Dr. Mahdy Rahman Chowdhury
Associate Professor, Dept. of ECE, North South University,
Dhaka, Bangladesh.

Certification: Letter of Recommendation

It is a great pleasure to recommend/certify Mr. Sakil Ahmed for completing the Quantum Mechanics (QM) course taught by me. However, I am providing this recom. letter after checking his well-written assignment of the **WAVE MECHANICS PART** **(1st half part: 1st 7 classes among 15 classes)** of the course. **Each of the classes was minimum 3.5 hours long. This letter has been provided only to the participants who have completed the assignment in a proper way.**

This QM course, which was conducted online, covered **both the wave mechanics and the matrix mechanics.** As Quantum Mechanics is still not included in the engineering universities of Bangladesh (and also in other countries), this course was arranged privately (a paid course for skill development purpose). Several faculty members (including Full Professor, Assistant Professor and so on), PhD and MSc students and BSc students from almost all the universities of Bangladesh have participated the course; and the detailed website (**and the list of all the participants**) of the course is given below:

https://sites.google.com/view/onlinecoursebymdy/home?authuser=1&fbclid=IwAR2zN0Ci3wvnImNBFS2GQJ1IxX0-XnK0IK7aRsO6eCBeI9rqamWOX0uxJ78

Total 15 classes (each of them around 3 and half hours long) have been taken to cover the big syllabus of the QM course. **I certify that Mr. Sakil Ahmed has participated in the full course.**

The Wave Mechanics Part of Quantum Mechanics course has covered: The deep concept (& physical applications) of Fourier series & Fourier transform, wave equations and their physical meaning, Bohr atomic model, wave-particle duality & probability concept, Wave Function for Particles (concept of wave packet and dispersive wave packets), the Time-dependent & independent Schrödinger Equations, Bound & free electrons and their connection with Fourier series & Fourier transform, Meaning of superposition and reason of quantization (normal mode concept) in quantum mechanics, Ensemble & Probability concept along with expectation value and standard deviation, Physics of Uncertainty Principle and associated detail mathematics (Specially using the Fourier Transform concept), Single & double slit experiments' detailed analysis, Electron facing potentials & tunneling problems: solving them using wave mechanics (I.e. real semiconductor cases),Detail discussion on the measurement theory of quantum mechanics (Several selected maths specially using Fourier method have been solved for this part by properly explaining the physical meaning of each part of the calculation), Postulates of quantum mechanics, and the EIGENVALUE and EIGENFUNCTION METHOD. Several mathematical problems have also been solved in the classes.

I believe that Mr. Sakil Ahmed has strong interest for learning. Otherwise, he would never enroll this private (paid) course. His completed assignment also strongly supports my words. I believe that he will excel in anything relevant to the WAVE MECHANICS PART of the Quantum Mechanics. If you have any further query, please do not hesitate to make contact with me.

[Please note: I have not certified anyone else whose identity is not given in the aforementioned website. All the participants are available in the list given in the website. This letter has been provided only to the participants who have completed the assignment very carefully in a proper way.]

Dr. Mahdy Rahman Chowdhury.
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