Program Report
University: Ain Shams Faculty: Engineering

A- Basic Information

1.	Programme title: **(Production)**	**B. SC. in Mechanical Engineering**
2.	Programme type:	Single ■ Double ☐ Multiple
	☐	
3.	Faculty: University	Faculty of Engineering – Ain Shams
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. 43

2-Ratio of students attending the programme this year to those of last Year 77%

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

3rd year Production: (…/43) %
4th year Production: (…/56) %

4-No. of students completing the programme and as a percentage of those who started: %

5-Grading: No. and percentage in each grade

3rd year production:
Excellent: 12% Very good: 16 % Good: 19% Pass: 12%
Remake: 21% Fail: 19%
4th year production:
Excellent: 6% Very good: 35% Good: 35% Pass: 9%
Remake: 9% Fail: 4%

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)

"Although more experimental work has been added to some course work, more experiments are needed. Students should be exposed to more laboratory work in some courses. Practical Training should be a mandatory requirement for graduation."

The new bylaws include more experimental work in the design and manufacturing courses. For example, the experimental work in the Mechanical Vibrations (MDP311) course includes now five experiments instead of two.
Practical Training is now mandatory requirement for graduation. Each student should spend 12 weeks of training. This year, many students have been exposed to field training in several companies such as:

- Arab Contractors
- Egyptian Railways workshops
- Fresh Co.

The specifications for the Practical Training of the Design and Production Engineering program are included in the appendices.
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2. Achievement of programme aims

Commentary(quoting evaluations from external evaluator and other stakeholders)
Program aims are achieved.
The comments of the evaluator in the previous reports are achieved.
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3. Assessment methods

Commentary(quoting evaluations from external evaluator and other stakeholders)
Project Based Learning (PBL) has been increased. Students' assessment should adapt to this change.
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). The year work of the Machine Construction course was officially changed to adapt to these changes.

4. Student achievement

Commentary (quoting statistics from Section B and evaluations from external evaluator and other stakeholders)
In spite of the pandemic, the students participated in the virtual symposium of the International Small Wind Turbine Contest (ISWTC) in Netherlands. This provides excellent opportunities for the students to exchange experiences with peers at European reputable universities.

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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

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6. Effectiveness of student support systems

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

Achieved centrally on the faculty level together with the students' union and student support committees. Program coordinator may also help the students communicate with these bodies.

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7. Learning resources

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

61 faculty member : 99 students.
50 assistants : 99 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

This was not adequate in the previous years and is adequate now. Practical training specifications are put, the bylaws mandate 12 weeks of practical training as a requirement for graduation. First batch of students have been trained in several industrial locations.
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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
The program coordinator is responsible for achieving the aims of the program and communicate with the students to provide feedback from the students and solve their academic problems.
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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. Students' assessment in the courses including Project Based Learning as a methodology for teaching.
2. More expansion of experimental load in courses as compared to the theoretical loads.
3. Induct recent trends related to Digital Transformation.
4. Expose students to international experiences.

ii- Students

Students are involved in the program evaluation through several 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.

Common comments of the students include:

a. Increasing the practical parts in the courses.
b. Availing opportunities for practical training.

iii- Other stakeholders

Stakeholders from the industry were involved in the evaluation process of the program. The Industrial Advisory Board met on 12th of July 2021 and discussed several options to availing opportunities for practical training for students. The meeting minutes are included in the appendices.

e. Faculty response to student and external evaluations

The comments and suggestions of students and reviewers are considered in the program implementation. Modifications to the program are made every year. Recently, a new bylaw has been started in the Faculty.

1. The new bylaws encourages the use of PBL and CDIO concepts. Assessment of students including PBL methodology is adapted to match the modified students work load. For instance, the year work marks for MDP252 (Bylaws 2003) and MDP211 (Bylaws 2018) have been changed to provide more weight for the projects as compared to written exams.
2. The experimental load in some courses has been increased. For instance, some experiments have been added to the the Mechanics of Machines (2) course (MDP352) for 3rd year production students. The added experiments are:
   - Free-damped vibrations (Viscous damping)
   - Forced vibrations (Rotating Unbalance)

   Although the bylaws do not necessitate any practical or experimental work in the courses
3. Also in the course MDP311 (bylaws 2018) more experimental work is added up to five experiments.
4. As per the suggestion of the program reviewers and the Industrial Advisory Board, students are now required to spend 12 weeks of Practical Training in the industry as a requirement for graduation. This year, many students have been exposed to field training in several companies such as:
   - Arab Contractors
   - Egyptian Railways workshops
   - Fresh Co.

   The specifications for the Practical Training of the Design and Production Engineering program are included in the appendices.

5. In spite of the Covid-19 pandemic, more involvement of students in international contests is being sought.

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9. Proposals for programme development

1. **Expanding experimental load in courses as compared to the theoretical loads.**
2. **Expose students to international experiences international contests.**
3. **Enforce Practical Training on the students as a requirement for graduation.**
4. **Consult with the Industrial Advisory Board on providing practical training opportunities for the students.**

10. Progress of previous year's action plan

Action Identified	Person Responsible	Progress of action, state
Expanding experimental load in courses as compared to the theoretical loads.	Courses Instructors	Mostly completed. Some experimental work is added to Mechanical Vibrations course – Theory of Machines course. PBL is added to Machine Construction course and Manufacturing Technologies course
Expose students to international experiences international contests	Courses Instructors	Partially completed. Traveling of students to ISWTC contest was cancelled because of the pandemic. However, the students joined the online virtual symposium.
Formation of Alumni group	Program coordinator	Partially completed through the University Alumni Association.
Enforce Practical Training	Program Coordinator	Completed and students started Practical Training sessions this summer. Training specs are attached.
Consult with the Industrial Advisory Board regarding the Practical Training.	Program Coordinator	Completed. IAB meeting minutes are attached.

11. Action plan

Action required
Person Responsible Completion Date

Action required	Person Responsible	Completion date
Expanding Practical training for students.	Faculty Council	June 2022
Availing more training opportunities for all students.	Program Coordinator	June 2022

Annex

Attach all course reports as annexes

Training specs.

Ain Shams University
Faculty of Engineering
Department of Design and Production Engineering
2021

IAB 12/7/2021 meeting minutes.