

Course Summary

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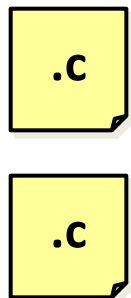


Computer Systems

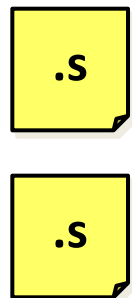
system utilities

shell
vi
make
gdb

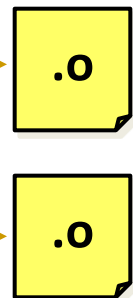
prog. language



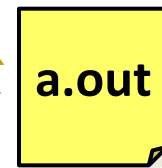
compiler



assembler

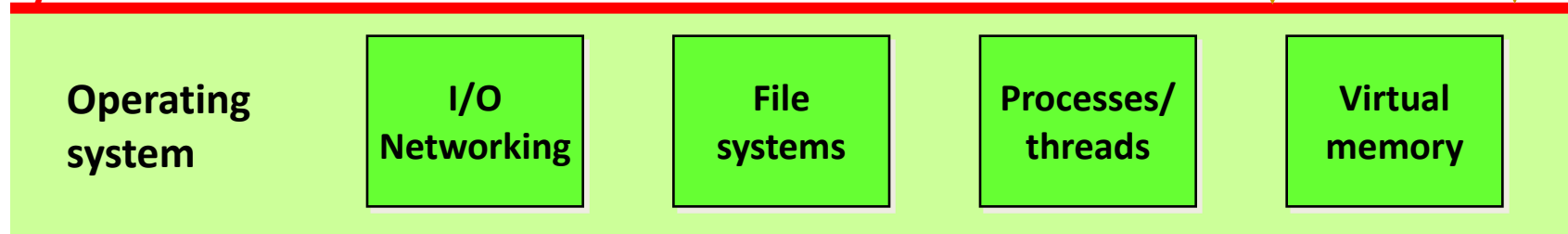


linker



loader/dynamic linker

system call interface



Binary representation
Byte ordering
Instruction Set Architecture (ISA)
Memory Management Unit (MMU)
Pipelining



