



DEPARTMENT OF  
COMPUTER SCIENCE AND ENGINEERING

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## 5 Years Strategic Development Plans (2023-2027)

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GREEN UNIVERSITY OF BANGLADESH

# Preface

The Computer Science & Engineering (CSE) Department of GUB aims to produce quality graduates to meet the needs of building Digital Bangladesh. We aim to establish the Computer Science & Engineering (CSE) Department as one of the leading and prestigious CSE departments of the country with the help of a combination of highly qualified faculty members and state-of-the-art facilities. All of our efforts, initiatives, developments & activities are centered to build the department of CSE in GUB as a center of excellence and a strong research and teaching environment that responds swiftly to challenges of 21st century.

**The Department of CSE has the following 5 of strategic development pillars in next 5 years:**

- (A) Governance, academic Leadership, and well-equipped classroom and laboratories
- (B) Academic Programs, Curriculum, Teaching, Learning, and Assessment
- (C) Research, Creativity, Innovation, and Entrepreneurship
- (D) Collaboration, Community Engagement, and Globalization
- (E) Green Economy, Sustainable Growth, Organizational Values, and Culture

## **Objectives of the strategic plan:**

1. Ensure transparency, participatory decision-making, and compliance with policies while increasing the number of PhD, foreign, and industry-experienced faculty members to foster strong leadership and a high-quality academic culture.
2. Expand degree offerings by introducing new programs such as B.Sc. in Software Engineering, B.Sc. in Artificial Intelligence & Data Science, and M.Sc./Ph.D. programs, while continuously updating curricula in alignment with Outcome-Based Education (OBE), Sustainable Development Goals (SDGs), and Industry 5.0.
3. Increase high-quality publications, patents, and collaborative research projects, while developing research labs and encouraging entrepreneurship through innovation-driven initiatives and industry partnerships.
4. Build strong collaborations with foreign universities, strengthen the alumni network, and achieve higher national and international rankings, while actively engaging with communities through outreach programs and knowledge-sharing activities.
5. Reduce student dropout rates, enhance faculty retention, and integrate green practices (e.g., paperless systems, sustainability-focused research, and green living initiatives) to promote organisational values, professional ethics, and a sustainable academic environment.

# A. Governance, Academic Leadership and Infrastructure

## 0.1 Governance

Department of CSE, GUB gives the highest importance to ensuring good governance across all of its strategic decision-making and operational units. Good governance in CSE department encompasses some fundamental issues including compliance with the policies, prioritizing the interests of the key stakeholders, data-driven well- informed decision-making, transparency, accountability, and diversity.

### 0.1.1 Key needs or issues:

- Participatory decision, Fairness And Transparency
- Efficiency and Quality Assurance
- Updating Organogram, Rules and Academic Policies
- PhD, Foreign and Industry experienced faculty Members

### 0.1.2 Present State:

- Participatory decision, Fairness And Transparency
  - Weekly Academic Meeting
- Efficiency and Quality Assurance
  - Training on OBE
- Updating Organogram, Rules and Academic Policies
  - Departmental Organogram  
Link: [Organogram of CSE Dept.](#)
- PhD, Foreign and Industry experienced faculty Members
  - 8 PhD Faculty Members

### ***0.1.3 Specific Target within 5 Years:***

- Year 2024
  - We are going to form Decentralized Centralization Committee who will take distributed decisions from different corner of the department. Afterward, different concerned will present to the central committee of the department to analyze,modification and taking final decisions.
  - Being update to BAEETE up to V2.1
  - Keep the Departmental Organogram in Updated format.
  - Increasing the Ph.D. Faculty members up to 9 and at least 1 industry faculty members.
- Year 2025
  - Including Industrial Revolution(IR 5.0) and Sustainable Development Goals (SDGs) in our academic curriculum.
  - Increasing the Ph.D. faculty members up to 10 and at least 1 foreign faculty member for the department. Beside these, Dept. will increase industry faculty member up to 2.
- Year 2026
  - Fully Execution of Decentralized Centralization Committee (DSCM) along with Weekly Academic Committee.
  - Updating our academic activities maintaining BAETE V3.0
  - Increasing the Ph.D. faculty members upto 12 and at least 1 foreign faculty member for the department. Beside these, Dept. will increase industry faculty member up to 3.
- Year 2027
  - Regular practicing about Decentralized Centralization Committee
  - Following Subject QS ranking
  - Increasing foreign faculty members upto 2.

### ***0.1.4 Action Steps***

The Department should do the followings:

- Form a departmental strategic committee.
- Departmental Strategic Committee will sort out different departmental decisions primarily.
- Weekly Academic Meeting will finalize the sorted decisions
- Taking actions will be fully transparent to all stakeholders.

