Human Factors Briefs: Human Factors Briefs are based on the course learning outcomes and module objectives. The assignments will have you develop a brief that highlights human factors issues or principles related to the module topics. These typically are posed as problems or situations in an applied setting and will have you address human factors considerations focusing on the cognitive elements specified. You may find examples and similar situations in the literature; however, you will need to become proficient in using key words that encompass human factors principles and issues as you conduct your searches for material. Critical thought and reasonable problem-solving skills will be essential. For this course, the written products must: • Be at least 800 words (be sure to include a cover page, abstract and conclusion), and references, with Times New Roman font using 12-point size, all per APA format and style 6th edition. • Consist of a title that reflects your topic, an introductory paragraph (Note: An introduction heading is not used in APA format), sections that address the assignment requirements, and a summary paragraph. • Incorporate scholarly sources to support your analyses and recommendations, beyond those included in course readings. • Include citations and references (properly formatted using APA style guidelines). • Not use quotations from sources.

Required Reading and Media Textbook: Goldstein, E. B. (2019). Cognitive psychology: Connecting mind, research, and everyday experience (5th ed.). Boston: Cengage. • Chapter 7: LTM: Encoding, Retrieval, and Consolidation • Chapter 9: Conceptual Knowledge Supplemental Reading: The mystery of cognitive structure and how we can detect it: tracking the development of cognitive structures over time. (ATTACHED) After watching this, your brain will not be the same ∣ Lara Boyd ∣ TEDxVancouver (14:24/YouTube). (ATTACHED IN MESSAGE BOARD) Guastello, S. J. (2014). Human factors engineering and ergonomics: A systems approach (2nd ed.). Boca Raton, FL: CRC Press. • Chapter 12: Programming, Artificial Intelligence and Artificial Life, Validation Issues (pp. 333-339). (ATTACHED)

This chapter explores the void between the control and the display in the human– computer  interface. The concepts of computer programming, artificial intelligence, and artificial life emerged in close succession, thanks largely to the work of John von Neumann. As we saw in Chapter 11, the first computer required a human to set a myriad of knobs and dials to correspond to a desired computational operation. The basic concept of computer programming allowed the user to specify and implement most of the control operations in a fast and flexible fashion (Heppenheimer, 1990). In doing so, however, there became a disjoint between the control operations required to set the functions of the machine, and the control operations required to operate the machine. For instance, what I imagine that I am doing now—typing text for this book through a keyboard interface—is substantially different from what a computer programmer did at another place in time. The programmer specified the rules by which my keystrokes converted into text that I see on the screen or on paper if I were to use the control actions for producing a print.

The dissociation between the programmers’ tasks and the users’ tasks evolved gradually as programming techniques became more sophisticated. The most elementary form of program was the binary code. Binary code consisted of strings of digits 0 and 1 that specified whether an electron pulse was allowed to pass through a particular location at a particular time. Programming of this nature was obviously tedious and conceptually divorced from the goal of the computational activity