
컴퓨터 공학 개론 Lecture 1

2017

김태성

My Bio

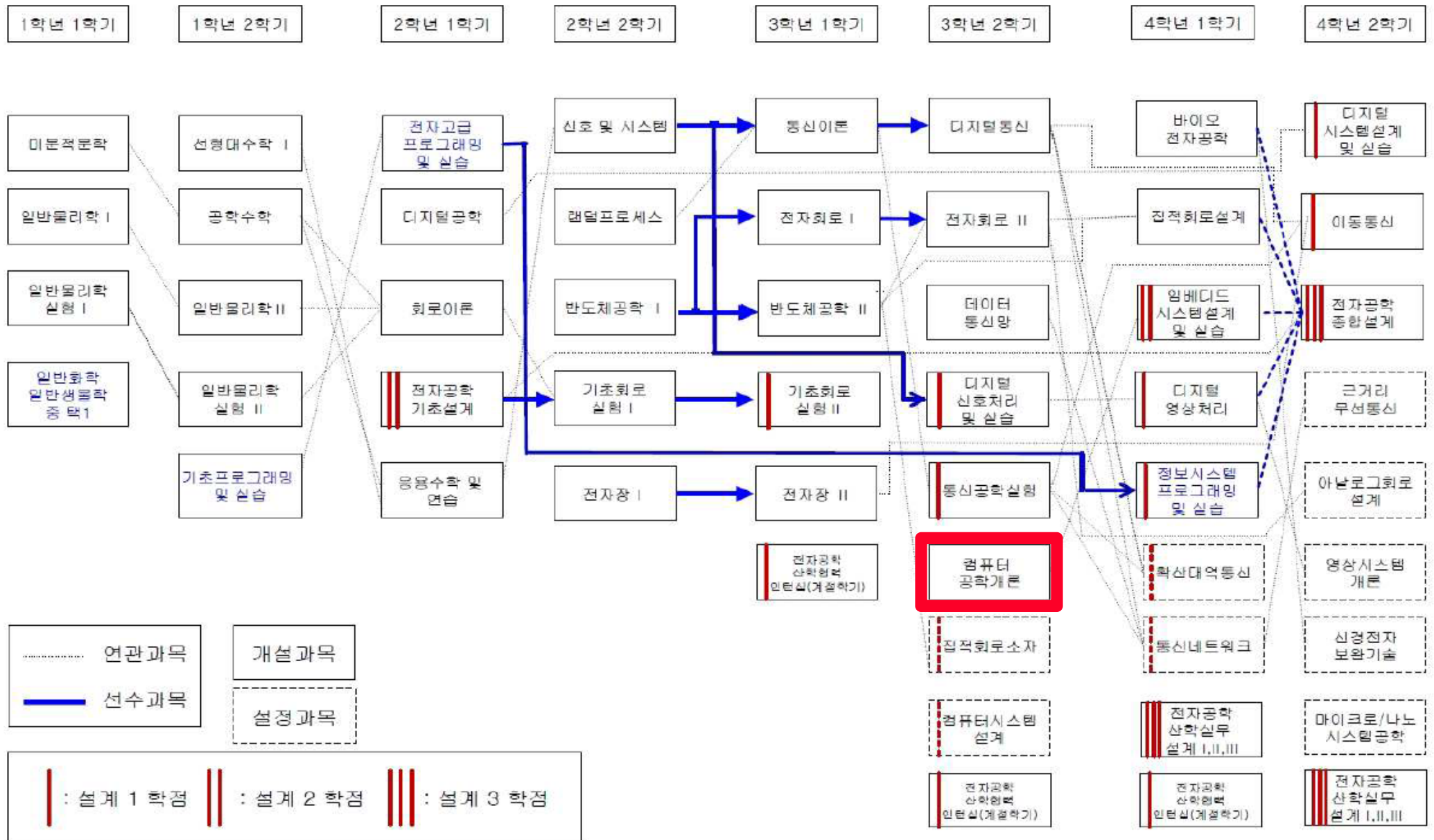
- **BS in Electronics Engineering, Pusan National University in 2010**
- **MS and PhD in Electrical and Computer Engineering, Seoul National University in 2013 and 2017**
- **Current research interests are video system design**
 - **Video compression standard (H.264, HEVC)**
 - **Video processing via Neural network (Deep learning)**

Class Ethics

- Unexcused absences up to **four times**.
- You can discuss your homework assignment with other students, but you should **not copy solutions** from other students.
- All the homework assignments should be **submitted BEFORE** the lecture starts.
- Late homework is **not accepted** no matter what.
- **Missing final** exam will give you an **'F'**.

