

# بسم الله الرحمن الرحيم



-C-02-50-2-





شبكة المعلومات الجامعية التوثيق الالكتروني والميكرونيلم





## جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

### قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة يعيدا عن الغيار





### Ain Shams University Faculty of Engineering

Mechanical Design and Production Department

### Microstructure and Mechanical Behavior of Micro-Alloyed Steel

A Thesis submitted in partial fulfillment of the requirements of the degree of Master of Science in Mechanical Engineering (Design and Production Engineering)

By

Eng. Basem Tarek Helmy Attiya

Bachelor of Science in Mechanical Engineering

(Design and Production Engineering)

Faculty of Engineering, Ain Shams University, 2021

Supervised by

Prof. Mohamed Ahmed Taha
Prof. Ahmed Moneeb Elsabbagh
Associate Prof. Dr. Eman Hassan EL-Shenawy
Cairo - (2021)



#### Ain Shams University-Faculty of Engineering Mechanical Design and Production Department

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#### **Statement**

This thesis is submitted as a partial fulfilment of Master of Science in Mechanical Engineering (Design and Production), Faculty of Engineering, Ain Shams University.

The author carried out the work included in this thesis, and no part of it has been submitted for a degree or a qualification at any other scientific entity.

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### **List of Publications**

B. Tarek et al., "Feasibility of 0.02% Nb-Based Microalloyed Steel for the Application of One-Step Quenching and Partitioning Heat Treatment," Mater. Sci. Appl., vol. 12, no. 8, pp. 374-387, Aug. 2021, Doi: 10.4236/MSA.2021.128026.

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