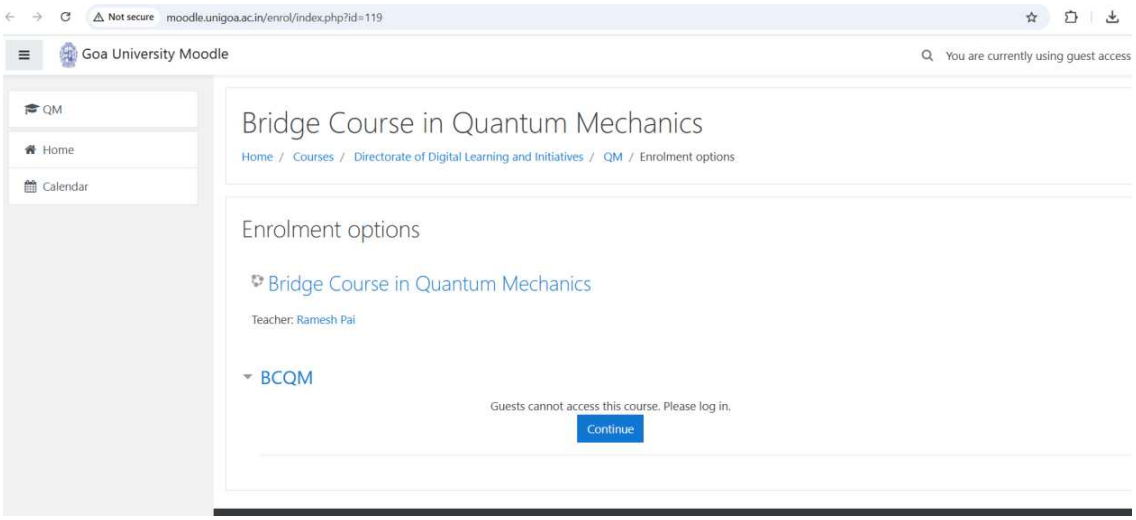
http://moodle.unigoa.ac.in/enrol/index.php?id=119



Programme: M. Sc. (Physics)

Course Code: PHY-004 **Title of the Course:** Bridge Course in Quantum Mechanics

Number of Credits: 2

Effective from AY: 2022-2023

Prerequisites for the Course:	B. Sc. Levels courses on mechanics and mathematics	
Course Objectives:	This course aims to understand the various phenomena of early quantum physics and develop the essential ideas of the old quantum theory.	
Content:	1. THERMAL RADIATION AND PLANCK'S POSTULATE Thermal Radiation, Classical Theory of Cavity Radiation, Planck's Theory of Cavity Radiation, Planck's Postulate and Its Implications. 2. PHOTONS—PARTICLE-LIKE PROPERTIES OF RADIATION Introduction, The Photoelectric Effect, Einstein's Quantum Theory of the Photoelectric Effect, The Compton Effect, The Dual Nature of Electromagnetic Radiation. 3. DE BROGLIE'S POSTULATE—WAVE-LIKE PROPERTIES OF PARTICLES Matter Waves, The Wave-Particle Duality, The Uncertainty Principle, Properties of Matter Waves, Some Consequences of the Uncertainty Principle, The Philosophy of Quantum Theory 4. BOHR'S MODEL OF THE ATOM Thomson's Model, Rutherford's Model, The Stability of the Nuclear Atom, Atomic Spectra, Bohr's Postulates, Bohr's Model, Atomic Energy States. 5. SCHROEDINGER'S THEORY OF QUANTUM MECHANICS Introduction, Plausibility Argument Leading to Schrödinger's Equation, Born's Interpretation of Wave Functions, Expectation Values, the time-independent Schrödinger Equation, Required Properties of Eigen functions, Energy Quantization in the Schrodinger Theory. 6. SOLUTIONS OF TIME-INDEPENDENT SCHROEDINGER EQUATIONS Introduction, The Zero Potential, The Step Potential (Energy Less Than Step Height), The Step Potential (Energy Greater Than Step Height), The Barrier	3 hours 2 hours 2 hours 3hours 5 hours 15 hours

