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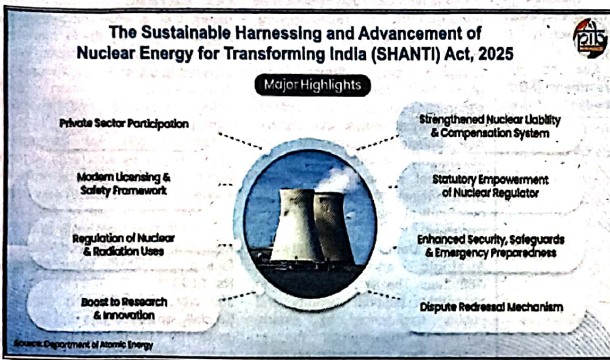
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Safer, Smarter, Faster

SHANTI Act 2025 Reinvents Nuclear Governance



Advitya Bahi

With the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act, 2025, India has formally signalled a shift towards a more modern, transparent, and growth-oriented nuclear energy framework. The Act, described by Prime Minister Shri Narendra Modi as a transformational moment for India's technology landscape, lays down the foundational principles for how nuclear energy will be developed, regulated, and

expanded in the coming years. At its heart, the legislation seeks to balance energy security, uncompromising safety, and controlled economic participation, by creating a single, unified legal regime that clarifies institutional roles, strengthens regulatory oversight, and streamlines licensing and liability provisions, and permits carefully regulated private and joint-venture participation. These core tenets are aimed at enabling long-term nuclear projects, encouraging technological innovation, and positioning nuclear power as a reliable, low-carbon

backbone for India's future energy and industrial needs.

SHANTI Act Explained

A Single, Unified Nuclear Law: The Act brings India's nuclear sector under one comprehensive legal framework by replacing the Atomic Energy Act, 1962, and the Civil Liability for Nuclear Damage Act, 2010. Instead of multiple, overlapping laws, there will now be a clearer system that defines who can operate, who regulates, and how accountability is fixed.

Regulated Private Participation: For the first time, private companies and joint ventures are allowed to build, own, operate, and decommission nuclear power plants - under strict government regulation. Private investment is capped at 49 per cent, ensuring that strategic control remains with the state.

Clear Separation of Roles: The Act clearly distinguishes between:

- Policy-making (government),
- Regulation (independent regulators), and
- Operations (licensed operators).

Strengthened Nuclear Safety and Regulation: Safety remains non-negotiable. The Act reinforces the authority

of the Atomic Energy Regulatory Board (AERB) and mandates stricter compliance with safety, security, and environmental norms across all nuclear facilities.

Rationalised Nuclear Liability Framework: The SHANTI Act streamlines liability provisions to align India with international nuclear practices, while still protecting public interest. It reduces uncertainty around supplier liability and clarifies compensation mechanisms in case of a nuclear incident.

Strategic Areas Remain with the Government: Sensitive activities such as nuclear fuel production, heavy water manufacturing, and radioactive waste management will continue to be handled exclusively by the Department of Atomic Energy.

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OCES and DGFS: Gateway to India's Top Nuclear Science Careers

Dr. Prateek Singh

When choosing a career, students should look beyond personal interest and consider fields with long-term growth and national importance. India's nuclear sector fits this well. The country plans to expand nuclear power capacity from about 8.8 GW to nearly 100 GW by 2047, creating sustained demand for skilled professionals. Nuclear technology also supports critical areas such as medicine, agriculture, industry, environmental monitoring, and advanced research.

With policy initiatives like the SHANTI Act, 2025, the nuclear ecosystem is evolving into a more diverse and innovation-driven sector, opening up new career opportunities. As a result, skills in nuclear engineering, physics, radiation sciences, safety, and operations are expected to remain relevant and well-paid for decades. The BARC Training Schools, through the OCES and DGFS programmes, offer structured and fast-tracked pathways for students aspiring to build rewarding careers in India's nuclear science and technology institutions.

After successfully completing the training or fellowship, candidates are required to serve the Department of Atomic Energy for a minimum period of three years, as per the service bond. This initial commitment provides valuable hands-on experience in India's nuclear ecosystem. Beyond this period, professionals are free to explore opportunities across the nuclear power industry, advanced engineering, energy, safety, radiation technology, and allied high-technology sectors, where their DAE training and experience are highly valued.

OCES/DGFS: Who is Eligible?

You need a full-time, on-campus degree in the eligible

engineering or science stream, with at least 60% marks or 6.0 CGPA. For engineers, that means a B.E., B.Tech., B.Sc. (Engineering), or a five-year integrated M.Tech. in the eligible branches. For science grads, an M.Sc. or Integrated M.Sc. in the relevant subject works, but make sure you've got the necessary background in physics, chemistry, and/or maths.

You can also get considered if you have a valid GATE score in the eligible subject. But some specialisations aren't eligible, like aerospace, biomedical, computer applications, nanoscience, environmental science, and a few others. And remember, only full-time, on-campus degrees count—no part-time, distance learning, correspondence, or research-only degrees. Basically, if your degree fits the criteria, you're good to go!

OCES

The Orientation Course for Engineering Graduates and Science Postgraduates, or OCES, is basically a one-year crash course at the BARC Training Schools in Mumbai and Hyderabad. It's intense, hands-on, and designed to turn you into a skilled professional ready for India's nuclear sector. Once you successfully complete OCES, you get appointed as a Scientific Officer in top DAE institutions that handle everything from nuclear research and power generation to fuel cycle management and radiation technology. Where you get posted depends on your training, skills, and the needs of the organisation.

You could end up at some of the country's leading DAE units and allied organisations like BARC in Mumbai, IGCAR in Kalpakkam, RRCAT in Indore, VECC in Kolkata, Heavy Water Board in Mumbai, Nuclear Fuel Complex in Hyderabad, BRIT in Mumbai, NPCIL in

Mumbai, BHAVINI in Kalpakkam, UCIL in Jaduguda, AMD in Hyderabad, or DCSEM in Mumbai. Most appointments are as Group 'A' Gazetted Officers, though BHAVINI, NPCIL, and UCIL follow their own corporate rules.

If you're in an engineering discipline and do well, you can also go for an M.Tech at Homi Bhabha National Institute (HBNI). Others can opt for a Post-Graduate Diploma at HBNI. And yes, if you're selected for OCES, you'll need to sign a service agreement and a Personal Indemnity Bond committing to serve DAE for at least three years after training. The bond covers the stipend and book allowance you received during training, and the good part is, no third-party surety is needed—so it's straightforward.

OCES Trainee Scientific Officers receive a monthly stipend of Rs.74,000 during the one-year training period, along with a one-time book allowance of Rs.30,000.

DGFS

The DAE Graduate Fellowship Scheme, or DGFS, is a super-selective two-year programme for engineering graduates who want a fully funded M.Tech and a guaranteed career in India's nuclear sector. To be eligible, you need to do really well in the OCES selection interviews and also secure admission in the same academic year to an approved M.Tech or M.Chemical Engineering

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