

# UST School of Engineering Lab Equipment: July, 2007

## Machine shop equipment:

Engine lathe

Enterprise 1330 precision lathe

Hardinge tool room lathe

2 Bridgeport mills with digital readouts

Haas TL1 manual / CNC tool room lathe

Haas TM1 manual / CNC tool room mill

2 drill presses

Sheet metal shear

Box and pan break

Vertical and horizontal band saws

Challenger surface grinder

Haas VF-0 Vertical CNC mill (production machining center) with 16 tool tool-changer

Haas HL-1 CNC production turning center (lathe) with 10 tool tool-changer

Several belt sanders/ grinders

Misc. power and hand tools

## Welding Equipment:

Oxy/Acetylene brazing-cutting equipment

Century 200 MIG wire feed welder

L-Tec 250 stick welder

Laser welder

Resistance spot welder

## Materials or Inspection Equipment:

MTS 658 tabletop Tensile tester

Rockwell hardness tester

CMM (2000)

Optical comparator

Heat treat oven

Dynamometer

Injection molding (28 ton)

Gantry robot – table and floor mounted

## Thermo/heat transfer:

2 Agilent 20 channel data loggers for temperature measurement

2 hot wire anemometers

Several relative humidity meters

## Electronic test equipment:

Microscopes

Oscilloscopes

Power supplies

Signal generators  
Jitter analyzer (Wavecrest)  
RF signal generator (GHz)  
Spectrum analyzer

Programming in: Assembly, C, Visual basic and JAVA

### **PC Software:**

- \* ANSYS 11.0, ANSYS Workbench 11.0 and CFX 11.0 used for Finite Element Analysis
- \* SolidWorks 2007 Education Edition (updated 7/2007) Updated annually.  
Add-ins available:
  - o PhotoWorks - create photo-realistic images of SolidWorks models
  - o SolidWorks Toolbox - a library of standard parts
  - o SolidWorks Animator - create movies (AVI) from SolidWorks parts and assemblies
  - o COSMOSMotion - kinematics and motion analysis
  
- \* Mathematica 6.0
- \* MATLAB 2007a with the following toolboxes available:
  - o Simulink - an interactive tool for modeling, simulating, and analyzing dynamic, multidomain systems
  - o Partial Differential Equation Toolbox - tools for the study and solution of partial differential equations
  - o Control System Toolbox - a collection of functions for the modeling, analysis, and design of automatic control systems.
  
- \* MiniTab 15
- \* Stat-Ease Design Expert 6.0.10 (DOE software)
- \* Gibbs CAM and
- \* FeatureCAM 2006 (updated 4/2006).  
CNC programming for for Haas Mill and Lathe
  - o FeatureMILL3D
  - o FeatureTurn
  
- \* Rockwell ARENA 8.0.1 (event modeling software)
- \* VISIO Pro 2003(Part of Microsoft Office)
- \* Java (supporting QMCS 230):
  - o J2SDK1.6.0\_9 (updated 7/2007)
  - o TextPad 4.62
- \* Little Computer 3 (LC3) - computer processor simulation
- \* MultiSim 10.0.1 (updated 7/2007).
- \* Lattice Starter 4.1 (updated 8/2005)
- \* Xilinx ISE 9.1i and EDK 9.1 (updated 7/2007)
- \* National Instruments Labview 8.2 with toolboxes:

- o Digital Filter Design
- o Control Design and System ID
- \* Agilent Data Logger
- \* ZEMAX Optical Design Software

### **Productivity Software**

- \* Microsoft Office XP or 2003
  - o Word
  - o Excel
  - o PowerPoint
  - o Access
  
- \* Microsoft Front Page XP or 2003 Web Development
  
- \* Microsoft Project XP or 2003 Project Management
  
- \* Outlook Express and Outlook Web Access (OWA) Electronic Mail

### Operating Systems

- \* Windows XP (with SP2 standard as of 1/2005)
- \* Redhat Linux 8 (in selected EE labs)

### Internet Browsers and Other Tools

- \* Internet Explorer 6 or 7
- \* Firefox (beginning 1/2005)
- \* WS\_FTPLe (FTP)
- \* Adobe Acrobat Reader 7.0.8 or 8.0
- \* Winzip 8.1
- \* Sophos Antivirus
- \* Real Player / Windows Media Player