

IIT DELHI CERTIFICATION IN QUANTUM COMPUTING & MACHINE LEARNING: Batch 1						
Module	Module Name	Session Title	Date	Day	Time	Faculty
		Orientation Session	9-Jul-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
1	Introduction to Quantum Computing	Session 1 Introduction to Course	16-Jul-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 2 Introduction to quantum mechanics	17-Jul-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 3 Introduction to quantum mechanics	23-Jul-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		1.5 Hour Lab	24-Jul-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
2	Postulates of Quantum Computing	Session 1 Postulate 1 and 2 of closed quantum systems	30-Jul-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 2 Postulate 3 and 4 of closed quantum systems	31-Jul-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 3 Postulate 1 and 2 of open quantum systems	6-Aug-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 4 Postulate 3 and 4 of open quantum systems	7-Aug-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 5 Quantum circuits	13-Aug-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		<b>Session Break</b>	<b>14-Aug-22</b>	<b>Sunday</b>		
3	Introduction to quantum algorithm	1.5 Hour Lab	20-Aug-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 1 Deutsch Jozsa Algorithm	21-Aug-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 2 Bernstein and Vazirani and Simon Algorithm	27-Aug-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		1.5 hours Lab	28-Aug-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
4	Quantum Fourier Transform and related Algorithm	Session 1 QFT-Part I	3-Sep-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 2 QFT-Part II	4-Sep-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		1.5 hours Lab	10-Sep-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 3 Quantum Phase Estimation	11-Sep-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 4 Shor's algorithm I	17-Sep-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 5 Shor's algorithm II	18-Sep-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 6 Grover's algorithm	24-Sep-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
5	Quantum Machine Learning	Session 1 HHL algorithm	25-Sep-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		1.5 hours Lab	1-Oct-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		<b>Gandhi Jayanti</b>	<b>2-Oct-22</b>	<b>Sunday</b>		
		Session 2 Quantum regression	8-Oct-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 3 Quantum clustering	9-Oct-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 4 Quantum principal component analysis	15-Oct-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 5 Quantum SVM	16-Oct-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
6	Quantum Deep Learning	1.5 hours Lab	22-Oct-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 1 Classical neural networks	23-Oct-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 2 Quantum neural networks I	29-Oct-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 3 Quantum neural networks II	30-Oct-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		1.5 hours Lab	5-Nov-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		<b>Session Break</b>	<b>6-Nov-22</b>	<b>Sunday</b>		
7	Quantum Variational Optimisation and Adiabatic Method	Session 1 Variational Quantum Eigensolver I	12-Nov-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 2 Variational Quantum Eigensolver II	13-Nov-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 3 Max cut graph clustering	19-Nov-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 4 Quantum approximate optimization algorithm	20-Nov-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 5 Combinatorial Optimization using QAQA I	26-Nov-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 6 Combinatorial Optimization using QAQA II	27-Nov-22	Sunday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		Session 7 Concluding the course	3-Dec-22	Saturday	10:00 AM - 11:30 AM	Prof. Abhishek Dixit
		<b>EXAMINATION</b>	<b>18-Dec-22</b>	<b>Sunday</b>		