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करियर मार्गदर्शन पोर्टल • Career Guidance Portal

"सही मार्गदर्शन, उज्ज्वल भविष्य।"

करियर शीट • CAREER SHEET

ऑप्टिकल इंजीनियर

Optical engineers design light-based technologies such as lenses, lasers, sensors, telescopes and fibre optics. They are especially sought in space, defence and telecom.



Scan for everything on this career

Salary, exams, colleges, the routes in and the steps after — all on the portal.

career.gsssjethantri.in/#/career/eng-4644

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Principal, GSSS Jethantri • Master Trainer



श्री चेनाराम चौधरी

प्रधानाचार्य, डाइट बाड़मेर
Principal, DIET Barmer



श्रीमती संघमित्रा

वरिष्ठ व्याख्याता, डाइट बाड़मेर (सहयोग)
Sr. Lecturer, DIET Barmer (Support)



भरत चौधरी

अभिकल्पना व विकास • व्याख्याता (इतिहास)
Designed & developed • Lecturer (History)

विशेष धन्यवाद • SPECIAL THANKS



सुरेन्द्र सिंह राठौड़

व्याख्याता (इतिहास) • रा.उ.मा.वि. कानाना



सुरेश कुमार सैन

व्याख्याता (भूगोल) • रा.उ.मा.वि. रामसीन मूंगड़ा



वनिता कुमारी

व्याख्याता (इतिहास) • रा.उ.मा.वि. रामसीन मूंगड़ा



कमलेश चौधरी

व्याख्याता (राजनीति विज्ञान) • रा.उ.मा.वि. टापरा

करियर मार्गदर्शन कार्यशाला, डाइट बाड़मेर (14-17 जुलाई 2026) में विकसित व लोकार्पित
Developed & unveiled at the Career Guidance Workshop, DIET Barmer (14-17 July 2026)

यह एक स्वतंत्र परियोजना है, जो सरकार की आधिकारिक करियर-मार्गदर्शन सामग्री पर आधारित है। • An independent project based on the Government's official career-guidance content.

1 About this career

Optical engineers design light-based technologies such as lenses, lasers, sensors, telescopes and fibre optics. They are especially sought in space, defence and telecom.

2 At a glance

Minimum qualification	12th PCM + degree in optics/physics/ECE
Work mode	Lab and design office; some field work
Demand	Growing - in photonics, quantum and defence optics
Top earning	Senior optical engineer: Rs 2-3 lakh/month

3 What you need

INTERESTS

- Interest in physics and light experiments
- Fascination with scientific instruments
- Strong grasp of maths

ABILITIES

- Using computers for scientific problems
- Attention to fine precision
- Experimental ability and patience

KEY SKILLS

- Optical design (software like Zemax)
- Fibre-optic communication
- Measurement and testing (metrology)
- Understanding of lasers and photonics
- Electronics and sensor integration
- Data analysis and programming

4 How to get there

- 1 Pass 10+2 with Physics, Chemistry, Maths.
- 2 Via JEE/REAP, take a degree in engineering physics, ECE, avionics or optics.
- 3 Do M.Tech/M.Sc in optics/photonics (IITs, IIST).
- 4 Intern at ISRO/DRDO labs or an optics company.
- 5 Choose the PhD route if research interests you.

MAIN EXAMS

- JEE Main / JEE Advanced
- REAP (Rajasthan)
- GATE / JEST (higher studies)
- CUSAT/IIST admission

5 Where to study

GOVERNMENT INSTITUTES

- MNIT Jaipur (Physics/ECE) — Jaipur, Rajasthan (<https://www.mnit.ac.in>)
- IIT Jodhpur — Jodhpur, Rajasthan (<https://iitj.ac.in>)
- IIST Thiruvananthapuram — Thiruvananthapuram, Kerala (<https://www.iist.ac.in>)
- IIT Delhi / IIT Kharagpur (Optics & Photonics) — Delhi/Kharagpur
- Rajasthan Technical University (RTU) — Kota, Rajasthan

PRIVATE INSTITUTES

- BITS Pilani (Physics/EEE) — Pilani, Rajasthan
- LNMIIT Jaipur (ECE) — Jaipur, Rajasthan

ONLINE

- NPTEL/SWAYAM (Optics, Photonics courses) — Online (<https://nptel.ac.in>)

FEES

About Rs 30,000-1.5 lakh per year in government institutes; higher in private ones; varies by institute.

SCHOLARSHIPS

- National Scholarship Portal (<https://scholarships.gov.in>)
- AICTE Pragati (girls) / Saksham scholarships (<https://www.aicte-india.org>)

6 What the work is like

WHERE YOU WORK

ISRO/DRDO labs, telecom and laser companies, scientific instrument makers, semiconductor units.

WORK CULTURE

Mostly regular hours in labs/offices; extra work possible near project deadlines. Opportunities exist for persons with disabilities.

WHO HIRES

- ISRO / DRDO / BHEL
- Telecom companies (Jio, Airtel)
- Semiconductor/display units
- Sterlite Technologies (fibre optics)
- Medical and scientific instrument companies
- Research institutes (RRI, TIFR)

DEMAND (2026)

In 2026, the quantum mission, defence optics, 5G/fibre and semiconductor investments are rapidly raising demand in this niche field.

7 Career growth

- 1 Optical Engineer
- 2 Project Engineer/Project Manager
- 3 Senior Optical Engineer
- 4 Senior Product Manager/Chief Scientist

EARNINGS

Starting	₹30,000-50,000
Mid level	₹70,000-1,50,000
Senior level	₹2,00,000-3,00,000

Monthly pay; varies between research labs and private firms. 2026 levels, indicative.

8 The good parts · The challenges

The good parts

- Exciting projects in space and defence
- Niche skill with less competition
- Good opportunities abroad and in research

The challenges

- Jobs in India limited but growing
- Often needs study up to M.Tech/PhD
- Highly precise, slow lab work

9 Real-life journeys

Prof. Rajpal Singh Sirohi

Optics scientist; former Director, IIT Delhi; Padma Shri

An expert in optical metrology, R.S. Sirohi wrote about 430 research papers and rose to Director of IIT Delhi; his optics work earned the Padma Shri and the international Gabor Award.

Wikipedia · https://en.wikipedia.org/wiki/Rajpal_Singh_Sirohi

Prof. Urbasi Sinha

Quantum optics professor, Raman Research Institute

At Bengaluru's Raman Research Institute, Urbasi Sinha runs a lab on quantum communication using photons and contributes to India's National Quantum Mission.

Wikipedia · https://en.wikipedia.org/wiki/Urbasi_Sinha

10 Sources & further reading

1. Rajasthan Career Guidance: Optical Engineer — <https://cg.rajasthan.gov.in/careerguidance/hi/career/%e0%a4%91%e0%a4%aa%e0%a5%8d%e0%a4%9f%e0%a4%bf%e0%a4%95%e0%a4%b2-%e0%a4%87%e0%a4%82%e0%a4%9c%e0%a5%80%e0%a4%a8%e0%a4%bf%e0%a4%af%e0%a4%b0-optical-engineer/>
2. IIST Thiruvananthapuram — <https://www.iist.ac.in>
3. AICTE — <https://www.aicte-india.org>
4. NPTEL (free online courses) — <https://nptel.ac.in>
5. National Career Service (NCS) — <https://www.ncs.gov.in>



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