

The M.Tech in Quantum Science and Technology (QuST) is envisaged as an Inter Disciplinary program, to cater to the growing need of manpower development in the nation. The National Mission on Quantum Technology and Applications requires a trained workforce that specializes on the different aspects of frontier subjects such as

- Quantum information and algorithms
- Quantum communication
- Quantum computing
- Quantum and post quantum cryptography
- Quantum machine learning
- Quantum sensing

Qualification and experience :

- a) Bachelor's degree in Engineering/Technology/Architecture or equivalent or professional qualification like AMIE or any other Associate membership as specified in the M.Tech. Admission Brochure with first class or 60% of aggregate marks over the 4 years (55% in the case of SC/ST candidates)
- b) Degrees obtained through distance education/correspondence mode, the Departments will follow interview procedure for screening in such cases.
- c) Two years professional experience as on 30.04.2021 after qualifying degree.

- **Total Credits:**            **190**
- Core credits:                48
- Elective Credits:           57
- M.Tech Project:             85

### Core Courses

Core	Course Name	Credits
PH 5840	Quantum Computing and Quantum information	9
ID 5843	Experimental Techniques for Quantum Computation and Metrology	9
EE5120	Applied Linear Algebra I for EE	12
EE 5347	Quantum Photonics Devices & Technology	9
EE 6502	Optical Signal Processing and Quantum Communications	9

### Elective Courses

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>- CS5011: Introduction to Machine Learning</li> <li>- CS6111: Foundations of cryptography</li> <li>- CS7111: Advanced Topics in Cryptography</li> <li>- CS7260: Post-quantum Cryptography</li> <li>- EE5501: Photonics Laboratory</li> <li>- EE5110: Probability Foundations</li> <li>- EE5142: Introduction to Information and Coding theory</li> <li>- EE5160: Error control coding</li> <li>- EE5504: Fibre Optic Communication Technology</li> <li>- EE6500: Integrated Optoelectronic Devices and Circuits</li> <li>- EE6700: Advanced Photonics Laboratory</li> <li>- EE7500: Advanced topics in RF and Photonics</li> <li>- ID5841: Quantum Computing Laboratory</li> <li>- PH 5842 Advanced Topics in Quantum Information</li> </ul> | <ul style="list-style-type: none"> <li>- PH 5100 Quantum Mechanics – I</li> <li>- PH 5170 Quantum Mechanics - II</li> <li>- PH 5620 Coherent and Quantum Optics</li> <li>- PH 5680 Superconductivity and applications</li> <li>- PH 5500 Dynamical Systems</li> </ul> |
|---|---|