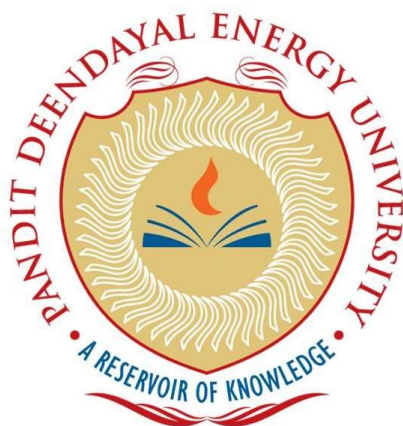


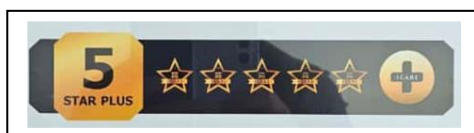
PANDIT DEENDAYAL ENERGY UNIVERSITY

(Formerly Pandit Deendayal Petroleum University – PDPU)

NAAC Accredited with ‘A++’ grade with CGPA of 3.52 out of 4.00



GSRIF Rating:



Admission Rules 2026-27

Master of Science (M.Sc.)

(Physics and Chemistry)

Knowledge Corridor, Raisan, Gandhinagar – 382 426

(079) - 2327 5455 (O) 9909010918 (M) for Physics

(079) - 2327 5306 (O) 9909010923 (M) for Chemistry

E-mail: admission.msc@pdpu.ac.in

Website: www.pdeu.ac.in

1. Admission to M.Sc. Program:

Seat Matrix:

Sr. No.	Course offered	Department	Number of Seats
1	M. Sc. (Physics)	Physics	25
2	M. Sc. (Chemistry)	Chemistry	25

2. Eligibility for Admission:

For the purpose of admission, a candidate shall have passed the qualifying examination of graduation in Science with a minimum 50% marks aggregate of all semesters/years or CPI 5.5 on a 10 point scale or equivalent score from a recognized University/Institute.

3. Selection Procedure and Merit List preparation:

The selection procedure is comprised of three components as follows:

Sr. No.	Components	Weightage
1	Aggregate ^a in UG	50%
2	Written Test ^b	25%
3	Personal Interview ^c	25%
Total		100%

Final Merit list will be prepared based on total of all 3 components.

^a During the selection process, if the final semester result is pending, then the previous semester CPI or Percentage will be considered, and provisional admission will be offered. In this case admission confirmation will be subjected to submission of the final semester mark sheet within 10 days of declaration of result from the respective University.

In case of student fails to submit CPI to the percentage certificate, the percentage will be calculated as $CPI \times 10$.

^b The details for Written Admission Test are mentioned in Sections 8 – 10. Written Admission Test and Personal Interview (PI) will be conducted on campus. The complete details of the schedule are given in section-7.

^c Personal interview will be based upon discussions related to scientific & research aptitude, overall learning approach, conceptual understanding, professional ethics and values.

4. Admission Procedure:

The admission procedure shall be on campus as follows:

4.1. The Admission Committee shall prepare merit lists of the eligible candidates based on Selection criteria as mentioned in section 3.

4.2. The merit lists shall be displayed on the website of PDEU.

- 4.3. International students interested to apply, may contact the Office of International Relations (OIR) of PDEU and go through the website of the office (<https://www.pdpu.ac.in/International-Students.html>) for more information.

5. Fee Structure:

The candidates who have been offered the admission shall have to pay fees as follows:

Fees Structure for 2 Years M. Sc. Programme								
Sr. No.	Particulars	Amount of Fees	No. of Terms Per Year	(In Indian Rupees)				Total Fees
				Total Fees During Year				
				First Year		Second Year		
				1st Semester	2nd Semester	3rd Semester	4th Semester	
Fees (Per Semester)								
1	Tuition Fee**	75,000	2	75,000	75,000	75,000	75,000	3,00,000
2	University Enrolment	5,000	1	5,000	-	-	-	5,000
	Fee & Examination Fees							
3	Semester Enrolment Fee & Examination Fees	5,000	2	-	5,000	5,000	5,000	15,000
Total Fees (A)				80,000	80,000	80,000	80,000	3,20,000
Deposit (Refundable / Adjustable)								
4	Security Deposit	10,000	-	10,000	-	-	-	10,000
5	Library Deposit	3,000	-	3,000	-	-	-	3,000
Total Deposit (B)				13,000	-	-	-	13,000
Total (A + B)				93,000	80,000	80,000	80,000	3,33,000

