IT/CS Stipulation

based on

ACM

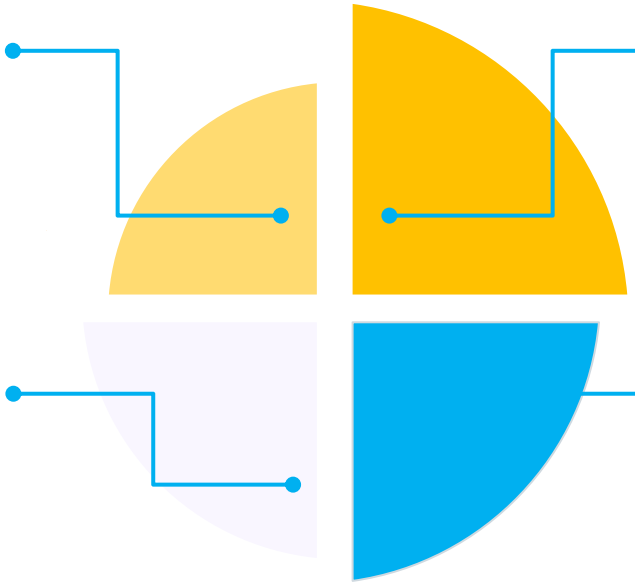
TOPICS

Innovation

01

Research

02



Professionalism

03

Competencies

04

01

INNOVATION

Innovation, can refer to something new or to a change made to an existing product, idea, or field. One might say that the first telephone was an *invention*, the first cellular telephone either an *invention* or an *innovation*, and the first smartphone an *innovation*.

IT INNOVATION

Mobile Application

leading platform
since 2016

Social Platforms

Twitter, Reddit,
Patreon & Discord

User Experience

integration of voice,
gesture, UI, etc.

Internet of Things (LOT)

