Tribhuvan University

Institute of Engineering (IOE)

Faculty Capacity Development and Engineering Education Promotion Strategy, 2082

Strategy developed under the TU's "Regulations relating to the Specialized Higher Education Promotion Bylaw, 2079"

IOE Faculty Capacity Development and Engineering Education Promotion Strategy, 2082

1. Vision

To build a highly competent, research-driven, market and industry-driven, technologically advanced, and globally competitive faculty workforce that ensures excellence in engineering education, innovation, and professional practice.

2. Mission

To strengthen faculty capabilities through continuous training and professional development, ICT integration, research enhancement, academic leadership, and global collaboration.

3. Strategic Objectives

3.1 Enhance Teaching Competence

a. Modernize teaching methodologies with Outcome-Based Education (OBE).
b. Promote student-centered approaches such as problem-based learning, case-based learning, and smart classrooms.
c. Strengthen capacity in digital pedagogy: LMS use, e-content production, blended learning.

3.2 Strengthen Research and Innovation Capacity

a. Increase faculty participation in research projects, grants, and publications.
b. Enhance skills in proposal writing, data analysis, scientific communication, and research ethics.
c. Motivate faculties in the research and promote interdisciplinary/industry-driven courses and associated applied research.

3.3 Build Digital and Technological Skills

a. Mandatory digital literacy certification for all faculty.
b. Training in software tools (MATLAB, Python, AutoCAD, Other program specific simulation tools, and AI/ML frameworks).
c. Strengthen cybersecurity awareness and safe digital practices.

3.4 Develop Academic Leadership

a. Prepare faculty for leadership roles: coordinators, campus chiefs, HODs, program/center/research directors, Campus Chiefs/Asst. Chiefs, Deans/Asst. Deans etc.

b. Offer management and leadership training (decision-making, HRM, conflict management, technology management, disaster management, engineering management).

c. Build capacity in policy design, curriculum reform, and accreditation.

3.5 Strengthen Collaboration and Industry Linkages

a. Encourage joint research projects with industry, government agencies, and international universities.

b. Facilitate internship supervision, industrial visits, and curriculum alignment with market needs.

c. Promote faculty and researcher mobility programs.

3.6 Promote Professional Ethics, Inclusivity and Well-being

a. Uphold academic ethics, quality standards, and an anti-plagiarism culture.

b. Integrate gender equality, disability inclusion, and safe learning environment principles.

c. Provide faculty counseling, wellness programs, and workload balance.

4. Key Strategies & Interventions

4.1 Teaching-Learning Improvement Strategies

a. Conduct annual pedagogy workshops and micro-teaching sessions.

b. Establish a "Career Counselling, Teaching and Learning Excellence Center (TLEC)" at IOE.

c. Use teaching portfolios and peer review systems.

4.2 Research Development Strategies

a. Create a dedicated IOE and Constituent Campus Research Support Unit.

b. Provide seed grants, mini-grants, and travel grants to IOE faculties.

c. Institutionalize an annual IOE Research Symposium.

4.3 Digital Capacity Strategies

a. Regular training on EMIS, online teaching, and digital content creation.

b. Advanced training on program specific software tools

c. Integration of AI/ML/Analytics tools in teaching, learning and research.

4.4 Leadership and Management Strategies

a. Leadership training modules for academic managers.

b. Mentorship program: senior faculty guide junior faculty. TA/RA provisioning in PhD/MSc/BE Programs.

c. Performance-based evaluation system.

d. Merit-based appointment at all IOE positions.

4.5 Industry and International Collaboration Strategies

a. Increase MOUs with technological companies, engineering consultancies, and global universities.

b. Promote visiting faculty and exchange programs.

c. Prioritize on industry-based research projects and laboratory modernization.

4.6 Quality Assurance and Accreditation Strategies

a. Training on QAA and engineering accreditation standards.

b. Course mapping and OBE compliance workshops.

c. Strengthen internal QA committees.

5. Implementation Mechanism

5.1 Institutional Responsibility

a. IOE Dean's Office: Policy formulation and monitoring via Human Resource (HR) Management and Monitoring unit.
b. Campus-based CDC/QAA/RMC/IQAP Units: Implementation support.
c. Teaching Learning Enhancement Cell (TLEC): Training delivery.
d. Departments: Faculty mentoring and performance review.

5.2 Resource Allocation

a. Annual budget for capacity development.
b. Research grants through internal/external partners.
c. Digital infrastructure including laboratories and software licenses.

5.3 Monitoring and Evaluation

a. Annual faculty capacity development report.
b. Teaching evaluation by peers, self, and students.
c. Indicators: research output, projects, publications, patents.
d. Regular skill progression follow-up.

6. Expected Outcomes

a. Improved teaching quality and learner engagement.
b. Increased research publications and funded projects.
c. Digitally competent and innovative faculty members.
d. Strong industry–academia collaboration.
e. Enhanced academic leadership and governance.
f. IOE aligned with global engineering education standards.