DOW COLLEGE OF BIOTECHNOLOGY (DCOB)

DOW UNIVERSITY OF HEALTH SCIENCES

STRATEGIC PLAN

(2024 - 2027)

Pioneering Excellence | Inspiring Innovation

To Heal | To Educate | To Discover


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PRINCIPAL'S MESSAGE

Over the years, Dow College of Biotechnology has progressed exceptionally well and is now known for its academic and research across the country. In recent times, research conducted at Dow College of Biotechnology during the COVID-19 pandemic has been praised both nationally and internationally and has led to some of the best research publications from Pakistan on SARS-CoV-2 with considerable theoretical and practical insights.

The college has highly qualified (majorly PhD) faculty which are actively engaged in research along with the teaching activities. To ensure the translation of theoretical knowledge into practical application, students are encouraged to get engaged with small to advanced-level research projects with faculty as they move along during the four years of their education. This approach makes Dow College of Biotechnology unique amongst its contemporaries. The graduates of DCoB, along with the faculty, in one of the testimonies, wrote in peer-reviewed international scientific journals in the last two years with extensive cross-citations in a short period.

Dow College of Biotechnology maintains a strong linkage to keep students aware of the recent developments and demands of indigenous industries. The college has also introduced a student exchange program with some of the prestigious universities across the globe.

With the team's highly competent faculty and supporting staff, I am confident that we will extend our utmost support to the students to excel in their respective careers and attain their goals in life.

I wish all the best to all the current and prospective students at Dow College of Biotechnology, Godspeed.

Prof. Dr. Mushtaq Hussain

EXECUTIVE SUMMARY

Dow College of Biotechnology is established in year 2016 as a constituent Undergraduate education college offering BS Biotechnology program at Dow University of Health Sciences. In 2023, the college acquired its purpose-built place at Dow Diagnostic and Research Complex.

The College aims to provide quality education and a research environment to generate new knowledge in the field of biotechnology and eventually provide the platform to develop marketable products established and assessed on firm scientific grounds.

ABOUT THE COLLEGE

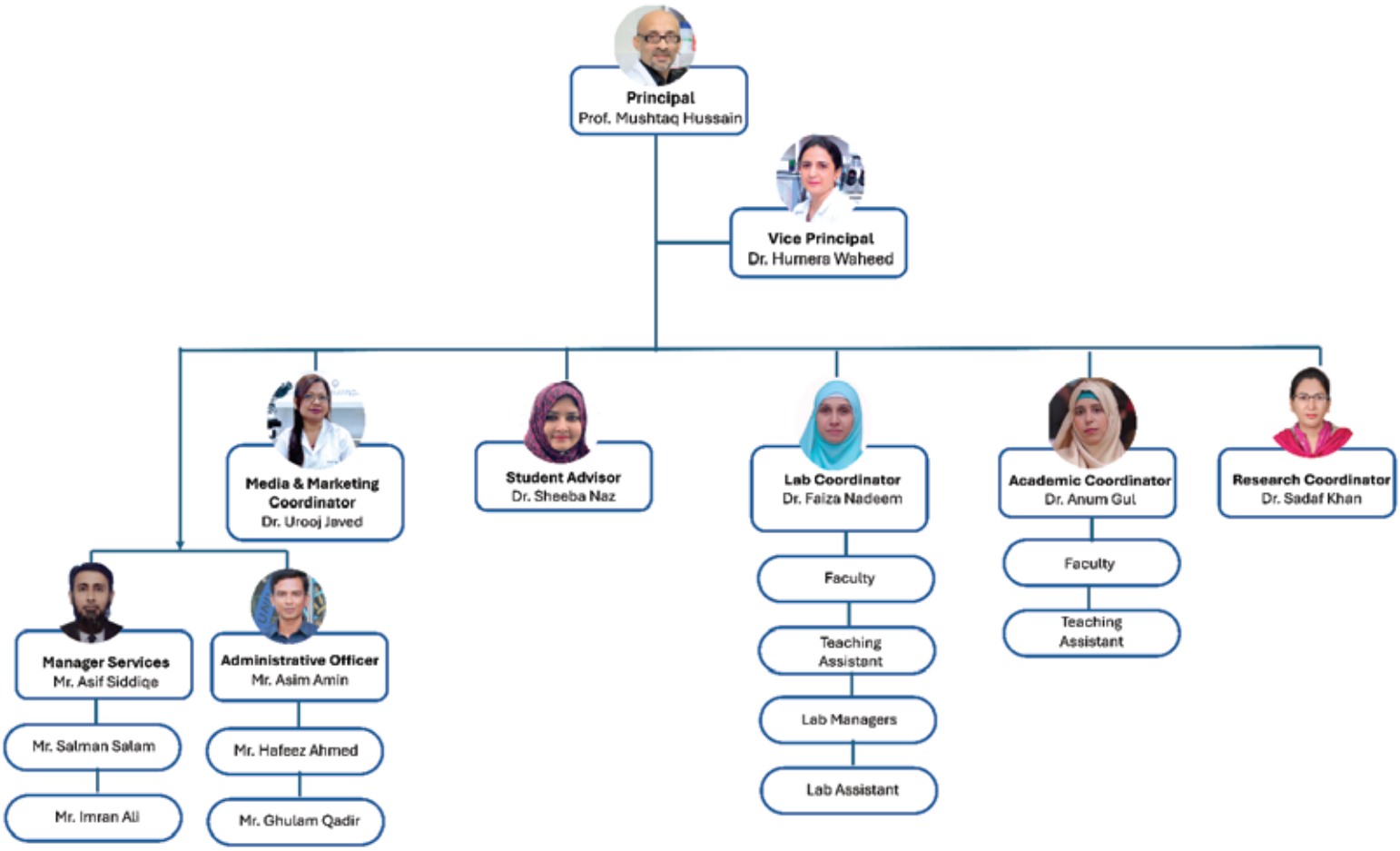
Dow College of Biotechnology (DCoB) is a constituent college of Dow University of Health Sciences (DUHS). A four-year BS Biotechnology program has been conducted at DCoB since 2015. The idea of a four-year BS Biotechnology undergraduate program to be offered at Dow University of Health Sciences was proposed in September 2015 by then Principal Dr. Shaukat Ali, who wrote a concept paper for the course to be presented at the Syndicate Meeting of DUHS. Post-approval from the statutory body of the DUHS syndicate, the first batch of admissions was announced to initiate for the academic year from January 2016. The BS Biotechnology program later transformed into a constituent college of DUHS, and Dr. Shaukat Ali was appointed as the founding Principal of the College.

