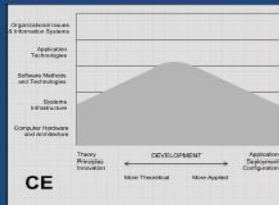


# The Computing Field

*Computing*—the goal-oriented activity that requires, benefits from, or creates computers—is a vibrant and challenging academic and professional field. The expansion and evolution of computing led to the specialization of knowledge and the emergence of several related, but quite different from each other, computing disciplines. In order to improve understanding of this family of disciplines by newcomers, but also among computing practitioners, the Association for Computing Machinery (ACM), the Association for Information Systems (AIS)

and the Computer Society of the Institute for Electrical and Electronic Engineers (IEEE-CS) have sponsored a set of reports that point out the commonalities and differences between the computing disciplines. This poster provides a synthetic interpretation of those reports, highlighting the problem space scope, main knowledge areas and core performance capabilities of each of the five major computing disciplines: computer engineering, computer science, information systems, information technology, and software engineering.

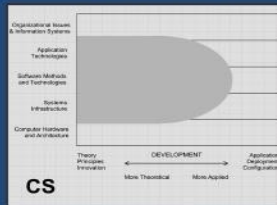
## Computer Engineering



Computer architecture & organization  
Computer systems engineering  
Digital logic  
Programming fundamentals  
Distributed systems  
Circuits & systems  
Electronics

Design and implement computing systems, computer-controlled equipment and communication software  
Maintain computing systems that involve the integration of software and hardware devices

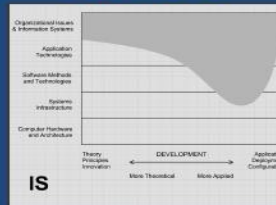
## Computer Science



Software development fundamentals  
Algorithms & complexity  
Software engineering  
Programming languages  
Discrete structures  
Systems fundamentals  
Computer architecture & organization

Design & implement software  
Develop solutions to computing problems  
Optimize programming solutions  
Prove theoretical results  
Devise new ways to use computers

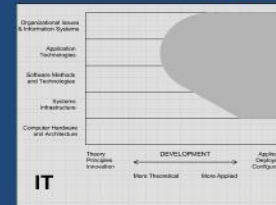
## Information Systems



Foundations of information systems  
Data & information management  
Information systems strategy, management & acquisition  
Enterprise architecture  
Systems analysis & design  
Information technology infrastructure  
Project management

Improve organizational processes  
Exploit technological innovations  
Define information requirements  
Design enterprise architecture  
Secure data & infrastructure  
Manage information systems risks

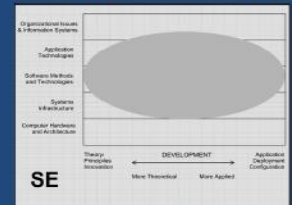
## Information Technology



Technical support  
Programming fundamentals  
Information management  
Information technology fundamentals  
Systems integration  
Mathematical fundamentals  
Interpersonal communication

Train and support users  
Plan, select, configure & maintain information systems infrastructure  
Model, design, select, configure & manage databases  
Configure & integrate business applications

## Software Engineering



Computing essentials  
Software modeling & analysis  
Software design  
Software verification & validation  
Professional practice  
Mathematical & engineering fundamentals  
Project management

Do small-scale & large-scale programming  
Develop software systems  
Manage software projects  
Implement information systems  
Define information systems technical requirements

Problem Space Scope

Main Knowledge Areas

Core Performance Capabilities

### Sources

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