Financial Assistantship:

A financial assistantship of Rs. 25,000/- per semester will be provided against a mandatory research assistantship, up to 8 Hours, assigned by the respective department. In addition to this, students must fulfill the following criteria:

1. The student has to maintain CPI of 6.5 or above in each semester without any backlogs.

2. The student must meet attendance criteria set by the University,
3. No disciplinary action should have been taken against the student.

Failing the above conditions, the research assistantship will be discontinued.

Cancellation of Admission and Fee Refund:

A. Cancellation of admission by the University:

- i. In case, a candidate fails to produce original documents within the specified time period, his/her admission shall stand cancelled; and only deposits (Rs.13,000/-) shall be refunded.
- ii. During the verification of documents or subsequently, at any point of time, if the University finds any certificate or testimonial or information submitted by any candidate is incorrect or false, or in non-conformity with the eligibility criteria or any other requirement, the candidature of such candidate shall be cancelled. For such candidates, only deposits (Rs.13,000/-) shall be refunded.
- iii. If the University is satisfied with a candidate on no fault of his own has been wrongly admitted, fees & deposits paid if any, for the ongoing semester shall be refunded.

B. Cancellation of admission by the candidate:

If a candidate applies for cancellation of his/her admission through email/in-person, the fees paid shall be refunded after deduction of Rs.1000/- as administrative charges only if such vacated seat gets filled up latest by the start of the semester.

The refund will be made on or after 15th November 2026 only after receiving all required documents from the candidate in this regard.

The candidate shall be required to submit the original receipt of the fees paid for refund in the prescribed format. The application for cancellation is to be submitted to admission.msc@pdpu.ac.in and respective Head of the Department.

No refund shall, in any case be made if the candidate wishes to withdraw admission after the commencement of the first semester

Hostel & Mess Facilities:

Hostel accommodation will be offered subject to its availability and as per its rules. Hostel Fees (FY 2026-27):

- Hostel Fees: Rs.1,10,000/- per academic year (Non-refundable)
- Hostel Deposit (Refundable): Rs.5,000/-

Hostel Accommodation shall be subject to the availability of seats as per the norms.

- Electricity charges would be levied (calculated) extra on an actual consumption basis.
- Mess Charges:
 - i) Rs.62,000/- per year for breakfast, lunch, dinner and snacks as per the canteen schedule. This is compulsory for candidates opting for the hostel facility of the University.
 - ii) Rs.35,500/- per year for breakfast, lunch and snacks for day scholars as per the canteen schedule. (Monday to Friday) Note: Hostel and mess fees are subject to upward revision from time to time.

Note: Hostel and Mess fees are subject to revision from time to time.

6. Documents to be uploaded with the application:

- Recent Passport size photograph
- B. Sc. All Semester / Year mark sheet (in case of result “awaiting” status previous semester/year mark sheet)
- Migration Certificate (Within One Month)
- Proof of date of birth (DOB) (10th Passing Certificate or School Leaving Certificate)
- 12th mark sheet.