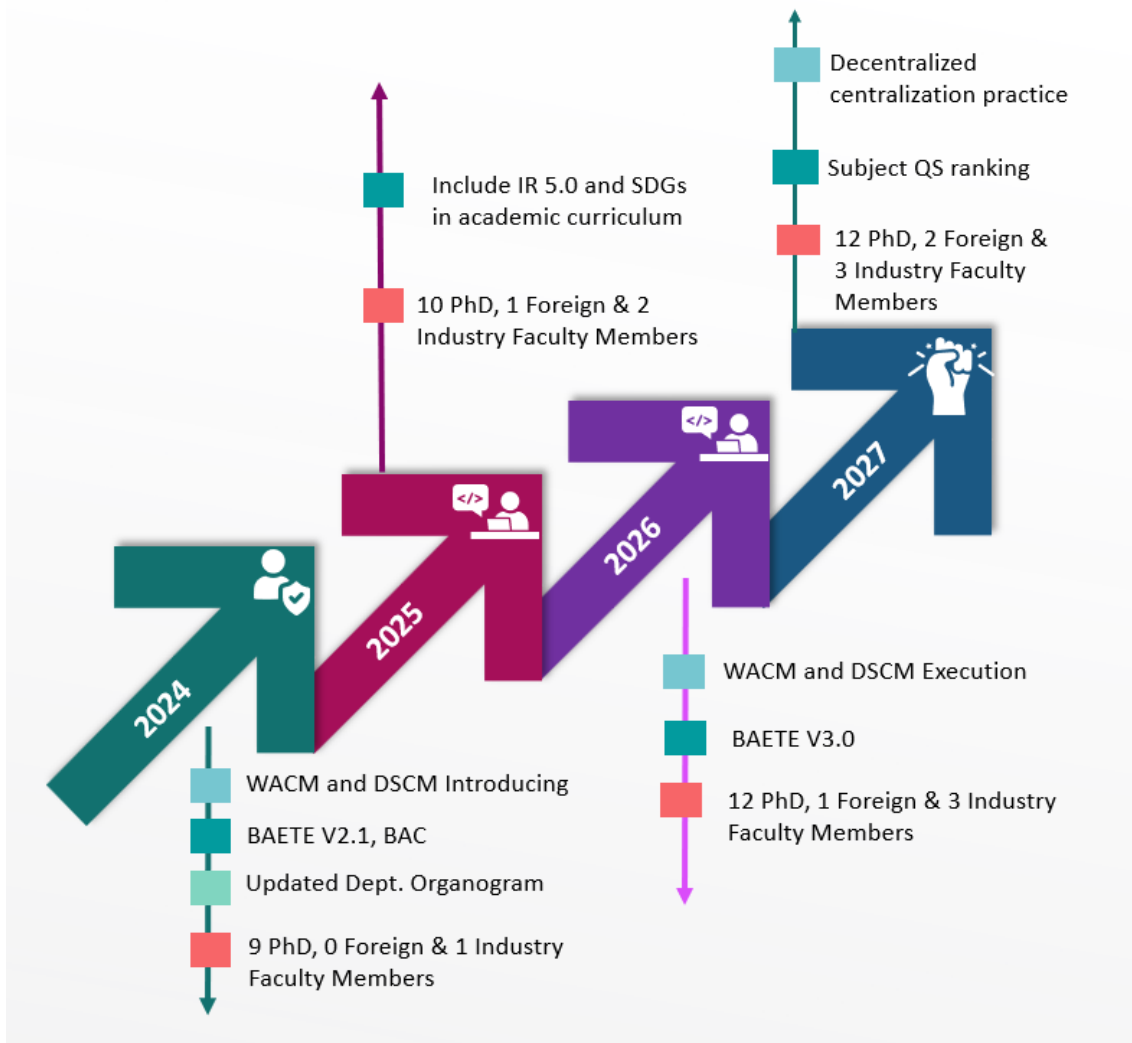


Figure 1: Specific Target within 5 Years

## 0.2 Academic Leadership

Academic leadership plays a pivotal role in shaping the educational landscape and fostering a culture of excellence. It encompasses the vision, guidance, and strategic direction provided by educational administrators and faculty members to promote a thriving learning environment. Effective academic leaders inspire and empower their colleagues to embrace innovation, research, and student-centered approaches. They prioritize inclusivity, collaboration, and continuous improvement, fostering a sense of community and mutual respect among all stakeholders. By encouraging creativity, critical thinking, and a commitment to lifelong learning, academic leadership paves the way for the next generation of scholars, instilling in them the values and skills needed to make meaningful contributions to society.

### 0.2.1 Key needs or issues:

- Creating Leaders in Teaching and Research
- Creating Leaders in Innovations and Entrepreneurship

### 0.2.2 Present State:

- Creating Leaders in Teaching and Research
  - OBE workshop
  - Research Award
  - Best Thesis/Project Award
- Creating Leaders in Innovations and Entrepreneurship
  - hellow world

### 0.2.3 Specific Target within 5 Years:

- Year 2024
  - Introducing and maintaining Key Performance Indicator ( KPI)
- Year 2025
- Year 2026
- Year 2027
  - Starting Faculty Key Exchange Program ( E.g. Erasmus Faculty Exchange Program)

