



SCHOOL OF STUDIES IN ELECTRONICS & PHOTONICS



Pt. RAVISHANKAR SHUKLA UNIVERSITY, RAIPUR (C.G.)

UGC & AICTE approved National Innovative Programme FOR GATE & Non-GATE Aspirants

M. Tech in Opto-electronics and Laser Technology

The M. Tec. Programme in Optoelectronics and Laser Technology program at the Pt. Ravishankar Shukla University provides students with specialize knowledge and professional engineering skills to prepare them for a career in the rapidly growing field of photonics and optoelectronics. This program sponsored & approved by University Grants Commission under its National Innovative Programme: Teaching and Research in Interdisciplinary and Emerging Areas & All India Council of Technical Education (AICTE). The M. Tech. course in Optoelectronics and Laser Technology provides the background in optoelectronics, help students meet the demand of growing semiconductor optoelectronic industry and prepare them to advanced study and research in the semiconductor optics and optoelectronics devices, The Programme aims to provide advanced training in the interdisciplinary areas of Optoelectronics, Photovoltaics, Fiber Optics, Optical Communication and Laser Technology and covers operating principles and practical device features of semiconductor optoelectronic materials and heterostructures used in high-performing, low cost systems for competitive advantage. Photonics professional work across a wide range of industries including research and development, telecommunications. It emphasizes on practical applications of Photonics which are widely used for system development in the areas of communications, distributed sensing, biomedical applications, Industrial manufacturing, display and lightening, defence environments, and provides an educational experience relevant to the student's future career in the photonics-based industries. In the last six years, four of the Noble prizes in Physics have been awarded in the field of Photonics.

The Optoelectronics program builds on interdisciplinary Science & engineering focus and research expertise to give studies the required skills to address complex multi-disciplinary problems, while at the same time providing advanced technical knowledge in photonics. The program includes specialized course in optical modern physics, fibre optic communications, optical sensing, nano photonics, Quantum Optics, Organic Electronics and Solar Photovoltaic. Student also have the opportunity to select elective from across the University.

M. Tech. students gets opportunity to pursue one year research project at our department or can pursue their research project in collaborated organization/institute viz. IIT Mumbai, IIT Kanpur, CSIR, IICT Hyderabad, BARC- Mumbai, RRCAT- Indore, CSIO- Chandigarh, CEERI- Pilani, ISRO, PRI- Ahmadabad, Raman Research Institute Bangalore, NPL New Delhi and other research centers of National & International reputation. They are getting placement in multinational companies, Industries, Academics and other Private and Government Organizations.

The Benefits of M. Tech in Opto-Electronics & Laser Technology are:

- ◆ More and better Photonics companies are coming for Campus Placement in leading Institutes. Higher salaries are being offered for M. Tec as compared to B.E. or M. Sc.
- ◆ M. Tech degree leads to specialization and furthering of interest in a certain area which may lead to Ph. D.
- ◆ M. Tech degree is a must for those wishing to apply for Faculty / Research positions in educational Institute R&D centers.
- ◆ The M. Tech program is a 4 semester (24 months) program; so get more time to work out career opportunities.
- ◆ MOST IMPORTANTLY to get to be a part of any Nationally reputed Educational Institute and enjoy learning and research.

The last few years, students have been selected for Ph. D. programme and JRF Position at various IITs, NITs, CEERI, ISRO and DRDO as well as Universities and research organizations abroad. Some are working as Scientific Officers /Scientist at national level institute like DRDO, RRCAT, ISRO and BARC. Many of the students in the M. Tech programme are employed in Multinational Companies, Industries, Academics and other government and private organizations. There is an ample scope for jobs in this sector due to growth in the communication sector, healthcare industry, and now materials for sensors and devices needed in the defence sector. Some companies looking for Photonics people are OSI Optoelectronics, Hyderabad, Optoelectronics Factory, Dehradun, Opto Electronics Pvt. Ltd. Bengaluru, SFO Technologies, Cochin, Satellite Optical Technologies Ltd. Pune. Tejas Networks India Ltd. Bengaluru, Opto Circuits (India) Ltd, Bengaluru, Kwality Photonics Pvt. Ltd, Hyderabad.

Eligibility

Candidate should have completed Master's Degree in Physics/Electronics/Material Science/ Applied Physics/ Nanotechnology or allied subject or B. Tech/B.E./B.Sc. Engg. Degree in Electronics & Communication Engineering/Electronics Engineering/ Electrical Engineering/ Electrical & Electronics or Telecom Engineering / Instrumentation/ IT / Computer Engg. With a 55% from any recognized University or Institution.