전자공학 교과목 이수체계도 (13학번 이후)

■ 2016학년도 이후 졸업예정자 대상 이수체계도 (13학번 이후)



What Is a Computer?



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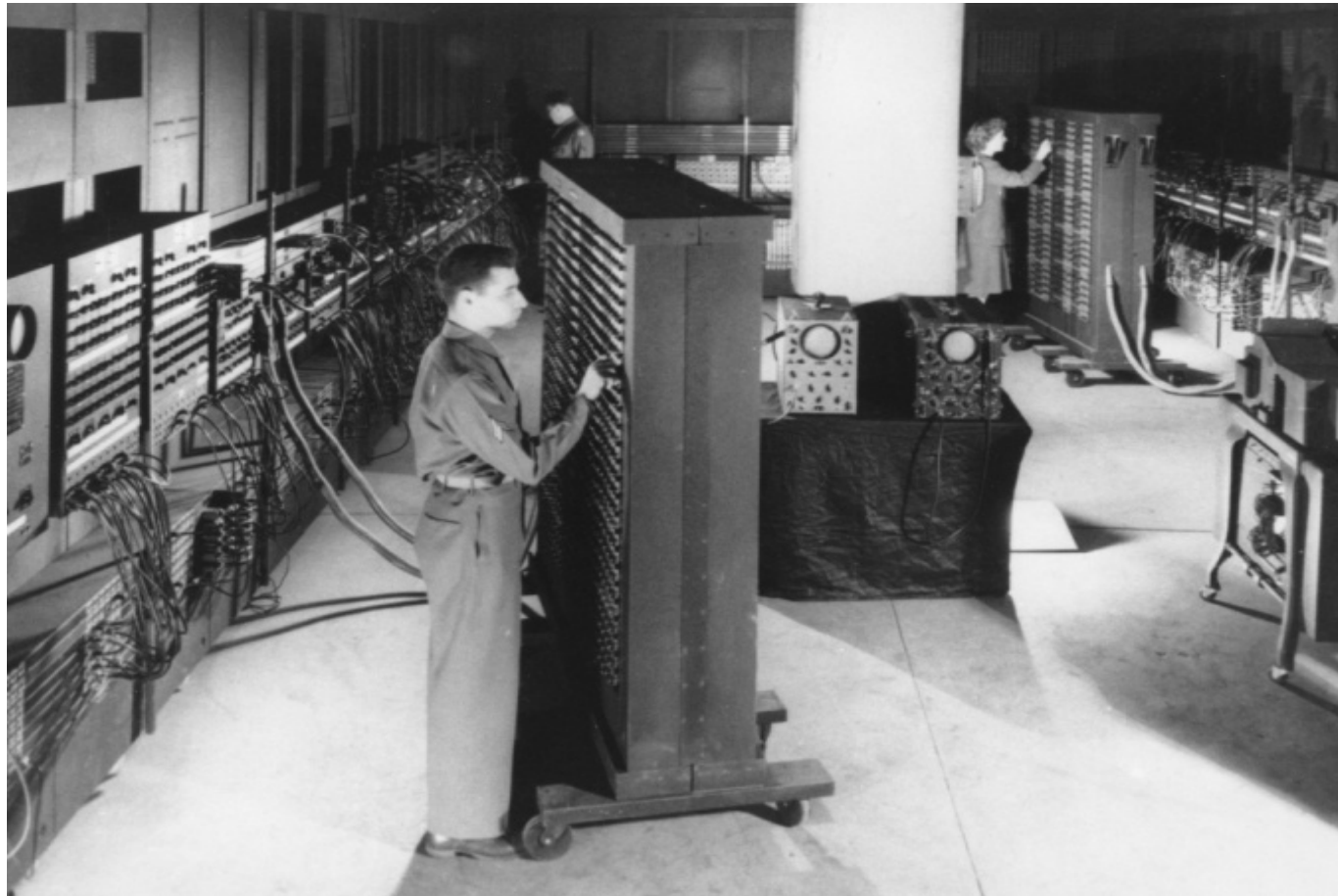


What Is a Computer?



First Computer

- ENIAC (Electronic Numerical Integrator And Computer)
 - The first **general-purpose** electronic computer capable of **being reprogrammed** to solve a full range of computing problems.
 - It was designed in 1946. It weighed more than 27 tons and took up 167 m².
 - It has cost almost \$500,000 (nearly \$6 million in 2010).