The first batch started with the admission of seventy-eight (78) students, and they were taught by the research and teaching faculty of Dow Research Institute of Biotechnology and Biomedical Sciences (DRIBBS), Department of Biochemistry and Department of Pathology of Dow University of Health Sciences. Being a multidisciplinary subject, in March 2019, dedicated faculty for Dow College of Biotechnology was established, comprising of field related experts in Agriculture, Biochemistry, Bioinformatics, Chemistry, Fermentation Technology, Genetics, Genomics, Infectious Diseases, Immunology, Mathematics, Microbiology and Molecular Medicine. The college is also involved in postgraduate teaching and research in the field of Biotechnology.

In 2019, Prof. Dr. Mushtaq Hussain initiated research on a classical model of genetics, Drosophila melanogaster, with undergraduate students of DCoB of Batch 2016. The work has subsequently expanded significantly and now transformed into a fully dedicated research and commercial facility, “Dow Fly Research Lab and Stock Center,” inaugurated formally in January 2023 as a component of Dow College of Biotechnology, making it the first public sector facility of its kind within Pakistan. The facility focuses on scientific investigations and screening of environmental, industrial, and pharmaceutical products on Drosophila melanogaster.

A four-year Bachelor of Science program in the discipline of Biotechnology (BS Biotechnology) is conducted at Dow College of Biotechnology (DCoB). The curriculum has been extensively designed to produce competent human resources in the field of biotechnology and to train graduates to apply scientific knowledge to address the locally prevalent health issues and to cater to industrial needs. The college is also catering to the post-graduate teaching and research of MPhil and PhD studies enrolled in the field of Biotechnology at Dow University of Health Sciences.

INSTITUTIONAL ORGANOGRAM



SECTION I: OVERVIEW OF THE STRATEGIC PLANNING PROCESS

The strategic planning process for Dow College of Biotechnology (DCoB) focuses on enhancing academic excellence, research innovation, and industry collaboration. The college aims to strengthen its undergraduate and postgraduate programs by continuously updating curricula to align with global advancements in biotechnology.

A key priority is fostering a research-driven environment by encouraging faculty and students to engage in high-impact studies, particularly in areas such as genetics, infectious diseases, and industrial biotechnology. Expanding partnerships with national and international institutions, including student exchange programs, remains a crucial strategy to enhance academic exposure and professional growth.

Members of the Strategic Planning Committee:

DCoB Faculty:

1. Prof. Dr. Mushtaq Hussain (Professor/Principal DCoB)
2. Dr. Humera Waheed (Assistant Professor/Vice Principal DCoB)
3. Dr. Rafat Amin (Associate Professor DCoB)
4. Dr. Tehseen Fatima (Associate Professor DCoB)

External Experts:

1. Prof. Raza Shah (T.I.) (Professor/ICCBS)
2. Prof. Afsheen Aman (Professor/KIBGE)
3. Mr. Farooq Mustafa (Director of Quality Operations/Master International Limited)

Alumni:

1. Ms. Anusha Amanullah (D. Phil Scholar, University of Oxford, Batch 2020)
2. Mr. Mubashir Khan (Assistant Manager/DESTO, Batch 2020)
3. Ms. Ayesha Aslam (M.Phil Scholar/DCoB, DUHS, Batch 2021)
4. Ms. Sana Saleem (QC Officer/Compounding Pharmacy, Batch 2022)
5. Ms. Ifrah Mehmood (Research Associate/ICCBS, Batch 2022)
6. Ms. Arooba Aziz (Research Associate/ICCBS, Batch 2023)
7. Mr. Fahad Alam (Research Associate/DCoB, Batch 2023)

FIRST MEETING AND
FACILITY VISIT

(January 31ST 2024)

Restructuring of the Strategic Committee and Second meeting is due in February 2025

SECTION II: VISION, MISSION,
AND VALUES

One of the principal objectives of the strategic planning process was the articulation and communication of the fundamental purpose of the University. It is the construct within which challenges and opportunities are examined and analyzed, strategic issues framed, and strategic goals and thrusts articulated. It is also the process through which the plan is implemented and the lens that ultimately evaluates its effectiveness. The primary components of the University's purpose are its vision, mission, and values.

