**ESE 345: Computer Architecture**

**Fall 2016**

**Description**: This course focuses on the fundamental techniques of designing and evaluating modern computer architectures and tradeoffs present at the hardware/software boundary. The emphasis is on instruction set design, processor design, memory and input/output. Students will undertake a design project using a hardware description language and modern CAD tools.

**Prerequisites**: ESE 382 3 credits

**Instructor**: Prof. Mikhail Dorojevets  
Office: 243 Light Engineering, 632-8611  
Office Hours: Monday, Wednesday 9:50 –11:50 AM  
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**Course’s website**: [http://www.ece.stonybrook.edu/~midor/ESE345/index.html](http://www.ece.stonybrook.edu/~midor/ESE345/index.html)

**Teaching Assistant**: TBA  
Email: TBA  
TA office: 208 Light Eng.  
TA hours: TBA

**Lecture**: MW 7:00-8:20 PM, 152 Light Engineering


**Project Deadline**: Last week of classes

**Course Grading**:  
Homeworks: 15%  
Exams: (two in-class midterms): 65%  
Project: 20%

**Course Learning Outcomes**:  
Upon completion of this course, students will learn: 1) computer performance and instruction set design principles, 2) MIPS architecture and basics of assembly language programming, 3) integer and floating-point arithmetic, 4) processor, caches, and memory design, and 5) use of VHDL/Verilog languages in the processor datapath design and verification.