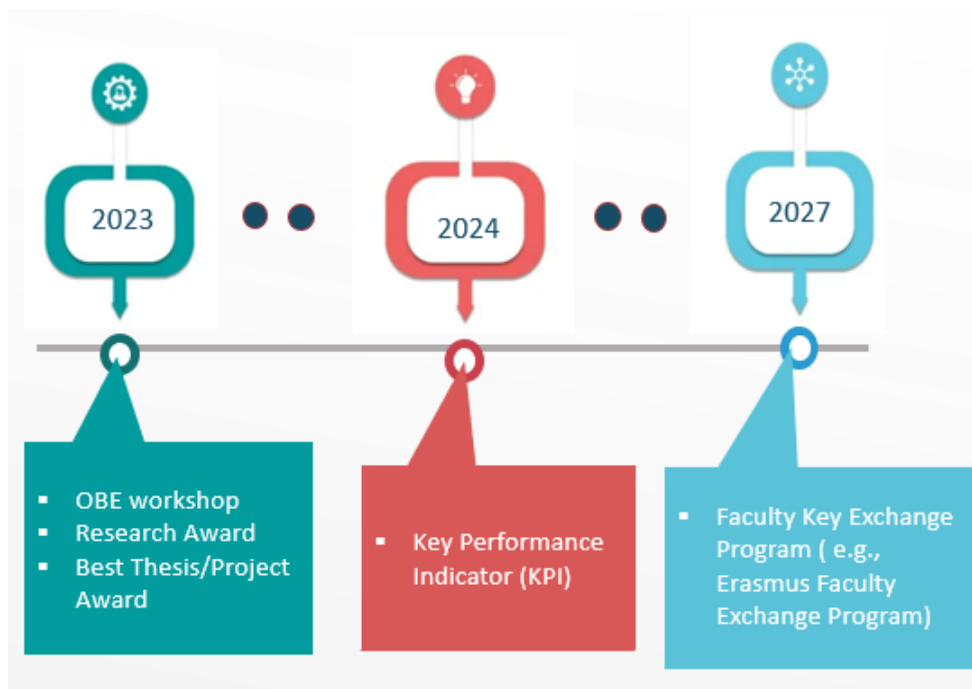


Figure 2: Specific Target within 5 Years

### ***0.2.4 Action Steps***

The Department should do the followings:

- Leadership needs to be developed through workshops, training
- Arranging appropriate rewards in ex-change of high quality performance.
- Requesting to provide standard salary structure to attract the faculties.
- Inviting more faculty members having Ph.D. degrees, research reputation and diverse experiences

### ***0.3 Infrastructure***

A well-designed infrastructure is the backbone of any successful university, providing the necessary facilities and resources to foster a vibrant learning environment. This infrastructure typically includes academic buildings with modern classrooms and well-equipped laboratories to facilitate effective teaching and research.

#### ***0.3.1 Key needs or issues:***

- Well Equipped Classroom and Laboratories

#### ***0.3.2 Present State:***

- Classrooms: 18
- Laboratories: 13

#### ***0.3.3 Specific Target within 5 Years:***

- Year 2025
  - Making the classrooms smart including all digital and latest technologies.
  - Maintaining the High Quality Laboratories: Introduce HPC (High performance computing machines)
- Year 2026
  - Increasing the Specialized Laboratories up to 15
  - Creating Robotics and Cyber Physical Systems and Research Lab
  - Introducing Cyber Security Lab.

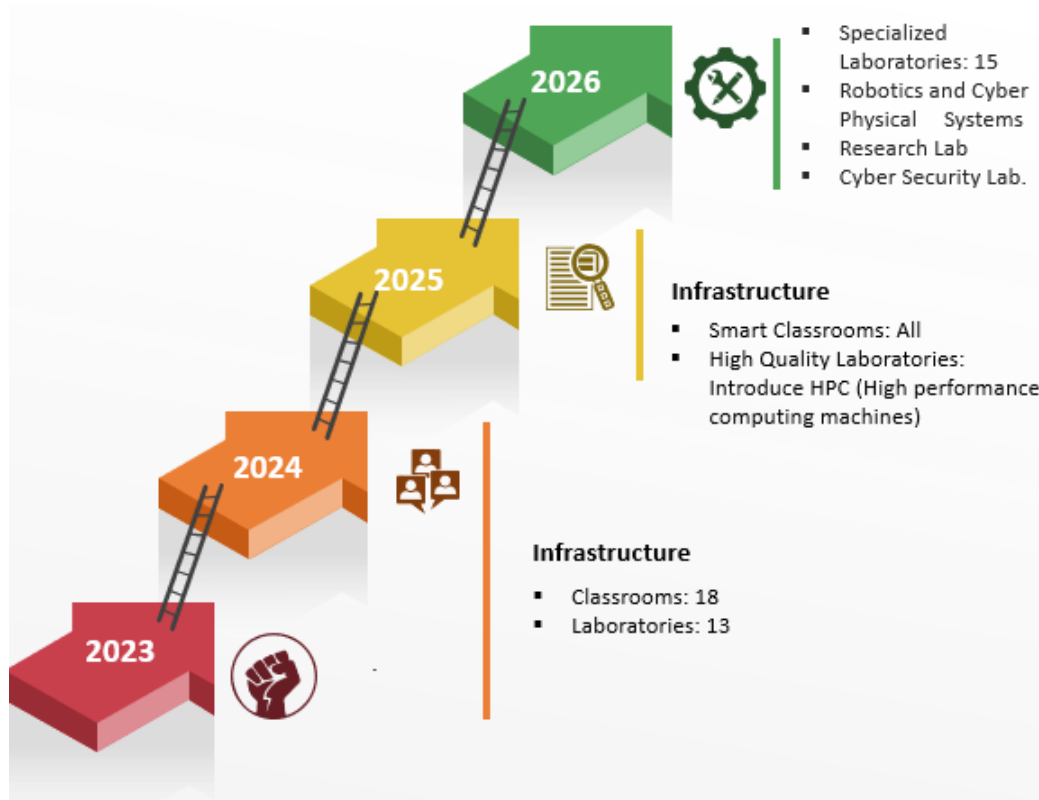


Figure 3: Specific Target within 5 Years

### 0.3.4 Action Steps

The Department should do the followings:

- Preparing research lab to conduct highly impactful research
- Establishing smart classroom with latest technology

# B. Academic Programs, Curriculum, Teaching, Learning and Assessment

## *0.4 Academic Programs & Curriculum*

An academic program and curriculum form the core framework of any educational institution, defining the scope and content of the learning experience. An academic program encompasses a set of courses, majors, and degrees offered by the university, tailored to specific academic disciplines or fields of study. It outlines the educational objectives, prerequisites, and graduation requirements, providing students with a structured path to acquire knowledge and skills in their chosen area of interest. On the other hand, the curriculum refers to the detailed syllabus and instructional materials used in each course. It outlines the topics covered, learning objectives, teaching methodologies, and assessment methods, guiding both instructors and students through the learning process. A well-designed academic program and curriculum not only impart subject knowledge but also foster critical thinking, problem-solving abilities, and a broader understanding of the world, preparing students to excel in their careers and contribute meaningfully to society.