VISION

To be a pre-eminent academic institution committed to changing and saving lives

MISSION

Providing outstanding patient-centered education, training and clinical care informed by cutting-edge research and innovation generating and disseminating new knowledge

VALUES

CUSTOMER SERVICE
- Put patients & students first

EMPATHY & COMPASSION
- Understand before you judge
- Be concerned for sufferings & misfortunes of others

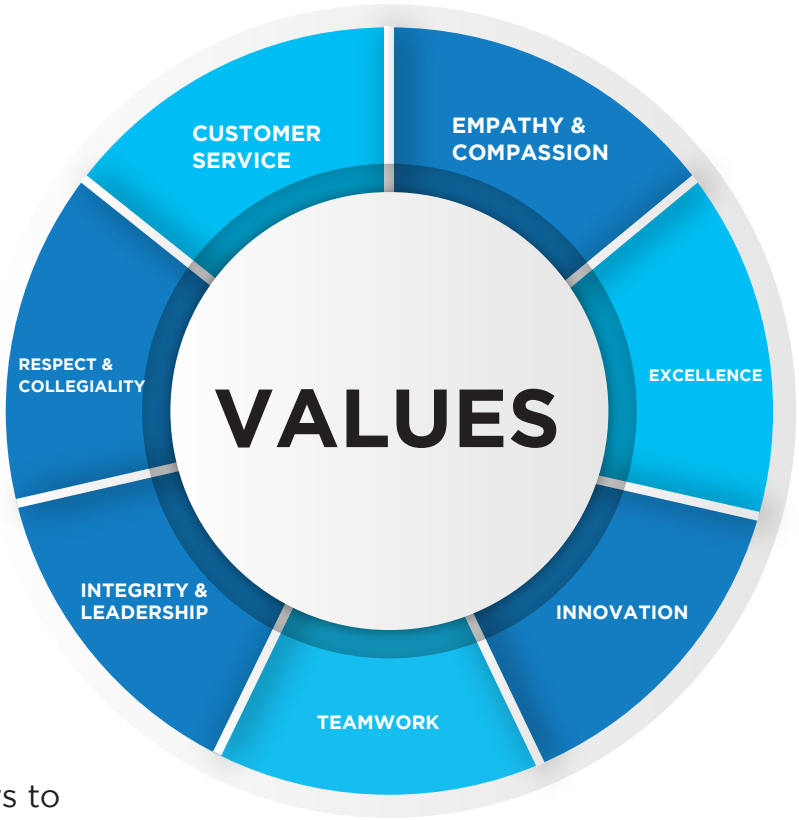
EXCELLENCE
- Be the best and commit to exceptional quality and service

INNOVATION
- Encourage curiosity, imagine, create and share

TEAMWORK
- Engage & collaborate

INTEGRITY & LEADERSHIP
- Be a role model and influence others to achieve their best
- Have the courage to do the right thing
- Hold yourself and others accountable

RESPECT & COLLEGIALITY
- Be kind
- Listen to understand
- Value different opinions



STATEMENT OF PURPOSE

Biotechnology is an interdisciplinary science aimed at translating basic research into marketable products. Pakistan's health and industrial sectors and consumer market heavily rely on raw materials and/or products that are primarily imported, generating a large trade deficit. This grim situation is a huge burden on a country's economy. The college is designed to provide human resources that may contribute to the R&D of the development of bioscience-related products/raw materials or may themselves be capable of developing start-ups to encourage entrepreneurship.

SECTION III: ASPIRATIONAL
INSTITUTIONS

National Institutes

1. National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad
2. Centre of Excellence in Molecular Biology (CEMB), Lahore
3. National University of Sciences and Technology, Islamabad
4. Lahore University of Management Sciences (LUMS), Lahore
5. Aga Khan University (AKU), Karachi

International Aspirational Institutes

1. Massachusetts Institute of Technology, United States
2. Harvard University, United States
3. Stanford University, United States University of Cambridge, UK
4. University of Oxford, UK
5. European Molecular Biology Laboratory (EMBL), Germany
6. Max Planck Institute for Molecular Cell Biology and Genetics, Germany
7. National University of Singapore (NUS)

SECTION IV: STRATEGIC
GOALS

Goal 1: Enhance Research Productivity and Impact

Objective 1: Increase Faculty Research Productivity
Objective 2: Increase the Number of Research Students
Objective 3: Increase the Number of Grant Applications Per Year

Goal 2: Drive Innovation and Commercialization of Research

Objective 1: Develop Marketable Products
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Objective 3: Foster Academia-Industrial Linkages

Goal 3: Enhance Capacity Building for Faculty, Staff, and Students

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Objective 2: Improve Teaching and Learning Outcomes
Objective 3: Strengthen Student Support Services
Objective 4: Promote Graduate Employability
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OBJECTIVES, OKRs & KPIs

Strategic Goal 1: Enhance Research Productivity and Impact							
Goal Statement: Increase the research output and impact of faculty and students at Dow College of Biotechnology by promoting high-quality publications, securing research grants, and fostering industry partnerships.							
OKR (Objective and Key Results)							
Objective 1: Increase Faculty Research Productivity							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Encourage faculty members to produce high-quality research publications and foster a culture of continuous scholarly contribution.	KR1.1: Achieve an average of 2 publications per faculty per year in HEC-recognized journals.	KPI 1.1: Number of publications per faculty member.	Track the number of publications per faculty.	100% faculty compliance with publication goals annually.	Dr Sadaf (Associate Professor)	Publication Charges (Very Much Available)	2025
	KR 1.2: Ensure each faculty member publishes at least one paper per year as the corresponding or first author.	KPI 1.2: Percentage of faculty who publish at least one paper as the corresponding or first author annually.	Monitor the authorship roles in published papers.		Dr Sadaf (Associate Professor)	Publication Charges (Very Much Available)	2025
Objective 2: Increase the Number of Research Students							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Expand opportunities for undergraduate and postgraduate students to engage in research, thereby fostering a research-oriented academic culture.	KR 2.1: Provide research opportunities for all BS final-year students.	KPI 2.1: Percentage of BS final-year students involved in research.	Track the number of BS and postgraduate students involved in research projects.	100% of BS final-year students engaged in research.	Dr Anum (Assistant Professor)	Research Grants Dedicated Quota/ Student Fellowship	2023-2025
	KR2.2: Increase the induction of postgraduate research students by 20% annually.	KPI 2.2: Annual percentage increase in postgraduate research student intake.	Monitor the enrollment of postgraduate students in research programs.	10% annual increase in postgraduate research student intake.	Dr Anum (Assistant Professor)	Research Grants Dedicated Quota/ Student Fellowship/ New Faculty	2023-2025

