MEC 450/550: MECHATRONICS
FALL 2007

COURSE SYLLABUS

INSTRUCTOR: Professor G. Nejat, 151 LE, Goldje.Nejat@stonybrook.edu

OFFICE HOURS: TBA

TEXTBOOK:

GRADING: Assignments/Projects 50%, Labs 20%, Final Exam 30%

LECTURES:
- 12:50 pm-2:10 pm Monday and Fridays
- LABORATORY AND RECITATION:
- 2:20-5:10 pm Wednesday

E&SSCI 079
HEAVY ENG 139 (LAB)

COURSE OUTLINE
- Introduction to Mechatronics
  - Definitions and examples
- Data Acquisition and Digital Signal Processing
  - Signal Conditioning
  - Instrumentation Amplifier
  - Filtering
  - Sampling Theorem
  - Sample and Hold Amplifiers
  - Analogue to Digital Conversion
  - Digital to Analogue Conversion
- Sensors
  - Displacement, position and velocity
  - Force and Pressure
  - Piezoelectric sensors

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• Actuators
  o Pneumatic and Hydraulic Actuation
  o Mechanical Actuation
  o Electrical Actuation

• Integrated Modeling and Simulation of Hybrid Dynamic Systems
• Digital Control Systems
• Microprocessors, Digital Logic and Circuits
• Case Studies

RESOURCES
  o Computer Resources: You are encouraged to use the wide range of
campus computers resources available to you in the SINC sites and in
HEAVY ENG 139. These include software packages for drafting,
geometric modeling, system simulation. The PCs available in HEAVY
ENG 139 can be used to program the microprocessors in the labs.

Hints on how to get an “A”:
  • Have enough sleep the night before lecture/lab
  • Try not to miss any classes or labs – with the exception of illness or any other
valid excuse
  • Meet all deadlines for the course
  • Go through all materials posted on blackboard
  • If you need help come visit the T.A. or myself, don’t put it off.

Americans with Disability Act
If you have a physical, psychological, medical or learning disability that may impact your
course work, please contact Disability Support Services, ECC (Educational
Communications Center) Building, room 128, (631) 632-6748. They will determine with
you what accommodations are necessary and appropriate. All information and
documentation is confidential.
Students requiring emergency evacuation are encouraged to discuss their needs with their
professors and Disability Support Services. For procedures and information, go to the
following web site. http://www.ehs.sunysb.edu/fire/disabilities/asp

Academic Integrity
Each student must pursue his or her academic goals honestly and be personally
accountable for all submitted work. Representing another person’s work as your own is
always wrong. Any suspected instance of academic dishonesty will be reported to the
Academic Judiciary. For more comprehensive information on academic integrity,
including categories of academic dishonesty, please refer to the academic judiciary
website at http://www.stonybrook.edu/uaa/academicjudiciary/

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The University at Stony Brook expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty is required to report disruptive behavior that interrupts faculty's ability to teach, the safety of the learning environment, and/or students' ability to learn to Judicial Affairs.