7. Important Dates:

Sr. No.	Particulars		Date
1	Online applications start		02-02-2026
2	Phase-I (Early Admission-I)	Written admission Test and Personal Interview	12-05-2026
		Announcement of Provisional Merit List (1 st Phase)	15-05-2026
		Last Date for fees payment (1 st Phase)	25-05-2026
3	Phase-II	Written admission Test and Personal Interview	16-06-2026
		Announcement of Provisional Merit List (2 nd Phase)	19-06-2026
		Last Date for fees payment (2 nd Phase)	30-06-2026
4	Phase-III	Written admission Test and Personal Interview	14-07-2026
		Announcement of Provisional Merit List (3 rd Phase)	15-07-2026
		Last Date for fees payment (3 rd Phase)	20-07-2026
5	Orientation of the M.Sc. Batch 2026		To be Announced
6	Commencement of the first semester		20-07-2026

8. Written Admission Test Syllabus:

a. Physics

Coulomb's law and principle of superposition, Gauss's law and its applications, Electric potential and electrostatic energy, Poisson's and Laplace's equations with simple examples, uniqueness theorem, boundary value problems, Properties of conductors, method of images.

Magnetostatics- Biot & Savart's law, Amperes law, Divergence and curl of magnetic field, Vector potential, Maxwell's equations and their significance, propagation of electromagnetic waves in free space and isotropic non-conducting dielectric medium, Poynting vector and Poynting's theorem.

Laws of Thermodynamics, concept of heat and work, State Functions, Internal Energy, Isothermal and Adiabatic Processes with applications, Concept of entropy, Second Law of Thermodynamics in terms of Entropy, Third Law of Thermodynamics, Temperature-Entropy Diagrams, First and second order Phase Transitions, Derivations of Maxwell's Relations, Clausius Clapeyron equation, Maxwell-Boltzmann Law of Distribution of Velocities, Mean, RMS and Most Probable Speeds, Degrees of Freedom, Law of Equipartition of energy.

Crystalline state, Unit cell, Crystal system, crystal structure for material elements, inter-planar spacing, Bravais lattices – Miller Indices, Diffraction of X-rays: Bragg's Law, Conductors: Free electron theory – Classical and quantum theory – band theory of solids – density of states – K-space – Bloch functions – Kronig-Penny Model. Magnetic Materials: Types: Dia, para, Ferro, and Antiferromagnetic materials – hysteresis curve.

Blackbody Radiation: Quantum Theory of Light, Photoelectric Effect, Compton Effect, Franck-Hertz experiment, Wave Nature of Matter: De Broglie Hypothesis, Wave-Particle Duality, Davisson-Germer Experiment, Wave description of Particles by Wave Packets, Group and Phase Velocities and Relation between them, Two- Slit Experiment with Electrons, Probability, Wave Amplitude and Wave Functions, Heisenberg's Uncertainty Principle and its applications.

The linear vector space, Hilbert Space, square integrable wave function, Dirac notations, Operators: Hermitian adjoint, Projection operators, commutator algebra, inverse and unitary operators, Eigen value and Eigen vectors of operators, Matrix representation of bra, ket and operators, Matrix representation of Eigen value problem, representation in continuous basis, wave and matrix mechanics, postulates of quantum mechanics, measurements in quantum mechanics, Time evolution of system's state

Properties of One dimensional problem: Discrete, continuous and mixed spectrum, Free particle, potential step, potential barrier and well, tunnelling effect, Infinite square well: Unsymmetrical and symmetric potential, Finite Square well potential: Scattering and bound state solutions, harmonic oscillator.

Condition for sustained interference, classification of interference, Division of wave front: Biprism, Division of amplitude: Newton's rings. Interference in Thin Films : Interference due to reflected light and transmitted light, Variable thickness of film, Michelson's interferometer, Fabry-Perot interferometer (etalon), Applications of interferometers. Diffraction : Fresnel's assumption, Fresnel and Fraunhofer diffraction, Diffraction due to a straight edge, Fraunhofer diffraction due to a single slit, Fraunhofer diffraction at N slits, Diffraction Grating: plane diffraction grating, Dispersive power of a grating, prism and grating spectra.

