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| **ELEMENT** | **CONTENT** |
| DEPARTMENT | ECET |
| AUTHOR (S) | John Murphy |
| COURSE NUMBER | **CIS 3170** |
| COURSE TITLE | **The History of Computation** |
| SHORT TITLE | History Computation |
| COURSE LEVEL | 3000 |
| DATE CREATED |  |
| CHECKED/CHANGED | 2/1/2017 |
| PREREQUISITES |  |
| COREQUISITES |  |
| RESTRICTIONS |  |
| SPECIAL FEES | No |
| CREDITS | 3 |
| HOURS | 3 hours of lecture per week |
| SEMESTER | Fall |
| COURSE DESCRIPTION | In this course, the history of computers and early calculators is examined. The student learns the principles of early computational devices and investigates how the concepts inherent in these devices are implemented in modern computers. Particular attention is focused on Boolean logic, Frege formula language, flow charts, state machines, and Turing machines. The implications of Shannon’s law and Moore’s law are presented. |
| SUGGESTED TEXTS | *The Universal Computer: The Road from Leibniz to Turing*; Martin Davis |
| OPTIONAL TEXTS |  |
| COURSE OUTCOMES | The successful student will be able to:   1. Understand the principles of early computational devices 2. Express arguments using Boolean logic 3. Use Frege formula language (Begriffsschrift) 4. Understand the significance of finite and infinite number representation 5. Create and utilize state machines and flow chart diagrams 6. Comprehend the basics of Turing universal computing machines 7. Understand the limits of Shannon’s Law and the implications of Moore’s Law |
| COURSE CONTENT | 1. Ancient computers from Babylon to Greece 2. Early mechanical computers: adding machines 3. Improvements to mechanical devices: multiplication and division 4. Leibniz vision of a universal computing device 5. Boolean logic introduction 6. Boolean logic 7. Frege formula language introduction 8. Frege formula language 9. Representation of infinite number series 10. Contributions by Hilbert 11. Godel explores advanced logic principles 12. Introduction to flow charts, state machines, and Turing machines 13. State machines and Turing machines 14. The future of computing: Shannon’s law and Moore’s law |
| LAB/STUDIO OUTCOMES |  |
| LAB/STUDIO CONTENT |  |
| LECTURE CAPACITY | 21 |
| LAB CAPACITY |  |
| GRADED OR P/NP | Graded |
| EVALUATION | Exams, quizzes, homework |
| DELIVERY METHOD | ONL |
| ROOM REQUIREMENTS |  |
| AUTHOR’S NOTES | General Education: SS |