Selection

Eligible candidates will be selected for the Masters of Technology course based on a rank list created from GATE scores. Those applying without a valid GATE score will be required to appear for a Department Admission Test (DAT).

M. Sc. Electronics Programme

Introduced in the year 1994, the two-year Post Graduate Programme in Electronics aims at the synthesis of Science, Engineering and Technological aspects of Electronics. We all know that the ongoing bewildering transformation of quality of our lives is due to the recent phenomenal growth in Electronics, Information / Communication. It is the mission of the Department of Electronics Science to educate and generate the next generation of innovators. To achieve this, our energies are directed towards blending a sound understanding of fundamental Science, Engineering and Technical aspects of Electronics. The M. Sc. in Electronics curriculum of the Department is accordingly designed and being implemented. In addition, the Department also realizes that in today's frenetically competitive market world, then students need to be confident, organized, multi skilled and flexible individuals apart from being imparted training in Electronics.

The two years postgraduate programme in Electronics helps to provide in depth knowledge of the subject which is supplemented with tutorials, brain storming ideas and problem solving efforts pertaining to each theory and practical course. Two years **M. Sc. Programme offers 16 theory papers and 7 laboratory modules**, in addition to the choice based credit system courses and guided project spreading over four semesters. Workshops and seminars are introduced to help the students to achieve holistic development and to prepare themselves to face the world outside in a dignified manner. Study tour to reputed national laboratories, research institutions and industries, under the supervision of the department is part of the curriculum.

M.Sc. in Electronics can be opted as a highly preferred discipline due to a lot of career opportunities for skillful candidates in both government and non-government institutions/organizations. The candidates of M.Sc. Electronics can find massive job opportunities in any of the well-reputed companies operating in planning, design, program, and repair electronics, including VLSI (Very Large Scale Integration) designing, which has become one of the most happening fields of Electronics, finding its application in diverse range of electrical and electronics equipment, like: computer peripherals, cell phones, satellites, defense aerospace, consumer electronics, set top boxes, etc. The pay packages as well as job opportunities are much high for expert candidates in this sector.

This course provides exposure to the students to the technologies in-vogue and trains them to take up projects relevant to the industrial needs, the R & D activities and self-employment opportunities.

The department has a well-equipped laboratories with various circuit simulation and design software for students. In addition, there are well equipped laboratories for experimental work in the following areas: Communication Electronics, Optical Electronics, Photonics, Fiber Optics, Thin Film Technologies, Circuit Design, Electronic Materials and Semiconductor Devices, Microprocessor and Digital Signal Processing and Optical Electronics, Organic Electronics, Flexible Electronics. In addition the course caters to the requirements of providing complete exposure to NET/SET syllabus for Electronics formed by the U.G.C.

Career Prospects in Public Sector / Private Sector

Post Graduate in M. Sc. Electronics can find various job openings under various Departments of State/Central Ministries of Government of India in addition to Private Sector, The different government organizations which are operating in Electronics field include- Indian Railway, ONGC (Oil and Natural Gas Corporation Limited), NEERI, Nationalized Banks, IGCAR, IAF (Indian Air Force), DRDO (Defense Research and Development Organization), CSIR (Council of Scientific & Industrial Research), CEERI (Central Electronics Engineering Research Institute), BSNL, BHEL (Bharat Heavy Electricals Limited), BEL (Bharat Electronics Limited), BARC etc. Those with NET qualification can apply for Assistant Professor in colleges as well as fellowships in different Government Research Laboratories.

The course of the M. Sc. In Electronics has both national as well as foreign-based opportunities. Students after the completion of the course can get high profile jobs in the areas such as:

- ◆ Universities and colleges as Assistant Professors or lectures in Schools
- ◆ The M. Sc. Electronics course enables the candidates for going higher degree program in respective subjects. M. Phil., Ph. D. or M. Tech. in optoelectronics & Laser Technology. They can start to own their business such as manufacture electronic parts, goods and components.
- ◆ The Department of Higher Education, Govt. of Chhattisgarh vide no. 489/4114/2014/38-1 dated 13.02.2019 & corrigendum of CGPSC for Assistant Professor vide no. 2923/27/ Advt./2019 dated 23.02.2019, has declared Electronics as allied subject of Physics & applicant with M. Sc. (Electronics) are also eligible for Assistant Professor (Physics) and also Lecture Physics in School Education.

How to Apply

Interested candidates need to apply online at the Pt. Ravishankar Shukla University website. The online application gets completed in two steps, first by filling the online application form, password and ID will be generated. Submit the application fees through the generated bank challan and complete application by uploading scanned copies of your passport size photograph and signature. M. Sc. Admission is through University PG Entrance Test.

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