Resolving Power: Rayleigh's criterion, Polarization: Polarization by scattering and by selective Absorption Double refraction, Huygens's theory of double refraction, Nicol's prism, Production and detection of plane, elliptically and circularly polarized lights, Analysis of Polarized lights (experimental aspects only), Identification of Polarization, Quarter wave plate,

Half wave plate

Simple Harmonic Motion, Real Oscillators, Superposition, Damped SHM; Driven SHM, Coupled SHM, Continua, Fourier Analysis, Wave Motion, Dispersion, Reflection, Transmission, and Absorption

Intrinsic and Extrinsic semiconductors, conduction in semiconductors, electrical properties of semiconductors, formation of depletion region, drift and diffusion current in semiconductors, Junction diode and its characteristics, ideal and practical diode model, diode applications: HWR, FWR, Bridge FWR, power supply filters and capacitor filters, integrated circuit voltage regulators, diode limiting and clamping circuits, voltage multipliers, Zener diode and its applications, Varactor diodes, other types of diodes

Junction Transistor: Potential curves in unbiased and biased transistor, Transistor current components, Early effect, Static Characteristics of CB & CE configuration, active, cut off and saturation regions. Transistor as an Amplifier, Transistor current gains (Alpha, Beta, Gama) Junctions Field Effect Transistor, Qualitative Description of JFET, Drain and transfer characteristics of JFET, FET, MOSFET -Depletion and enhancement and their drain & transfer characteristics

Number systems: Binary, Octal, Hexadecimal number system and base conversions, Binary Arithmetic operations, 1's and 2's complement representation
Flip-Flop Counters, resistors, OP-Amp, OP-Amp as adder, differentiator, comparator, integrator

b. Chemistry

Basic Concepts in Organic Chemistry: Electronic effects (resonance, inductive, hyper conjugation) and steric effects and its applications (acid/base property).

Stereochemistry-I: Optical isomerism in compounds with and without any stereocenters (allenes, biphenyls).

Stereochemistry-II: Conformation of acyclic systems (substituted ethane/n-propane/n-butane) and cyclic systems (mono- and di-substituted cyclohexanes).

Reaction Intermediates: Chemistry of reactive intermediates (carbocations, carbanions, free radicals, carbenes, nitrenes, benzynes etc...).

Organic Reaction Mechanism and Synthetic Applications-I: Simmons-Smith reaction, Reimer-Tiemann reaction, Michael reaction, Darzens reaction, Wittig reaction and McMurry reaction; Baeyer-Villiger reaction; oxidation and reduction reactions in organic chemistry; Diels-Alder, electrocyclic and sigmatropic reactions; functional group inter-conversions and structural problems using chemical reactions.

Organic Reaction Mechanism and Synthetic Applications-II: Hofmann-Curtius-Lossen rearrangement, Wolff rearrangement, Pinacol-pinacolone, Favorskii, benzoic acid rearrangement, dienone-phenol rearrangement.

Reagents in Organic Synthesis: Organometallic reagents in organic synthesis (Grignard, organolithium and organocopper);

Qualitative Organic Analysis: Identification of functional groups by chemical tests; elementary UV, IR and ¹H NMR spectroscopic techniques as tools for structural elucidation.

Natural Products Chemistry: Classification, Chemistry and applications of alkaloids, steroids, terpenes and terpenoids.

Chemistry of Carbohydrates: occurrence, classification and their biological importance, monosaccharides - constitution and absolute configuration of glucose and fructose, epimers and anomers, mutarotation, determination of ring size of glucose and fructose, Haworth projections and conformational structures, interconversions of aldoses and ketoses, disaccharides (maltose, lactose and sucrose).

Chemistry of Amino Acids, Protein and Enzymes: Amino acids, peptides and their classification, alpha amino acids - synthesis, ionic properties and reactions, zwitterions, pKa values, isoelectric point, protein denaturation/renaturation. Enzymes: classification and characteristics of enzymes, salient features of active site of enzymes, mechanism of enzyme action, coenzymes and their role in biological reactions.

Aromatic Chemistry: Monocyclic, bicyclic and tricyclic aromatic hydrocarbons: synthesis, reactivity and properties.

Heterocyclic Chemistry: Monocyclic compounds with one hetero atom: synthesis, reactivity and properties.

Periodic Table: Periodic classification of elements and periodicity in properties; general methods of isolation and purification of elements.

Chemical Bonding: Types of bonding; VSEPR theory and shapes of molecules; hybridization; dipole moment.

