



The Mico University College

in collaboration with



Ministry of
Education, Youth
and Information



THE MICO INTERNATIONAL MATHEMATICS TEACHING SUMMIT



MATHEMATICS FOR SUSTAINABLE ECONOMIC GROWTH AND JOB CREATION

MARCH 25-27, 2019 • JAMAICA PEGASUS HOTEL • KINGSTON, JAMAICA

www.themico.edu.jm



**Professor
Neville Ying, CD**

ABOUT THE SUMMIT

The Mico University College (MUC) in collaboration with the Ministry of Education, Youth and Information (MOEYI) will be hosting the inaugural MICO INTERNATIONAL MATHEMATICS TEACHING SUMMIT in Kingston Jamaica March 25-27, 2019. The Summit which is also the first of its kind in the Caribbean Region will be guided by the theme "Mathematics for Economic Growth and Sustainable Development". This event will provide an exciting, inspirational, game-changing and knowledge-sharing forum for exploring, analyzing and consolidating international best practices in the Teaching of Mathematics.

WHY ARE WE HAVING THIS INTERNATIONAL MATHEMATICS TEACHING SUMMIT?

Jamaica is on a quest to achieve world class performance of teachers and students in Mathematics through improved training and the adoption of international best practices to facilitate economic growth and sustainable development.

- **The event aligns well with the country's strategic goals:**

Jamaica is seeking to position itself at a strategic level in the global marketplace as we move towards 2030, the target date for the **Achievement of the United Nation's Sustainable Development Goals (SDGs)** and our Vision 2030. The International Mathematics Teaching Summit will facilitate the development of human capital (particularly in mathematical competence) who are equipped to take advantage of economic opportunities created, enabling our country to achieve national targets for Economic Growth and Job Creation.

- **Effective Response to Rapid changes in the global market place**

Competencies and proficiency in Mathematics are needed to respond effectively to the transformational impact of rapid changes in disruptive technologies such as artificial intelligence and its current and future applications.



**Dr. Asburn
Pinnock, JP**

WHAT WILL BE THE **FOCUS** OF THE SUMMIT?

NATIONAL DEVELOPMENT

The Mico International Mathematics Teaching Summit will cover four important areas.

1. Demystifying Mathematics so that students make the mental shift from fear of Mathematics to the love of Mathematics as a useful and exciting subject in their every day life. The art and science of teaching mathematics is to make complex things simple.
2. Teaching Mathematics to enable students to display their unique creative ideas and experiences and the prior knowledge they bring to school from their varied socio-economic backgrounds.
3. Making the teaching and learning of Mathematics exciting, interesting and valuable by using Music, Entertainment, Visual Arts, Digital Media and gadgets such as smart phones, tablets, IPADS and Robots.
4. Engaging students in project based learning through the use of practical experiences and research at their level to develop critical thinking and problem-solving skills.

It will also address two important questions related to National Development.

1. How can Mathematics be utilized effectively to build productive human capacity for the creation and innovative use of Science and Technology to drive Sustainable Economic Growth, Job Creation and Employability?
2. How can National Development Policy for Education support the applied use of Scientific Thinking and the effective teaching and learning of Mathematics to capitalize on the opportunities related to disruptive technologies for Economic Growth and inclusive wealth creation?



EFFECTIVE SOLUTION STRATEGIES

The summit will focus on effective solution strategies to overcome key obstacles (including psychological block, deficiencies in teacher quality and deficiencies in teaching methodologies) that are restricting Jamaica from moving up the International Mathematics Performance Learning curve. The SUMMIT WILL consider solutions for these obstacles within the context of Systems Thinking and Implementation; Critical Thinking, Problem-Solving and Innovation; Integrating Mathematics strategically; and Excellence and mastery in the teaching and learning of Mathematics.

OBJECTIVES

AND INTENDED OUTCOMES OF SUMMIT



MICO INTERNATIONAL MATHEMATICS TEACHING SUMMIT

This Summit will seek to :

1. Highlight the importance of aligning the performance of our students in Mathematics with international benchmarks
2. Provide participants with opportunities to increase their knowledge of international best practices in the methodologies of teaching of Mathematics that:
 - Promote Critical Thinking, Problem-Solving and Innovation.
 - Convert fear of Mathematics to love of Mathematics as an exciting and useful subject.
 - Cater to the diversity of student needs and learning styles.

POST SUMMIT ACTIONS

- Consolidate operation of The Mico International Knowledge Network for Innovations in Mathematics Teaching
- Facilitation of the training of Teachers to prepare Jamaican students for their first sitting of PISA (Programme for International Student Assessment) Examinations in 2021.
- In service training of teachers in international best practices in the Teaching of Mathematics through the new Mico University College STEM Learning , Research and Innovation Centre
- Research and publications in the Teaching of Mathematics using best practices
- Another diet of the Mico Innovation in the Teaching of Mathematics Competition
- Recommendations to the Ministry of Education Youth and Information for the development of a national policy and enabling support resources aimed at achieving world class performance by teachers and students in Mathematics.

MESSAGE FROM THE MINISTRY OF EDUCATION



The Ministry of Education welcomes this Regional Conference on Mathematics Teaching and Learning which will seek solutions to inherent hindrances in the subject, and promote regional approaches to the most pressing problems such as critical thinking, complex problem – solving, agility and innovation. There are few collective approaches to this dilemma in the Caribbean and Latin America and therefore, progress on this issue is increasing at a rapid pace.

