BLG113E -INTRODUCTION TO COMPUTER ENGINEERING AND ETHICS

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What is Computing?

We can define computing to mean any goal-oriented activity requiring, benefiting from, or creating computers.

Includes

- Designing and building hardware and software systems for a wide range of purposes,
- Processing, structuring, and managing various kinds of information,
- Doing scientific studies using computers,
- Making computer systems behave intelligently,
- Creating and using communications and entertainment media,
- Finding and gathering information relevant to any particular purpose.

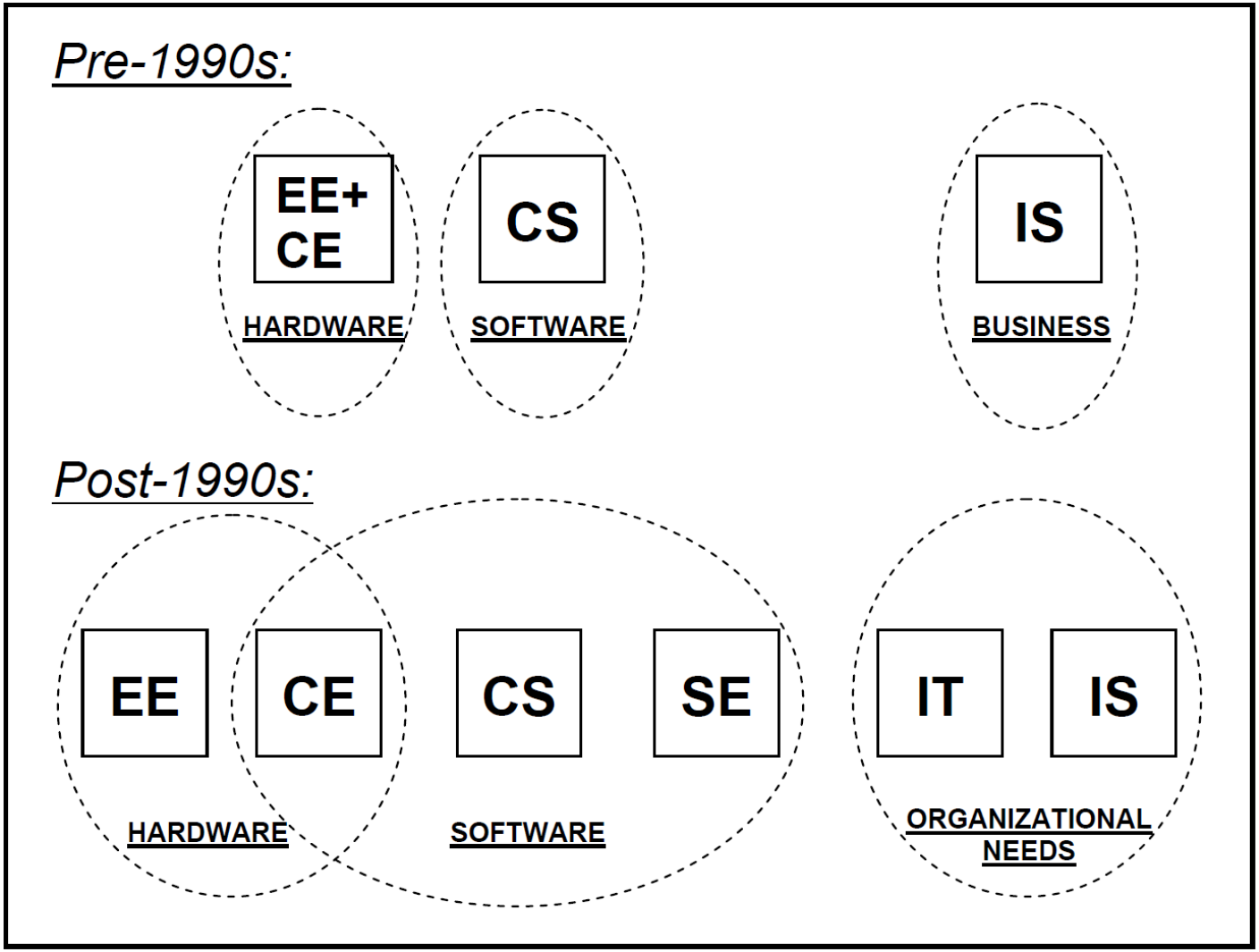
and so on.