	Potential, Examples of Barrier Penetration by Particles, The Square Well Potential, The Infinite Square Well Potential, The Simple Harmonic Oscillator Potential	
Pedagogy:	Online lectures along with assignments	
References/Readings	1. Robert Eisberg and Robert Resnick, Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles, John Wiley & Sons (2006) 2. A. Ghatak and S. Lokanathan, Quantum Mechanics, Theory and Applications, Mc Millan (2004). 3. P. M. Mathews, and K. Venkatesan, A Textbook of Quantum Mechanics, 2nd Ed., McGraw Hill (2010) 4. Leonard I. Schiff, Quantum Mechanics, 3rd Edn. Tata McGraw Hill, (2010)	
Course Outcomes:	Student will be able to 1. Understand the concept of the wave-particle duality of radiation and particles. 2. Understand energy quantization. 3. Understand wave mechanics in one dimension. 4. Describe the structure of the hydrogen atom. 5. Understand quantization of angular momentum.	

Bridge Course in Quantum Mechanics

Participants

No filters applied

Search keyword or select filter ▼

Number of participants: 42

First name All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Surname All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

First name / Surname	Roles	Groups	Last access to course
Adnyey Naik	Student	No groups	1 year 59 days
anirudh parsekar	Student	No groups	1 year 57 days
Apeksha Phadte	Student	No groups	1 year 61 days
Arantxa Barreto	Student	No groups	1 year 47 days
Cleris Fernandes	Student	No groups	44 days 13 hours
DDLI GU	Non-editing teacher	No groups	210 days 16 hours
Diya Naik	Student	No groups	41 days 15 hours
Dylan Fernandes	Student	No groups	42 days 18 hours
Govinda Fadte	Student	No groups	358 days 8 hours
Imaad Shah	Student	No groups	46 days 1 hour
Joshle Colaco	Student	No groups	33 days 14 hours
Joshua Mascarenhas	Student	No groups	44 days 15 hours
Karina Velip	Student	No groups	1 year 17 days
Kimberly Estibeiro	Student	No groups	30 days 2 hours
Krutika Shivolkar	Student	No groups	262 days 8 hours
Marilyn Monte	Student	No groups	41 days 12 hours
Meghana Kandolkar	Student	No groups	7 days 2 hours
Melisia Antao	Student	No groups	1 year 52 days
Menchie Fernandes	Student	No groups	1 year 47 days
Piyush Gadekar	Student	No groups	44 days 15 hours
Pratham Bhat	Student	No groups	316 days 15 hours
Ramesh Pai	Teacher	No groups	5 days
Ranjita Patil	Student	No groups	18 days 12 hours

First name / Surname	Roles	Groups	Last access to course
Rasmita Banaulikar	Student	No groups	31 days 20 hours
Rohan Arolkar	Student	No groups	1 day 21 hours
Rubeena Beg	Student	No groups	41 days 16 hours
Rukma Sinari	Student	No groups	31 days 9 hours
SAGAR VELIP	Student	No groups	1 year 60 days
Sakshit Raikar	Student	No groups	40 days 15 hours
Samruddhi Gauns	Student	No groups	1 year 50 days
Sanket Madgaonkar	Student	No groups	9 days 19 hours
Shravya Borkar	Student	No groups	43 days 8 hours
Shreya Naik	Student	No groups	44 days 15 hours
Shreya Prabhu Gaonkar	Student	No groups	13 days 22 hours
Shubham Gawas	Student	No groups	1 year 10 days
Simon Fernandes	Student	No groups	1 year 41 days
Smriten Fal Dessai	Student	No groups	46 days 1 hour
Sudhir Cherukulappurath	Student	No groups	17 secs
suharsh padloskar	Student	No groups	1 year 45 days
Ushank Parab	Student	No groups	1 year 54 days
Vikas Yadav	Student	No groups	1 year 60 days
Vinita Diukar	Student	No groups	44 days 15 hours

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