Objective 3: Increase the Number of Grant Applications Per Year							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Encourage faculty to actively seek research funding through grant applications to support and expand research activities.	KR 3.1: Ensure a minimum of 2 grant applications are submitted by each faculty member per year.	KPI 3.1: Number of grant applications submitted per faculty member.	Number of grant applications submitted by faculty.	100% faculty compliance with grant application targets.	Dr Sadaf (Associate Professor)	NA	2023
	KR 3.2: Ensure each faculty member submits at least one international grant application per year.	KPI 3.2: The success rate of grant applications.	Track success rates of grant applications (5%)		Dr Sadaf (Associate Professor)	NA	2024

Strategic Goal 2: Drive Innovation and Commercialization of Research							
Goal Statement: Promote the development of marketable biotechnological products and secure patents to enhance the commercialization of research outputs.							
OKR (Objective and Key Results)							
Objective 1: Develop Marketable Products							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Focus on research that leads to the development of products that address local problems and have commercial potential.	KR1.1: Develop at least one marketable product per year targeted at local challenges.	KPI 1.1: Several products were developed.	Several products were developed and marketed.	One product/ fully investigated prototype per year successfully developed and marketed.	Dr Urooj (Assistant Professor)	Dedicated Funding/ ORIC job alignment	2025
	KR 1.2: Create marketing materials such as flyers, adverts, and short documentaries to promote the product.	KPI 1.2: Several promotional materials are produced for each product.	Effectiveness of marketing strategies.		Dr Urooj (Assistant Professor)	Dedicated Funding/ ORIC job alignment	2025

Objective 2: Secure Patents							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Protect intellectual property by increasing the number of patent applications for innovations developed within the college.	KR 2.1: File 2 provisional patent applications per year.	Number of provisional patent applications filed.	Track the number of provisional and full patent applications filed.	2 provisional and one full patent applications annually.	Dr Humera (Vice Principal)	Training IP0	2026
	KR2.2: File at least one full patent application per year.	Number of full patent applications filed.			Dr Humera (Vice Principal)	Training IP0	2026
Objective 3: Foster Academia-Industrial Linkages							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Enhance collaboration between academia and industry to support research commercialization and increase industrial partnerships.	KR 3.1: Achieve a 10% increase in co-authored publications with industrial partners.	Percentage increase in co-authored publications with industry.	Track the number of co-authored publications with the industry.	10% annual increase in both metrics.	Dr Faiza (Assistant Professor)	Active Alignment with ORIC (Already There)	2026
	KR3.2: Achieve a 10% increase in industrial collaborations.	percentage increase in industrial collaborations.	Track the number and quality of industrial collaborations.		Dr Faiza (Assistant Professor)	Active Alignment with ORIC (Already There)	2026

Strategic Goal 3: Enhance Capacity Building for Faculty, Staff, and Students							
Goal Statement: Invest in continuous professional development for faculty, staff, and students to maintain high academic standards and prepare for future challenges.							
OKR (Objective and Key Results)							
Objective 1: Capacity Building of Academic Faculty and Staff							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Ensure that faculty and staff receive ongoing training to stay current with emerging trends and technologies in biotechnology.	KR1.1: Provide skill development training for at least 2 faculty members per year.	Number of faculty trained annually.	Track the number of training programs conducted and follow up imparting the training	2 faculty and one non-faculty staff trained annually.	Prof. Mushtaq Hussain (Principal)	Funding	2023
	KR 1.2: Offer short courses in emerging fields such as AI and Data Science.	Several short courses are offered.			Prof. Mushtaq Hussain (Principal)	Funding	2023
	KR 1.3: Provide skill development training for at least 1 non-faculty staff member per year.	Number of non-faculty staff trained annually.	Count the number of faculty and staff trained and follow up on the training.		Prof. Mushtaq Hussain (Principal)	Funding	2023
Objective 2: Capacity Building of Students							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Equip students with the skills and experiences needed to succeed in the biotechnology industry through structured workshops and internships.	KR 2.1: Organize at least 1 structured workshop per year.	Several workshops are organized annually.	Track the number of workshops conducted.	1 workshop, 20 students in internships, and participation in 3 events annually.	Prof. Mushtaq Hussain (Principal)	Self-Generated Funding	2024
	KR2.2: Establish a structured internship program for at least 20 students annually.	Number of students participating in internships annually.	Count the number of students enrolled in internships.		Prof. Mushtaq Hussain (Principal)	Self-Generated Funding	2024
	KR 2.3: Ensure participation in at least three intervarsity scientific events per year.	Several intervarsity events were attended.	Record participation in intervarsity events.		Prof. Mushtaq Hussain (Principal)	Self-Generated Funding	2024