Acids and bases: Brønsted-Lowry concept of acid-base reactions, solvated proton, relative strength of acids, types of acid-base reactions, Lewis acid-base concept, hard and soft acids and bases, application of HSAB principle. Non-aqueous solvents.

Ionic Solids: Ionic solids; structure of NaCl, CsCl, diamond and graphite; lattice energy.

Main Group Elements (s and p blocks): General concepts on group relationships and gradation in properties; structure of electron deficient compounds involving main group elements.

Transition Metals (d block): Characteristics of 3d elements; oxide, hydroxide and salts of first row metals; coordination complexes: structure, isomerism, reaction mechanism and electronic spectra.

Bonding theories of Coordination complexes: VBT, MOT and Crystal Field theoretical approaches for structure, color and magnetic properties of metal complexes.

Organometallic chemistry: Organometallic compounds having ligands with back bonding capabilities such as metal carbonyls, carbenes, nitrosyls and metallocenes; homogenous catalysis.

Bioinorganic Chemistry-I: Essentials and trace elements of life; basic reactions in the biological systems and the role of metal ions, especially Fe²⁺, Fe³⁺, Cu²⁺ and Zn²⁺, Structure and function of haemoglobin and myoglobin and carbonic anhydrase.

Bioinorganic Chemistry-II: Structure and function of hemoglobin and myoglobin and carbonic anhydrase.

Instrumental Methods of Analysis-I: Basic principles; instrumentations and simple applications of conductometry, potentiometry and UV-vis spectrophotometry.

Instrumental Methods of Analysis-II: Analysis of water, air and soil samples.
Spectroscopy: Beer-Lambert law; fundamental concepts of rotational, vibrational, electronic and magnetic resonance spectroscopy.

Analytical Chemistry-I: Principles of qualitative and quantitative analysis; acid-base, oxidation-reduction and complexometric titrations using EDTA.

Analytical Chemistry-II: Precipitation reactions; use of indicators; use of organic reagents in inorganic analysis.

9. Written Admission Test Pattern:

A 100 Marks Off-line Test will be conducted on the PDEU Campus. It will comprise 50 Multiple-Choice Questions, each carrying 2 Marks.

10. Sample Questions:

a. Physics

- Two gases separated by an impermeable but movable partition are allowed to freely exchange energy. At equilibrium, the two sides will have the same:
 - pressure and temperature**
 - volume and temperature
 - pressure and volume
 - volume and energy
- For which of these substances, the gas laws can be used with minimum error:
 - dry steam
 - wet steam
 - saturated steam
 - superheated steam**
- An engine operates between temperatures 900 K and T_2 and another engine operates between T_2 and 400 K. For both to do equal work, value of T_2 =
 - 750 K
 - 730 K
 - 700 K
 - 650 K**
- The line integral of the tangential component of magnetic field intensity (H) around a closed path is the same as:
 - the net distance of the conductor from the center of the path
 - the net length of the conductor enclosed by the path
 - the net current enclosed by the path**
 - none of the above
- The magnetic field intensity due to straight current carrying filamentary conductor of finite length is:
 - directly proportional to distance from the conductor
 - inversely proportional to distance from the conductor**
 - does not depend on the distance from the conductor

