Why Engineering/Computing History?
History as Reflective Practice
### Pre-Lecture Engagement

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Study the past if you would define the future.

Confucius

Thinking Historically

- History, like all subjects, represents a systematic way of thinking. A key insight necessary for deep learning of history is that it should be understood as an organized, integrated way of thinking.

- History lets us see how decisions made in the past affected societies and civilizations.

- Thinking historically introduces students and engineers to the wonders of the past and fosters the ability to make judgments about the present.

- **Using backward design, it offers an innovative approach for the transfer of learning and the application of knowledge through deep investigations and problem-solving activities.**

Approach History as
"Historical Thinking"
(www.historicalthinking.ca)
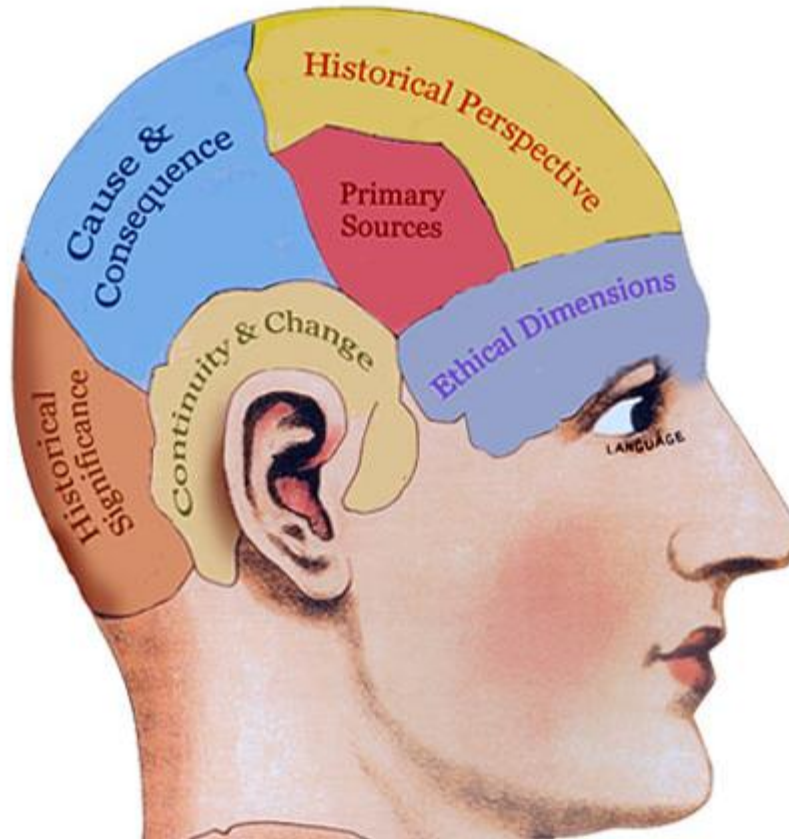
Historical Significance

- The past is everything that ever happened to anyone anywhere. There is too much history to remember all of it. So how do we make choices about what is worth remembering? Significant events include those that resulted in great change over long periods of time for large numbers of people.

- **Reflection: How do we decide what's important to learn about the past? Explain what made certain technology case significant.**

Primary Source Evidence

- The litter of history like letters, documents, records, diaries, drawings, newspaper accounts, machines and systems, and other bits and pieces left behind by those who have passed on are treasures to the historian and the following generations. These are primary sources that can give up the secrets of life in the past.

- **Reflection: How do we know what we know about the past? Compare points of view and usefulness of several primary sources about a technology case.**

Continuity and Change

- Students sometimes misunderstand history as a list of events. Once they start to understand history as a complex mix of continuity and change, they reach a fundamentally different sense of the past.

- **Reflection: How do we realize the complexity of the past? Compare two technologies from different time periods and explain what changed and what remained similar over time.**

Cause and Consequences

- In examining both tragedies and accomplishments in the past, we are usually interested in the questions of how and why. These questions start the search for causes: what were the actions, beliefs, and circumstances that led to these consequences?

- **Reflection: How do we explain the impacts of decisions and actions taken in the past? Analyze a historical event, and identify its causes and consequences.**

Historical Perspectives

- "The past is a foreign country" and thus difficult to understand. What could it have been like to travel as a young "fille du roi" to New France in the 17th century? Can we imagine it, from our vantage point in the consumer society of the 21st century? What are the limits to our imagination?

- **Reflection: How can we better understand people in the past? Compare primary sources written from two opposing or differing perspectives about a given technology related event.**

Ethical Dimension

- Are we obligated to remember the fallen victims of Wars and their destructive technologies? In other words, what responsibilities do historical crimes and sacrifices impose upon us today as people first and as engineers second?

- **Reflection: What can we learn from the past to help us better realize the present? Examine a historical issue involving conflict.**

Historical Reflection Virtual Projects
in Engineering and Computing

- **Posters and/or Videos** reflecting and illustrating the "Historical Thinking" engineering concepts.

- **Blog/Archive Lessons** reflecting back from historical perspective of research about engineering past events using a number of different sources.