Strategic Goal 4: Strengthen Industry-Academia Collaboration							
Goal Statement: Build robust relationships between the college and industry to enhance student employability, research commercialization, and practical learning experiences.							
OKR (Objective and Key Results)							
Objective 1: Increase in Industry Engagement							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Foster meaningful partnerships with industry through regular visits, collaborative projects, and career events.	KR1.1: Organize at least two industrial visits per year for students and faculty.	KPI 1.1: Several industrial visits were organized.	Track the number of industrial visits.	2 industrial visits, one job fair, and three new collaborations annually.	Prof. Mushtaq Hussain (Principal)	Available	2023
	KR 1.2: Host at least one job fair or career counseling event annually.	KPI 1.2: Number of participants attending job fairs or career counseling events.	Track the number of job fairs or counseling events held.		Prof. Mushtaq Hussain (Principal)	Funding	2025
	KR 1.3: Establish at least one new industry-academia collaborative project per year.	KPI 1.3: Several new industry-academia collaborations have been established.	Monitor the number of new collaborative projects initiated.		Prof. Mushtaq Hussain (Principal)	NA	2024
Objective 2: Align Curriculum with Industry Needs							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Continuously update the curriculum to reflect the latest industry standards and requirements to better prepare students for the workforce.	KR 2.1: Review and update the curriculum every 2 years based on industry feedback.	KPI 2.1: Number of curriculum reviews completed.	Record outcomes of the curriculum review process.	Biannual curriculum updates and two new courses annually.	Dr Humera (Vice Principal)	Available	2023
	KR2.2: Incorporate at least two new courses or modules focused on emerging industry trends per year.	KPI 2.2: Several new courses or modules were introduced based on industry needs.	Track the number of new courses or modules introduced.		Dr Humera (Vice Principal)	Available	2023

Strategic Goal 5: Deliver Quality Education for Bachelor's, Master's, and PhD Programs							
Goal Statement: Ensure the delivery of high-quality education across undergraduate and postgraduate programs at Dow College of Biotechnology by continuously updating the curriculum, adopting modern teaching methodologies, ensuring accreditation standards, and providing strong student support services.							
OKR (Objective and Key Results)							
Objective 1: Enhance Curriculum Quality							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Regularly review and update the curriculum for all programs to ensure relevance to current industry trends, research advancements, and global academic standards.	KR1.1: Complete a comprehensive curriculum review for all programs every 2 years.	KPI 1.1: Percentage of programs undergoing curriculum review every 2 years.	Track curriculum review schedules and updates.	100% of programs are reviewed biannually, new courses are added annually, and 100% of programs are accredited.	Dr Anum (Assistant Professor)		2024
	KR 1.2: Every year, incorporate at least two new courses or modules focused on emerging biotechnology fields (e.g., synthetic biology, bioinformatics)	KPI 1.2: Several new courses or modules were introduced.	Monitor the number of new courses introduced and accreditation reports.		Dr Anum (Assistant Professor)	HEC Conditioning	2024
	KR 1.3: Ensure that all programs meet national and international accreditation standards.	KPI 1.3: Percentage of programs accredited by recognized bodies.			Dr Anum (Assistant Professor)		2024

Objective 2: Improve Teaching and Learning Outcomes							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Adopt modern pedagogical techniques and tools to enhance teaching effectiveness and student learning outcomes.	KR 2.1: Implement active learning techniques (e.g., case studies, group projects) in at least three core courses annually.	KPI 2.1: Several courses use active learning methods.	Survey students on teaching effectiveness and monitor faculty adoption of technology and active learning techniques.	3 courses using active learning annually, 80% student satisfaction, 70% of courses with tech integration.	Dr Anum (Assistant Professor)		2024
	KR2.2: Achieve at least 80% student satisfaction in teaching quality surveys.	KPI 2.2: Student satisfaction scores on teaching quality.			Prof. Mushtaq Hussain (Principal)		2024
	KR2.3: Integrate technology-enhanced learning platforms (e.g., LMS, e-learning) in at least 70% of courses.	KPI 2.3: The percentage of courses are integrated with e-learning platforms.			Dr Anum (Assistant Professor)		2024
Objective 3: Strengthen Student Support Services							
Objective	**Key Results**	**KPI**	**Measurement Method**	**Target**	**Person Responsible**	**Resource Requirement**	**Timeline**
Enhance student services, including academic advising, career counseling, and mental health support, to improve student retention and success rates.	KR 3.1: Provide structured academic advising for all students at least once per semester.	KPI 3.1: Percentage of students receiving academic advising.	Track the number of students accessing advising, counseling, and mental health services.	100% of students are advised per semester, 50% receive career counseling, and a student support center is established.	Prof. Mushtaq Hussain (Principal)		2025
	KR3.2: Offer career counseling sessions for at least 50% of students annually.	KPI 3.2: Number of career counseling sessions held and students attending.			Dr.Faiza (Assistant Profesor)		2025

	KR3.3: Establish a student support center providing mental health services by the end of the academic year.	KPI 3.3: Percentage of students utilizing mental health services.			Dr. Faiza (Assistant Profesor)		2025

Objective 4: Promote Graduate Employability

Objective	Key Results	KPI	Measurement Method	Target	Person Responsible	Resource Requirement	Timeline
Prepare graduates with the skills and experiences needed for competitive placement in the biotechnology industry and research institutions.	KR 4.1: Achieve an 80% employment rate for graduates within 6 months of program completion.	KPI 4.1: Graduate employment rate within 6 months.	Survey graduates on employment status, track internship participation, and monitor the number of career events.	80% employment within 6 months, 20% increase in internships, 1 job fair annually.	Prof. Mushtaq Hussain (Principal)	Country Economy	2027
	KR4.2: Increase student participation in internships by 20% annually.	KPI 4.2: Number of students participating in internships.			Prof. Mushtaq Hussain (Principal)	NA	2025
	KR4.3: Conduct at least 2 job fairs and industry networking events per year.	KPI 4.3: Several job fairs and networking events were held.			Prof. Mushtaq Hussain (Principal)	Funding	2027