Major Computing Disciplines

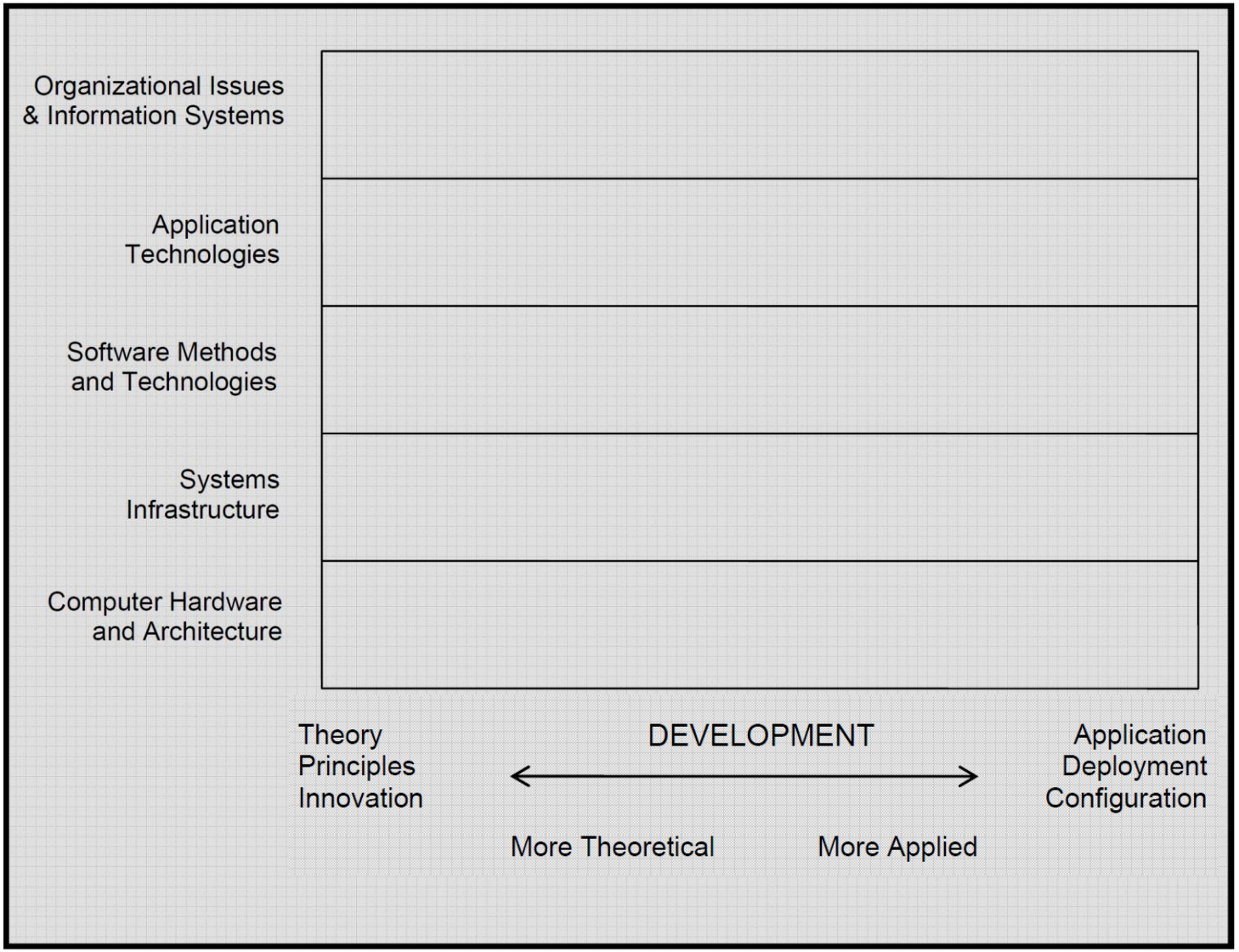
- Computer Engineering (CE),
- Computer Science (CS),
- Information Systems (IS),
- Information Technology (IT),
- Software Engineering (SE)

According to ACM Curricula, Overview Report, 2005.