### *0.4.1 Key needs or issues:*

- Academic Programs
- Standard Curriculum

### *0.4.2 Present State:*

- Academic Programs
  - B.Sc. in CSE
- Standard Curriculum
  - OBE Curriculum

### *0.4.3 Specific Target within 5 Years:*

- Year 2024
  - Introducing Bachelor of Science in Software Engineering
  - Starting Masters of Science Program in Computer Science and Engineering Making the OBE based Curriculum for the new program

- Year 2025
  - Conducting BSc program in Artificial Intelligence and Data Science.
  - Making OBE based curriculum for the new program
  - Making all the
- Year 2026
  - Starting M.Sc. Program in Artificial Intelligence and Data Science
  - Making OBE based Curriculum for the new Program
- Year 2027
  - Offering Ph.D. program with collaboration
  - Updating the ongoing curriculum

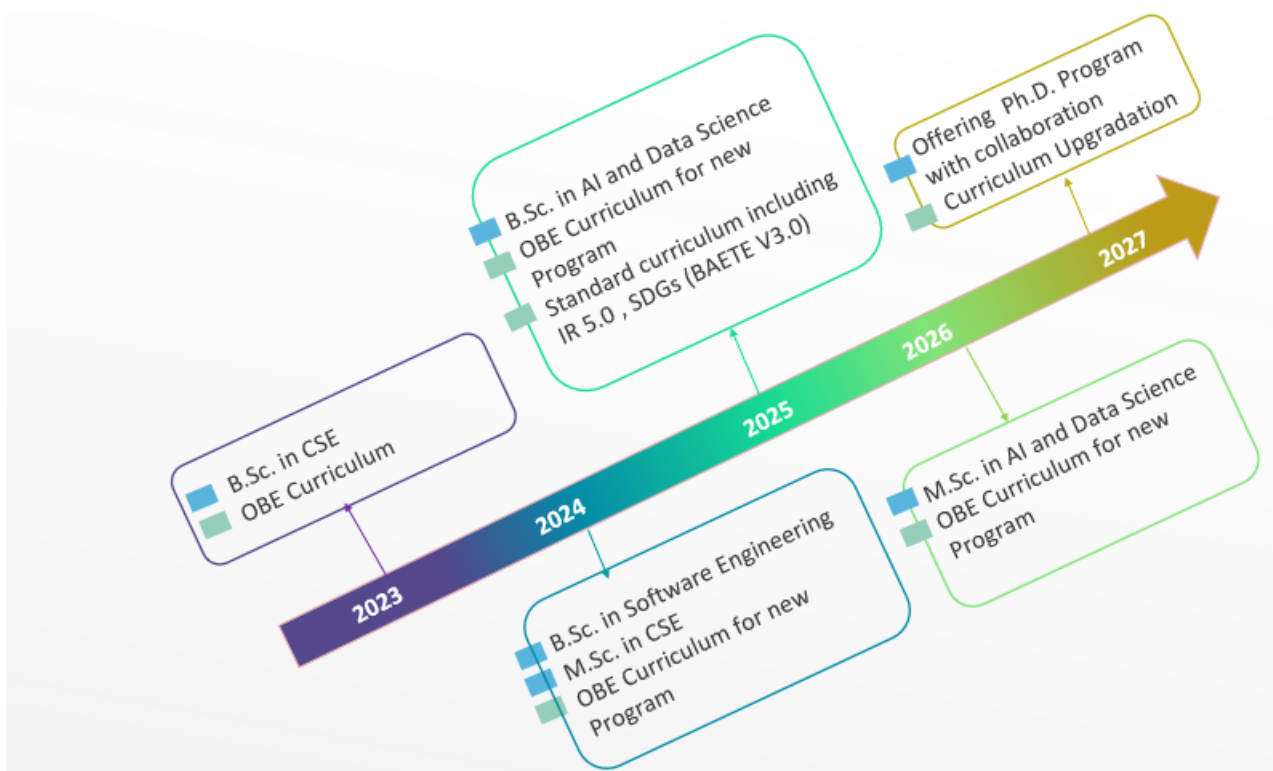


Figure 4: Specific Target within 5 Years

#### 0.4.4 Action Steps

The Department should do the followings:

- Designing new curriculum OBE based curriculum implementing sustainable development goals (SDGs) and IR 5.0
- Include SDGs and IR 5.0 to design OBE based Under graduate curriculum.

## ***0.5 Teaching, Learning and Assessment***

Teaching and learning are inseparable elements at the heart of education. Teaching involves the deliberate dissemination of knowledge, skills, and values by educators to students, utilizing various pedagogical approaches to engage and inspire learners. Effective teaching involves fostering a supportive and stimulating learning environment, encouraging active participation, and tailoring instructional methods to suit diverse learning styles. On the other hand, learning is the process by which students acquire, internalize, and apply the information presented to them. It involves the active engagement of students in processing new knowledge, making connections, and constructing their understanding. A successful learning experience empowers students to think critically, develop problem-solving abilities, and cultivate a thirst for lifelong learning. The synergy between teaching and learning is the foundation of meaningful education, shaping individuals into well-rounded, informed, and empowered members of society.

