




Discrete Mathematics
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Lecture – 72
Goodbye and Farewell

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What We Learnt in the Course ?

- ❑ Main objective: think logically and mathematically

 <p>Mathematical reasoning Reading, comprehending and constructing mathematical arguments</p>	 <p>Combinatorial analysis <u>Various counting mechanisms</u></p>	 <p>Various discrete structures such as <u>sets</u>, <u>relations</u>, <u>graphs</u></p>
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- ❑ Concepts learnt in this course useful in EVERY area of computer science
 - ❖ Algorithms, Machine Learning, Artificial Intelligence, Cryptography, etc

Hello everyone, so this is the farewell lecture with I have already concluded the course, whatever I have promised at the beginning of the course, I have covered hopefully. So, let me again quickly go through what we have learnt in this course. The main objective of the course was to think logically and mathematically and we have covered various topics in this course, starting with mathematical reasoning, where we have seen how to write various types of proofs, understand the proof and so on.


We have done lots of combinatorial analysis, we have seen various advanced counting mechanisms like counting by formulating recurrence equations and solving them. We have seen various discrete structures like sets, relations and we have also touched upon basic concepts from graph theory. We have also discussed about abstract algebra, number theory. And as I said at the beginning of this course that the concepts that we learned in this course, they are very useful in any area of computer science like algorithms, machine learning, artificial intelligence, cryptography etc.

So this is to conclude I hope you have learnt a lot in this course, I would like to apologize for any grammatical errors or mistakes which I might have done or made during the recording, it

becomes very difficult to correct each and every mistake. So, you often might find grammatical errors. So please pardon me for the same.

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Acknowledgements



(Prof. Kamala Krithivasan)



(Prof. C. Pandu Rangan)



(Prof. S. A. Choudum)

To my beloved gurus of IIT Madras, who built my foundations of Theoretical Computer Science



And I would like to dedicate this course to my beloved gurus of IIT Madras who built my foundations in theoretical computer science, namely Professor Kamala Krithivasan, Professor C. Pandu Rangan and Professor S.A. Choudum.

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Some Advertisement: I

📖 An NPTEL course by me on Foundations of Cryptography

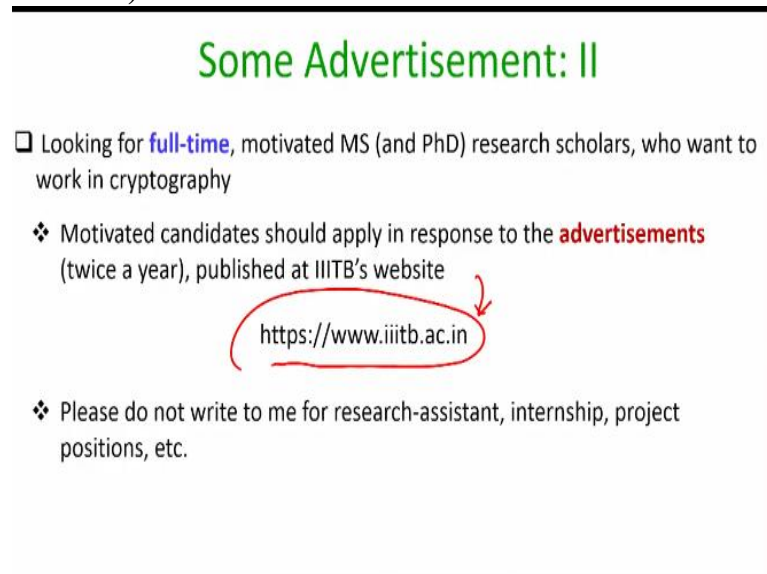
<https://nptel.ac.in/courses/106/106/106106221/>

- ❖ Introductory course covering in detail the foundations of modern cryptography
- Cryptography: **mathematical science** to keep data secure
- ❖ Formal definitions, constructions and detailed mathematical proofs for various cryptographic primitives
- ❖ Concepts of Discrete Mathematics will be useful for this course

And some advertisements from my side, so apart from the course on discrete maths, I also offer a course on foundations of cryptography. So, you can find the details here and it covers in detail all the foundations for modern cryptography. And as we have seen briefly in this course, cryptography is nothing but a mathematical science to keep your data secure and we had seen some cryptographic applications like key exchange, public key cryptography and so on.

And so in this course, we actually cover in detail, not only encryption, key exchange and so on, we cover the foundations and fundamentals of modern cryptography namely we deal with formal definitions, constructions and detailed mathematical proofs for various cryptographic primitives. And there you will find that the concepts of discrete mathematics that we have learnt in this course are very much useful.

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Some Advertisement: II

- Looking for **full-time**, motivated MS (and PhD) research scholars, who want to work in cryptography
- ❖ Motivated candidates should apply in response to the **advertisements** (twice a year), published at IITB's website
- <https://www.iitb.ac.in>
- ❖ Please do not write to me for research-assistant, internship, project positions, etc.

Second advertisement that I am always looking for motivated full time MS and PhD research scholars who want to work in cryptography. If you are interested to work with me, you can apply in response to the advertisements, which come out twice a year. Advertisements are published at this website and I am not interested in research assistant or internship or offering research assistant, internship and project positions. So do not write to me for the same and with that I conclude this course. Thank you.