CDA 5636: Embedded Systems

Class Periods: Monday, Wednesday and Friday, 10:40 am – 11:30 am
Location: NEB 201
Academic Term: Spring 2019

Instructor:
Name: Prabhat Mishra
Email Address: prabhat@ufl.edu
Office Phone Number: 352 505 1880
Office Hours: Wednesday, 12:50 pm – 2:45 pm in CSE 568

Teaching Assistants: *None*

Course Description
Design and verification of embedded systems including system level modeling/specification, design space exploration, hardware-software partitioning, architecture synthesis, compilation for area/power/performance code compression, real-time operating systems/databases, and functional validation of embedded systems.
3 credits.

Course Pre-Requisites / Co-Requisites
CDA 3101, COP 3530, and any one programming course (CGS 2414, CGS 3460, or CGS 3464)

Course Objectives
Embedded systems run the computing devices hidden inside a vast array of everyday products and appliances such as cell phones, toys, handheld PDAs, cameras, and microwave ovens. Cars are full of them, as are airplanes, satellites, and advanced military and medical equipments. As applications grow increasingly complex, so do the complexities of the embedded computing devices. The goal of this course is to develop a comprehensive understanding of the technologies behind the embedded systems design. The students develop an appreciation of the existing capabilities and limitations of various steps in overall design methodology including system level specification, design space exploration, hardware-software partitioning, application-specific optimizations, and functional validation of embedded systems.

Materials and Supply Fees: *None*

Required Textbooks and Software: *None*

Recommended Materials
- Embedded System Design
- Peter Marwedel, Springer
- 2017
- ISBN: 978-3319560434

Course Schedule
- Modeling and Specification
- Embedded Systems Architecture
- Real-Time Scheduling and Operating Systems
- Lossless Compression
- Hardware-Software Co-Design
- Compilation of Embedded Applications
- Control Systems
- Design Space Exploration
- Dynamic Reconfiguration in Real-Time Systems
- Validation and Verification
- Embedded Systems Security

Attendance Policy, Class Expectations, and Make-Up Policy

Students are expected to attend the lectures and actively participate in class discussions. Excused absences must be consistent with university policies in the Graduate Catalog (http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance) and require appropriate documentation. Additional information can be found here: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Homeworks (3)	20 each	15%
Projects (2)	10 each	20%
Attendance and Quizzes	50	5%
Midterm Exam	100	25%
Final Exam	120	35%
		100%

Grading Policy

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
86.0 - 89.9	A-	3.67
82.0 - 85.9	B+	3.33
78.0 – 81.9	B	3.00
74.0 - 77.9	B-	2.67
70.0 - 73.9	C+	2.33
66.0 – 69.9	C	2.00
62.0 - 65.9	C-	1.67
58.0 - 61.9	D+	1.33
54.0 - 57.9	D	1.00
50.0 - 53.9	D-	0.67
0 - 49.9	E	0.00

More information on UF grading policy may be found at:
http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/evals. 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 https://evaluations.ufl.edu/results/.

University Honesty Policy
UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use
All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy
There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

Campus Resources:
Health and Wellness

U Matter, We Care:
If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. https://www.crc.ufl.edu/.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall*,* 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints*:* http://www.distance.ufl.edu/student-complaint-process.