Teaching Statement

(Dr. Gopal Chandra Jana)

Over the past year, my teaching has been focused on the subjects of Data Structures and Advanced Data Structures and Algorithms. These courses are foundational to a student's understanding of computer science and are crucial in developing their problem-solving abilities. My teaching philosophy is grounded in the belief that education should not just impart knowledge but should also inspire students to think critically, approach problems creatively, and develop a lifelong passion for learning.

Pedagogical Approach

My approach to teaching these subjects emphasizes both theoretical understanding and practical application. I believe that students learn best when they can see the real-world relevance of the concepts they are studying. Therefore, I integrate coding assignments, algorithmic challenges, and hands-on projects into my course content to ensure that students can apply what they have learned in practical scenarios.

Considered Active Learning Approach

Active learning is a core component of my teaching strategy. I employ various tools and techniques to engage students directly in the learning process. For instance, I use **algorithm visualizers** to **demonstrate complex algorithmic approaches** in a visual and interactive manner, helping students grasp abstract concepts more effectively. To reinforce their understanding, I conduct i**nteractive quizzes** using **Mentimeter**, which provides real-time feedback and encourages student participation.

Moreover, I incorporate **HackerRank** and **Google Colab** for programming practice, allowing students to work on coding exercises that mirror real-world challenges. This hands-on approach not only solidifies their theoretical knowledge but also enhances their practical coding skills. By actively involving students in the learning process, I ensure that they are not just passive recipients of information but are actively constructing their own understanding.

Considered Collaborative Learning Environment Approach

Collaborative approach is a key element of my teaching strategy. I encourage students to work together on problems and projects, as this mirrors the collaborative nature of the tech industry. I facilitate group discussions, peer review sessions, and collaborative coding challenges, where students can learn from each other’s perspectives and develop their teamwork skills. This collaborative approach not only deepens their understanding of the material but also prepares them for future professional environments.

Course Resource Suggestions

To support students in their learning journey, I provide a range of course resources. The primary **textbook** I recommend is carefully selected to align with the course content and provide a solid foundation in the

subject. Additionally, I suggest relevant **MOOCs** that complement the course material and offer students the opportunity to explore topics in greater depth at their own pace.

Furthermore, I make my lecture content available on my website course page. This includes lecture notes, slides, assignments, and additional resources, ensuring that students have continuous access to the material and can review it as needed.

Preparation for Placements

Understanding the importance of placements in a student's career, I place special emphasis on preparing them for coding interviews and placement tests. I conduct special discussions on placement coding question patterns and interview techniques, where I share insights and strategies to help students excel in these critical assessments. This focused preparation ensures that students are not only academically proficient but also well-prepared for the competitive job market.

Continuous Improvement and Student Feedback

Teaching is a dynamic process that requires continuous improvement. I regularly seek feedback from my students to understand what teaching methods work best for them and where there is scope for improvement. This feedback has led me to incorporate and improve teaching strategies, which have been well-received by students and have improved their engagement and performance.

Commitment to Student Success

My ultimate goal as an educator is to ensure that my students succeed, not only in their exams but also in their future careers. I am committed to providing them with the knowledge, skills, and confidence they need to excel in the field of computer science. I take pride in mentoring students, offering guidance on their projects, helping them prepare for placements, and advising them on their career paths.

Looking Forward

As I continue my teaching journey, I am excited to further refine my teaching methods and explore new ways to engage my students. I am particularly interested in expanding the use of active learning techniques and integrating more research-based teaching practices and advanced technologies to enhance the learning experience. My students' successes drive my passion for teaching, and I am dedicated to helping each of them reach their full potential.

Thanks for reading.

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Subjects Preferred to Teach:

Data Structures and Algorithms
Machine Learning
Brain-Computer Interface

Interest in Supervise: UG, PG projects, and PhD research