Objective 5: Achieve National and International Recognition

Objective	Key Results	KPI	Measurement Method	Target	Person Responsible	Resource Requirement	Timeline
Ensure that Dow College of Biotechnology's academic programs are recognized nationally and internationally through accreditation and rankings.	KR 5.1: Achieve top 5 national ranking for biotechnology programs within 3 years.	KPI 5.1: National and international rankings of programs.	Track rankings and accreditation processes.	Top 5 national ranking, international accreditation within 2 years.	Dr. Rafat Amin (Associate Professor)	NA	2026
	KR5.2: Gain international accreditation from a recognized global body within 2 years.	KPI 5.2: Accreditation status of the programs.			Dr. Rafat Amin (Associate Professor)	NA	2026

SECTION V: RESOURCE PLANNING FOR ACHIEVING
STRATEGIC GOALS

- The current faculty is designated to overlap scientific research based on their research interest and expertise (as judged by publication/grant record).
- There are two administrative/managerial wings covering academics and maintenance
- Finances are adequately defined and allocated in the yearly budget to the finance department.
- A new faculty is essentially required in graphical and generative AI.

SECTION VI: IMPLEMENTATION AND MONITORING OF STRATEGIC PLAN

Since there is considerable overlap between the strategic goals and objectives, DCoB is/will be employed to address multiple goals and objectives at the same time.

Industrial Linkage, Faculty, and Curriculum Improvement

- Development of an advisory board comprised of industry experts (pharmaceutical, food, textile
- Industries and diagnostic labs) by June 2025.
- Semester-wise faculty and advisory board meetings at the start of each semester.
- Graduates' performance feedback from industrial employers annually. (Dec 2025)
- Employed alumni feedback annually. (Dec 2025)
- Inclusion of industry experts in curriculum review/BOS meetings2-4 guest lectures by industry professionals for faculty and students yearly to present the problems faced by industries.
- Encouragement to develop at least 30-50% industry-based capstone research projects and
- industry-sponsored research.
- Arrange the visit of industries such as Macter Pharma International Limited, Gul Ahmed Textile Mills, and Shangrila Foods Private Limited.
- 30 to 50% of DCoB research projects will be designed to address the issues notified by industrialists (June 2025).
- Develop clear alignment with responsibilities regarding the product/prototypes developed at DCoB with DILS/IBHM/ORIC to be taken at Market and Industries
- Review and update 20% of the BS Biotechnology course by the next year to incorporate modern advancements and interdisciplinary perspectives.
- Partner with 5 related industries (e.g. Food, Textile, Pharmaceutical) and research institutes (International Center for Chemical and Biological Sciences, Dr. Zafar H Zaidi Center for Proteomics, Dr. M. Ajmal Khan Institute of Sustainable Halophyte Utilization, Dr. A. Q. Khan Institute of Biotechnology & Genetic Engineering) by the end December 2025 to offer structured internships for BS Biotechnology students.
- Conduct annual training workshops (AI, DataSciences, and Videography) for BS Biotechnology faculty on emerging trends and teaching methodologies.
- Select the young and merit-based faculty (based on past performance) for training at relatively advanced laboratories (local and abroad) in lacking technologies

Increasing the Number of Research Students

- Launch a marketing campaign through the marketing department by the end of December 2025 using social media, university networks, and alumni referrals to attract potential MPhil and PhD candidates.
- Train faculty members in advanced research supervision skills through workshops and certifications by the end of this year to enhance mentorship quality.
- Establish a partnership with 2 international universities or research institutes by the end of this year to offer joint PhD programs or co-supervised research projects.
- Introduce 10 merit-based research scholarships for MPhil (25,000/month) and PhD students (40,000/month) within the next 12 months to attract high-quality candidates as found in contemporary institutes.
- Match incoming MPhil and PhD students with an experienced mentor by the start of the next academic session to provide guidance and support throughout their research journey.
- Most sought-after supervisors are getting saturated with the number of students. Therefore, an increment in the number of qualified faculty is mandatory to sustain the progress of Postgraduate recruitment at DCoB.

Grants

- Development of a Departmental level Committee with coopted members of different disciplines for peer reviewing the grant applications before submission to improve and in turn increase the chances of acceptance

Achieve National and International Recognition

- Pursue accreditation with national and international bodies such as the Accreditation Board for Engineering and Technology (ABET) for biotechnology-related programs.
- Collaborations and Partnerships with international Universities and research institutes
- Participating in Rankings: Collect data systematically for ranking submissions to QS World University Rankings, Times Higher Education (THE), and Shanghai Ranking 39;s Global Ranking of Building strong Alumni Networks and highlighting their success stories as brand ambassadors to Enhance the institute's reputation.
- Highlight academic and research achievements through social media, institute websites, andInternational education fairs.
- Host one thematic conference or workshop per year.