### ***0.5.1 Key needs or issues:***

- Quality Student Intake
- Enhancing Soft Skill
- Extra curriculum Activates

### ***0.5.2 Present State:***

- Quality Student Intake
  - Total student around 2800 where directly assigned considering CGPA 8.00 (SSC + HSC)
  - Admission test takes place for the students who get CGPA under 8.00 to 6.00 (SSC + HSC)
- Enhancing Soft Skill
  - Providing PLSD course
- Extra curriculum Activates
  - Different Club activities such as computer club, IEEE student branch etc.

### ***0.5.3 Specific Target within 5 Years:***

- Year 2024
  - In terms of direct admission, the total GPA of SSC and HSC will be considered at least 8.5.
  - In term of admission test, the students required minimum GPA (SSC + HSC ) 6.50 who are not elligible for direct admission.
- Year 2025
  - In terms of direct admission, the total GPA of SSC and HSC will be considered at least 9.0.
  - In term of admission test, the students required minimum GPA (SSC + HSC ) 7.00 who are not elligible for direct admission.
- Year 2026

- In terms of direct admission, the total GPA of SSC and HSC will be considered at least 9.5.
- In term of admission test, the students required minimum GPA (SSC + HSC ) 7.50 who are not elligible for direct admission.
- Year 2027
  - All student should sear for admission test to get admit in BSc program.

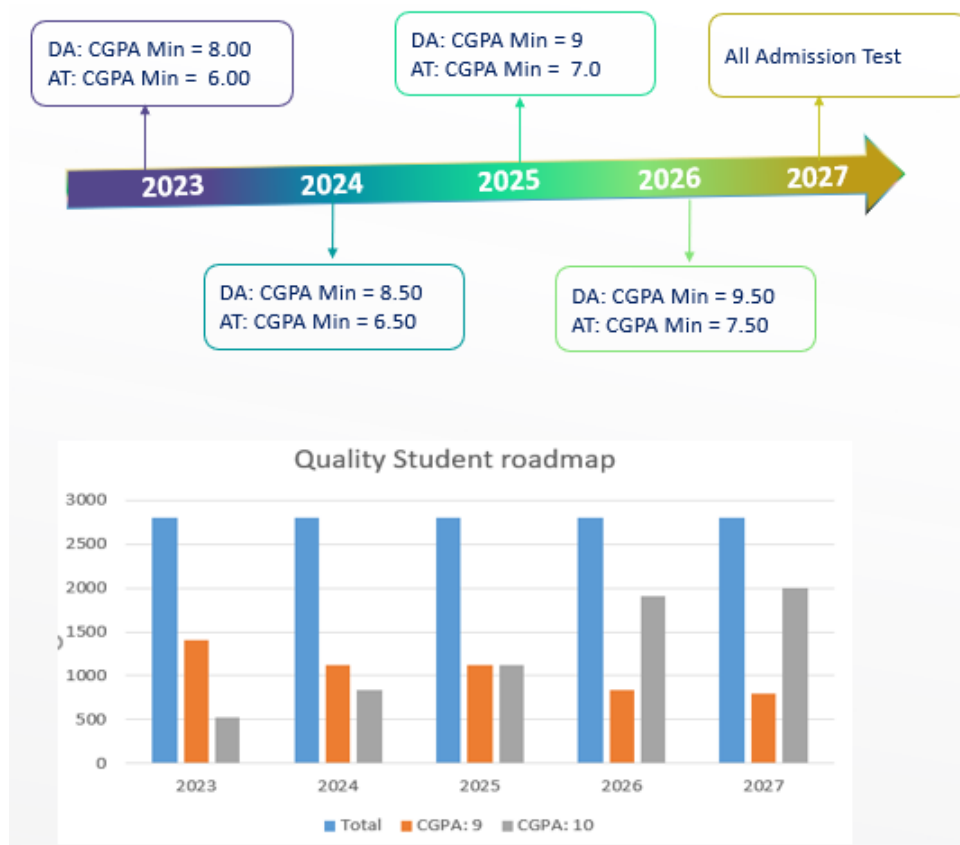


Figure 5: Specific Target within 5 Years

#### 0.5.4 Action Steps

The Department should do the followings:

- Quality admission tests will be applied to ensure quality intake students
- Highlight the different corners of CSE department
- Expand international admissions and create programs and scholarships that will attract international students
- Take necessary steps to develop programming club and math club.

# C: Research, Creativity, Innovation and Entrepreneurship

## *0.6 Research, Creativity ,Innovation and Entrepreneurship*

Research, creativity, and innovation are three pillars driving progress and advancement across various fields. Research forms the backbone of knowledge discovery, involving systematic investigation and analysis to uncover new insights, solutions, or improvements. It serves as the bedrock for informed decision-making and the development of cutting-edge technologies and methodologies. Creativity, on the other hand, fuels the imagination and original thinking, pushing the boundaries of conventional wisdom. It encourages unique perspectives, novel ideas, and imaginative problem-solving, giving birth to breakthroughs that transform industries and society. Innovation combines research findings and creative ideas to implement practical solutions and bring about tangible change. It leads to the development of new products, services, and processes that enhance efficiency, address societal challenges, and elevate human experiences. Together, research, creativity, and innovation form a dynamic trio, propelling humanity forward and shaping a better, more promising future.