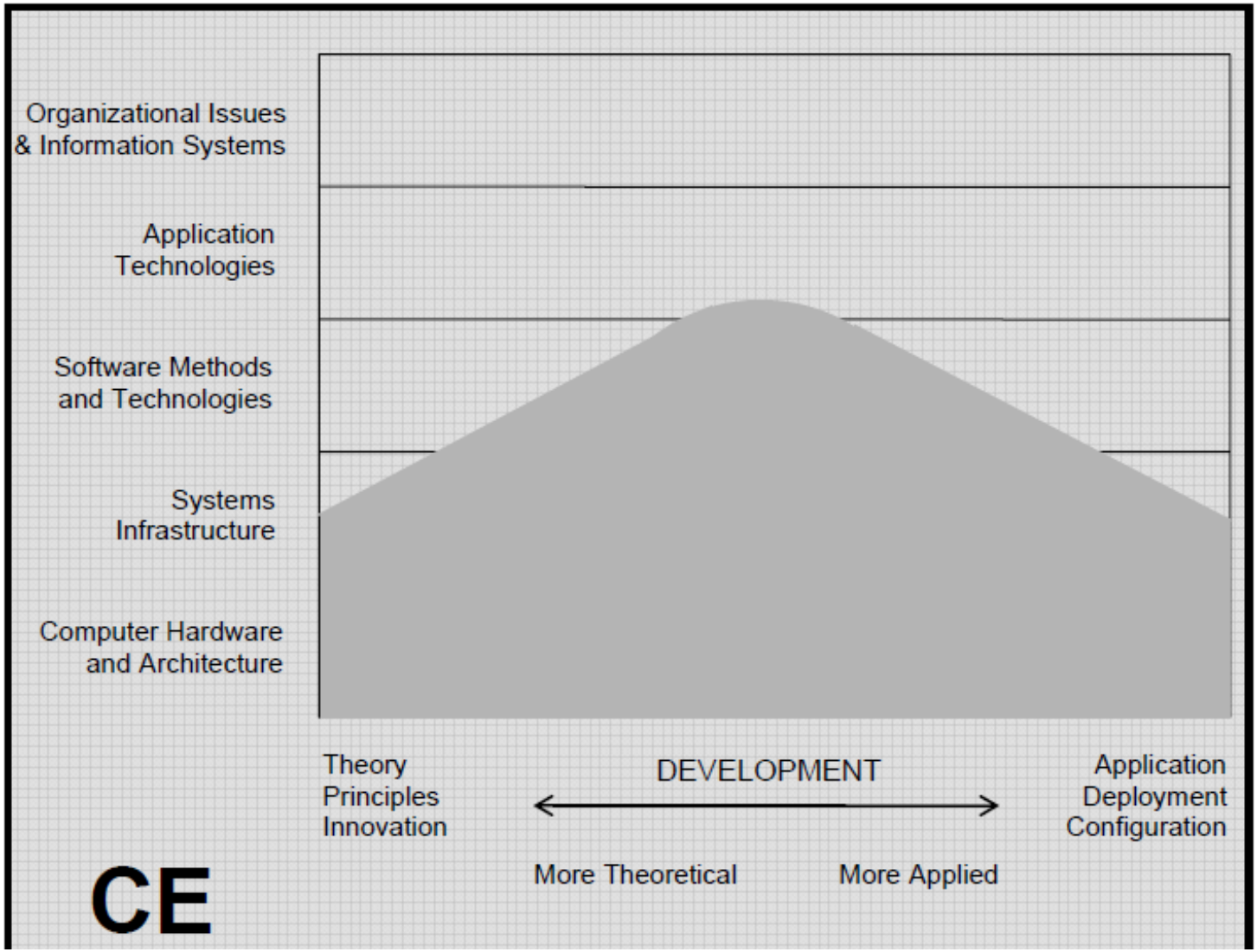
Broad Overview



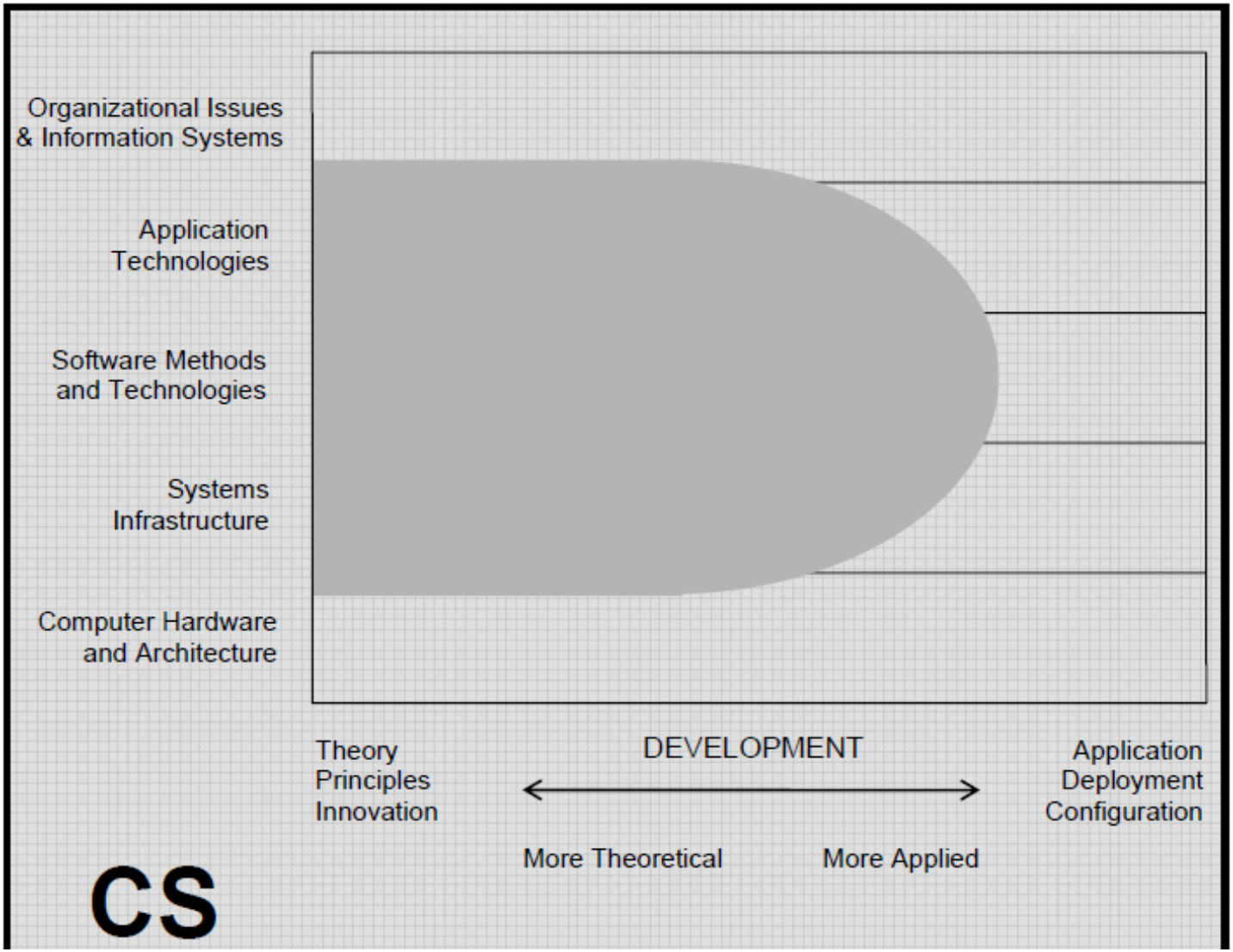
The Problem Space of Computing



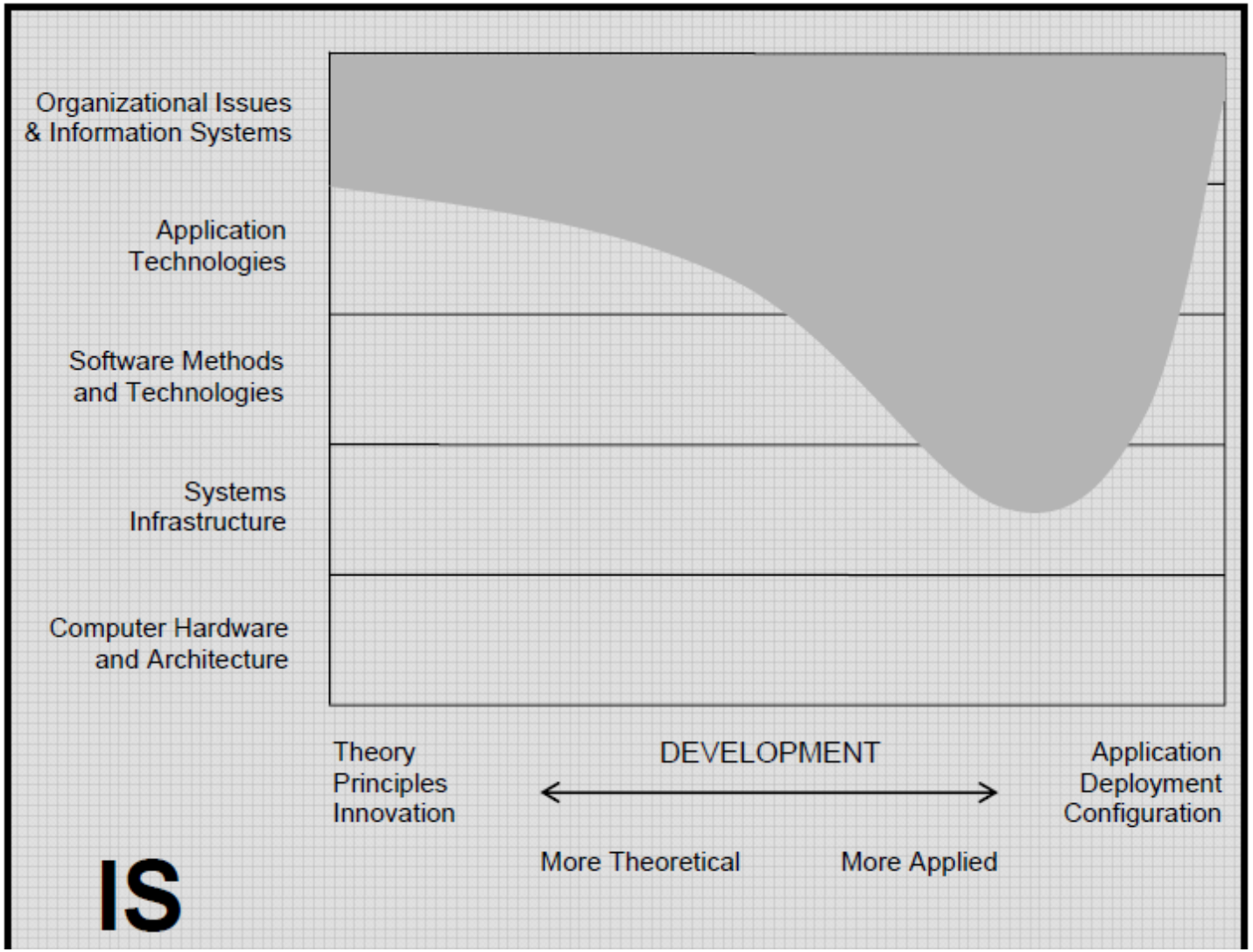
Computer Engineering



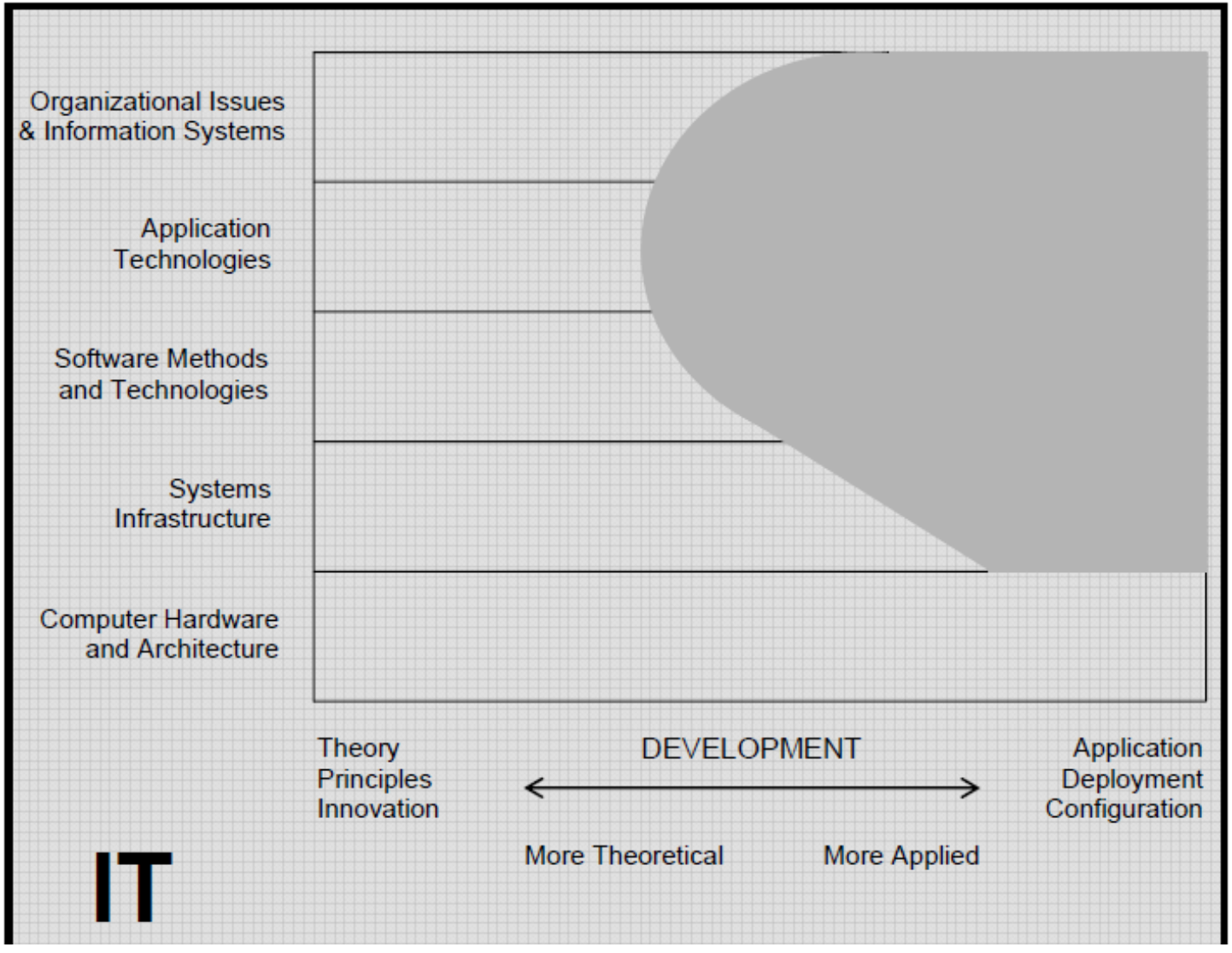
Computer Science



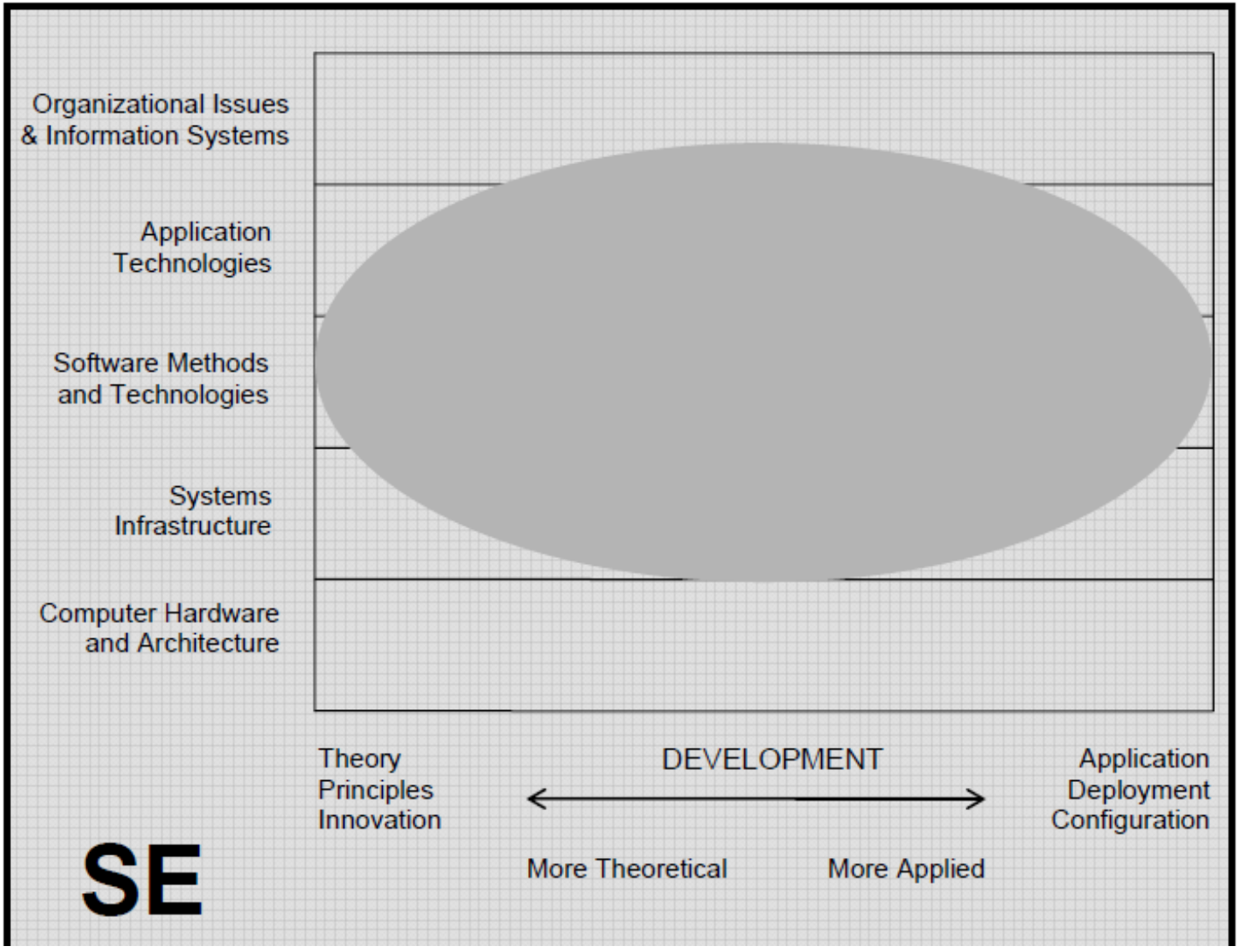
Information Systems



Information Technology

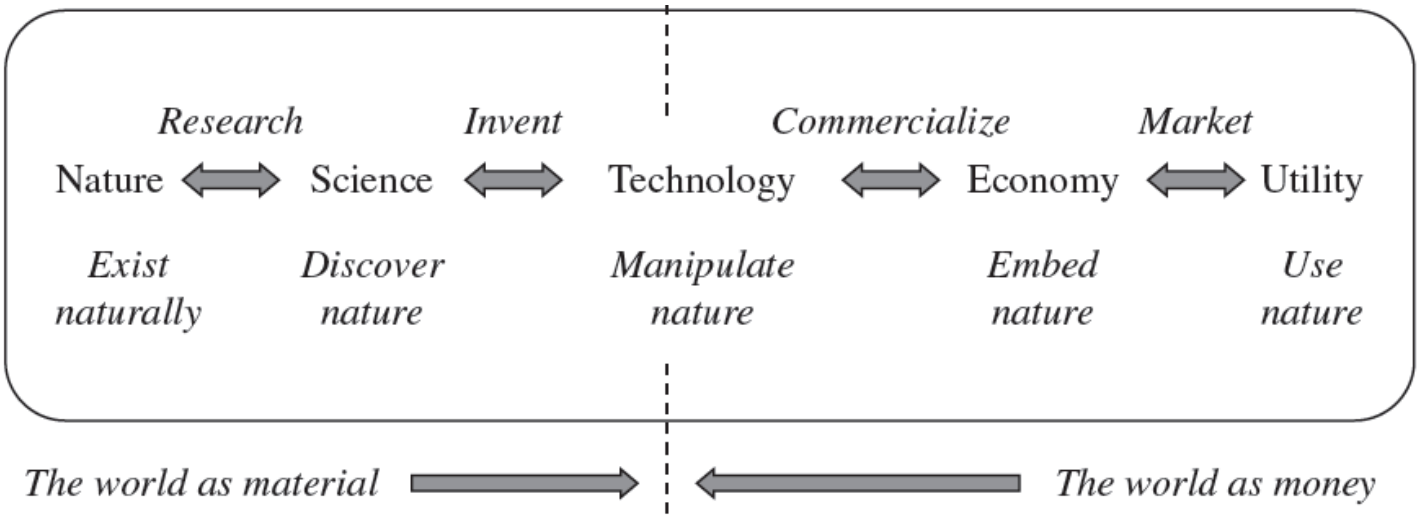


Software Engineering



What is *Engineering*?

The application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people (According to Webster Dictionary)



Mission Statement of the ITU Computer Engineering

Mission

To be a faculty producing graduates in the field of computer engineering and informatics desired in the global arena, and being in cooperation with industry and government institutions in a synergistic framework, and being a leading research institution in the field of computer and informatics engineering by employing qualified faculty, researchers and using advanced research and teaching infrastructures.

Vision

To be a leading faculty in the field of computer science and engineering within the framework of education, research and contribution to the society.

Courses you are going to take, Curriculum

Course Types

-BS : Basic Science (TB: Temel Bilim)

-BE : Basic Engineering (TM: Temel Mühendislik)

-GE : General Education (ITB: İnsan Toplum Bilimi)

-ED : Engineering Design (MT: Meslek Tasarım)

-C: Compulsary (Zorunlu)

-E: Elective (Seçimli)

Follow http://www.sis.itu.edu.tr

https://www.sis.itu.edu.tr/TR/ogrenci/lisans/ders-planlari/plan/BLGE/201810.html

Prerequisite – very important!

