



Program Software Engineering

Syllabus of Course 10142

Software Development Tools

Academic Year	2025
No. of course hours	2.00 Semestrial hours [Lecture 2.00 + -]
Academic credits	1.00
Prerequisites	
Please note that The prerequisites are for all programs, you are required to be updated on the prerequisites you need according to your personal program.	
Class Attendance	Mandatory
Objectives	The course is designed to prepare the students for developing software products over Linux / Unix environment. The students will practice utilizing Linux / Unix Operating System, writing shell scripts and using development and development operations infrastructures and utilities.
Abstract	Introduction to Linux, Terminal and File Editors, File System Architecture. Introduction to Bash, Basic Commands, Batch files, Pipes and redirections, Writing batch scripts in Bash. Introduction DevOps software over Linux. Using GIT and Docker Containers.

Academic learning outcomes

Learning outcomes related to the content of the course	The course introduces the students to Linux operating system, and provides knowledge and experience with batch file compilation,
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	Searching and understanding commands and Linux utilities used for Software development and Development Operations (DevOps).
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Learning outcomes - Skills

Planning and executing experiments: selecting subjects, process of planning, analysis, conclusions, limitations, and ramifications. General identification of a research subject and initial ability to design an experiment.

Programming: writing a working, high-quality program, adding to an existing program, reading, and understanding a program. The ability to identify types of variables, output and input, using conditionals, loops, functions, and the ability to read a simple program.

Self-learning: curiosity, initiative, independence, and knowledge transference. A somewhat deeper investigation of the subject, while partially relating to previous learning, and attempting to apply the acquired skills and knowledge.

Further points of emphasis	<p>The course integrates classroom guided learning and self-paced learning.</p> <p>The students will experience common development tools and used in the Software industry, and in further projects introduced through Software development studies.</p>
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Lecture topics by weeks

The order of the topics can be changed at the lecturer's discretion.

1	Introduction to Linux. Installation and configuration.
2	Architecture and basic principles of Linux. Terminal and File Editors.



3	File System Architecture, types and permissions.
4	Introduction to Bash and basic commands. Variables, Boolean conditions, loops, pipes and references, writing to /dev/null, flags. Writing batch scripts.
5	Introduction to Bash and basic commands. Variables, Boolean conditions, loops, pipes and references, writing to /dev/null, flags. Writing batch scripts.
6	Introduction to Bash and basic commands. Variables, Boolean conditions, loops, pipes and references, writing to /dev/null, flags. Writing batch scripts.
7	Introduction to Bash and basic commands. Variables, Boolean conditions, loops, pipes and references, writing to /dev/null, flags. Writing batch scripts.
8	Introduction to Bash and basic commands. Variables, Boolean conditions, loops, pipes and references, writing to /dev/null, flags. Writing batch scripts.
9	Introduction to Docker and working with Containers.
10	Introduction to Docker and working with Containers.
11	Code lifecycle management and Team development using GIT, Using Build tools to manage software life cycle, Batch scripting and DevOps utilities
12	Code lifecycle management and Team development using GIT, Using Build tools to manage software life cycle, Batch scripting and DevOps utilities
13	Summary and student presentations

Tutorials / Labs topics by weeks

The order of the topics can be changed at the lab instructor's / tutor's discretion.



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Course coordinator	Mr. Cohen Tom
Language of instruction	Hebrew
Subjects for self-tutoring	<p>The students will practice independently querying Linux commands using man pages.</p> <p>Students should be able to understand and utilize arbitrary Linux commands using its manual.</p> <p>Some development operations utilities are self-paced learning based.</p>
Textbooks and Recommended Bibliography	<p>Sander Van Vugt, Linux Fundamentals, 2nd Edition, Oriely, 2022 (videos available through Afeka's library)</p> <p>Philip Kirkbride, Basic Linux Terminal Tips and Tricks, Apress, 2020 (ISBN 9781484260340)</p>



**Mokhtar Ebrahim, Andrew Mallett, Mastering Linux
Shell Scripting. Second Ed., Packt, 2018 (ISBN
9781788990554)**

**Sean P. Kane; Karl Matthias, Docker: Up & Running,
O'Reilly, 2023 (ISBN 9781098131821)**

**John Abildskov, Practical Git - Confident Git Through
Practice, Apress, 2022 (ISBN 9781484262696)**

**Graham Glass, King Ables, Linux for Programmers
and Users. Prentice-Hall International Ed., 2009**

**Maurice Bach. The Design of Unix Operating System.
Prentice-Hall International Ed., 2010**



Course Requirements and Calculation of Final Grade

Task Type	Percentage of Final Grade
Final Exam Grade	0
Midterm Exam Grade	0
Homework Assignments	30
A project in a course where there is no Final Exam	70
A project in a course where there is a Final Exam	0
Final Grade	0

Clarification to pass the course:

In order to pass the course, students must fulfill the following conditions [excluding the English Beginners Course, Labs and Workshops]:

1. Final course grade of at least 60 [taking into consideration all the above course requirements].
2. Attendance according to the attendance requirement [see section regarding attendance].

Exam and Midterm Exam

Type of Midterm Exam

Duration of Midterm Exam

Location of Midterm exam

Duration of Final Exam

Location of Final exam

Permitted Material/Tools for Exams

Details of permitted materials for exam

Formula Sheets

Number of single-sided sheets