Mathematics & Mathematics Education Seminar

1 DECEMBER 2026 (TUESDAY)

12.30pm to 2.00 pm

LT 4 (NIE Block 7)

Transforming Instructional Practices Through Innovative, Data-Driven Approaches to Enhance Student Engagement

In the age of AI, how do we transform instructional practices to prepare students to become the next generation of innovators, problem-solvers, and critical thinkers? This interactive session explores how educational innovations and data-driven computing education can reshape teaching and learning by moving beyond traditional content delivery toward experiential, inquiry-driven, and student-centered learning. Participants will explore innovative pedagogical approaches that integrate data science, computational thinking, AI, and modeling through engaging, real-world, and project-based learning experiences. The session will highlight how educators can leverage emerging technologies, authentic problem-solving contexts, and digital tools to create more inclusive, personalized, and engaging learning environments. Using the innovative instructional models, participants will experience strategies for designing interdisciplinary learning experiences that encourage students to ask meaningful questions, investigate complex challenges, develop and test models, interpret data, and communicate evidence-based solutions. Particular emphasis will be placed on transforming the educator's role from primarily delivering content to facilitating exploration, fostering creativity, and empowering students to become active producers of knowledge and innovative solutions.



Dr. Padmanabhan Seshaiyer

Professor of Mathematical Sciences, George Mason University

Speaker's Biography

Dr. Padmanabhan Seshaiyer is a tenured Professor of Mathematical Sciences at George Mason University and serves as the Director of the STEM Accelerator Program in the College of Science as well as the Director of COMPLETE (Center for Outreach in Mathematics Professional Learning and Educational Technology) at George Mason University in Fairfax, Virginia. His research interests are in the broad areas of computational mathematics, computational data science, scientific computing, computational biomechanics, design and systems thinking, entrepreneurship and STEM education. During the last decade, Dr. Seshaiyer initiated and directed a variety of educational programs including graduate and undergraduate research, K-12 outreach, teacher professional development, and enrichment programs to foster the interest of students and teachers in STEM at all levels.

An Institute of NIE National Institute of Education Singapore | Nanyang Technological University Singapore