cloud-based lot
platform & services

Cybersecurity

firewalls, real-time
defense to viruses

Automation

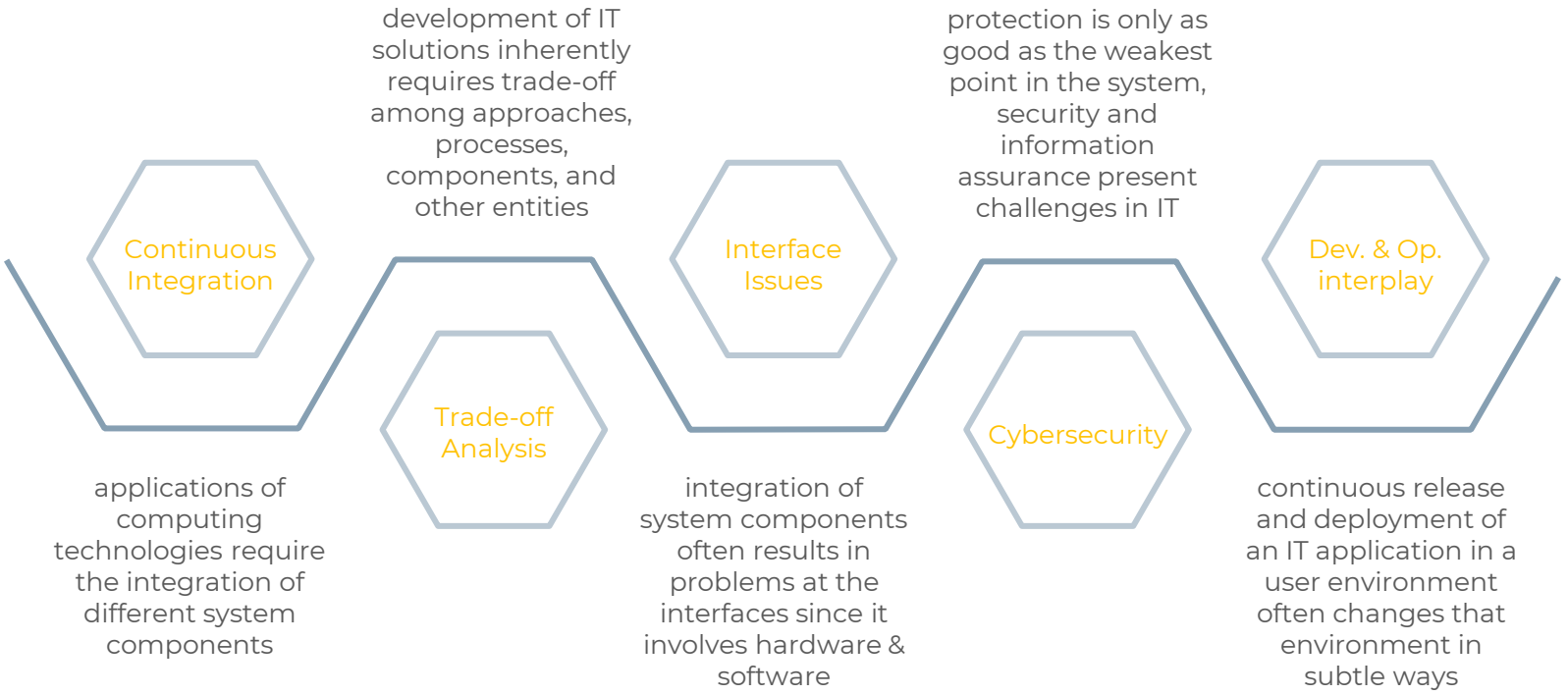
replacing humans
with computers

Research is a process of systematic inquiry that entails collection of data; documentation of critical information; and analysis and interpretation of that data/information, in accordance with suitable methodologies set by specific professional fields and academic disciplines.

02

RESEARCH

IT RESEARCH


Continuous Integration
applications of computing technologies require the integration of different system components
Trade-off Analysis
development of IT solutions inherently requires trade-off among approaches, processes, components, and other entities
Interface Issues
integration of system components often results in problems at the interfaces since it involves hardware & software
Cybersecurity
protection is only as good as the weakest point in the system, security and information assurance present challenges in IT
Dev. & Op. interplay
continuous release and deployment of an IT application in a user environment often changes that environment in subtle ways

Professionalism is the conduct, behavior and attitude of someone in a work or business environment. *Professionalism* leads to workplace success, a strong professional reputation and a high level of work ethic and excellence.

PROFESSIONALISM

Senior Capstone Courses

Students must work in teams to design and implement projects. Often, those projects involve consideration of real-world issues including cost, safety, efficiency, and suitability for the intended user. Students could develop their own projects, but they may also elicit projects from outside clients. Although the emphasis of the course is on project management and student presentations, some material on intellectual property rights, copyrights, patents, law, and ethics may be included.

Professionalism, Ethics, and Law Course

Students are expose to issues of professional practice, ethical behavior, and computer law, geographical limits of the jurisdiction of different country courts. Relevant curricular content may be impacts of computing, social issues of computing on society, computing careers, legal and ethical responsibilities, international computer laws and the computing profession

Practicum/Internship/Co-op Programs

Students typically work during the summers and/or from one to three semesters while they engage in their four-year degree. The students who do a co-op or internship generally do so off-campus and may interrupt their education for a summer or a semester. Students usually receive payment for their work, and in some cases, they may also receive course credit

Team-based DevOps Courses

These courses emphasize the process of IT system development and operations and typically include a team project and continuous value delivery. Course competencies include continuous planning, development, integration and testing, release and deployment, and infrastructure monitoring and optimization. Professional practice specific to these courses emphasizes shared goals, responsibility, collective ownership, constant communication, and continuous experimentation.

Seminars on Trends and Change in IT

Many new occupations have emerged in recent years such as security specialists, big data analysts, user experience designers, full-stack developers, software-defined networking architects, and cloud computing operators. IT programs could provide lectures or seminars that would help students understand the job market, so they will be able to transfer skills to future job positions.

