



## Microprocessor Based Design

### ENPM609 Fall 2022

#### Course Objective

Discuss techniques for designing microprocessor-based systems.

#### Course Details

##### Manoj Franklin

[manoj@umd.edu](mailto:manoj@umd.edu)

301-405-6712

##### Class Meets

Wednesday

4:00-6:40pm

JMP 2217

##### Office Hours

After class

##### Prerequisites

- An undergraduate course in computer organization and assembly language programming
- An undergraduate course in high-level language programming or programming experience.

#### Required Resources

**Course website:** <https://umd.instructure.com/courses/1329018>

##### Readings:

The main textbook for the course is:

Frank Vahid & Tony Givargis, Embedded System Design: A Unified Hardware/Software Introduction, John Wiley & Sons, Inc., 2002.

The following textbook will be used as a reference:

Wolf, Computers as Components, 4/e, Morgan Kaufmann Publishers, 2017.

#### Campus Policies

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses. Please visit <https://academiccatalog.umd.edu/graduate/policies/academic-record/> for the Office of Graduate Studies' list of campus-wide policies.

## Activities, Learning Assessments, and Expectations

### Exams

- a) There will be a midterm exam (on Tue, 23 Mar) covering Lectures 1-5, and a (non-cumulative) endterm exam (on Tue, 11 May).
- b) No make up exam will be given without a documented evidence.

### Project

Each student picks a project of his/her choice that is related to the topics discussed in class. The project can be hardware-based, software-based, or both, and needs to be approved by the instructor. There will be a project demo on 4 May.

## Accessibility and Reasonable Accommodations

The University of Maryland is committed to creating and maintaining a welcoming and inclusive educational, working, and living environment for people of all abilities. The University of Maryland is also committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of the University, or be subjected to discrimination. The University of Maryland provides reasonable accommodations to qualified individuals. Reasonable accommodations shall be made in a timely manner and on an individualized and flexible basis.

Discrimination against individuals on the grounds of disability is prohibited. The University also strictly prohibits retaliation against persons arising in connection with the assertion of rights under this Policy.

Accessibility & Disability Service (ADS) facilitates reasonable accommodations to qualified individuals. For assistance in obtaining an accommodation, contact Accessibility and Disability Service at [301.314.7682](tel:301.314.7682), or [adsfrontdesk@umd.edu](mailto:adsfrontdesk@umd.edu). More information is available from the [Counseling Center](#).

## Get Some Help!

You are expected to take personal responsibility for your own learning. This includes acknowledging when your performance does not match your goals and doing something about it. Everyone can benefit from some expert guidance on time management, note taking, and exam preparation, so I encourage you to consider visiting <http://ter.ps/learn> (there are specific resources for graduate students under handouts, but please explore to find what you need). Sharpen your communication skills (and improve your grade) by visiting <https://gradschool.umd.edu/graduate-school-writing-center> and schedule an appointment with the campus Graduate Writing Center. Finally, if you just need someone to talk to, visit <http://www.counseling.umd.edu>.



Everything is free because you have already paid for it, and **everyone needs help**... all you have to do is ask for it.

## Names/Pronouns and Self Identifications

The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering equitable classroom environments. I invite you, if you wish, to tell us how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). The pronouns someone indicates are not necessarily indicative of their gender identity. Visit [trans.umd.edu](http://trans.umd.edu) to learn more.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. I will do my best to address and refer to all students accordingly, and I ask you to do the same for all of your fellow Terps.

## Grades

### Weightage

Item	Weightage
Midterm Exam (TBA)	35%
Final Exam (TBA)	35%
Project (Demo on TBA)	30%
<b>Total</b>	100%

## Course Schedule

### Tentative Discussion Schedule

	Date	Chapter / Topic	
1.	31 Aug	Introduction	
2.	07 Sep	General-Purpose Processors	
3.	09 Feb	Memory	9/11/2019
4.	16 Feb	Single-Purpose Processors	9/18/2019

5.	23 Feb	Interfacing	9/25/2019
6.	02 Mar	Digital Camera Example	10/2/2019
7.	09 Mar	State Machine & Concurrent Process Model	10/9/2019
	23 Mar	Midterm Exam	
8.	30 Mar	Processes & Operating Systems	10/23/2019
9.	06 Apr	Control Systems	10/30/2019
10.	13 Apr	Microprocessor System Networks	11/6/2019
11.	20 Apr	Reliability and Fault Tolerance	11/13/2019
12.	27 Apr	Security	11/20/2019
.	04 May	Project Demos	
	11 May	Endterm Exam	