### *0.6.1 Key needs or issues:*

- Publication of high quality journal articles
- Publication of patents
- Collaborative Research
- Funded Research
- International Conferences and workshop
- Research Project Partnership with industry

### *0.6.2 Present State:*

- 61 publications (Conf: 31 Journals: 30)
- Patent publications: 05
- Collaborative Research: 10
- Funded research projects: 09
- Organizing STI 4.0 and ICPC
- MoU: 05

### ***0.6.3 Specific Target within 5 Years:***

- Year 2025
  - Organizing ICPC in Green University of Bangladesh
  - Making publications upto 80 yearly
  - Conducting collaborative research upto 12
  - Conducting funded research project upto 11
  - Increasing number of MoUs upto 30
- Year 2026
  - Organizing block chain olympiad and robotics exhibition in Green University of Bangladesh
  - Making publications upto 100 yearly
  - Conducting collaborative research upto 12
  - Conducting funded research project upto 11
  - Increasing number of MoUs upto 40
- Year 2027
  - Organizing ICPC in Green University of Bangladesh
  - Making publications upto 120 yearly
  - Conducting collaborative research upto 14
  - Conducting funded research project upto 13
  - Increasing number of MoUs upto 50

### ***0.6.4 Action Steps***

The Department should do the followings:

- Develop state-of-the-art research laboratories with advanced experiments and instruments
- Provide necessary support and training for the faculty members
- Develop a rich library (both digital and physical) with a high-quality journal access system
- Getting subscriptions of WoS and Scopus
- Conducting in-depth and novel research activities
- Encouraging faculty members to collaborate with potential researchers or universities in different countries

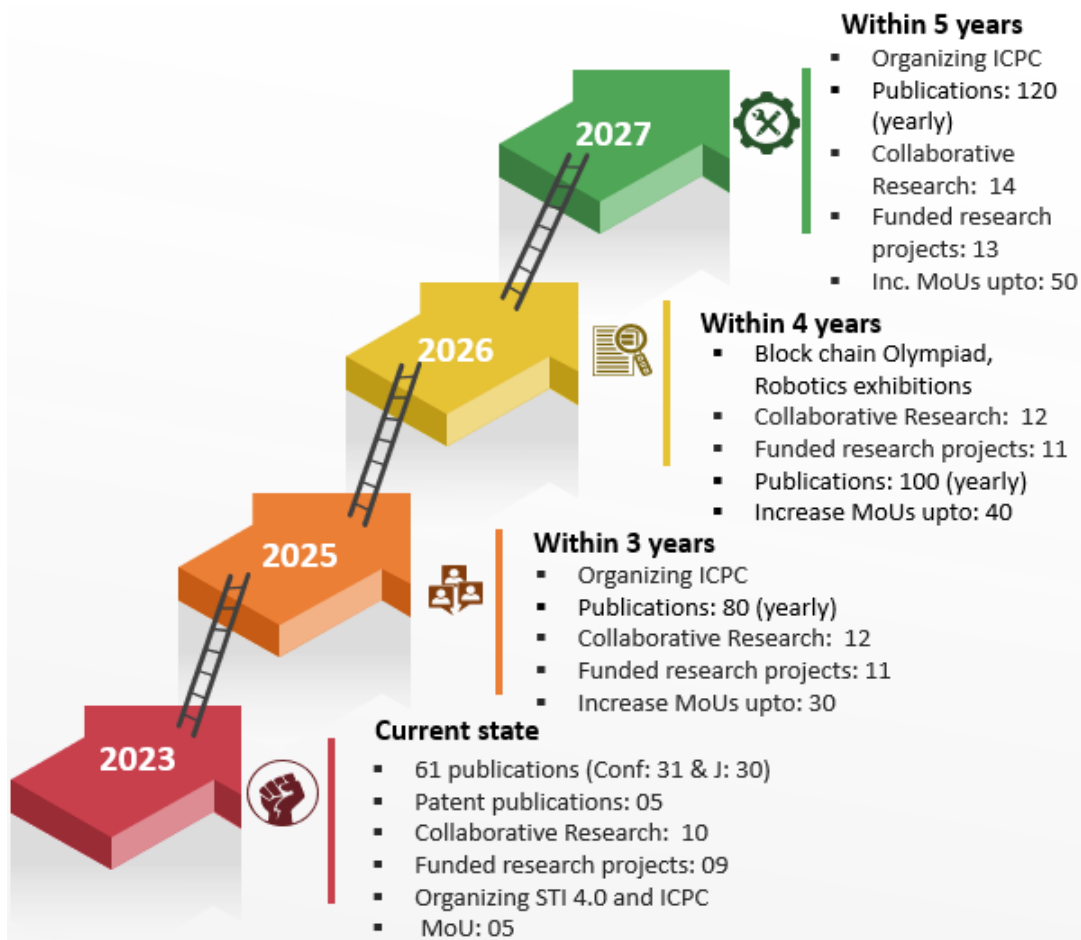


Figure 6: Specific Target within 5 Years

# D: Collaboration, Community Engagement and Globalization

## *0.7 P4: Collaboration, Community Engagement and Globalization*

Collaboration, community engagement, and globalization are interconnected forces that shape and enrich our world today. Collaboration brings together diverse perspectives and expertise to foster collective problem-solving and achieve common goals. It drives synergy among individuals, organizations, and countries, leading to innovative solutions and shared successes. Community engagement involves active participation and interaction with local communities, understanding their needs, and working together to address challenges and promote positive change. It strengthens social cohesion, inclusivity, and a sense of belonging. Globalization, on the other hand, has interconnected the world through technological advancements and increased mobility. It facilitates the exchange of ideas, cultures, and goods across borders, promoting cross-cultural understanding and driving economic growth. Together, collaboration, community engagement, and globalization form a powerful trio, enabling us to tackle global issues, build stronger societies, and create a more interconnected and interdependent global community.

