



## Bachelor thesis supervisor's review

**Bachelor thesis:** Wind Energy; A Sustainable Support for Electricity Shortages in Lebanon.

**Author:** Mahmoud Azhari

**Thesis supervisor:** Ing. Ghaeth Fandi, Ph.D.

Rating (1 – 5)  
(1 = best; 5 = worst):

|  |          |
|--|----------|
| 1. Fulfillment of assignment requirements:                     | 2        |
| 2. Self-reliance and initiative during the thesis solution:    | 1        |
| 3. Systematic solutions of individual tasks:                   | 2        |
| 4. Ability to apply knowledge and to use literature:           | 2        |
| 5. Collaboration and consultations with the thesis supervisor: | 1        |
| 6. Thesis formal and language level:                           | 2        |
| 7. Thesis readability and structuring:                         | 2        |
| 8. Thesis professional level:                                  | 2        |
| 9. Conclusions and their formulation:                          | 2        |
| <b>10. Final mark evaluation (A, B, C, D, E, F):</b>           | <b>B</b> |

**verbal:** very good

### Brief summary evaluation of the thesis (compulsory):

The work focuses on the use of wind energy source for a sustainable support of electricity shortages in Lebanon.

The introductory part of the work provides a brief overview of renewable energy technologies and usages. Methodology describes the steps of reducing electricity deficit in some regions in Lebanon by using wind energy. Chapters 3 and 4 focus on the technology and usage of wind power plants. The following chapters explain energy shortages and their causes in Lebanon, also the form of the use of wind power plants based on the analysis of meteorological data. Finally, a case study for a wind farm is presented, proving the potential of using wind farms to cover the shortages.

The work was able to provide a partial solution for using the renewable energy sources technologies to solve the electricity problem in Lebanon and it was based on scientific facts, despite the lack of data about Lebanon.

Although, there is a weakness in the methodology, where an algorithm should have been added. The structure of the work must also be taken into account, to comply with the rules of scientific research. I therefore recommend the thesis for defense with a rating of B (very good).



Date: 21.1.2021

Signature:

Notes:

- 1) The total thesis evaluation needn't be determined by the partial evaluations average.
- 2) The total evaluation (item 8) should be from the following scale:

|           |           |      |              |            |              |
|-----------|-----------|------|--------------|------------|--------------|
| excellent | very good | good | satisfactory | sufficient | insufficient |
| A         | B         | C    | D            | E          | F            |