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# Quantum Computing, Information and Quantum Technologies

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## SUMMER OF SCIENCE 2023 PoA

FROM 21<sup>st</sup> May, 2023 TO 20<sup>th</sup> July, 2023

**SRAVAN K SURESH**


ELECTRICAL (DUAL), 1<sup>st</sup> YEAR

Roll no: 22B3936

Mentored by- ANIKET ZAMBARE

Reference to be used:

- Quantum Computation and Quantum Information,  
by *Nielsen and Chuang*
- *John Preskill's* notes
- PH-534 Lecture Series



<b>Week 1</b> (21 <sup>st</sup> May – 27 <sup>th</sup> May)	<b>Chapter 1:</b> Introduction to Overview
<b>Week 2</b> (28 <sup>th</sup> May – 3 <sup>rd</sup> June)	<b>Chapter 4:</b> Quantum circuits (Sub-topics 4.1, 4.2, 4.3, 4.4)
<b>Week 3</b> (4 <sup>th</sup> June – 10 <sup>th</sup> June)	<b>Chapter 4:</b> Quantum circuits (Sub-topics 4.5, 4.6, 4.7, further reading)
<b>Week 4</b> (11 <sup>th</sup> June – 17 <sup>th</sup> June)	~ End-Semester Examinations ~
<b>20<sup>th</sup> June</b>	<b>Submission of MID-TERM REPORT</b>
<b>Week 5</b> (18 <sup>th</sup> June – 24 <sup>th</sup> June)	<b>Chapter 8:</b> Quantum noise and quantum operations
<b>Week 6</b> (25 <sup>th</sup> June – 1 <sup>st</sup> July)	<b>Chapter 9:</b> Distance measures for quantum information
<b>Week 7</b> (2 <sup>nd</sup> July – 8 <sup>th</sup> July)	<b>Chapter 11:</b> Entropy and information
<b>Week 8</b> (9 <sup>th</sup> July – 15 <sup>th</sup> July)	<b>Chapter 12:</b> Quantum information theory
<b>Week 9</b> (16 <sup>th</sup> July – 20 <sup>th</sup> July)	<b>Appendix 5:</b> Public key cryptography and the RSA cryptosystem
<b>20<sup>th</sup> July</b>	<b>Submission of FINAL REPORT and VIDEO</b>