- d. none of the above
6. The torque on the current loop always tends to turn the loop so as to align the magnetic field produced by the loop:
- perpendicular to the applied magnetic field that is causing the torque
 - with the applied magnetic field that is causing the torque**
 - at an angle of 45 degree to the applied magnetic field that is causing the torque
 - none of the above
7. The velocity of a longitudinal wave depends on:
- the inelastic force of the medium and on the mass density
 - the elastic restoring force of the medium and on the mass density**
 - the elastic restoring force of the medium and on the charge density
 - none of the above
8. The energy transported by wave is proportional to the:
- square of the frequency and to the square of the amplitude**
 - cube of the frequency and to the square of the amplitude
 - square of the frequency and to the cube of the amplitude
 - none of the above
9. The diffraction of light achieved when the source and the screen are at infinite distances from the aperture is known as:
- Fresnel's diffraction
 - Fraunhofer diffraction**
 - Single-slit interference
 - None of the above
10. Two data taken during gravitational acceleration experiment are given as: (1) $t = 3$ s, $v = 29.4$ m/s; (2) $t = 5$ s, $v = 49$ m/s. Using $v = u + gt$, the value of g can be approximately calculated as:
- 0.98 m/s²
 - 9.8 m/s²**
 - 98 m/s²
 - None of these
11. The electric power consumed by an ohmic resistance device can be calculated by using following equation:
- $I * R * R$
 - $I * V * R$
 - $I * I * R$**
 - None of the above
12. The specific heat of water is given by:
- 4.18 kJ/(kg. K)**
 - 4.18 (kJ. kg)/ K
 - 4.18 kJ. kg. K
 - None of the above

13. In a simple linear oscillator, the relation between frequency and period of oscillation is:
- $T = 1/f$**
 - $T = f \cdot f$
 - $f = T \cdot T$
 - None of the above
14. A block of mass m lies on the floor in static equilibrium condition. Then the magnitude of the frictional force on it from the floor is:
- 8 N
 - 5 N
 - 0 N**
 - None of the above
15. A particle of mass 40 g executes a simple harmonic motion (SHM) of amplitude 2.0 cm. If the time period is 0.2 s, then the total mechanical energy of the system is:
- 7.9 mJ**
 - 4.9 mJ
 - 1.9 mJ
 - 9.9 mJ

b. Chemistry

- A soap bubble is given a negative charge; then its radius:
 - decreases
 - increases**
 - remains unchanged
 - nothing can be predicted as information is insufficient
- The magnetic resonance imaging MRI is based on the phenomenon of:
 - nuclear magnetic resonance**
 - electron spin resonance
 - Electron paramagnetic resonance
 - diamagnetism of human tissues
- Ozone layer in the atmosphere absorbs:
 - radio waves
 - Infrared waves
 - ultraviolet rays**
 - microwaves
- Which of the following compounds undergoes nitration most readily?
 - Benzene
 - Toluene**
 - Nitrobenzene
 - Benzoic acid
- One cannot see through fog because:
 - fog absorbs light
 - light is scattered by the droplets in the fog**
 - light suffers total reflection at the droplet in the fog
 - the refractive index of the fog is infinity
- The control rods used in nuclear reactor can be made up of:

- a. Graphite
 - b. **cadmium**
 - c. barium
 - d. lead
7. Which scientist experimentally proved the existence of electromagnetic waves?
- a. Sir J.C Bose
 - b. Maxwell
 - c. Marconi
 - d. **Hertz**
8. The bond that exists in a semiconductor is
- a. **Covalent bond**
 - b. Ionic bond
 - c. Metallic bond
 - d. Hydrogen bond
9. First atomic energy reactor was designed by
- a. E. Teller
 - b. **E. Fermi**
 - c. Otto Hahn
 - d. Rutherford
10. When water is converted into ice, its entropy
- a. Increases
 - b. **Decreases**
 - c. Remains unchanged
 - d. First decreases then increases
11. Alkenes show geometrical isomerism due to
- a. Asymmetry
 - b. rotation around single bond
 - c. Resonance
 - d. **restricted rotation around a double bond**
12. LPG (house hold cooking gas) is mainly mixture of
- a. Methane + Ethane
 - b. Acetylene + oxygen
 - c. **Butane + isobutene**
 - d. Acetylene + hydrogen
13. Baeyer's reagent is
- a. **dilute KMnO_4**
 - b. $\text{HCl} + \text{ZnCl}_2$
 - c. Br_2 in CCl_4
 - d. NH_2NH_2
14. Freon-12 is used as
- a. Local anesthetic
 - b. Dry cleaning agent
 - c. **Refrigerant**
 - d. Disinfectant
15. Which of the following poisonous gas is formed when chloroform is exposed to light and air?
- a. Mustard gas
 - b. Carbon monoxide
 - c. **Phosgene**
 - d. Chlorine