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g9toengineering
a virtual community of practice in knowledge creation

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the message
to transfer knowledge and practice in context
where knowledge content is a means to an end, not an end in itself.
Learning for life-long professional practice

Mastery-based Learning
(Content and Context)

Competency-based Learning
(Pace to Master Skills)

Outcome-based Learning
(Demonstration of Life-long Professional Practices)
Digital tools to support the language of reflection
**Knowledge Creation**
(High-level use of technology)
Analyze data; collaborate with peers and teachers; develop and use simulations, build products; create presentations.

**Information Consumption**
The “bucket theory of knowledge”
Practice skills and procedures; take test or turn in homework; find information in the Internet; write reports, etc.
whole mechatronics as a “system-case-project-based” platform for teaching mechatronics engineering.
g9toengineering.com was developed by the author in 2007 and maintained by students from an undergraduate mechatronics class to enable knowledge creation and sharing.
the uOttawa virtual community of practice

- student competition teams and clubs
- the mechatronics class
- other engineering classes

- Outsiders
- Peripheral members
- Active members
- Core team
Greenengineers.ca is a complementary virtual community of practice hub developed by the author in 2010 to strengthen the main OER especially by student competition teams and clubs.
Math as a tool is an interactive OER developed by the author in 2004 to make a connection between electric circuits and math.
Toward state of flow experience

- **Teacher Centered**
  - Early Stage
  - Goal
  - Teacher
  - Student
  - Content Mastery
  - Delivery
  - Consumption

- **Collaboration**
  - Middle Stage
  - Knowledge Creation
  - Facilitator
  - Tool Acquisition

- **Student Centered**
  - Advanced Stage
  - Learning Mastery
  - Enabler
  - Real Life Applications
A state of flow experience with uOttawa SAE Aerospace March 9, 2018 Florida Air Museum
Questions

a learning journey from routine and unfeeling to

enlightenment

empowerment

emancipation

entrepreneurial mindset.