ENIAC vs. iPhone 4

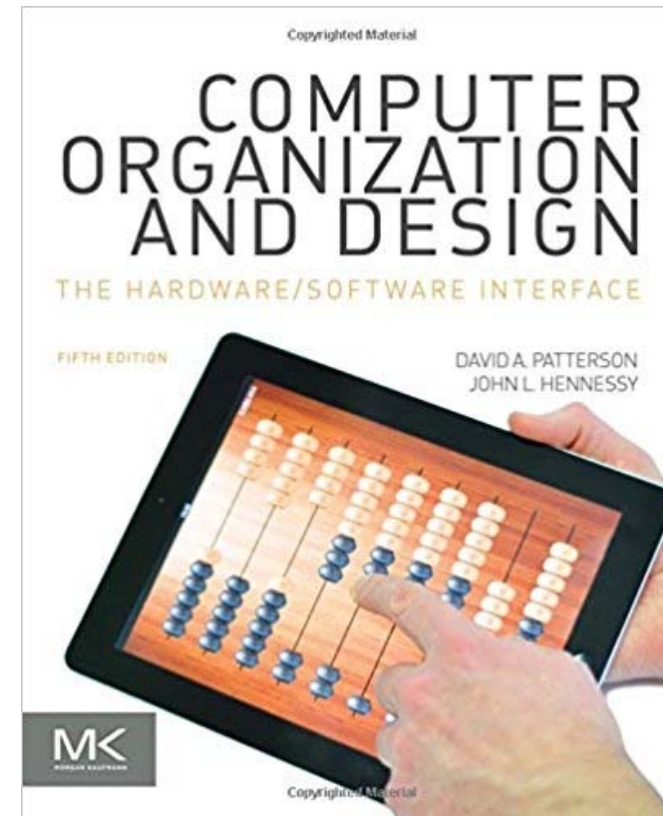
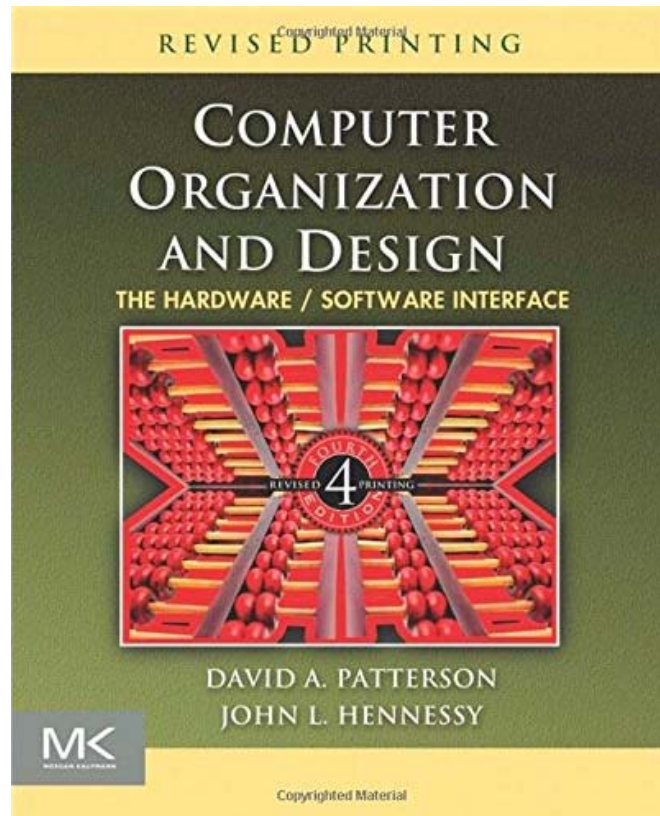
	ENIAC	iPhone 4	Ratio
Cost	\$6,000,000 (in 2010)	\$600 (32GB)	1/10,000
Components	17,468 vacuum tubes	200,000,000 transistors in 53.3 mm ²	11,450
Performance	5,000 additions/sec	2,000,000,000 instructions/sec	400,000
Memory	~33bit x 20 (~82.5 Bytes)	512 MBytes	6,500,000
Size	15 m x 9 m x 4 m	115.2 mm x 56.8 mm x 5.3 mm	1/15,600,000
Weight	27 tons	137 g	1/200,000
Power	150 KWatts	0.42 Watts	1/360,000

What You Will Learn

- **How programs are translated into the machine language**
 - And how the hardware executes them
- **The hardware/software interface**
- **What determines program performance**
 - And how it can be improved
- **How hardware designers improve performance**

FAQ

- Q: Do I have to buy a textbook?
- Ans: YES!



FAQ

- Q: There are any prerequisite courses?
- Ans: No. However, taking 디지털공학 and 컴퓨터 프로그래밍 및 실습 is **strongly** recommended.

