CT1112 Professional Skills

KAREN YOUNG

CT1112 Module Overview

Lecturer:	Karen Young		
Assessment:	Continuous Assessment		
Objective:	Develop the non-technical skills critical to career success		
Lectures:	Semester 1:	Tuesday	09h00-10h00
	Semester 2:	Wednesday	14h00-15h00

CT1112 Lecture One

What is Computer Science?

What does a Computer Scientist Do?

Computer Science Skills

Computer Science?

- *"Computer science is the study of computation, automation, and information. Computer science spans theoretical disciplines to practical disciplines."* (Wikipedia)
- *"The study of computers and computing, including their theoretical foundations, hardware and software, and their uses for processing information"* (Britannica)
- Five Disciplines of Computing: computer science, computer engineering, information systems, information technology and software engineering (Britannica)
- Computer Science is Changing Everything (code.org)

https://www.youtube.com/watch?v=QvyTEx1wyOY&list=RDLVAnVBCyzNgaU&index=8

Computer Science Fields?

Algorithms and complexity	Networking and communication
Architecture and organization	Operating Systems
Computational science	Parallel and distributed computing
Graphics and visual computing	Programming languages
Human Computer Interaction	Security
Information Management	Software engineering
Intelligent Systems	Social and professional issues

Source: Britannica

Computer Scientist?

- ✓ Thinks about and conceptualises problems and challenges
- ✓ Works as part of interdisciplinary teams with technical and domain experts to solve problems and create new products
- ✓ Develops and implements new software solutions
- ✓ Creatively seeks to improve the performance of existing computer systems and software
- ✓ Develops new computing techniques and materials
- ✓ Research involving experimentation and modelling
- ✓ Studies, experiments and investigates technological fields such as artificial intelligence, robotics or virtual reality

Computer Scientist?

A Day in the Life: Software Development Director, Ronan O'Rafferty, Verizon Media:

https://www.youtube.com

Computer Scientist?

HP Graduate Software Developer October 2022:

- You will analyze, design, program, debug, and modify software enhancements and/or new products used in local, networked, or Internet-related computer programs, primarily for end users
- You will write code and complete programming by using current programming languages and technologies
- You will perform testing and debugging of applications
- You will complete documentation and procedures for installation and maintenance
- You will interact with users to define system requirements and/or necessary modifications
- You will effectively communicate product architectures and design proposals
- You will collaborate with peers, engineers, technicians, and external design partners
- You will typically interact with high-level individual contributors, managers, and program core teams

If you are…

- An enthusiastic team player who is keen to learn and develop
- On track to complete your Bachelor's degree in Computer Science, Information Systems, or equivalent by summer 2023
- Experienced in software application design tools, experienced in programming languages and ideally have some awarenes of developing for Linux
- Excellent in verbal and written communication and presentation

Computer Scientist Responsibilities

- ✓ **Identifies Problems**: analytical and communication skills
- ✓ **Solves Problems**: creative, critical thinking and technical skills
- ✓ **Organises** and classifies large volumes of **information**: analytical, critical thinking skills
- ✓ Investigates **technologies**
- ✓ **Implements solutions** in different software environments & programming languages
- ✓ **Collaborates** with others: share ideas, listen, communicate
- ✓ **Manages**: time, tasks, projects, teams

Developing Professional Skills

Computer Science Profession?

- Professionalism: protect against poor design, inadequate testing, data theft and other insecure, unethical practices
- Profession?
  - Body of Knowledge
  - Professional Development: Education and Training
  - Code of Ethics

https://www.youtube.com/watch?v=QOMhRSY74v4

Computer Science Skills?

- Technical skills
- Technical writing skills
- Project management skills
- Problem solving skills
- Analytical skills
- Critical thinking skills
- Creativity
- Teamwork and interpersonal skills
- Communication

Computer Science Soft Skills

- Software development is a collaborative activity
- Effective collaboration requires good interpersonal skills: working with both technical and non-technical people
- People skills determine **how** well professionals work with others and their approaches to problems
- People skills often the determining factor in computer science career success
- Many top tech companies test applicants on their soft skills during the interview process: communication, collaboration, creativity etc.

Computer Science Soft Skills

- **Collaboration**: teamwork, working effectively with others
- **Communication**: describing complex ideas to diverse audiences
- **Independence**: self motivation, initiative
- **Creativity**: creative thinking to solve problems, innovation
- **Curiosity**: open to learning, asking questions

CT1112 Week 3

- MCQ 1 (Canvas Reading Week 3: Announcement)
- Emotional Intelligence
- Self Awareness: Openness? Motivation? Creativity?
- Personality & Computer Science