### *0.7.1 Key needs or issues:*

- Effective collaboration with foreign University
- Strengthening alumni network
- National & International ranking of CSE Department

### *0.7.2 Present State:*

- Alumni website and committee & Alumni wall of fame
- Ranking: National: 05 (Private University) and no international ranking

### *0.7.3 Specific Target within 5 Years:*

- Year 2024 - 2025
  - Collaborating with at least 5 foreign University.
  - Arranging get together with alumni every year
  - Trying to achieve national ranking of Top 4 among private university and preparing for achieving international ranking.

- Within Year 2026 - 2027
  - Increase the collaboration with foreign university up to 10.
  - Stronging alumni committee for national and international alumni
  - Apply for international subject ranking
  - Getting the national ranking of CSE department up to 03 and take place for international ranking.

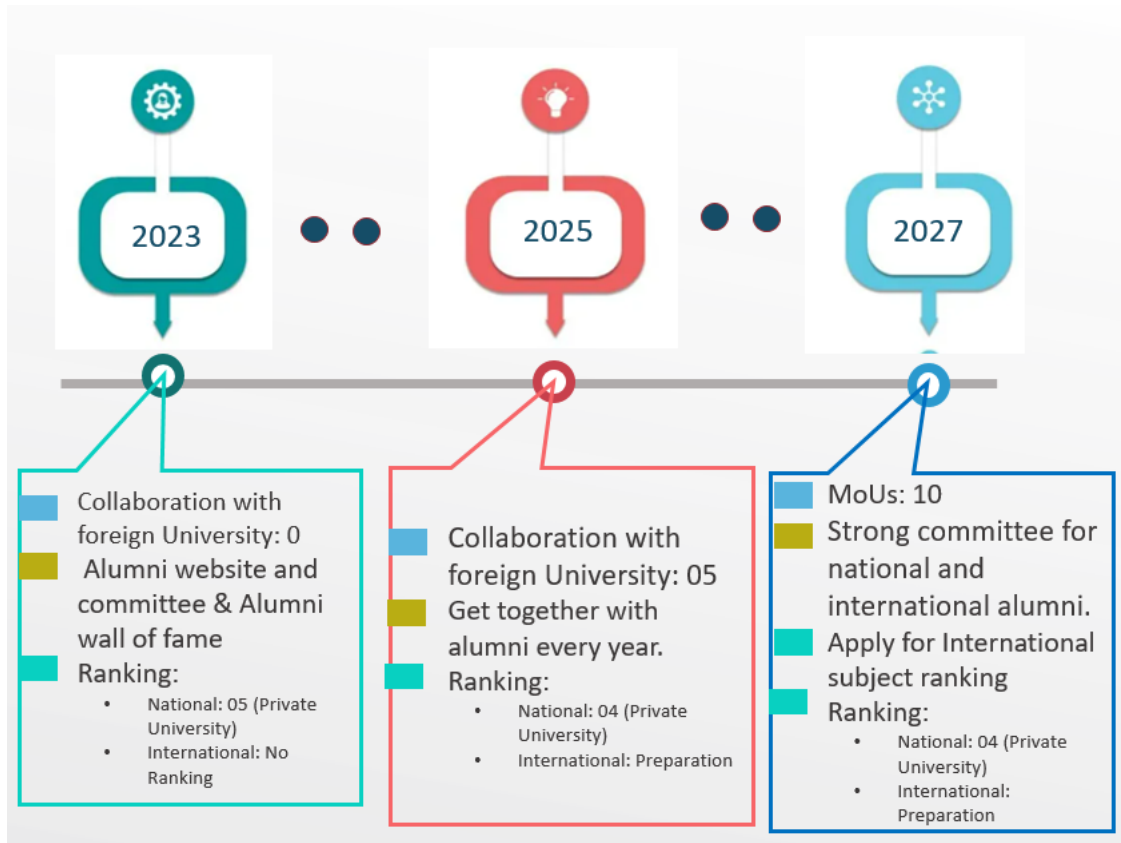


Figure 7: Specific Target within 5 Years

#### 0.7.4 Action Steps

The Department should do the followings:

- Exchange faculty with reputed foreign universities on a long-term or short-term basis.
- Exchange students with foreign universities with fully funded or partially funded scholarships.
- Invite international colleagues from different universities, research organizations, and laboratories to thesis/project co-supervisor committees.
- Send faculty and students to universities, research organizations, and laboratories to cocomplete a six month research program.
- -Department will keep records of its alumni's growth, career, and employment history.

- Department will arrange an alumni reunion and renew the alumni association by every two years election.
- DCO of CSE dept. will analyze ranking criteria, populate all required information, communicate with respective external bodies.
- Arrange regular seminars and meetings with national and international ranking authorities.
- Prepare an action plan to achieve the listed goals.

