ISTANBUL TECHNICAL UNIVERSITY

Department of Physics Engineering

FIZ 504E **Spring 2020**

[CRN 23719]

SYLLABUS (tentative)

Lecturer: Vakif Kemal Önemli
Office: Faculty of Arts and Sciences, B4-124
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Lectures: Tue: 10:30-13:30
Office Hour: Wed: 10:45-11:45

Overview of the Topics

1. Quantization
2. WKB Methods
3. Measurement Problem
4. Locality Problem
5. Hamilton-Jacobi Theory
6. de Broglie-Bohm Pilot-Wave Theory
7. Koopman-von Neumann Theory and Classical Path Integrals

Textbooks

Foundations of quantum mechanics, T. Norsen, Springer (2017).
Making sense of quantum mechanics, J. Bricmont, Springer (2016).
The quantum theory of motion, P. R. Holland, Cambridge University Press (1993).

Suggested References

Quantum mechanics a modern development, L. Ballentine, World Scientific, 2nd edt. (2014).
Hidden worlds in quantum physics, G. Gouesbet, Dover Publ. (2013).
Wholeness and the implicate order, D. Bohm, Routledge (2002).
The undivided universe, D. Bohm and B. J. Hiley, Routledge (1995).
Inward bound, A. Pais, Oxford University Press (1986).
Sources of quantum mechanics, B. L. van der Waerden, Dover Publ. (1967).

Course Policy and Evaluation

Homeworks

5 homework sets will be assigned during the semester.

Quizzes

5 quizzes will be given. A problem similar to a homework problem in the latest assignment will be the quiz problem.

Midterm Exam

- Midterm Exam Date: 7.04.2020 Tuesday; 10:30 .

Term Paper Project

- Term paper is due by 22.05.2020 .

Final Exam

The final exam will be held on the date determined by the Student Affairs System (Automation). *All the topics that will be covered during the semester will be included in the final exam.*

Grading

Homeworks	% 0	a problem similar to a HW problem will be asked in the quiz
Quizzes	% 20	5 quizzes will be given
Midterm Exam	% 20	will be held on 7.04.2020
Term Paper Project	% 20	due by 22.05.2020
Final	% 40	to be determined by "Automation"