SECTION VII: LIST OF APPENDICES

No.	DESCRIPTION
A	SWOT ANALYSIS
B	TOWS MATRIX

APPENDIX A:
SWOT ANALYSIS

STRENGTHS	WEAKNESSES
1. Purposely Designed Infrastructure: The College is equipped with modern, purpose-built facilities designed to support biotechnology education and research. This infrastructure provides an optimal environment for both teaching and hands-on research. **2.** Foreign-Trained Faculty: The presence of faculty members with international training enhances academic quality, bringing diverse perspectives, advanced knowledge, and global best practices to the institution. **3.** Diversity in Research Themes: The College offers a wide range of research themes, which attract a variety of students and researchers, promoting interdisciplinary collaboration and innovation. **4.** Academic and Industrial Collaborations: Strong partnerships with academic institutions and industries provide opportunities for collaborative research, internships, and employment, enhancing students' practical skills and employability. **5.** Applied, Clinical, and Industrial Research Themes: The emphasis on applied research in clinical and industrial biotechnology ensures that the college's research is relevant and contributes to solving real-world problems. **6.** Interdisciplinary Curriculum: The curriculum is designed to integrate various disciplines, offering a holistic education that prepares students for the complex, interconnected nature of modern biotechnology.	**1.** Faculty Capacity Building Trainings: There is a need for more comprehensive faculty development programs to enhance teaching effectiveness and research capabilities, ensuring that faculty members are up to date with the latest advancements in biotechnology. **2.** Low Academia-Industrial Linkage: Despite existing collaborations, there is a gap in the integration between academic research and industrial applications, limiting opportunities for technology transfer, internships, and industry-driven research projects. **3.** Unavailability of Scholarships: The lack of scholarships may deter talented students, particularly those from underprivileged backgrounds, from enrolling, limiting the diversity and talent pool. **4.** Low International Collaborations: While there are some international collaborations, the college could benefit from expanding these partnerships to enhance global exposure and opportunities for students and faculty. **5.** High Fee Structure: The relatively high tuition fees could be a barrier to entry for potential students, making the institution less accessible to a broader population.

7. International Collaborations: Partnerships with international institutions offer students and faculty access to global resources, collaborative projects, and exposure to international standards and practices. 8. Brand Identity: The College has established a strong brand identity, recognized for its contributions to biotechnology education and research, both locally and internationally. 9. Geography: The College's location may provide strategic advantages, such as proximity to relevant industries, research institutions, and natural resources, benefiting both research and academic activities.	6. Inadequate Assessment Means: The current methods of student assessment may not fully capture the competencies required in the field of biotechnology, potentially impacting the quality of graduates. 7. Laboratories Not Fully Modernized: Some of the laboratories may lack the latest equipment and technology, limiting the ability to conduct cutting-edge research and practical training.
OPPORTUNITIES	**THREATS**
1. Capacity Building Programs: Developing and implementing faculty and staff training programs can enhance the college's academic and research output, making it a leader in biotechnology education. 2. Provision of Scholarships: Introducing scholarship programs can attract talented students from diverse backgrounds, increasing enrollment and fostering a more inclusive academic environment. 3. Strong Academia-Industrial Linkage: Strengthening ties with industry can lead to more collaborative research projects, internships, and job placements for graduates, enhancing the practical relevance of the college's programs. 4. International Collaborations: Expanding international partnerships can provide students and faculty with access to global networks, funding opportunities, and collaborative research initiatives.	1. New Emerging Fields: The rapid emergence of new fields in biotechnology may render existing programs outdated, necessitating continuous curriculum updates and faculty retraining. 2. Existing and Emerging Competitors: Increased competition from other institutions, both locally and internationally, could challenge the college's ability to attract and retain students and faculty. 3. Economic and Financial Impact: Economic downturns or financial constraints could affect funding for research, infrastructure development, and the availability of scholarships, impacting the college's growth and sustainability.

5. Internships Leading to Recruitment: Offering structured internships that align with industry needs can improve employability for graduates, making the college an attractive option for prospective students. 6. Introduction of Additional Programs as per Emerging Fields: Launching new programs in emerging areas of biotechnology can attract more students and meet the evolving demands of the industry. 7. Introduction of Branded Products: Developing and marketing biotechnology products under the college's brand could create new revenue streams and enhance its reputation as an innovative institution.	4. Changing Market Demands: The biotechnology industry is constantly evolving, and changes in market demands may require the college to continuously adapt its programs and research focus to remain relevant. 5. Exponential Advances in Laboratory Hardware: The rapid pace of technological advancement in laboratory equipment may make existing facilities obsolete, requiring significant investment to stay current. 6. Geography: While geography can be a strength, it can also be a threat if the location is prone to alternative cost-effective options, natural disasters, political instability, or if it limits access to certain resources or markets.

APPENDIX B:
TOWS MATRIX

	OPPORTUNITIES	THREATS
	1. Capacity Building Programs: Developing and implementing faculty and staff training programs can enhance the college's academic and research output, making it a leader in biotechnology education. **2.** Provision of Scholarships: Introducing scholarship programs can attract talented students from diverse backgrounds, increasing enrollment and fostering a more inclusive academic environment. **3.** Strong Academia-Industrial Linkage: Strengthening ties with industry can lead to more collaborative research projects, internships, and job placements for graduates, enhancing the practical relevance of the college's programs. **4.** International Collaborations: Expanding international partnerships can provide students and faculty with access to global networks, funding opportunities, and collaborative research initiatives.	**1.** New Emerging Fields: The rapid emergence of new fields in biotechnology may render existing programs outdated, necessitating continuous curriculum updates and faculty retraining. **2.** Existing and Emerging Competitors: Increased competition from other institutions, both locally and internationally, could challenge the college's ability to attract and retain students and faculty. **3.** Economic and Financial Impact: Economic downturns or financial constraints could affect funding for research, infrastructure development, and the availability of scholarships, impacting the college's growth and sustainability. **4.** Changing Market Demands: The biotechnology industry is constantly evolving, and changes in market

