Revision Topics

Types and Variables

- Basic types:

  - integer

    - short, int, long

    - (unsigned int etc)

  - floating point

    - float, double

  - char, void

- arithmetic, test, assignment operators

- Variable declaration, init

- Scope

  - blocks, statements

  - file scope

  - block scope

- Allocation (automatic)

Flow control

- Conditionals

  - if

    - else if, else

  - switch

    - case

    - break

- Loops

  - for

    - init, test, inc

    - continue

    - break

  - while (do while)

Arrays, Pointers, Structs

- Array declaration []

  - { } initialisation

  - indexes (0 start)

- char[] as strings

  - special " " initialiser, '\0'

  - need string functions

- Pointer declaration *

  - deref operator (*)

  - address of operator (&)

- struct declaration

  - structs v arrays

  - access struct components

String processing

- Strings end with '\0'

- String functions

  - strcmp

  - strlen

  - strcat

  - strcpy

- Header file is string.h

- Difference between 'c' and "c"

- ASCII encoding (idea of, not specific values)

Functions

- Purpose of functions

- Function prototype

  - parameters

  - return type

- Function definition

  - internal scope

- Functions pass by value (get copy of parameters)

- Using ptrs to modify parametrs

- Passing arrays

- void means "no value"

Command Line Arguments

- What is a command line argument

- main(int argc, char * argv[])

- argc - what is it?

- argv - what is it?

- argv[0] is?

The Preprocessor, Compiler

- Purpose of Preprocessor

- #define

- #include <>

- #include " "

- #ifdef

  - #else, #endif

- Purpose of Compiler

  - Optimisation

- Purpose of Linker

  - Libraries

  - Linking object code

I/O

- read formatted text

  - fgets() , sscanf()

  - scanf()

- write formatted text

  - printf()

  - puts()

- Format strings

  - %d, %f etc specifiers

  - precision, length indicators

- header file stdio.h

File I/O

- open, close, flush file

  - in binary and text stream

- read formatted text

- write formatted text

- read binary data

- write binary data

- stdin, stdout, stderr

- (What is a file ptr)

- Header file stdio.h

- (Connection to "terminal I/O" from previous slide.

PRNGs

- Purpose of PRNGs

- Header file stdlib.h

- void srand(unsigned int)

  - seeding with time

    - time.h

    - time(NULL)

- unsigned int rand(void)

- RAND_MAX

- Converting to other distributions:

  - continuous

  - Gaussian

- Alternatives to rand