**CET 3510 Topics for Final Exam**

Computer and Processor Architecture:

* Components of computers
* Memory limits, register sized etc.
* Data organizations (bits, nibble, word, etc.)

HLA Syntax:

* Commands
* Data types
* Standard libraries (stdlib.hhf)
* Differences with Real Assembly Language
* Differences with High-Level programming languages such as C++
* Read code
* Write code
* Labels and jumps

Number Systems (Binary, Decimal, Hexadecimal) Arithmetic

* Conversion to/from different bases
* Two’s complement binary
* Representation in Hex

Logical Operations

* AND
* NOT
* OR
* XOR
* How to use these to manipulate, insert and clear bits

Parallel Port

* Base address
* Registers: data, status, control
* Linux commands: linux.ioperm(), in(), out()

Floating Point

* IEEE floating point binary reals
* Error or tolerance, how it is used
* Types: single, double, extended
* Components: sign, significant (i.e. mantissa), exponent
* Encodings and normalized numbers
* HLA support for floating point and the FPU: registers, instructions, process

Memory Addressing

* Displacement-only
* Register indirect
* Indexed
* Scaled indexed
* Memory organization

Bit Manipulation

* Bitwise logical operations
* HLA vs. C++