CPU

Memory hierarchy

locality
caching

Performance Issues



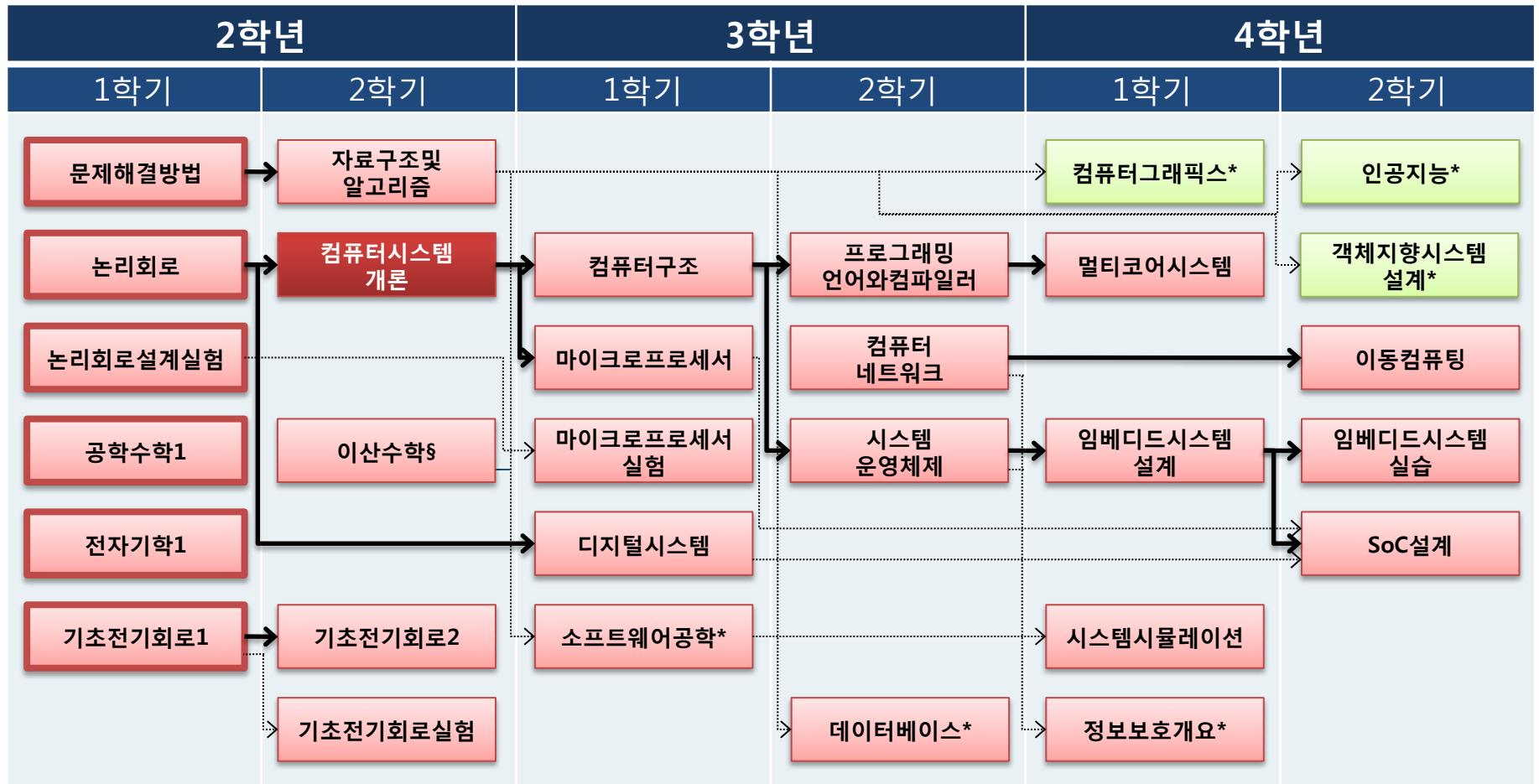
- **There's more to performance than asymptotic complexity.**
 - Constant factors matter too!
 - Easily see 10:1 performance range depending on how code is written.
 - Must optimize at multiple levels: algorithm, data representation, procedures, and loops
 - Must understand system to optimize performance
 - How programs are compiled and executed.
 - How to measure program performance and identify bottlenecks.
 - How to improve performance without destroying code modularity and generality.

Well...

The end ??

No! It is the **beginning** of many important
courses you **MUST** take!!!

반도체시스템공학전공 내 시스템 소프트웨어 트랙 로드맵



*표시는 컴퓨터공학전공 개설 교과목. §이산수학은 학부대학 교양과목으로 수강이 적극 권장됨.
4학년 교과목 중 컴퓨터그래픽스, 인공지능, 객체지향시스템설계는 필요에 따라 선택적으로 수강

주요 진출 분야: 시스템 소프트웨어 엔지니어 및 연구원

(휴대폰, 스마트폰, Digital TV, 플래시 메모리 카드, SSD 등 다양한 임베디드 시스템을 위한 운영체제 개발/이식, 디바이스 드라이버 개발, 성능/전력소모/신뢰성 향상을 위한 소프트웨어 최적화, 새로운 응용 및 서비스 개발 등의 업무 수행)

Want More?

■ Computer Architectures

- How to design an Instruction Set Architecture (ISA)?
- How to build a high performance processor?

■ Programming Languages

- Means for high-level programming

■ Compilers

- Bridging the Semantic Gap
- Machine-independent optimizations
- Machine-dependent optimizations

■ Operating Systems

- Provides system calls for application programming
- Resource sharing & management: CPU, memory, devices, etc.

■ Computer Networks

- How to make the communication between machines work?

■ Database Systems

- One of serious applications that needs systems-level support

■ Embedded Systems

- Special purpose
- Limited resources
- Low-power requirement

■ Distributed Systems

- Applications and services that span multiple computers