

UEXT SUMMER UNIVERSITY 2022

18-29 July, 2022

Universidad Externado de Colombia, Bogotá, D. C.

COURSE INFORMATION

COURSE NAME	Computer Science Accessible to All.
SCHEDULE	18 – 29 July, 08h:00 – 12h:00 (Monday through Friday)
ROOM	TBC
HOURS PER DAY	4
TOTAL HOURS	40
MAX. NUMBER OF STUDENTS	30

COURSE DESCRIPTION

The course consists of two parts: (1) Introduction to Programming using Python and (2) Creating an e-book that is highly interactive to teach programming, keeping in mind scalability and teach-anywhere.

In the first part of the course, the students will get an accelerated introduction to programming with hands on projects. This will give the participants the core concepts needed in programming, to teach anybody how to write programs that solve problems. Some of the topics include:

- Computational Thinking (Algorithmic Thinking, Decomposition, Generalisation, Verification, and Abstraction)
- Problems and Algorithms
- Introduction to Python
 - Variables & Expressions
 - Data Types
 - Branching
 - Loops
 - Functions
 - Strings
 - Lists
 - Dictionaries
 - Classes
 - Exceptions
 - Modules
 - Files
 - Sorting and searching
 - Plotting

In the second part of the course, the participants will learn to use a platform, (CODIO), to create an interactive e-book to use in their classes. We will use what we learned in the previous part of the course, to create an interactive e-book that can be used to teach students an introduction to programming. Participants are encouraged to create an e-book to different grade levels (K-12).

Course methodology: In-Person, Recitation-Lab.
Course assessment: Labs and book project.

LECTURER'S BIO



**Jorge Luis Valenzuela
Herrera, PhD**
Kansas State University
United States

Dr Jorge Valenzuela received a bachelor's degree in computer engineering from Monterrey Tech, Mexico, in 1990. Following graduation, he joined Petro Ensamblas as a software engineer/team leader and worked there from 1991 to 1997. In January 1998, he came to K-State to pursue a master's degree in software engineering. After obtaining his master's degree, Valenzuela worked for Motorola as software engineer from 2000 to 2003. He returned to K-State in 2004 and received his doctorate degree in computer science in 2014. He then worked for the K-State College of Education as systems programmer for the Center of Intercultural and Multilingual Advocacy (CIMA). He also worked as adjunct instructor in the K-State department of Computer Science from Fall 2014 to Spring 2016. Valenzuela currently holds a Teaching Assistant Professor position in the department.

Valenzuela's research interests focus on software engineering, multi-agent systems, embedded systems, computational thinking, and computer Science in grades K-12.