***Program Report***

***University: Ain Shams Faculty: Engineering***

**A- Basic Information**

1. Programme title: **B. SC. in Mechanical Engineering (Production)**
2. Programme type: Single ■ Double □ Multiple □
3. Faculty: Faculty of Engineering – Ain Shams University
4. Department(s) offering the Program: **Design and Production Engineering**
5. Coordinator: **Prof. Adel Moneeb Elsabbagh**
6. External evaluator(s): **Prof. Shaaban Abdo (Port-Said Univ.)**
7. Internal Evaluator: **Prof. Mostafa Chaaban**
8. Date of program bylaw approval: **2003**
9. Date of program specifications approval: **September 2018**

**B- Statistic**

# 1-No. of students starting the programme. 47

# 2-Ratio of students attending the programme this year to those of last

#  Year 59%

# 3-No. and percentage of students passing in each year/Level/Semester

 3rd year Production: 72%

 4th year Production: 93%

# 4-No. of students completing the programme and as a percentage of

#  those who started: 93%

# 5-Grading: No. and percentage in each grade

3rd year production:

Excellent: 1, 2% Very good: 3, 6% Good: 10, 21% Pass: 8, 17%

Remake: 9, 19% Fail: 16, 34%

4th year production:

Excellent: 8, 11% Very good: 14, 20% Good: 23, 33% Pass: 5, 7%

Remake: 14, 20% Fail: 6, 8%

# 6-First destinations of graduates

###### Give percentages of the graduating cohort who have

i. Proceeded to appropriate employment: NA

ii Proceeded to other employment: NA

iii Undertaken postgraduate study: NA

iv. Engaged in other types of activity: NA

v. Unknown first destination: NA

***DPE Alumni office is not yet established, so statistics are not available***

**Academic Standards**

**1- Achievement of programme intended learning outcomes**

|  |  |
| --- | --- |
| **Course** | **Programme ILOs ( By No. )** |
| **K, U \*** | **IS \*\*** | **P.S \*\*\*** | **G.T.S \*\*\*\*** |
| PHM011 | a7 |  |  |  |
| PHM021 | a7 |  |  |  |
| PHM031 | a7 |  |  |  |
| MDP021 | **a1** |  |  |  |
| CSE011 | a7 |  | **c4** |  |
| PHM041 | a7 |  |  |  |
| PHM011 | a7 |  |  |  |
| PHM021 | a7 |  |  |  |
| PHM031 | a7 |  |  |  |
| MDP021 | a1 |  |  |  |
| HUMX11 | **a7** |  |  |  |
| MDP022 | **a4** |  |  |  |
| PHM112 | **a7** |  |  |  |
| MDP161 | **a1, a9** |  |  |  |
| PHM122 | a7 |  |  |  |
| PHM132 | a7 |  |  |  |
| CES112 | a7 |  |  |  |
| MDP131 | **a10** | **b1, b2** | **c1, c2** |  |
| PHM112 | a7 |  |  |  |
| MDP161 | **a1, a9** |  |  |  |
| EPM112 | a7 |  |  |  |
| MDP111 | **a4** |  |  |  |
| MEP111 | **a7** |  |  |  |
| HUMx12 |  |  | **c2** |  |
| MDP251 | **a9** | **b1** |  | **d2** |
| MDP252 | **a1** | **b1** | **c3** | **d2** |
| EPM212 | **a9** |  | **c2** | **d2** |
| MDP221 | **a9** | **b3** |  |  |
| MEP212 | **a7** | **b3** | **c2** | **d2** |
| MEP231 | **a7** | **b2** | **c2** | **d2** |
| MDP251 | **a9** | **b1** |  | **d2** |
| MDP252 | **a1** | **b1** | **c3** | **d2** |
| MDP211 |  | **b2** |  |  |
| MEP221 | **a7** |  |  |  |
| MEP281 |  | **b2** | **c1** | **d1** |
| HUMx31 | **a8** | **b3** |  | **d2** |
| MDP361 | **a1** | **b4** | **c2** | **d1** |
| MDP341 |  | **b3** | **c1, c2** |  |
| MDP352 | **a9** | **b2** | **c4** |  |
| MDP353 | **a2** | **b3** | **c4** | **d2** |
| MDP371 | **a4** | **b2** |  | **d1, d2** |
| MDP381 | **a4** | **b2** |  | **d1, d2** |
| MDP361 | **a1** | **b4** | **c2** | **d1** |
| MDP321 | **a9** | **b3** |  |  |
| MDP322 | **a3** | **b4** | **c3** | **d2** |
| MDP372 | **a4** | **b4** | **c4** |  |
| HUMx21 | **a8** | **b3** | **c2** | **d1, d2, d3** |
| MDP323 | **a6** |  | **c3** |  |
| MDP324 | **a6** | **b1, b3** |  |  |
| MDP325 | **a6** | **b1, b3** |  |  |
| MDP499 | **a9** | **b4** | **c4** | **d1, d2, d3** |
| MDP422 | **a6** | **b4** | **c2, c3** | **d1, d2** |
| MDP451 | **a9** | **b2, b3, b4** | **c3** |  |
| MDP471 | **a5** | **b3** | **c4** | **d1, d2** |
| HUMx41 |  |  |  | **d4** |
| MDP427 | **a9** | **b2** | **c2, c3** | **d1, d2** |
| MDP428 |  | **b1, b2** | **c4** | **d1, d2, d3** |
| MDP431 | **a10** | **b4** | **c2** | **d1** |
| CEP452 |  |  |  | **d4** |
| CSE461 |  |  | **c3** |  |
| MDP443 | **a6** | **b2, b3** |  |  |
| MDP455 |  | **b1, b2** | **c2, c3** | **d1, d2** |
| MDP423 | **a3** | **b3, b4** | **c2** |  |
| MDP424 | **a3** | **b3, b4** | **c2** | **d1** |
| MDP441 |  | **b2, b3** | **c1, c2** | **d1** |
| HUMx32 |  | **b3** |  | **d1, d2, d3** |
| HUMx42 |  | **b3** |  | **d1, d2, d3** |
| MDP499 | **a9** | **b4** | **c4** | **d1, d2, d3** |

