



筑波大学  
*University of Tsukuba*



# Keynotes for Challenges and Diversity in Industry 4.0

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SEAMEO - The University of Tsukuba  
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Tokyo Campus, University of Tsukuba  
Japan



# Challenges for education in industry 4.0



- Countries can no longer remain confined within their borders but must become citizens of the world.
- In this new era we will need to be critical thinkers, problem solvers, and be able to interact across the globe.
- In short, it also means asking the right questions and correlating that to better outcomes for all.
- We need inequality to be eradicated.



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# Ethics , values and Digital technologies



- Morals: purpose, empathy, attend inequality
- Values: securityd (ata privacy) and inclusive to achive its full potential
- Ethics: technology has no ethics it never questions the meaning of an action
- Humanity: we must keep the ability to take a step back and reflect, to question, to negotiate, to develop and selfcorrect them. Human values cannot be digitized.



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MEXT  
MINISTRY OF EDUCATION,  
CULTURE, SPORTS,  
SCIENCE AND TECHNOLOGY-JAPAN

# *Skills needed to thrive in the Fourth Industrial Revolution.*



- Creativity
- Negotiation and flexibility
- Emotional intelligent
- Complex problem solving
- Highly trained in the emerging technologies Vs technological literacy
- Ability to develop the technology and to know whether, when, and where to use that technology.
- They must be able to see beyond the technology at play to the implications for society for the use of that technology.
- Proactive in up-skilling and retraining people so everyone can benefit from the Fourth Industrial Revolution.



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# New cycle



- Learning
- Earning and
- returning



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# How we Will define words like



- Learning
- Curriculum
- Certification



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# Type of work



- Non-routine cognitive
  - Complex tasks (perception and manipulation)
  - Creative Jobs (creative intelligence)
  - Social competence (teacher, social worker, nurse, coach, ...)
- Non –routine manual creativity
  - Personalized design
  - Human emotion



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- The bases then, which have to be taught first, for eventually reaching the top of the hierarchy, are:
- traditional coding
- variables
- control structures
- data structures
- control Flow
- ...
- mathematical thinking
- practising mathematical modelling through



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