



APEC-Tsukuba International Conference XV
Challenges to New Normal on Informatics and Statistics Education on Digital Era
Computational and Statistical Thinking for AI and Big Data

10 February 2021

Webinar by the Project InMside II

Hosted by CRICED, University of Tsukuba, Japan

Supported by the proposing economies and organizations:

The University of Tsukuba and the Ministry of Education, Culture, Sports, Science and Technology, Japan

Ministry of Education, Malaysia

Khon Kaen University and Ministry of Higher Education, Science, Research and Innovation, Thailand

I. Invitation for Participations

We are on the cusp of the 4th Industrial Revolution spurred by Artificial Intelligence (AI) and Big Data, and we now see that COVID-19 has accelerated the New Normal. Prompted by the demands of this paradigm shift, curriculum reform on Informatics and Statistics Education are underway in every APEC economy. To address these demands in relation to Informatics Education at the school level, the APEC InMside I project (HRD 01 2018) proposed a curriculum reform framework to develop computational and statistical thinking for using AI and Big Data, particularly in upper secondary education, as follows: Frameworks for the Humanities and Digital Competencies: Computational Thinking which includes Algorithms (Programming), Modeling, and Machine Learning; and Statistical Thinking which includes Neyman Pearson Statistics, Bayesian Statistics, and Data Science. (The outline of the framework is shown in VI., page 3.) The report on the project with the framework was accepted by APEC member economies through HRD-EdNet in December 2020. The objective of the webinar this time is to share this reform framework with curriculum specialists in APEC, and set the tasks for the InMside II Seminar in Malaysia with participants, which is tentatively scheduled for September 2021. This webinar is a part of the APEC project 'InMside II' (HRD 05 2019), which focuses on curriculum reform in lower secondary education on informatics and statistics education and on capacity building among the curriculum specialists in APEC regions. The participants in this webinar will discuss every economy's status and consider the significant tasks to be addressed at the next seminar in Malaysia.



II. Program of the Webinar

10 February 2021: Japan Standard Time (GMT+9)	
0900–0930 hrs	Participants login at the meeting room
1000–1020 hrs	(I) Opening Ceremony A. Welcoming remarks by Dr BENTON Caroline Fern, Vice President, The University of Tsukuba B. Welcoming remarks by MATSUBARA Taro, Director, Office of International Cooperation Planning) MEXT(Ministry of Education, Culture, Sports, Science and Technology of Japan) C. Remarks from Dr. Wang Yan, Education Network Coordinator, APEC Human Resources Development Working Group D. Remarks from InMside II Project by Prof. Masami Isoda E. Official Photo Session
1020–1030 hrs	Break
1030–1100 hrs	(II) Keynotes 1: Reform Framework to Develop Computational & Statistical Thinking by Isoda, Masami (Project Overseer: Japan), Araya, Roberto (PO of InMside I: Chile), Sofian Azmi (PO of InMside II: Malaysia) & Gonzalez, Orlando (Thailand) Humanities for Digital Era, Computational Thinking and Statistical Thinking; Q&A
1100–1130 hrs	(III) Keynotes 2: The Case of Reform on School and Higher Education By Inprasitha, Maitree. (PO: Thailand), Lew, Hee Chan (Korea) & Kano, Toshiharu (Japan) The Thailand case of Core Curriculum at University The Korean case of Teacher Education at Universities in Korea The Japanese case of School Informatics Curriculum Q&A
1130–1140 hrs	Break
1140–1225 hrs	(IV) Current Status of Every Economy and Posing Tasks for the Seminar in Malaysia By Participants Current status of every economy What shall InMside II focus on at the Seminar in Malaysia for curriculum specialists in APEC economies
1225–1230	(V) Closing Remarks

III. The Roles of Participants for the Webinar from APEC Economies

This invitation is being sent to every APEC Economy's focal persons who have responsibility in their economy for APEC-HRDWG. Participants in the Webinar, curriculum specialists recommended by APEC economies, will contribute to the Q&A at Keynote 1&2 in session (II) & (III) and explain the current status and necessary tasks in session (IV) as preparation for the Seminar in Malaysia.

To participate, please fill in the online participation form at <https://forms.gle/wLkdUMWqAK8ZyAB59> by 8 February 2021. Participants will receive the information for the Webex by 9 February 2021



IV. Distribution through YouTube

The webinar will also be distributed through YouTube by recording. Further information will be provided at the following: <http://www.criced.tsukuba.ac.jp/math/apec/2021/>

This URL will be convenient for APEC economies for accessing other stack folders on curriculum development and teachers in APEC economies.

V. Further Contacts

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VI. Explanation of APEC Project InMside I and II

InMside I (HRD 01 2018), which focused on upper secondary schools, was proposed by Japan, Chile and Thailand and InMside II (HRD 05 2019), which focused on lower secondary schools, was proposed by Japan, Malaysia and Thailand.

Amidst the background of the 4th Industrial revolution and with the aim of contributing to Digital Society on the APEC agenda and the issue of curriculum standardization for 2030 on HRD EdNet for coping with the era of AI and Big Data, the InMside-project proposed the draft of a curriculum reform framework at the steering meeting in Tokyo to the curriculum specialists in APEC regions; discussed the issues for reform, good practices and elaborated the framework with the specialists of participating economies at the APEC-seminar in Chile; and synthesized the framework at the final meeting in Khon Kaen in 2019 and submitted the final report in September 2020, which includes the following:

- General Curriculum Framework in education for human competency to lead, work and live in the digital society,
- Computational Thinking Framework comprising the programming, computational models, and machine learning (AI), which was illustrated with exemplars for curriculum reform,
- Statistical Thinking Framework comprising the Neyman-Pearson statistics, Bayesian statistics, and Data Science (Big Data), which was illustrated with exemplars for curriculum reform.



The framework itself has been developed for all school levels, from primary to high school, and is aligned with the curriculum reform perspectives. It was approved by APEC Ednet in December 2020.

Building on the InMside-project (HRD 01 2018) for upper secondary schools, the InMside II-project (HRD 05 2019) trains middle-school curriculum developers to include aspects responding to the impact of Artificial Intelligence (AI) and Big Data on the APEC economies' curricula for building an Inclusive, Sustainable and Digital society under Integration 4.0 in the face of the 4th Industrial Revolution. The Informatics and Data Science Education Reform is driven by computational and statistical thinking. The objective is to build the capacity of curriculum developers to produce recommendations for their curricula reform and teacher training, with enlargement of the network to support the APEC Education Strategy for 2030. InMside II is providing the Webinar in February 2021, the InMside II Seminar for training curriculum developers in Malaysia in September 2021, and the Synthesis Meeting in Thailand in November 2021. The outcomes will be the recommendations for curriculum on computational and statistical thinking with teacher training models, and the enlarged network of curriculum developers. The Seminar in Malaysia will be supported by an APEC grant and grants from Malaysia, Japan and Thailand. Specialists for the Seminar and the Synthesis Meeting will be recommended by every economy.

VII. Other Matters: Back-to-Back Meeting

The Webinar is the back-to-back meeting of the SEAMEO-The University of Tsukuba Symposium IX on 'Resilience for Global Citizenship: Challenges in Education under COVID-19', which is scheduled to be held on 11 February 2021.

<http://www.criced.tsukuba.ac.jp/math/seameo/2021/>