Electrical, Computer and Software Engineering

Emil M. Petriu
Dr.Eng., P.Eng., FIEEE, FCAE, FEIC
Professor
School of Information Technology - SITE
University of Ottawa

Time	Science	Production of Goods and Services	Engineering

- Antiquity
- *XVIII* Century
- *XIX* Century
- XX Century

- Mathematics,
- Philosophy
- Chemistry,
- Physics
- Biology,

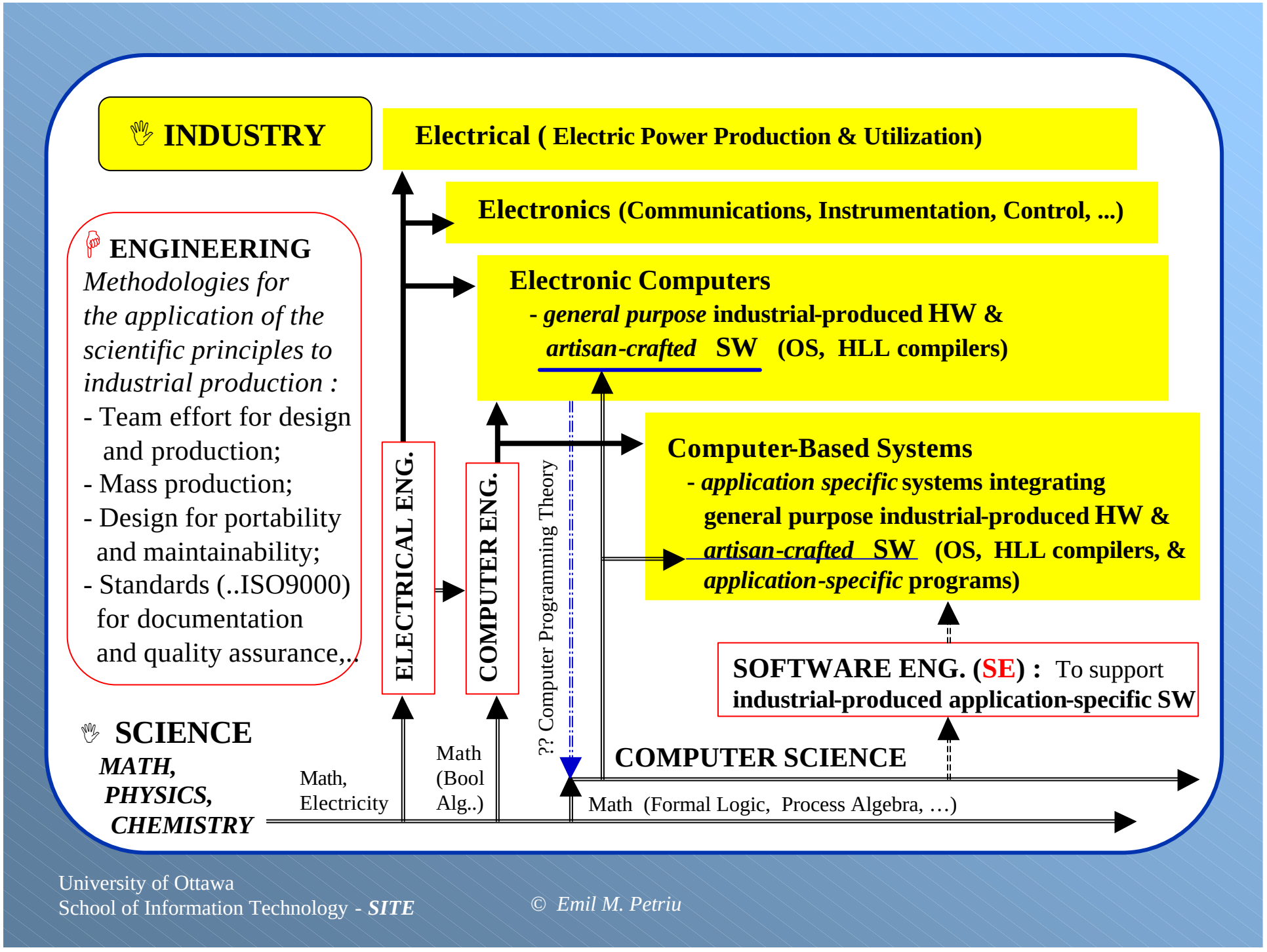
- ***Craftsmanship:***
  - * *Artisans*
  - * *Guilds*

Industrial Revolution: mechanization of industry; late 1800s - early 1900s

- **Industry**:
  - Engineers/ Product Develop.
  - Capitalists
  - Workers

- Military Eng..
- Civil Eng..
- Mechanical Eng..
- Chemical Eng..
- **Electrical Eng..**

ELG, CEG, SEG



Joint IEEE Computer Society and ACM Steering Committee for the Establishment of Software Engineering as a Profession

http://www.computer.org/tab/seprof/

★ Education Task Force

B.H. Barnes, IEEE/CS
G.L. Engel, IEEE/Cs Co-Chair
M.L. Griss, ACM
R. LeBlanc, ACM Co-Chair
T. Wasserman, ACM
L. Werth, IEEE/CS

Draft 2/8/98: Accreditation Criteria for Software Engineering:

- Faculty Requirements
- Curriculum
- Laboratory and Computing
- Students
- Institutional Support

★ **Software Engineering** encompasses (i) theory, (ii) technology, (iii) practice and application of software in computer-based systems;

SOFTWARE ENGINEERING CURRICULUM

- (3/16) Software Engineering
- (3/16) Computer Science & Engineering
- (3/16) Appropriate Supporting Areas
- (3/16) Topics
- (1/4) Institutional Requirements and Electives

Software Engineering Topics:

- Software Architecture
- System Performance
- Testing and Quality Assurance
- Requirements Engineering
- Management of Software Processes
- Selection and Use of Software Tools and Components
- Computer and Human Interaction
- Documentation

IEEE/ACM ...Draft 2/8/98 Accreditation Criteria for Software Engineering:

Computer Science & Engineering Topics :

- Algorithms
- Computer Architecture
- Databases
- Programming Languages
- Operating Systems

Appropriate Supporting Areas :

- Communications (oral, written, listening) including the abilities to work in teams
- Mathematics (Discrete Mathematics, Probability and Statistics,..)

IEEE/ACM ...Draft 2/8/98 Accreditation Criteria for Software Engineering:

Advanced Topics:

- Provide depth in one or more areas of SE
- Should include work in one or more significant application domains

- The program must include components of software development involving all aspects of the software life cycle.

- The program must include a **meaningful major project** which integrates most of the other aspects of the curriculum**.**