

Introduction to Systems Programming (234122)

<http://webcourse.tecnion.ac.il/234122>

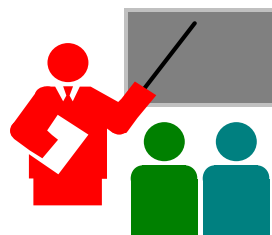
Lecture Slides - July 2003

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With thanks to
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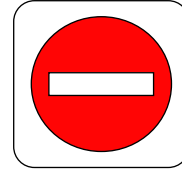
Course Objectives

- Learn to develop large-scale software (not programs).
- Extend knowledge of C (mention C99).
- Learn to work in Unix environment.
- Learn about object-oriented programming.
- Meet C++.



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What This Course Is Not



- A C/C++ language course.
- A data structures course.
- A programming tricks / hacks course.

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Program

Typically 10-1000 lines.

Consequences

Developed by individual.

Used by programmer.

Might run first time.

Can be coded immediately.

Requires debugging.

Easy !!

Example: A sorting program.

Software

Typically at least 10,000 lines.

Developed by a team.

Used by "customer".

Never runs first time.

Requires analysis/design.

Requires long-term maintenance.

Difficult.

Example: An accounting system.



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Why Unix ?

- **Multi-user/multi-tasking operating system.**
- **De-facto standard across multiple platforms.**
- **Powerful procedural user-interface.**
- **Easy to learn.**

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Why OOP ?

- **An intuitive concept.**
- **Enables modularity and information hiding.**
- **Makes maintenance easier.**



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Why C / C++ ?

- De-facto industrial standard.
- “Mother tongue” of Unix systems.
- Structured language.
- C++ is object-oriented syntactic extension of C.

Warning

Every book on C or C++, that I have seen in Hebrew,
contained Horrible Errors.

It's your call

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Bibliography

C:	The C Programming Language (2nd Edition, ANSI-C)	B. Kernighan and D. Ritchie,	Prentice-Hall,	1988
	C Programming FAQs	S. Summit,	Addison-Wesley Longman,	1996
	Pointers on C	K. Reek,	Addison-Wesley Longman,	1998
C++:	The C++ Programming Language (3rd Edition)	B. Stroustrup,	Addison-Wesley Longman,	1997
	C++ Primer (3rd Edition)	S. Lippman and J. Lajoie,	Addison-Wesley Longman,	1998
	Effective C++ (2nd Edition)	S. Meyers,	Addison-Wesley Longman,	1997
	Industrial Strength C++	M. Henricson and E. Nyquist,	Prentice Hall,	1997
	C++ FAQs (2nd Edition)	M. Cline, G. Lomow, M. Girou	Addison-Wesley Longman,	1999
OOP:	Principles of Object-Oriented Software Development	A. Eliens,	Addison-Wesley Longman,	1995
	Object-Oriented Programming with C++ and Smalltalk	C. Drake,	Prentice Hall,	1998

