

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4036	Quantum Mechanics II	3.00	0.00	0.00	3.00	6.00
Course Detail						
<b>Course Language</b>	: Turkish					
<b>Qualification Degree</b>	: Bachelor					
<b>Course Type</b>	: Optional					
<b>Preconditions</b>	: Not					
<b>Objectives of the Course</b>	: Angular Momentum, The Schrodinger Equation in Three Dimension, Hydrogen Atom, The Interaction of Charged Particle with the Electromagnetic Field, Matrix Representation of Operators, Spin, The Interaction of Charged Particles with the Electromagnetic Field, Time-Independent Perturbation Theory, Identical Particles					
<b>Course Contents</b>	: Angular Momentum, The Angular Momentum Commutation Relations,Raising and Lowering Operators for Angular Momentum,The Schrodinger Equation in Three Dimensions and the Hydrogen Atom, The Central Potential,The Hydrogen Atom, The Energy Spectrum,The Free Particle, Particle in an Infinite Spherical Well The Interaction of Charged Particles with the Electromagnetic Field, Classical Electrodynamics,The Schrodinger Equation for an Electron in Interaction with an Electromagnetic Field,Midterm exam Matrix Representations of Angular Momentum Operators, General Relations in Matrix Mechanics Spin, Eigen states of Spin 1/2,The Intrinsic Magnetic Moment of Spin 1/2 Particles, Paramagnetic Resonance Addition of Two Spins, The Addition of Spin 1/2 and Orbital Angular Momentum,Matrix Representation of Operators, Matrices in Quantum Mechanics,Degenerate perturbation theory, Stark effect,Time independent perturbation theory, energy Eigen values and degenerate Eigen states					
<b>Recommended or Required Reading</b>	: Quantum Mechanics, E.Merzbacher,2nd.Edition (John Wiley and Sons,New York NY,1970) Modern Quantum Mechanics, J.J. Sakurai, (Benjamin/Cummings, Menlo Park CA,1985) The Principles of Quantum Mechanics, P.A.M.Dirac, (Oxford University Press, Oxford,UK,1958) The Feynman Lectures on Physics, R.B.Leighton and M.Sands,Volume III (Addison-Wesley,Reading MA,1965)					
<b>Planned Learning Activities and Teaching Methods</b>	: Midterm exam, Homework, Final exam					
<b>Recommended Optional Programme Components</b>	: Knowledge of the fundamental physics courses is important.					
<b>Instructors</b>	: Prof. Dr. Ayşe Küçükarslan					
<b>Instructor's Assistants</b>	: -					
<b>Presentation Of Course</b>	: Face to face					

## Course Outcomes

## Upon the completion of this course a student :

1 Apply the operator notation in solutions

2 Explain general formalism of quantum mechanics

3 Define angular momentum and spin

## Preconditions

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