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STRENGTHS	SO	ST
1. Purposely Designed Infrastructure: The College is equipped with modern, purpose-built facilities designed to support biotechnology education and research. This infrastructure provides an optimal environment for both teaching and hands-on research. 2. Foreign-Trained Faculty: The presence of faculty members with international training enhances academic quality, bringing diverse perspectives, advanced knowledge, and global best practices to the institution. 3. Diversity in Research Themes: The College offers a wide range of research themes, which attract a variety of students and researchers, promoting interdisciplinary collaboration and innovation. 4. Academic and Industrial Collaborations: Strong partnerships with academic institutions and industries provide	1. Leverage Foreign-Trained Faculty for International Collaborations: Action: Promote international faculty members to establish new global partnerships and expand research opportunities. o Impact: Strengthen international collaborations, enhancing global exposure and collaborative research initiatives. 2. Enhance Applied Research through Academic-Industrial Collaborations: Action: Utilize existing academic and industrial collaborations to expand applied, clinical, and industrial research themes. o Impact: Strengthened industry linkages leading to increased internship and recruitment opportunities, and practical applications of research. 3. Introducing New Programs in Emerging Fields Using Interdisciplinary Curriculum: Action: Develop and launch programs in emerging biotechnology fields, utilizing the college's	1. Objective: Use internal strengths to mitigate external threats. 2. Aggressive Event Participation and Marketing: Action: Actively participate in biotechnology expos, conferences, and academic events to showcase research and innovations. Impact: Maintain a competitive edge, enhance visibility, and attract talent and industry collaborations. 3. Promote Translational Research Using Clinical and Trial Facilities: Action: Use trial facilities to conduct research aligned with current market demands and emerging fields. Impact: Increase the college's leadership in solving biotechnology challenges and attracting industry partnerships. 4. Organize Workshops in Emerging Fields to Adapt to Market Demands: Action: Conduct regular workshops and short courses on

opportunities for collaborative research, internships, and employment, enhancing students' practical skills and employability. **5.** Applied, Clinical, and Industrial Research Themes: The emphasis on applied research in clinical and industrial biotechnology ensures that the college's research is relevant and contributes to solving real-world problems. **6.** Interdisciplinary Curriculum: The curriculum is designed to integrate various disciplines, offering a holistic education that prepares students for the complex, interconnected nature of modern biotechnology. **7.** International Collaborations: Partnerships with international institutions offer students and faculty access to global resources, collaborative projects, and exposure to international standards and practices.	interdisciplinary curriculum. Impact: Attract more students and meet the evolving demands of the industry. **4.** Brand College-Developed Products through Research Innovation: Action: Focus on applied research and develop branded biotech products for commercialization. Impact: Create new revenue streams while positioning the college as a hub for innovation.	emerging biotech topics. Impact: Keep the curriculum relevant and ensure that faculty and students stay updated with the latest trends. **5.** Adapt to Changing Market Demands by Leveraging International Collaborations: Action: Regularly update the curriculum and align research efforts with market trends using insights from international collaborations. o Impact: Ensure the employability of graduates and enhance the college's global standing.

8. Brand Identity: The College has established a strong brand identity, recognized for its contributions to biotechnology education and research, both locally and internationally. **9.** Geography: The College's location may provide strategic advantages, such as proximity to relevant industries, research institutions, and natural resources, benefiting both research and academic activities.		

WEAKNESSES	WO	WT
1. Faculty Capacity Building Trainings: There is a need for more comprehensive faculty development programs to enhance teaching effectiveness and research capabilities, ensuring that faculty members are up to date with the latest advancements in biotechnology. **2.** Low Academia-Industrial Linkage: Despite existing collaborations, there is a gap in the integration between academic research and industrial applications, limiting opportunities for technology transfer, internships, and industry-driven research projects. **3.** Unavailability of Scholarships: The lack of scholarships may deter talented students, particularly those from underprivileged backgrounds, from enrolling, limiting the diversity and talent pool. **4.** Low International Collaborations: While there are some international collaborations, the college could benefit from expanding these	**1.** Promote Faculty Capacity Building to Match Emerging Fields: Action: Establish continuous professional development programs for faculty to align with modern laboratory techniques and interdisciplinary approaches. o Impact: Strengthen faculty capacity and enhance teaching and research quality. **2.** Strengthening Industrial Collaborations for Real-World Applications: Action: Build stronger ties with industries by creating advisory boards and initiating more industry-driven research projects. Impact: Increase relevance to the industry, provide practical student experience, and improve employment outcomes. **3.** Introducing Scholarships to Attract Top Talent: Action: Secure funding for scholarships through grants, alumni networks, and partnerships. Impact: Attract talented students from diverse backgrounds and increase enrollment. **4.** Develop and Commercialize Marketable Products:	**1.** Upsurge Career Counseling and Job Fair Events: Action: Organize regular career counseling sessions and job fairs with industry leaders. Impact: Mitigate the threat from competitors by improving employability and providing networking opportunities. **2.** Frequent Industrial Visits to Promote Academia-Industrial Linkages: Action: Arrange regular visits to biotech companies and research labs for faculty and students. Impact: Strengthen academia-industry linkages, provide practical insights, and enhance collaboration. **3.** Continuous Learning to Address Changing Market Demands: Action: Invest in continuous learning programs for faculty to stay ahead of industry advancements and changing market demands. Impact: Ensure the college remains competitive and relevant in an evolving

partnerships to enhance global exposure and opportunities for students and faculty. **5.** High Fee Structure: The relatively high tuition fees could be a barrier to entry for potential students, making the institution less accessible to a broader population. **6.** Inadequate Assessment Means: The current methods of student assessment may not fully capture the competencies required in the field of biotechnology, potentially impacting the quality of graduates. **7.** Laboratories Not Fully Modernized: Some of the laboratories may lack the latest equipment and technology, limiting the ability to conduct cutting-edge research and practical training.	Action: Focus on commercializing research outputs, such as biotech products that can be marketed. Impact: Generate revenue and showcase practical applications of the college's research.	biotechnology landscape. **4.** Develop Financial Strategies to Counter Economic and Financial Threats: Action: Appoint a financial strategy to explore new revenue opportunities and manage economic risks. Impact: Safeguard against financial instability and maintain funding for key areas like research and infrastructure.


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