# E:Green Economy, Sustainable Growth and Organizational Value

## *0.8 Green Economy, Sustainable Growth and Organizational Value*

The concept of a green economy revolves around promoting sustainable practices that prioritize environmental preservation and social well-being. It emphasizes reducing carbon emissions, conserving natural resources, and adopting renewable energy sources. A green economy seeks to balance economic growth with ecological sustainability, ensuring that future generations can meet their needs as well. Sustainable growth, in this context, involves fostering economic development while minimizing negative impacts on the environment and society. It focuses on long-term prosperity, considering the triple bottom line: economic, social, and environmental aspects. For organizations, embracing a green economy and sustainable growth aligns with their values and principles. By integrating sustainability into their operations, products, and services, organizations demonstrate a commitment to responsible and ethical practices. This not only enhances their reputation but also attracts environmentally-conscious customers and stakeholders, thus creating value that extends beyond financial gains to make a positive impact on the planet and its inhabitants.

### *0.8.1 Key needs or issues:*

- Green thinking and living
- Reducing dropout of the students
- Increasing retention rates of faculties of CSE Department
- Integrity and Professional ethics

### *0.8.2 Present State:*

- Faculty tour every semester
- Student dropout rate: 10% per year.
- Own retention policy

### *0.8.3 Specific Target within 5 Years:*

Years 2024 - 2025

- Starting Departmental annual tour in every year Reduce course load of the faculties
- Reduce the student dropout our rate into 7%
- Increasing the retention rate 5%

Years 2026 - 2027

- Reduce uses of paper up to 50Proposing pension facility to the faculties and stuffs
- Increasing the retention rate up to 10%
- Reducing the student dropout rate into 5%

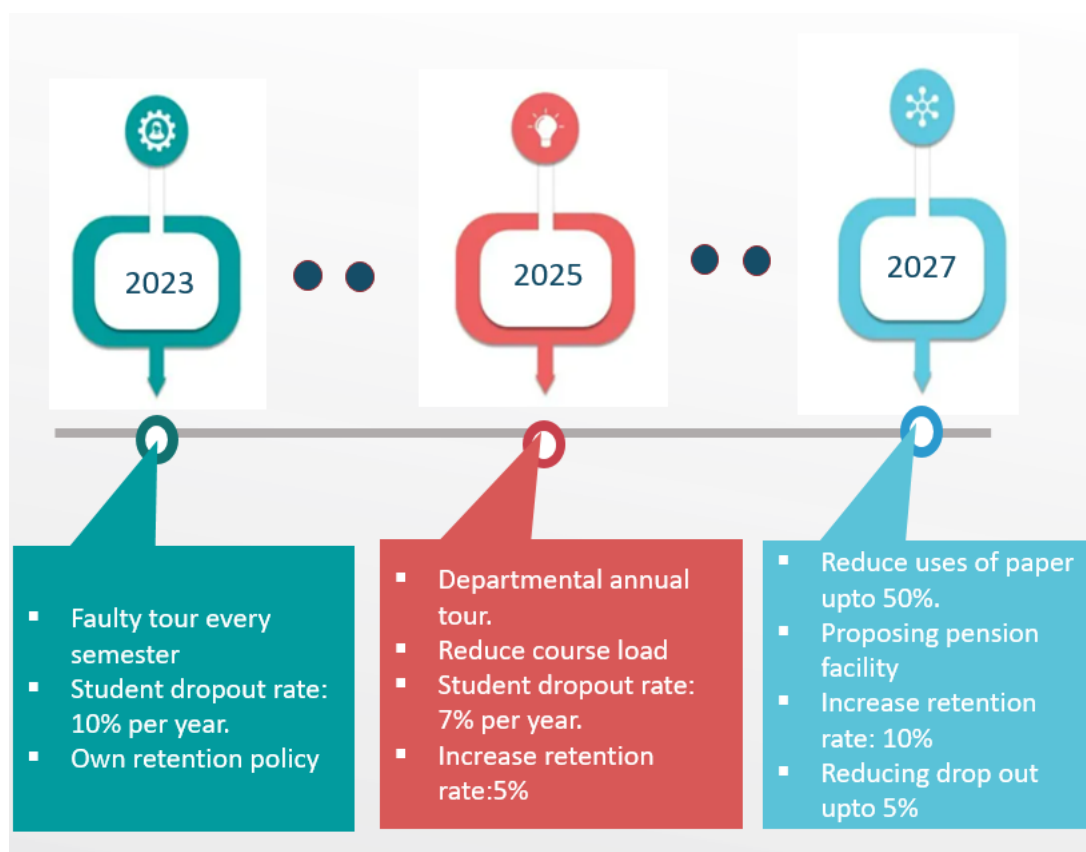


Figure 8: Specific Target within 5 Years

#### 0.8.4 Action Steps

The Department should do the followings:

- Enhancing the quality of student enrollment from home and abroad.
- Building relationships with alumni, industries and government agencies.
- Ensuring include of SDGs and IR 5.0 in project thesis proposal for undergraduate thesis/project.
- Distribute the problems related with IR 5.0 and SDGs among the students.
- practicing to explore the IR and SDG's related problem by the students.

- -Introducing “Green 3F (Fruit, Food & Fun)” competitions.
- Arranging yearly recreation tours for faculties and students.
- Establishing a paperless office record management system.
- Requesting to reduce course loads of faculty members to allow stress release and green living.
- Arranging workshops for students and employees to increase professional integrity and ethics.

## **References**

1. Previous 5 years strategic plans
2. 10 years strategic plan from Annexer B
3. Annual report of CSE department, GUB
4. <https://publications.green.edu.bd/>
5. <https://studybarta.com/best-private-universities-for-cse-degree-in-bangladesh/>