The theme of the summit, “Mathematics for Sustainable Economic Growth and Job Creation”, demonstrates that a forward-looking posture must underpin the thrust

of the mathematics educational agenda. The theme also calls for a broadening of worldviews and the abandonment of insularity, territoriality, and narrow engagements and invites us to be bold and imaginative as we explore new ways of delivering mathematics education in the Caribbean in order to advance the quality of life for our people.

“It is accepted that numeracy is a basic human right of the 21st century citizen”

For the majority of the world’s citizens, almost all aspects of living are now affected by advancements in mathematics, science and technology. The result is the emergence of many socio – scientific issues on which decisions must be made by individuals and communities for the mutual benefit of society. This new global perspective provides little room for citizens or nations to operate in isolation.

It is accepted that numeracy is a basic human right of the 21st century citizen. Mathematics has been universally

accepted as a core subject, and occupies a central place in education systems worldwide. It is through the teaching of Mathematics that an individual’s numeracy skills are developed. Mathematics plays an important role in helping an individual learn to reason logically and think critically: skills which are important to other disciplines and situations in real life.

The Ministry of Education, Youth and Information is currently transforming education from a system where the measurement of educational outcomes against input, is strategized to improve school performance and ultimately students’ numeracy achievement.

The Ministry commends The MICO University College for their dedication and commitment to the development of Mathematics instruction and learning. We also extend a warm Jamaican welcome to all the presenters from across the globe. The Ministry anticipates very positive outcomes from this summit, that will impact significantly on the performance of our educators and students in this very important discipline.

Best wishes for a successful colloquium.

MATHEMATICS FOR ECONOMIC GROWTH AND JOB CREATION



New and Emerging Technologies such as - Artificial Intelligence, Big Data, Block Chain, Splinternets and Nanotechnology - have disrupted every country in the world. They have forced all countries including Jamaica to focus on answering the question: What are the key competencies that will make our country grow and prosper in a fiercely competitive international marketplace during this 4th Industrial Revolution?

The answer to this question is an imperative in the context of building the productive human capacity to achieve key targets for Economic Growth and Job Creation. Competence and Proficiency in Mathematics are critical in building the human capacity we need to: 1. Maximize the impact of investments in Key areas targeted for Economic Growth and Job Creation and 2. To position our country to apply Science, Technology and Scientific Thinking to achieve important targets for key areas of Economic Growth and Job Creation. These include: Logistics Operations and Management, Manufacturing, Business Process Outsourcing, Agriculture, Mining and Energy and Tourism.

Additionally the future work place will demand key competencies for growth and these areas include but are not limited to: Critical Thinking, Mental Elasticity, Cognitive Flexibility, Complex Problem-Solving, Creativity, Innovation, Knowledge Creation, discipline, good work ethic, perseverance, clarity, accuracy

and precision of expression, perseverance, agility, adaptability and dealing with diversity.

Effective teaching of Mathematics should enable students to transfer skills from the subject area to cater to the various needs of people. These needs cover the spectrum from gifted individuals to those with learning challenges to persons from varied socio-economic situations.

Over 80% of the top jobs and high paying jobs in the marketplace of the Future, including the areas targeted for Economic Growth and Job creation in Jamaica, will require the key competencies mentioned above. The top ten (10) jobs that are foreseen to be top paying jobs of the future are;

- **ENGINEERS;** Software, electronics, Robotics, electrical, civil, environmental, biomedical, nanotechnology.
- **HEALTHCARE PROFESSIONALS;** Specialists doctors, surgeons, nurses and physiotherapists versed in the effective use of technologies.
- **TEACHERS;** Professionals with the capability for developing students with a mix of hard and soft skills- e.g. STEM plus Arts, Creativity, Innovation, Emotional Intelligence, Teamwork, and Leadership.
- **HOSPITALITY PROFESSIONALS;** Persons with specialized skills plus creativity, adaptability and flexibility e.g. chefs, caterers.
- **SKILLED TRADES PERSONS;** eg plumbers, home decorators, barbers, cosmetologists.

- **CREATIVE DESIGNERS AND MARKETERS**
- **OPERATIONS AND LOGISTICS MANAGERS**
- **PERSONAL FINANCIAL ADVISORS**
- **ACCOUNTANTS**
- **RESEARCH ANALYSTS**

In preparing competent persons to contribute to Jamaica achieving Economic Growth and the Creation of jobs we must ensure that we give serious and focused attention to new emerging and disruptive technologies as we move towards 2030. This date represents the target for the Achievement of the United Nations Sustainable development Goals (SDGs) which incorporate the core goals of Vision 2030 for Jamaica.

Rapid and exponential changes in technologies will have transformational impact on the FUTURE OF WORK and in particular jobs and the flexibility of the nature and location of the workplace of the future.

Moreover, new emerging and disruptive technologies will displace some of our current jobs but will also offer new and different opportunities for higher level types of jobs in the WORKPLACE OF THE FUTURE. We must therefore ensure that all our education and training institutions are focused on preparing graduates for this type of Workplace as it will be shaped significantly by these technologies.