ADMISSION NOTICE
DATED: 07-06-2019

On line applications are invited for admission to M.Sc. Course in the Department of Physics for the unfilled seats, after the NSR conducted by CCMN-2019 coordinated by NIT Rourkela. The Institute level examination will be conducted to fill up the vacant seats after NSR of CCMN-2019, as per the guidelines of the Institute. In case all seats are filled through CCMN-2019, then Institute cannot admit any of the candidate.

Programme:	ELIGIBILITY
M. Sc in Physics (2 Year Programme)	**Eligibility:** The eligibility criteria will be as per CCMN-2019. • All candidates should have obtained a Bachelor's degree (B.Sc.) with 55% of marks. • In the qualifying degree, the aggregate marks or CGPA/CPI without rounding-off (taking into account all subjects, including languages and subsidiaries, all years combined) should be at least 55% or 5.5 out of 10 for General/OBC (NCL)/EWS category candidates and 50% or 5.0 out of 10 for SC/ST and PWD category candidates. • For Candidates with letter grades/CGPA (instead of percentage of marks), the equivalence in percentage of marks will be decided by rules followed by CCMN-2019. • It will entirely be the responsibility of the Candidate to prove that he/she satisfies the Minimum Educational Qualifications (MEQs) and Eligibility Requirements (ERs) for Admission. • The Institute has the right to cancel, at any stage, the admission of a candidate who is found to have been admitted to a course to which he/she is not entitled, being unqualified or ineligible in accordance with the rules and regulations in force.

➢ **Pattern of Examination:** The question paper will consist of 60 MCQ type questions of maximum marks 100. Each correct answer will carry two marks and for wrong answer, 0.25 mark will be deducted. Questions not attempted will result in zero mark. The duration of exam will be of 90 minutes.

➢ **Syllabus:** Annexure I

➢ **Fee Structure:** Annexure-II

➢ **Important Dates:**

S.No	Event	Tentative Date
1	Publication of advertisement in the New Papers	10th June 2019
2	Online application link activates	15th of June 2019
3	Last date of submission of online application with payment of application fee	30th of June 2019
4	Download of Admit Card for written test (for screening test)	1st week of July
5	Conduct of Entrance Examination	2nd week of July 2019
6	Publication of final list recommended	Will be notified on the Institute Website
7	Reporting	
8	Class Work	

The candidates can apply online by logging on to the following URL: (nitsriadmission.mastersofterp.in) by or before **30-06-2019**. The application fee of **Rs.1500/-** for General / OBC and **Rs.1000/-** for SC /ST & EWS has to be paid online while applying.

Applications will be screened by concerned Departments and list of eligible candidates will be put on **website www.nitsri.ac.in.** All announcements related to admissions will be made through Institute website. All candidates are advised to remain in touch with the Institute website for any information related to the admission.

The selection will be provisional subject to the verification of the following documents in original and fulfillment of requirements as per the statutes and advertisement.

i. DOB certificate.
ii. Eligibility degree certificate.
iii. NET score card (if any).
iv. Sponsorship certificate/ NOC from the employer.
v. Affidavit duly signed by 1st class magistrate for gap period (if any) and to the effect that the details including documents provided by the candidate to NIT Srinagar for M. Sc. admission for the year in question are correct and genuine.
vi. 10+2 marks card and qualification.
vii. B. Sc grade/ marks card.
viii. B. Sc degree certificate / provisional degree certificate.
ix. Migration certificate.
x. Character certificate and transfer certificate.
xi. Candidates need to upload all the above cited certificate / documents at the time of online filling of the application form.

Sd/-
(Prof. (Dr.) Kowsar Majid)
Dean Academic Affairs

No: NIT/DAA/M. Tech Sponsored/ 2019/283
Dated: 07 -06-2019

Copy to:

1. All Deans, National Institute of Technology, Srinagar
2. All Heads of the Department, National Institute of Technology Srinagar
3. Dean Academics, University of Kashmir, Srinagar
4. Dean Academics GCET, Jammu
5. Dean Academics, IUST, Awantipora, Pulwama, Kashmir
6. Dean Academics BGB University, Rajouri
7. Dean Academics, SSM College of Engineering & Tech. Pattan, Kashmir.
8. Coordinator, National Institute of Technology Camp Classes, Jammu
9. Chief Engineer (PDD/Mechanical/R&B/PHE) Govt. of J&K, Srinagar
10. Registrar, National Institute of Technology, Srinagar
11. Dy. Registrar (Accounts), National Institute of Technology, Srinagar.
12. Associate Dean Examinations / ADAA NIT Srinagar
13. Assistant Registrar Academic, NIT Srinagar.
14. I/C Institute Web Site with the request to please upload the above advertisement on the website of the Institute.
15. Incharge e-Governance for necessary action.
16. P.S to Director, IIT Jammu for information of the Director please.
17. PA to Director, NIT Srinagar for kind information of the Director please.

