## Aalok's Notes:

- 1. Computer Science at Ashoka offers students a disciplinary major, three interdisciplinary majors (with mathematics, philosophy, and entrepreneurship, with another one on economics which is underway) as well as options for minor and concentration. All the major offerings have an optional research track, as well as a 3-year exit option.
- 2. You know about the usual FCs, CCs, and open electives structure. Beyond that, the major itself has four aspects: basic math and sciences layer, CS core courses, CS elective courses, and research (with a 4-credit required capstone for the 4-year degree and a 12-credit thesis for the 4-year degree with research). The math and science layer and the CS core courses are at par with any good undergraduate degree (BSc, BTech) in computer science. There are minor differences between CS disciplinary major and interdisciplinary majors, all of which are outlined in the PDF document.
- 3. That similarity aside, three things are unique to us:
- a. How we deliver courses: Computer Science is evolving faster than we can keep up with. What remains constant are two things: the epistemology of the subject and its core foundations. This digression may help form a narrative:

  Knowledge manifests in two fundamental forms: declarative (knowing what is) and imperative (knowing how to). While many disciplines deal with facts and relationships, computer science is uniquely centered on imperative knowledge the science of processes, transformations, and systematic problem-solving. In our department, we understand computer science as more than just a collection of techniques; it represents a fundamental framework for interpreting and transforming our world. From software design to modeling intelligence, CS provides the language to ask the right questions and methods to answer them: how to compute efficiently, how to scale systems, and ultimately, how to turn possibility into reality.

That is to say, our core curriculum, while covering the basic requirements as taught at any other university, is designed to prioritise topics like correctness, the relevance of context in computer science (through fairness, security, privacy), and the relevance of CS as a mode of knowledge in our evolving world. A more concrete example of that is in the Introduction to Computer Science course itself, students learn not only how to write code but to reason about their correctness with formal proofs of correctness and type checking. This means that when they use an AI tool to generate code in the future, they have the right framework and techniques to evaluate the generated code instead of taking a leap of faith. I can give you more concrete examples if that helps your team.

- b. We offer a few of the best electives. AMS can provide you with the necessary details for each course. Here are a few that do stand out:
- (i) Core Computer Science: Advanced Machine Learning (LD), Advanced Computer Architecture (MA), Blockchain and Cryptocurrencies (MJ), Numerical Algorithms and Optimization (Suban)
- (ii) Al and ML: Artificial Intelligence (LD), Natural Language Processing (LD), Trustworthy Al (Suban, me), and Reinforcement Learning (SJ)

- (iii) CS + Society: Digitalization and Privacy (Suban) and The New Geography of the Information Age (DG)
- (iv) CS + X: Computational Neuroscience (Raghavendra), Remote Sensing (Meghna from ES), Biostatistics (Kritika from Bio), Media Analysis (Anirban)
- For many other electives, we invite experts from across India and beyond. Just this semester we had Susmita Sur-Kolay from ISI teaching Graph Algorithms and Bud Misra from NYU teaching Signalling Games. Additionally--our Philosophy department teaches courses in Philosophy and Ethics of AI, the mathematics department works on number theory and has courses on advanced cryptography (alongside cryptography offerings by our department), and the entrepreneurship department has courses in tech policy as well as AI in business. Beyond these departments (with whom we have formal interdisciplinary programs), we regularly collaborate with social scientists like Anustubh Agnihotri, Parush Arora, and Arun Sukumar and natural scientists like Meghna Agarwala, Bittu, Dipankar Bhattacharya, Rintu Kutum, and Gautum Menon on a variety of topics.
- c. Research matters to us. Professors bring in state-of-the-art research into their curriculums. This Spring, Subhashis and I taught Trustworthy AI where we analysed some papers which were published during the same time. This is a general trend when active researchers teach, and Ashoka follows the same. Additionally, our capstone and thesis requirements provide students structured research opportunities. I will soon share some of our outstanding thesis projects for this year.