

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: CET 1114

COURSE TITLE: Digital Fundamentals

PREREQUISITE(S): EET 1035 or EET 1084 and MAC 1105

COREQUISITE(S): None

CREDIT HOURS: 3

CONTACT HOURS/WEEK: 4

CONTACT HOUR BREAKDOWN:

 Lecture/Discussion: 3

 Laboratory: 1

 Other _____:

FACULTY WORKLOAD POINTS: 3.7

STANDARDIZED CLASS SIZE ALLOCATION: 20

CATALOG COURSE DESCRIPTION:

This is an introductory course covering basic digital concepts, devices and circuits found in modern digital and computerized equipment.

SUGGESTED TEXT(S): Digital Electronics, Kleitz, William. 6th ed., Publisher: Prentice Hall, Englewood Cliffs, NJ, 1993 ISBN 0-13-089629-2

IMPLEMENTATION DATE: Fall Term, 1990 (911)

REVIEW OR MODIFICATION DATE: Fall Term, 1996 (971)
Fall Term, 2002 (20031)
Fall Term, 2006 (20071)

COURSE TOPICS	<u>CONTACT HOURS PER TOPIC</u>
I. Introduction	5
A. Digital Concepts	
B. Number Systems	
C. Codes	
D. Data Transmission	
E. Parity and Error Detection	
F. Truth Tables	
II. Logic Gates and Boolean Algebra	5
A. AND, OR, and NOT operations	
B. Logic Circuits and Boolean Expressions	
C. NAND and NOR Gates	
D. Boolean and DeMorgan's Theorems	
E. Exclusive - OR and Exclusive - NOR Circuits	
III. Flip - Flops	5
A. Basic SC Flip-Flops	
B. Clocked Flip-Flops	
C. Timing Diagrams	
D. Timing Considerations	
E. Master/Slave Flip-Flops	
F. Flip-Flop Applications	
IV. Arithmetic Circuits	5
A. Binary Adder	
B. Full Adder	
C. Parallel Adder	
D. Subtraction with an Adder	
E. BCD Adder	
F. Binary Multipliers	
V. Counters and Registers	5
A. Asynchronous Counters	
B. Synchronous Counters	
C. Up/Down Counters	
D. Presettable Counters	
E. Cascaded Counters	
F. Shift-Register Counters	
G. Counter Applications	

COURSE TOPICS (continued)	<u>CONTACT HOURS PER TOPIC</u>
VI. Integrated Circuit Devices	4
A. TTL Devices and Characteristics	
B. TTL Open-Collector Outputs	
C. Tristate TTL	
D. ECL Devices	
E. MOS Devices	
F. CMOS Devices	
VII. Interfacing	4
A. Interfacing Concepts	
B. Decoders	
C. Encoders	
D. Displays	
E. Multiplexers	
F. Demultiplexers	
G. Data Busing	
H. Digital to Analog Conversion	
I. Analog to Digital Conversion	
J. Sample and Hold Circuits	
VIII. Memory Devices	4
A. Memory Concepts and Terminology	
B. Read Only Memories	
C. Random Access Memories	
D. Dynamic RAM	
E. Magnetic Bubble Memories	
F. Charge - Coupled - Device Memory	
G. Magnetic Core Memory	
H. Magnetic Tapes and Disks	
IX. Tests and Reviews	8
X. Laboratory Exercises	30

PROGRAM TITLE: Computer Engineering Technology

COURSE TITLE: Digital Fundamentals

CIP NUMBER: 0615.040200

LIST PERFORMANCE STANDARD ADDRESSED:

NUMBER(S): TITLES(S):

13.0 DEMONSTRATE APPROPRIATE MATH SKILLS -- The student will be able to:

13.01 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.

13.02 Perform algebraic formulations.

17.0 DEMONSTRATE PROFICIENCY IN STRUCTURED CABLING -- The student will be able to:

17.08 Analyze and design a structure wiring cabling system.

17.11 Develop a structure wiring proposal.