessels up to 80,000 DWT

Visit Highlights

- **Hull Fabrication & Welding**: We observed heavy-duty welding and steel processing crucial for ship hulls—reinforcing classroom welding and material science theories.
- **Dry Dock Operations**: Understanding structural design for launching and maintaining ships—parallels to load-bearing structures in civil and marine engineering.
- **Propulsion & Electrical Systems**: Tour included engine rooms and electrical control panels—

demonstrating high-power electronics and system integration in marine vessels.

- The rapid scaling during COVID-19: AMTZ's agile production of ventilators, RT-PCR kits, and mask components highlighted integration of automation, instrumentation, and quality control in real-time
- Exposure to a med-tech eco-system: Interfacing with incubator units like BioValley& KIHT underlined startup innovation, regulatory norms (FDA/CE/ISO), and cross-disciplinary collaboration.
- **Safety & Protocols**: Insight into rigorous safety procedures—echoing insights from National Safety Day observed at HSL earlier in 2024

Innovative Outlook: HSL's push toward green "e-vessel" systems, modular design, and hybrid tugboats indicates emerging opportunities in high-power electrical systems and power management

Student Reflections

- **Hands-on Learning**: Real-world examples of EMI filtering, motor control, power systems in med-devices, ship propulsion.
- **Career Inspirations**: Many students expressed interest in med-tech R&D and marine electrical systems, especially in green shipping innovations.
- **Skill Awareness**: Recognized the importance of interdisciplinary skills—automation, regulatory compliance, systems design.

Acknowledgments

We extend sincere thanks to the AMTZ team—especially at ELECTRA, ADDIT, and BIOME labs—and the HSL team for their exceptional guidance, transparent demonstrations, and interactive sessions during our one-day February visit.

Conclusion & Next Steps

The 3-February-2023 visit to AMTZ and HSL offered an invaluable fusion of medical device manufacturing and marine engineering insights—solidifying classroom knowledge in electrical systems while helping chart future academic and career pathways in med-tech and shipbuilding sectors.

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FACULTY ARTICLE

Student Service & Social Responsibility in Electronics Engineering

Introduction

Electronics engineering education has traditionally emphasized technical mastery—circuit design, embedded systems, signal processing. Yet, fostering **social responsibility** and **community engagement** within students equips them to apply these skills ethically and meaningfully. Through structured service-learning, design thinking, and community-based projects, engineering students not only build technical competence—they cultivate empathy, leadership, and civic awareness.

Research Foundations

Service-Learning Bolsters Professional Responsibility

Research spanning diverse engineering disciplines shows that service-learning—integrating community engagement with academic goals—significantly improves social responsibility attitudes among students. In civil, environmental, and mechanical engineering contexts,

Community-Based Senior Design Enhances Engagement

A review in *IEEE Pulse* highlighted that students working on community-focused senior design projects—like solar water heaters, assistive prosthetics, or canine exoskeletons—demonstrated higher motivation, technical growth, empathy, and ethical reasoning compared to those in industry-only projects

Community & NGO Collaboration Fosters Inclusion

Studies in ECE show that integrating community-based action research (e.g., NGO-led IT or assistive tech initiatives) promotes student awareness of societal needs and inclusion, embedding social values directly into engineering curricula

Service-Driven Formats for Electronics Students

1. EPICS (Engineering Projects in Community Service)

Launched at Purdue in 1995 and now adopted by 15+ universities worldwide, EPICS empowers undergraduates to serve nonprofits through real design projects—ranging from mobile dental units to data systems—while gaining project management skills

2. Engineers Without Borders (EWB)

EWB projects, such as water sanitation systems, are student-led and community-partnered. They build not just technical systems but also mutual learning, local leadership participation, and sustainability .

3. Design Thinking for First-Year Students

In Indian engineering programs, design-thinking modules grounded in empathy and societal needs effectively nurture socially responsible mindsets among freshmen

Benefits of Service-Oriented Learning

iefit	**pact**
ianced Civic Awareness	dents better grasp societal impacts of technology and their e ponsibilities.
t Skills Development	pathy, communication, and collaboration with diverse community pa irish.
reased Motivation irning	ticipation in meaningful projects boosts engagement and problem-sc ity
fessional Responsibility	dent volunteerism correlates with stronger views of professional du ineers .
itext-Aware Design	nmunity feedback ensures designs are culturally and contextually valid.

Implementing in Electronics Engineering

1. Embed EPICS/EWB Projects in Curriculum

- Partner with local NGOs to define electronic hardware or software needs.
- Use multidisciplinary teams for holistic project approaches.

2. Introduce Design-Thinking Modules

- Employ empathy interviews, need-finding, prototyping in early courses.
- Reflective assignments help students connect technical choices with social impacts.

3. Promote Volunteerism through Campus Clubs

- Electronics clubs can lead service drives like e-waste upcycling, repair camps, or school tech camps—mirroring 'Volunteering in Engineering Students' model.

4. Combine CSR with Problem-Based Learning

- In advanced electives (e.g., semiconductor devices), incorporate corporate social responsibility cases, community-oriented problem contexts.

5. Foster Reflection and Assessment

- Use rubrics evaluating technical performance *and* societal impact.

- Include reflective components (journals, peer discussion) to help students internalize social lessons.

Case Example: E-Waste Recycling Initiative

An Electronics Engineering club could launch a **Sustainable E-Waste Design Project**, akin to the University of Illinois' competition in 2009–10. Students collect campus e-waste, develop novel upcycled devices (e.g., solar chargers from circuit boards), and exhibit them publicly. This combines environmental stewardship with technical innovation.

Conclusion

By integrating service-learning, design thinking, and community partnership into electronics engineering education, faculty cultivate not only skilled engineers but socially-responsible agents of change. Embedding empathy, civic duty, and reflection alongside technical rigor builds professionals equipped to address 21st-century challenges responsibly. Faculty are encouraged to pilot these approaches, assess their outcomes, and evolve their pedagogical frameworks accordingly.

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Paintings