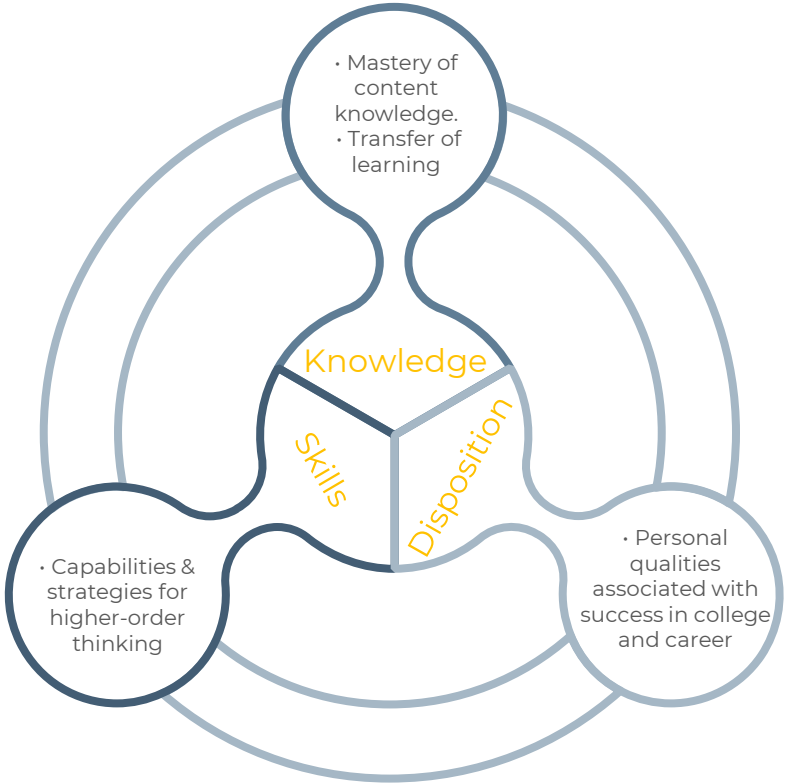
Entrepreneurial Innovation Courses

The IT industry needs innovation and companies to provide new technologies and more job opportunities. These courses discuss the basics every manager needs to organize successful technology-driven innovation in established firms, which will integrate creativity and design thinking in the organizational functions of engineering, management, communication and commerce. The students will evaluate, research, write, and present organization plans using their knowledge of the entrepreneurial process

Competency is the combination of observable and measurable knowledge, skills, abilities and personal attributes that contribute to enhanced employee performance and ultimately result in organizational success.

COMPETENCY

COMPETENCIES



Range of IT skills needed in 2017 (Courtesy of CompTIA)

TECHNICAL SKILLS	NEEDED AT COMPANY
Security	40 %
Database/Information Management	38 %
PC Support	36 %
Storage/Backup	33 %
Networks	31 %
Cloud Architecture	29 %
Telecommunications	27 %
Web Development	27 %
Server/Datacenter Management	27 %
Mobile Device Support	24 %
Application Development	23 %
Big Data Tools/Analytics	23 %
Virtualization	21 %

BUSINESS SKILLS/SOFT SKILLS	NEEDED AT COMPANY
Flexibility	41 %
Analytical Skills	39 %
Teamwork	37 %
Customer Service	34 %
Innovation/Problem Solving	33 %
Project Management	30 %
Strong Work Ethic	29 %
Motivation	28 %
Business Understanding	27 %
Broad Technology Knowledge	27 %
Verbal/Written Communication	27 %

COMPETENCIES

1. Analyze complex, real-world problems to identify and define computing requirements and apply computational approaches to the problem-solving process.

2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the IT discipline

3. Communicate effectively with diverse audiences the technical information that is consistent with the intended audience and purpose

4. Make informed judgments and include unique perspectives of others in computing practice based on legal and ethical principles.

5. Function effectively on teams and employ self- and peer-advocacy to address bias in interactions, establish goals, plan tasks, meet deadlines, manage risk, produce deliverables.

6. Identify and analyze user needs and consider them during the selection, integration, and administration of computer-based systems.

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