\* **K**nowledge and **U**nderstanding

\*\* **I**ntellectual **S**kills

\*\*\* **P**rofessional and **P**ractical **S**kills

\*\*\*\* **G**eneral and **T**ransferable **S**kills

**Commentary** (quoting evaluations from external evaluator and other stakeholders)

The use of Project Based Learning (PBL) should be increased in the Production Engineering

Program especially in the design courses.

**More emphasis on PBL is being adopted now in the program courses. At least 2 courses implement PBL including Manufacturing Technology (MDP181), and Machine Construction (MDP252).**

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**2. Achievement of programme aims**

**Commentary**(quoting evaluations from external evaluator and other stakeholders)

Program aims are achieved.

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**3. Assessment methods**

**Commentary**(quoting evaluations from external evaluator and other stakeholders)

Assessment methods are suitable but the use of Project Based Learning (PBL) should be increased

in the Production Engineering Program especially in the design courses.

**More emphasis on PBL is being adopted now in the program courses. At least 2 courses implement PBL including Manufacturing Technology (MDP181), and Machine Construction (MDP252).**

**4. Student achievement**

**Commentary** (quoting statistics from Section B and evaluations from external evaluator and other stakeholders)

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**Quality of Learning Opportunities**

**5. Quality of teaching and learning**

Commentary on the quality of teaching and learning (quoting evaluations by stakeholders including students

Course reports show some minor comments on the courses especially related to the

amount of theoretical parts.

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**6. Effectiveness of student support systems**

Commentary on both academic and pastoral/personal support for all students

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**7. Learning resources**

**a. No. and ratio of faculty members and their assistants to students**

61 faculty member : 117 students.

50 assistants : 117 students

**b. Matching of faculty member’s specialization to programme needs.**

Excellent match. Faculty members cover all specialties in the program.

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**c. Availability and adequacy of programme handbook**

Bylaws, program specifications and course specifications are available to the students through

the faculty website.

**d. Adequacy of library facilities.**

Adequate.

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**e. Adequacy of laboratories**

Adequate.

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**f. Adequacy of computer facilities**

Adequate.

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**g. Adequacy of field/practical training resources**

Not documented.

