M. Tech on "Quantum and Solid State Devices"

Curriculum

Department of Physics

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Kandi, Sangareddy – 502 284

Telangana

India

Course template for M. Tech on "Quantum and solid state Devices"

Semester – 1		No. of Credits
Course name	**Course code**	
Quantum physics for engineers (Content change)	**PH55010/ PH5600**	2
Mathematical and Computational methods for Quantum devices	**PH55020/ PH5610**	2
Electronic materials and Quantum devices// **Quantum devices - I (Physics of low dimensional systems and quantum devices)**	**PH55030/ PH5720**	2
Quantum optical devices	**PH55040/ PH5620**	2
Solid state devices	**PH55050/ PH5630**	2
Industrial Lectures		1
Simulations Lab	**PH55011/ PH5601**	2
Total		**13**

Semester – II		No. of Credits
Course name	**Course code**	
Quantum measurement and sensing	**PH56020/ PH5650**	2
Introduction to quantum computing (New course)	**PH5710**	2
English communications (LA)		1
Electives		8
QSD Laboratory – 2 (Experiment)	**PH56011**	2
Total		**15**
Semester 3 and Semester 4		
Project (For semester 3 and 4)	**PH56015/ PH5025**	**12+12**

Electives

S. No.	Elective title	Course code	Credits
1	Advanced quantum information, communications and Computation	**PH56110**	3
2	Fabrication and characterization of Quantum Devices	**PH56120**	2
3	Spintronics	**PH54140**	3
4	Optoelectronic Devices and applications	**PH56130**	2
6	Nano photonics	**PH56140**	2
7	Guide Wave Components and Devices	**PH56150**	2
8	Data Science Analysis	**PH54110**	3
9	Optical Devices for imaging	**PH56160**	2
10	Quantum sensors, and atomic clocks	**PH56170**	2
11	Quantum transport in nanoscale systems and devices	**PH56180**	2
12	Solid state high energy (X-ray and gamma-ray) detectors	**PH56190**	2
14	MEMS and Microsystem Technology	**PH54130**	3
15	Advanced Functional materials	**PH53120**	3
16	Advanced numerical techniques for quantum many-body physics	**PH56210**	2
17	Terahertz Devices and Applications	**PH56220**	2
18	Spin logic systems	**PH56230**	2
19	Introduction to quantum communication (New course)	**PH5730**	2