STRATEGIC PLAN
(2021-2026)

Department of Electronics Engineering

J. C. BOSE UNIVERSITY OF SCIENCE AND TECHNOLOGY, YMCA, FARIDABAD

(**Formerly YMCA University of Science and Technology**)

NAAC 'A' Grade accredited State University

Sector-06, Delhi Mathura Road, Faridabad -121006 (Haryana)

About Electronics Engineering Department:

The Department of Electronics Engineering is committed to impart technical education in the most efficient manner to its students. It was established in the year 2012 (earlier combined with the Electrical Engineering Department and known as EEE Department running since the inception of YMCAIE). The department has equipped itself with workshops/labs and syllabus for achieving engineering education excellence, from the support of the excellent faculty of the Department, JCBoseUST, YMCA has established itself as a well-known entity in the field of Electronics education. The syllabus of the Department is composed of the fundamental concepts blended with the ultra-modern topic to impart quality technical education; the lab/workshops consist of the basic instrument to software/simulators for providing the student a feel of the industrial work environment. Department of Electronics Engineering is running various UG, PG and Ph.D. programs.

- Undergraduates Programs:
    - B.Tech. in Electronics & Computer Engineering
    - B.Tech. in Electronics & Communication Engineering
    - B.Tech. in Electronics Engineering
- Post Graduate programs
    - M.Tech. in VLSI Design
    - M.Tech. in Electronics & Communication Engineering
- Ph. D programs

FACULTY MEMBERS:

Total no. of faculty: 26 (03 Professor + 01 Associate Prof. + 22 Assistant Prof.) + 1 (Adjunct faculty)

- Number of PhD's: 11
- Number of M.Tech.: 16
- Average Experience of faculty:13 years

VISION:

To be a Centre of Excellence for producing high-quality engineers and scientists capable of providing sustainable solutions to complex problems and promoting cost-effective indigenous technology in the area of Electronics, Communication & Control Engineering for Industry, Research Organizations, Academia and all sections of society.

MISSION:

- To frame a well-balanced curriculum with an emphasis on basic theoretical knowledge as well as the requirements of the industry.
- To motivate students to develop innovative solutions to the existing problems for the betterment of society.
- Collaboration with the industry, research establishments and other academic institutions to bolster the research and development activities.
- To provide infrastructure and financial support for the culmination of novel ideas into useful prototypes.
- To promote research in emerging and interdisciplinary areas and act as a facilitator for knowledge generation and dissemination through Research, Institute - Industry and Institute-Institute interaction.

STRATEGIC GOALS

- To build a team of academicians, to attain excellence, to offer academic programmes in engineering at undergraduate, postgraduate and doctoral levels.
- To motivate faculty members for higher education. Introduction of newer and innovative PG & Ph. D. programmes.
- To interact more with Industries & Engineering Institutes.
- To develop the Institute as knowledge industry.
- To improve existing labs and develop new labs.
- To inculcate moral values in students.
- To motivate the faculty and students for Research/ Quality Publication.
- To keep faculty members informed about the latest developments in research, technology and teaching methods.
- To interact with neighboring industries and institutions to exchange technological developments.

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

PEO-1: To prepare students to excel in undergraduate Programs and to succeed in the industry/ technical profession through global, rigorous education.

PEO-2: To provide students with a solid foundation in mathematical, scientific and engineering fundamentals required to solve engineering problems and also to pursue higher studies.

PEO-3: To provide students with the foundation in skill development required to design, develop and fabricate engineering products

PEO-4: To inculcate in students professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate engineering issues to broader social context, additional courses with regard to physical, psychological and career growth.

PEO-5: To provide the student with an academic environment aware of excellence, outstanding leadership, written ethical codes and guidelines with moral values, and the life-long learning needed for a successful professional career.

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

1) Engineering knowledge: Apply knowledge of mathematics, science, engineering fundamentals, and Electronics Engineering to the solution of engineering problems.

2) Problem analysis: Identify, formulate, review the literature and analyze Electronics Engineering problems to design, conduct experiments, analyze data and interpret data.

3) Design /development of solutions: Design solutions for Electronics Engineering problems and design system components or processes that meet the desired needs with appropriate consideration for public health and safety, and the cultural, societal and environmental considerations.

4) Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in Electronics Engineering.

5) Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to Electronics Engineering activities with an understanding of the limitations.

6) The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to mechanical engineering practice.

7) Environment and sustainability: Understand the impact of the Electronics Engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.

8) Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the Electronics Engineering practice.

9) Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings in Electronics Engineering.

10) Communication: Communicate effectively on complex engineering activities with the engineering committee and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations in Electronics Engineering.

11) Project Management and finance: Demonstrate knowledge & understanding of the mechanical engineering principles and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments in Electronics Engineering.

12) Life-long learning: Recognize the need for, and the preparation and ability to engage in independent research and lifelong learning in the broadest context of technological changes in Electronics Engineering.

SWOC Analysis

The department introspects itself through SWOC analysis as under:

Strength:

1. A part of brand of YMCA since1969.
2. Most preferred destination for students in the admission counselling.
3. Competent and well qualified faculty with good student teacher ratio.
4. Conducive research environment with 06 faculty member holding Ph.D degree and guiding Ph.Ds. More than 500 publications are in the department credit.
5. Total number of papers published in Journals : 244
6. Specialized workshops in the area of Embedded System, Control System and Communication Engineering.
7. Well placed and supportive alumni-many of them are entrepreneurs.
8. Skill based B. Tech. Programme with emphasis on workshop.
9. Faculty is also involved in other activities like various clubs, committees and societies.
10. All faculty members are provided with Laptops for teaching, research and development.

Weakness:

1. Lack of consultancy / research projects .
2. Space crunch.
3. Lack of MoUs with National / International Universities / organization.

Opportunity:

1. Better Training & Placement opportunities for passing out students since Faridabad and NCR is known as large Industrial hubs.
2. Better faculty as well as students` interaction with other nearby reputed institutions like IIT Delhi, DTU Delhi, NSIT Delhi in terms of higher education and experimental facilities.
3. Collaborative research and interaction with industry.

Challenge:

1. Electronics Engineering is a fast changing area, so to keep pace with the current trend and adjust the curriculum accordingly is a key challenge.
2. Providing 100% placement to the students.
3. Development of R&D facilities as the changing scenario in the industry.
4. Generate learning resources of Knowledge updating.
5. Strengthen capabilities/ networking for undertaking inters disciplinary industrial projects.
6. Maintaining top position with increased competition from private and govt. institutions is a major challenge.

Action Taken

The following actions are to be taken in nearby future

- Four Value added courses are planned for the upcoming academic year 2021-22 to overall enhance the skills of students.
- FDP/STTP/ Workshops to be organized for staff and students
- Expert lectures/ Seminars to be organized for staff and students
- NBA accreditation for M. Tech (ECE) program
- NBA accreditation compliance for B. Tech ECE for the next three years
- Blood transfusion drive for thalassemia patients
- Renovation of labs/classrooms
- Clean Room/ Flexible electronics lab to be set up.