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**h. Adequacy of any other programme needs**

Adequate.

**8. Quality management**

**a. Availability of regular evaluation and revision system for the programme**

In process. A new system including program coordinator and student advising is being established.

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**b. Effectiveness of the system**

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**c. Effectiveness of Faculty and University laws and regulations for progression and completion**

Adequate.

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**d. Effectiveness of programme external evaluation system:**

**i- External evaluators**

Two evaluators are assigned by the Departmental Council; Professor Shaaban Abdo as an external evaluator and Professor Mostafa Chaaban as an internal evaluator. Both professors are very well known figures in Production Engineering in Egypt.

Evaluators are provided with the material necessary to evaluate the outputs of the program against its aims. The comments of the evaluators are well considered and implemented in the next years.

In the past years, evaluators commented on:

1. Using Project Based Learning as a methodology for teaching in the Production program especially within Machine Design courses.
2. Creating concentration tracks to match the specialties related to Production Engineering and the disciplines in the industry. Proposed specialties include:
	1. Manufacturing
	2. Materials
	3. Industrial Engineering
	4. Mechanical Design
3. Adding new courses related to new manufacturing technologies, and using engineering software in the analysis and design of mechanical and production systems.
4. Tailoring the course assessment based on the course.
5. Harmonize students coming from different educational systems.

**ii- Students**

Students are involved in the program evaluation through two mechanisms:

1. Feedback through end-of-semester questionnaires.
2. Annual scientific conference in which two students per class are invited to provide their comments on the program and teaching methods.
3. Common comments of the students include:
	1. Increasing the practical parts in the courses.
	2. Providing students with more flexibility through the study plan.

**iii- Other stakeholders**

It is planned that stakeholders from the industry will be involved in the evaluation process of the program.

**e. Faculty response to student and external evaluations**

**The comments and suggestions of students and reviewers have been collected through the past few years. Every year, there are some modifications in the program trying to implement the easy-to-implement suggestions. Some other suggestions are more radical and necessitate a change in the bylaws. Recently, a new bylaw has been started in the Faculty. The new bylaw encourages the use of PBL and CDIO concepts.**

 **The first intake was in Fall 2018. In Fall 2019, students start to select the major disciplines: Mechanical, Electrical, Civil and Architecture. The Mechanical program coordinators worked together to better present the Mechanical Programs to students. An introductory film was produced introducing the fields of work of mechanical engineers in general, nature of study as well as success stories for engineering graduates. This effort resulted in more students interested in Mechanical Engineering. In fact, the Mechanical Engineering Programs was second to Electrical Programs in the number of students asking for the program as a first choice. The minimum GPA of students in Mechanical Engineering is 1.6 which is far better than Civil Engineering Program (0.7).**

**Moreover, introductory sessions about different programs was offered to 2nd year mechanical students. Success stories for Design & Production Engineering graduates were presented. The number of students applying for the Program increased this year and the quality of the students is better.**

**Moreover, the Advisory Board for the Design & Production Engineering program is formed and the first meeting was held in April 2019.**

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**9. Proposals for programme development**

**a. Programme structure (units/credit-hours)**

The structure of the new program is 170 credit hour.

**b. Courses, deletions and additions and modifications**

A full description of the new DPE program is provided in the Annex.

**c. Staff development requirements**

Staff training on new teaching methodologies.

Staff training on the use of PBL and assessment methods.

**10. Progress of previous year’s action plan**

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| --- | --- | --- |
| **Action Identified** | **Person Responsible** | **Progress of action, state**  |
| Formation of an advisory Industry Committee  | Program coordinator | Completed.First meeting was carried out in April 2019. |
| Alumni group | Program coordinator | Not completed.  |
| Staff training on new teaching methodologies | Vice dean | Completed.  |

**11. Action plan**

**Action required**

**Person Responsible Completion Date**

|  |  |  |
| --- | --- | --- |
| **Action required** | **Person Responsible** | **Completion date** |
| Expanding experimental load in courses as compared to the theoretical loads.  | Courses Instructors | June 2020 |
| Expose students to international experiences international contests | Courses Instructors | June 2020 |
| Formation of Alumni group | Program coordinator | June 2020 |

**Annex**

**Attach all course reports as annexes**