

THIS IS A REFERENCE SYLLABUS DESCRIBING AN NKU COURSE IN GENERAL. ENROLLED STUDENTS SHOULD CONSULT THE ACTUAL SYLLABUS OF THE COURSE IN WHICH THEY ARE REGISTERED.

CSC 362 Computer Systems

CATALOG DESCRIPTION:

CSC 362 Computer Systems (3,0,3) ANSI C, pointers, pointer arithmetic; dynamic memory allocation; introduction to instruction sets, registers, addressing modes and assembly language; binary representations and bit manipulations; computer organization concepts. PREREQ: C or better in CSC 360.

LAST TAUGHT: Spring 2009 (R. Fox)

SCHEDULED LAB USAGE: None

STUDENT BACKGROUND EXPECTATIONS:

Experience in computer programming up through a CS II course (CSC 360 at NKU) with knowledge of linked lists. Prior experience with C or assembly language is not expected.

CORE TOPICS COVERED:

- Introduction to ANSI C
 - I/O
 - Functions
 - pointers, pointer arithmetic, arrays
 - structs, dynamic memory allocation, linked structures in C
- Computer Systems topics
 - binary representations
 - bit manipulations
 - Boolean logic and digital circuits
- Computer Organization topics
 - CPU, registers, addressing modes, instruction sets
 - Bus
 - memory organization
- Introduction to assembly language (e.g. Intel x86)

MOST RECENT TEXTBOOK USED :

Computer Organization and Architecture, 2nd edition, Linda Null and Julia Lobur, 2006, Jones and Bartlett, ISBN: 0-7637-3769-0. Chapters Covered: 1-9.

The C Programming Language, Brian Kernighan and Dennis Ritchie, 2nd edition, 1988, Prentice-Hall, ISBN 0-13-110362-8 (paperback version) or 0-13-110370-9 (hardback version). Chapters Covered: 1-7.

SOFTWARE REQUIRED:

Any C/C++ compiler permitting inline assembly code.

STUDENT WORK

Homework assignments, programming assignments in C and assembly language, exams and a final.

LEARNER OUTCOMES

By the end of this course, students will learn to:

1. understand the internal workings of the computer at both a hardware and software level including binary representations
2. apply Boolean logic to create digital circuits to solve various computer functions
3. understand the role and structure of the CPU, memory, I/O system, bus and interrupt system

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4. understand and apply a basic machine instruction set and IBM PC assembly to see how machine these activities are described at a programming level
5. understand and apply the C programming language, with particular emphasis on pointers and arrays, so that the student can understand the interplay between high-level language constructs and how those instructions are carried out at the machine language and hardware levels

This course prepares students for more advanced topics in Computer Architecture and Operating Systems.

CROSS-LISTINGS

None.