

## THEORY OF DIGITAL MEDIA PROTOCOLS

<b>COURSE NUMBER:</b> DIG3873	<b>SEMESTER/YEAR:</b> FALL 2015
<b>INSTRUCTOR:</b> ANGELOS BARMPOUTIS	<b>CREDIT HOURS:</b> 3.0
<b>CLASS MEETING:</b> T 4th & Th 4th-5th periods	<b>CLASS LOCATION:</b> ORG, NRG Building, Room 120
<b>OFFICE HOURS:</b> M 3rd & W 3rd periods	<b>OFFICE LOCATION:</b> CSE building, room E428
<b>COURSE TA OR COORDINATOR:</b> TBD	<b>COURSE WEBSITE:</b> <a href="http://lss.at.ufl.edu">http://lss.at.ufl.edu</a>

**COURSE COMMUNICATIONS:** Students can communicate directly with the instructor regarding the course material. Students are also encouraged to post general questions to the discussion board through the course management system.

**REQUIRED TEXT:** "Introduction to Computing: Explorations in Language, Logic, and Machines" by David Evans. CreateSpace Independent Publishing Platform (August 15, 2011), Paperback, ISBN: 146368747824.(Open Access, CC, Download from: <http://www.computingbook.org/FullText.pdf>).

**COURSE DESCRIPTION:** This course will cover the theory behind the design of digital media systems, data-flow logic, binary data structures, and pseudo-code description of computational algorithms. The students will be exposed to fundamental principles of computer coding and scripting and protocols of communication between digital systems.

**PREREQUISITE KNOWLEDGE AND SKILLS:** This course should be taken by students of level 3 or have consent of the instructor.

**PURPOSE OF COURSE:** The purpose of this course is to introduce the students the theory and architectural design principles of digital systems, how the data are represented in digital form, and how a set of high-level human instructions can be coded into a simple well-defined set of computer instructions. The students will be exposed into the theory and principles of binary logic, pseudo-coding, data structures, and algorithms.

**COURSE GOALS AND/OR OBJECTIVES:** By the end of this course, students will be able to:

1. Be able to understand to the theory of binary logic, the internal binary structure of digital systems and their protocols of operation.
2. Be able to understand the forms of digital representation of data and the differences between various file formats.
3. Be able to understand the theory of pseudo-coding and be able to transcribe a high-level set of human instructions into the form of a well-defined pseudo-code for an abstract digital system.

**INSTRUCTIONAL METHODS:** This course incorporates lecture, and discussion, group learning projects and student-created presentations.

**COURSE SCHEDULE:**

**FINAL EXAM:** *December 8, 10:40AM-11:35PM in our classroom.*

Topic	Title	Book
1	History of computing	1.1, 6.1
2	Introduction to binary logic	1.2, 1.3, 6.2
3	Representation of data in digital form	
4	Computer architecture	
5	Finite state machines - Turing machines	6.3
6	Protocols of Pseudo coding, variables and conditions	3
7	Fundamental programming principles, loops, arrays	3
8	Functions	4
9	Data structures	5
10	Algorithms	8
11	Object-oriented programming	10
12	Protocols of Computer communications	
13	Programming languages	

Some of the topics will be covered across several weeks.

**GRADING SCALE:**

Letter Grade	% Equivalency	GPA Equivalency
A	94 – 100%	4.0
A-	90 – 93%	3.67
B+	87 – 89%	3.33
B	84 – 86%	3.00
B-	80 – 83%	2.67
C+	77 – 79%	2.33
C	74 – 76%	2.00
C-	70 – 73%	1.67
D+	67 – 69%	1.33
D	64 – 66%	1.00
D-	60 – 63%	.67
E, I, NG, S- U, WF		0.00

**GRADING POLICY:**

Assignment	percentage
<b>Weekly Homework projects:</b> Every week starting from week 3 up to week 14 the students will receive homework assignments related to the material covered in each week of classes. The students will have 1 week to work on each homework assignment. The assignments will be submitted through Canvas.	45%
<b>In-Class projects:</b> During class the students will have to work on small-scale assignments (no more than 5-10 minute long). The goal of the in-class projects is to facilitate learning and give the students the opportunity to practice on the class material and receive immediate feedback by the instructor. One or more of the students will be asked to briefly present his/her solution to this project, followed by a discussion in class. One example in-class assignment is: Write a pseudo-code for the given problem using no more than 5 pseudo-code commands/lines. The on-line students will have the same class assignments as home assignments.	20%
<b>Pop-Quizzes:</b> There will be at least 5 unannounced pop-quizzes during the semester. The pop-quizzes will test the students on the material covered during the 2 classes prior to the pop-quiz. The on-line students will complete the quizzes in Canvas.	5%
<b>Final Exam:</b> The final written exam will test the students on the entire material covered in this class. The exam will be taken at the exam period officially scheduled by the University of Florida registrar's office.	30%

#### COURSE POLICIES:

##### ATTENDANCE POLICY:

We value **participation** more than mere **attendance**. Each instructor is responsible for communicating the specific details of what percentage of your grade (if any) will be assigned to participation, and how will class participation be measured and graded.

##### MAKE-UP POLICY:

- At the sole discretion of the instructor, Exams may or may not be taken late. Documented Emergencies or medical situations may be the only accepted reasons for an excused absence on the day of an exam.
- Any assignment turned in past the due date may lose up to 10% of the total point value of the assignment for each class day it is late.

##### ASSIGNMENT POLICY:

- At the sole discretion of the instructor, late work may be penalized according to the late policy.
- Any assignment turned in past the due date may lose up to 10% of the total point value of the assignment for each class day it is late.

**COURSE TECHNOLOGY:** The students are required to bring their own laptop during classes for in-class assignments. The laptop can run any operating system that executes Java applications (Microsoft Windows, Apple's OSX, various versions of Linux).

#### UF POLICIES:

**UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES:** Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

**UNIVERSITY POLICY ON ACADEMIC MISCONDUCT:** Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at <http://www.dso.ufl.edu/students.php>.

**NETIQUETTE: COMMUNICATION COURTESY:** All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats, more information can be found at:

<http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf>

**ONLINE COURSE EVALUATIONS:** Students are expected to provide feedback on the quality of instruction in this course based on ten criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <http://evaluaations.ufl.edu>.

#### GETTING HELP

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at: [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu), (352) 392-HELP - select option 2, <https://lss.at.ufl.edu/help.shtml>.

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help> for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Disclaimer: This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.