קורס תכנות **Python**

הערות	ש"ל אקדמיות	פירוט מקצועות / נושאים
		נושאי הלימוד בקורס
	30	**יסודות התכנות. יסודות שפת Python**
		Basics of Computer Architecture: processor, memory, data storage, input-output, digital data representation. Programming languages: languages classification, high-level languages versus low-level, programming paradigms, program translators, interpreters. Python programming language. Pros and cons, language creation history, what can Python do. Setup and configure Python development environment. Programming basics. First python program. Language syntax, variables, data types, operators. Console input-output. Algorithm, program flow chart. Python debugger. Using of simple data structures: lists, multidimensional lists. Program flow control. Comparison operators. Booleans. Logical operators. Truth table Conditional Execution. Loops. Simple functions. Function parameters, arguments, return statement. Packages, modules. Python Tuple, Dictionary, Set. Files read, write, append. CSV files.
	130	**תכנות מתקדם . Python**
		Control and Evaluations. Basic language concepts: data types, strings, lists, numbers, logical operations, program flow control. Data structures. List, tuple, dictionary, set. User defined data structures. Stack, queue. Collections. Generators, iterators. Functions advanced. The concept of passing arguments in different ways and setting their default values, along with the mechanisms of returning the function's results; name scope issues. Python Modules and Packages. Python Virtual environment. Bitwise operations. Positional numeral systems. Python Literals. Binary, Hexadecimal, Octal.

הערות	ש"ל אקדמיות	פירוט מקצועות / נושאים
		Object-oriented programming (OOP). The differences between the procedural and object approaches. Classes, objects, properties, and methods; Designing reusable classes and creating objects; Inheritance and polymorphism. UML diagrams for classes relations. Exceptions handling. Python's way of handling runtime errors; Controlling the flow of errors using try and except; Hierarchy of exceptions. File Handling in Python. File system operations. CSV, JSON data processing. Path. Files, folders manipulations. Functional programming concept. Lambda functions. Inner functions. Global, local scope, Global, nonlocal keywords. Python decorators. Concurrency basics. Multitasking and multithreading. Thread-based parallelism with Python. GIL. Multiprocessing. Synchronization. Async operations. Numeric and Mathematical Python Modules. Networking essentials. Python Network Programming. Best Practices and Standardization. PEP (Python Enhancement Proposals) Database management systems. Relational database management systems. SQL, database queries, working with an SQLite database, creating databases; processing data. SQLite, MySQL, Microsoft SQL servers.
	50	פיתוח WEB Frontend.
		Introduction to WEB technologies. Overview of front-end, back-end, and full-stack development. HTML language. Cascading Style Sheets (CSS), SASS - language. JavaScript. Basic language concept. DOM, BOM objects, methods. Events loop, AJAX.
	20	תכנות GUI של Python TkInter.
		Python GUI Programming. Event-driven programming. Intro to GUI Programming, settling widgets in the window's interior, coloring your widgets, a simple GUI application, events and how to handle them, widget properties, interacting with widget methods, variables
	60	מסגרות WEB Frontend React. Angular.
		MS TypeScript Angular. React.

הערות	ש"ל אקדמיות	פירוט מקצועות / נושאים
	40	**פיתוח WEB עם Python Flask .Django**
		Django Models. Django Views and Templates. Django Forms. Django URLs and Routing. Django Rest Framework. Front-End Integration. Introduction to Flask. Routing and Views. Templates. Forms and User Input. Static Files and CSS Database Integration
	20	**Cloud services**
		Introduction to Cloud Computing. Overview of major cloud service providers (e.g., Amazon Web Services, Microsoft Azure, Google Cloud Platform). Introduction to virtualization and its role in cloud computing. Cloud services: Storage, Data services, Application services.
	30	**פרוייקט גמר**
	380	**סהייכ שעות**