

# **Improvement Plan for the Mechanical Engineering Department for the Academic Year 2022 - 2023**

A SWOT analysis was prepared for the organizational structure of the Mechanical Engineering Department, considering a balanced approach and the perspectives of all stakeholders, facilitating the evaluation of strengths and weaknesses (internally) through surveys and information gathering activities from committees and documents within the administration.

The analysis included opportunities and threats (externally) facing the Mechanical Engineering Department, considering national and regional impacts and critical concerns when making decisions about strategies and measures to address weaknesses. Additionally, any strategic planning should also address local and regional threats. Although no official survey was conducted to identify opportunities and threats, intensive consultations were held with faculty members, and reviews of local, regional, and international developments were conducted, along with a comprehensive review by education and engineering administrators to identify most relevant points related to opportunities and threats and to acquire skills in predicting the necessary purpose at the local, regional, and even global levels. Time is also crucial in maintaining strengths, investing in purpose from them, and converting them into strengths.

Table 1 shows the SWOT analysis for the organizational structure of the Mechanical Engineering Department.

## **Strategic Objectives**

Upon careful examination of the SWOT analysis, it is evident that the department's strategic plan focuses on improvements related to students, teaching methods, faculty members, and facilities. Therefore, the following strategic objectives have been developed to address weaknesses and threats related to various aspects:

1. Recruiting high quality students.
2. Honoring and caring for faculty members and staff and retaining them.
3. Strengthening ties with the community and fostering fellowship among students, faculty, staff, and alumni.
4. Enhancing learning outcomes through continuous assessment.

5. Encouraging research and consultations that meet the immediate and long-term needs of the community.
6. Establishing a strong relationship with the community, especially with industry, to collaborate in advancing the country's economy.
7. Continuing to develop and maintain appropriate infrastructure.

**Table (1) SWOT analysis of the organizational structure of the Mechanical Engineering Department**

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<ol style="list-style-type: none"> <li>1. Presence of multiple specialized temporary committees for the achievement and implementation of interim goals.</li> <li>2. Faculty Members:               <ol style="list-style-type: none"> <li>a. There is a very good experience in the field of academic education for faculty members.</li> <li>b. There is a good number of young faculty members.</li> <li>c. A sufficient number of faculty members.</li> <li>d. Excellent and diverse academic backgrounds.</li> <li>e. Loyalty and commitment to the department and university for all faculty members.</li> <li>f. Salaries and wages are good.</li> </ol> </li> <li>3. Curriculum:               <ol style="list-style-type: none"> <li>a. Designed to meet all local needs and international standards.</li> <li>b. Strong scientific engineering components.</li> <li>c. Provides a variety of good subjects for general education.</li> <li>d. Well-organized laboratory experiments.</li> <li>e. High and strong professionalism.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1- Shortcomings in the graduation outcomes of students.               <ol style="list-style-type: none"> <li>a. Weak communication with department graduates, where they are not provided with graduation endorsement, graduation certificate, and its validity.</li> <li>b. Design and practical applications in the job market field.</li> <li>c. Addressing contemporary technical and economic issues.</li> <li>d. Impact of engineering solutions in the global and societal contexts.</li> </ol> </li> <li>2- Quality and numbers of current students.               <ol style="list-style-type: none"> <li>a. Lack of incentives for excellence.</li> <li>b. Cultivation of culture.</li> <li>c. Insufficient language preparation.</li> <li>d. Inadequate training in critical or analytical thinking.</li> </ol> </li> <li>3- Inadequate teaching environment.               <ol style="list-style-type: none"> <li>a. Insufficient classroom facilities for assessment.</li> <li>b. Increase in the ratio of new faculty members with limited experience due to inadequate training programs for development.</li> </ol> </li> </ol>