Syllabus of M.Sc. Physics Entrance Examination

➢ Mathematical Methods: Calculus of single and multiple variables, partial derivatives, Jacobian, imperfect and perfect differentials, Taylor expansion, Fourier series. Vector algebra, Vector Calculus, Multiple integrals, Divergence theorem, Green's theorem, Stokes' theorem. First order equations and linear second order differential equations with constant coefficients. Matrices and determinants, Algebra of complex numbers.

➢ Mechanics and General Properties of Matter: Newton's laws of motion and applications, Velocity and acceleration in Cartesian, polar and cylindrical coordinate systems, uniformly rotating frame, centrifugal and Coriolis forces, Motion under a central force, Kepler's laws, Gravitational Law and field, Conservative and non-conservative forces. System of particles, Center of mass, equation of motion of the CM, conservation of linear and angular momentum, conservation of energy, variable mass systems. Elastic and inelastic collisions. Rigid body motion, fixed axis rotations, rotation and translation, moments of Inertia and products of Inertia, parallel and perpendicular axes theorem. Principal moments and axes. Kinematics of moving fluids, equation of continuity, Euler's equation, Bernoulli's theorem.

➢ Oscillations, Waves and Optics: Differential equation for simple harmonic oscillator and its general solution. Superposition of two or more simple harmonic oscillators. Lissajous figures. Damped and forced oscillators, resonance. Wave equation, traveling and standing waves in one-dimension. Energy density and energy transmission in waves. Group velocity and phase velocity. Sound waves in media. Doppler Effect. Fermat's Principle. General theory of image formation. Thick lens, thin lens and lens combinations. Interference of light, optical path retardation. Fraunhofer diffraction. Rayleigh criterion and resolving power. Diffraction gratings. Polarization: linear, circular and elliptic polarization. Double refraction and optical rotation.

➢ Electricity and Magnetism: Coulomb's law, Gauss's law. Electric field and potential. Electrostatic boundary conditions, Solution of Laplace's equation for simple cases. Conductors, capacitors, dielectrics, dielectric polarization, volume and surface charges, electrostatic energy. Biot-Savart law, Ampere's law, Faraday's law of electromagnetic induction, Self and mutual inductance. Alternating currents. Simple DC and AC circuits with R, L and C components. Displacement current, Maxwell's equations and plane electromagnetic waves, Poynting's theorem, reflection and refraction at a dielectric interface, transmission and reflection coefficients (normal incidence only). Lorentz Force and motion of charged particles in electric and mag-netic fields.

- Kinetic theory, Thermodynamics: Elements of Kinetic theory of gases. Velocity distribution and Equipartition of energy. Specific heat of Mono-, di- and tri-atomic gases. Ideal gas, van-der-Waals gas and equation of state. Mean free path. Laws of thermodynamics. Zeroth law and concept of thermal equilibrium. First law and its consequences. Isothermal and adiabatic processes. Reversible, irreversible and quasi-static processes. Second law and entropy. Carnot cycle. Maxwell's thermodynamic relations and simple applications. Thermodynamic potentials and their applications. Phase transitions and Clausius-Clapeyron equation. Ideas of ensembles, Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein distribution.

- Modern Physics: Inertial frames and Galilean invariance. Postulates of special relativity. Lorentz transformations. Length contraction, time dilation. Relativistic velocity addition theorem, mass energy equivalence. Blackbody radiation, photoelectric effect, Compton effect, Bohr's atomic model, X-rays. Wave-particle duality, Uncertainty principle, the superposition principle, calculation of expectation values, Schrödinger equation and its solution for one, two and three-dimensional boxes. Solution of Schrödinger equation for the one-dimensional harmonic oscillator. Reflection and transmission at a step potential, Pauli exclusion principle. Structure of atomic nucleus, mass and binding energy. Radioactivity and its applications. Laws of radioactive decay.

- Solid State Physics, Devices and Electronics: Crystal structure, Bravais lattices and basis. Miller indices. X-ray diffraction and Bragg's law; Intrinsic and extrinsic semiconductors, variation of resistivity with temperature. Fermi level. p-n junction diode, I-V characteristics, Zener diode and its applications, BJT: characteristics in CB, CE, CC modes. Single stage amplifier, two stage R-C coupled amplifiers. Simple Oscillators: Barkhausen condition, sinusoidal oscillators. OPAMP and applications: Inverting and non-inverting amplifier. Boolean algebra: Binary number systems; conversion from one system to another system; binary addition and subtraction. Logic Gates AND, OR, NOT, NAND, NOR exclusive OR; Truth tables; combination of gates; de Morgan's theorem.

Annexure II

Office of the Dean Academic Affairs
National Institute of Technology Srinagar

Fee Structure for M. Sc Physics

Institute Name	Semester	Category	Institute fee per semester Day Scholar	Institute fee per semester Hosteller	Total
National Institute of Technology,Srinagar, Hazratbal, 190006 (J&K)	Ist Semester	OC/OB/EWS	19,100/=	Rs.7,000/=	Rs, 26,100/=
	2nd to 4th Semester		10,800/=	Rs.7,000	Rs, 17,800/=
	Ist Semester	SC/ST	11,600/=	Rs.7,000	Rs, 18,600/=
	2nd to 4th Semester		3,300/=	Rs.7,000	Rs, 10,300/=