- What?

https://www.sis.itu.edu.tr/EN/student/undergraduate/course-information/course-information.php?subj=BLG&numb=223E

Code	Course Name	Language	Type
BLG 223E	Data Structures	English	Compulsory

Local Credits	ECTS	Theoretical	Tutorial	Laboratory
3.5	7	3	1	0

Course Prerequisites and Class Restriction	
Prerequisites	BLG 102 MIN DD or BLG 102E MIN DD or BIL 104 MIN DD or BIL 104E MIN DD or BIL 105 MIN DD or BIL 105E MIN DD
Class Restriction	None

Course Description
The course involves the study of basic data structures (e.g., stack, queue, list, tree, binary search tree) and associated algorithms.

How to evaluate the Computer Engineering at ITU?

ABET?

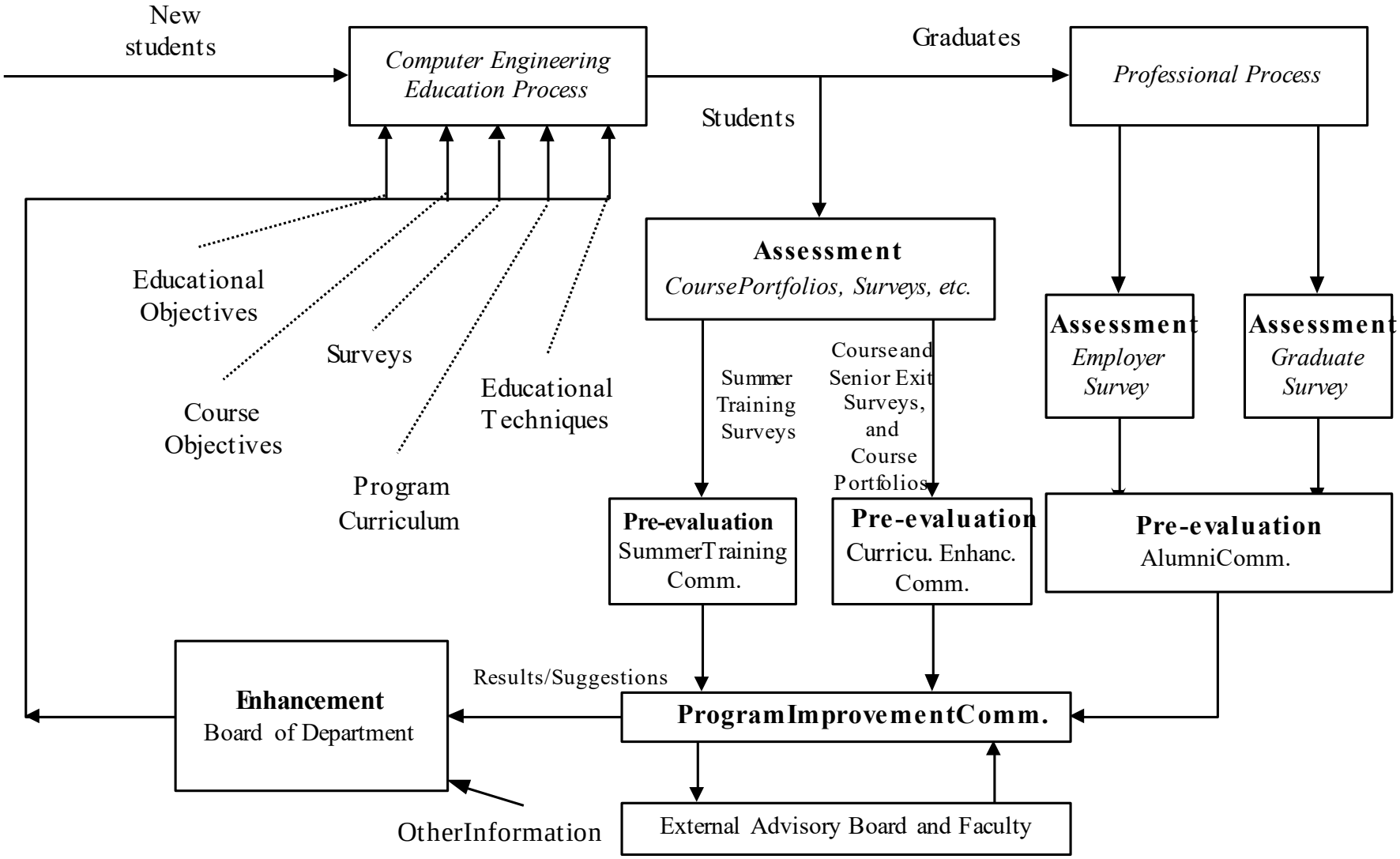
Accreditation Board for Engineering and Technology