<p>f. Consistency throughout the four years of study in the educational program through enriching it with various subjects for the four specializations of the department so that there are no gaps in the study.</p> <p>g. Continuous change of leadership activities at specified intervals to introduce new ideas.</p> <p>4. Provision of acceptable laboratories and libraries containing a good number of books and references, in addition to information technology facilities.</p> <p>5. Clear identification of responsibilities and authorities for all departmental committees and in a very good manner.</p> <p>6. Good reputation of the department and rich, prestigious history.</p> <p>7. Great and continuous desire for development and strong motivation for service for most department staff.</p> <p>8. Good social relations among department staff.</p> <p>9. Good relations between staff and students in the department.</p>	<p>4- A significant proportion of faculty members have limited research and industrial experience.</p> <p>a. Poor programs for faculty retraining.</p> <p>b. Weak relationship with international research centers and academic institutions.</p> <p>5- Some retiring, some transferring, and some passing away, while others joining scholarship programs inside and outside the country.</p> <p>6- Discrepancy in the quality of staff support.</p> <p>a. Assistant teaching engineers.</p> <p>b. Technicians.</p> <p>c. Secretarial and administrative staff.</p> <p>7- Expansion space.</p> <p>a. Limited departmental expansion.</p> <p>b. Limited recognition of scientific research locally and regionally.</p> <p>8- Complexity of decision-making processes at the college level.</p> <p>a. Complex procedures in the procurement process.</p> <p>b. Complex and restrictive procedures for employment.</p> <p>9- Insufficient funding.</p> <p>a. For research.</p> <p>b. To enhance teaching.</p> <p>c. Adequate human resource deployment.</p> <p>d. Maintenance and improvement of various facilities.</p> <p>10- Administrative staff.</p> <p>a. Lack of awareness of job descriptions.</p> <p>b. Lack of administrative training.</p> <p>c. Heavy workloads and assignments in the department.</p>
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	d. Limited practical and administrative experience for new staff members.
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OPPORTUNITIES	THREATS
<p>1- Available opportunities for development.</p> <p>a. Providing institutional support for sabbaticals.</p> <p>b. Availability of international conferences, workshops, and seminars.</p> <p>c. Utilizing local talents for education and research.</p> <p>2- Emerging technologies.</p> <p>a. Technologies that do not require extensive industrial infrastructure.</p> <p>b. Information technology.</p> <p>3- New multidisciplinary trends in vocational education and innovative teaching methods.</p> <p>a. Possibility of redesigning curricula and regulations to allow for multiple teaching and learning specializations.</p> <p>b. Potential for utilizing online and distance education.</p> <p>4- Community vitality.</p> <p>a. Attracting potential students.</p> <p>b. Readiness to accept changes.</p> <p>5- Good conditions for local community and environmental security.</p> <p>a. High demand for higher education in Iraq.</p> <p>b. High population growth rate in Iraq.</p> <p>6- Government financial support for public universities.</p>	<p>1- Local, regional, and global competition.</p> <p>a. Emerging local and regional private colleges.</p> <p>b. Access to international schools through distance education.</p> <p>c. Acceleration of technological advancements.</p> <p>d. Establishment of private universities in neighboring countries and opening branches in Iraq.</p> <p>e. Weaknesses in the overall level of scientific awareness in society.</p> <p>2- Decline in interest in engineering sciences.</p> <p>a. Insufficient number of new students.</p> <p>b. Inadequate public awareness of the engineering profession and job opportunities.</p> <p>3- Awareness of new students regarding language, analytical thinking, and motivation.</p> <p>4- Country's unstable situation.</p>

<p>7- Similar programs and fields of study to those in other universities inside and outside Iraq.</p> <p>8- Developing good relationships with graduates.</p> <p>9- Educational specializations.</p> <p>10- Extending the retirement age of experienced and academically competent teaching and administrative staff.</p>	
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**Scientific research and other scientific activities:**

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<p>1- Diversity of graduate programs at the college for master's and doctoral levels.</p> <p>2- Structure of graduate courses at the college.</p> <p>3- Description of graduate courses at the college.</p> <p>4- Sufficient number of faculty members for teaching graduate studies.</p> <p>5- Development in the number of research completed by faculty members.</p>	<p>1- Lack of master's or doctoral programs for certain specializations.</p> <p>2- Shortage of faculty members for some specializations, particularly those with professors' degrees.</p>

<b>OPPORTUNITIES</b>	<b>THREATS</b>
<p>1- Utilizing scholarships and fellowships to address the shortage of faculty members.</p> <p>2- Developing the capabilities of faculty members for teaching in graduate studies.</p>	<p>1- Shortage of faculty members in some specializations with academic titles.</p>