www.abet.org

Related Accreditation Board in Turkey: MÜDEK

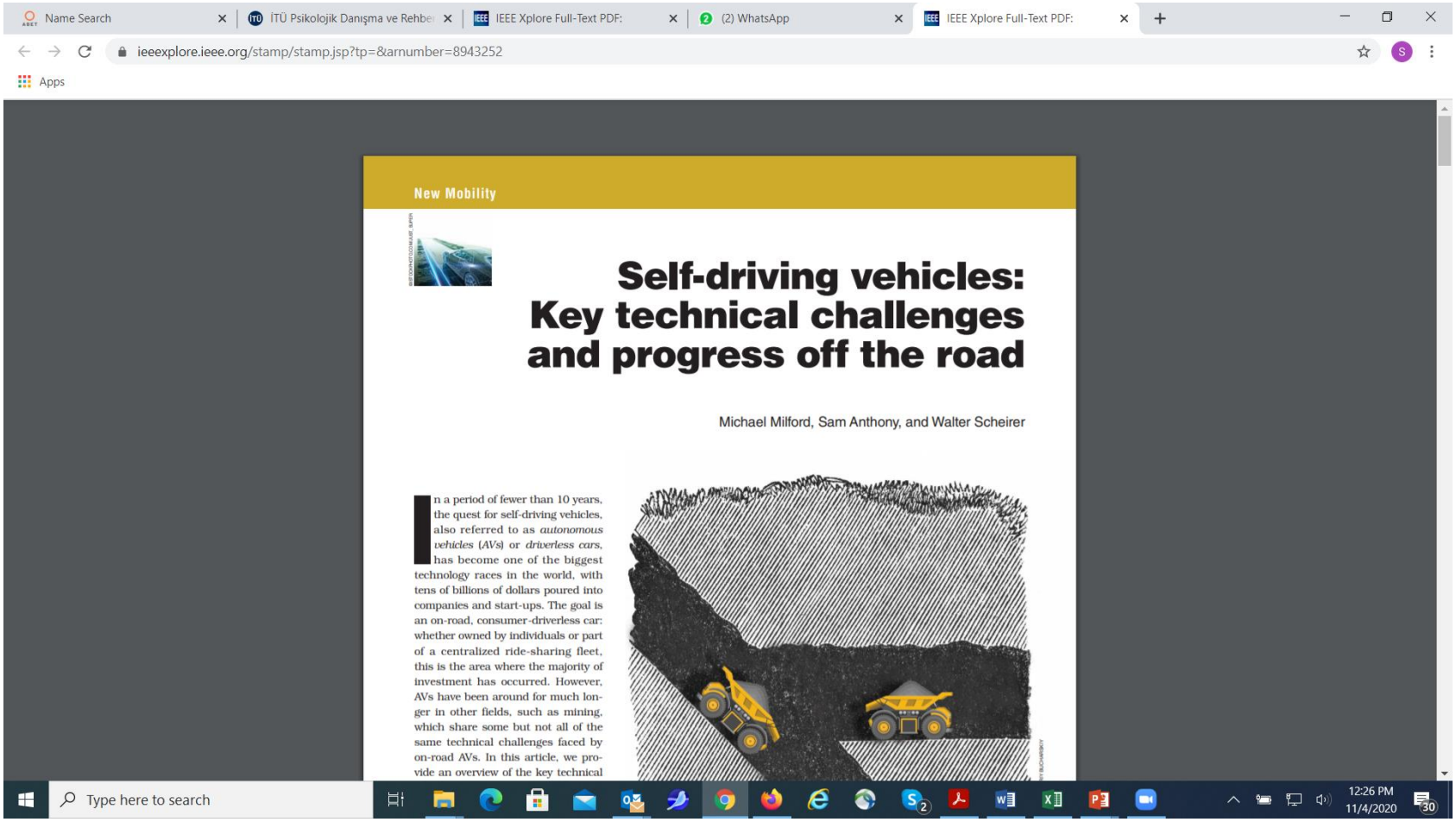
www.mudek.org

Process of Continuous Improvement



Last but not least

Paper to be read, from IEEE Potentials, Details will be given at Ninova!



HW assigned

Project Theme of this Semester

- **Solution-oriented Wearable Technologies**
- Necessary components
  - Hardware
    - Sensors
    - Microprocessors/microcontrollers
    - Transmitters/receivers
    - Actuators/motors
    - Displays
    - Interaction devices
  - Software
    - Architecture
    - Database
    - Connectivity/Communication
    - Real-time/online/offline operation
    - Security
    - User Interface
    - Decision making/artificial intelligence

Examples

- **Smart jewelry,** such as rings, wristbands, watches and pins.
- **Smaller devices** typically work in coordination with a smartphone app for **display and interaction**.
- **Body-mounted sensors** that monitor and transmit biological data for healthcare purposes.
- **Smart clothing** with built-in technology that can perform a variety of tasks including fitness or health monitoring, interacting with phones and other devices and changing fabric characteristics to suit the user's preference, activity or environment.
- **Augmented reality headsets** that integrate digital information into a display of the user's environment and **mixed reality (MR) headsets** that integrate physical reality and digital content in a way that enables interaction with and among real-world and virtual objects.
- **Hearing aids** that can filter out unwanted noises and automatically adapt for best
- etc.

Ref: https://searchmobilecomputing.techtarget.com/definition/wearable-technology

Questions?