OPERATING SYSTEMS

Instructions for attending courses and taking exams

Organization of lectures and practical classes

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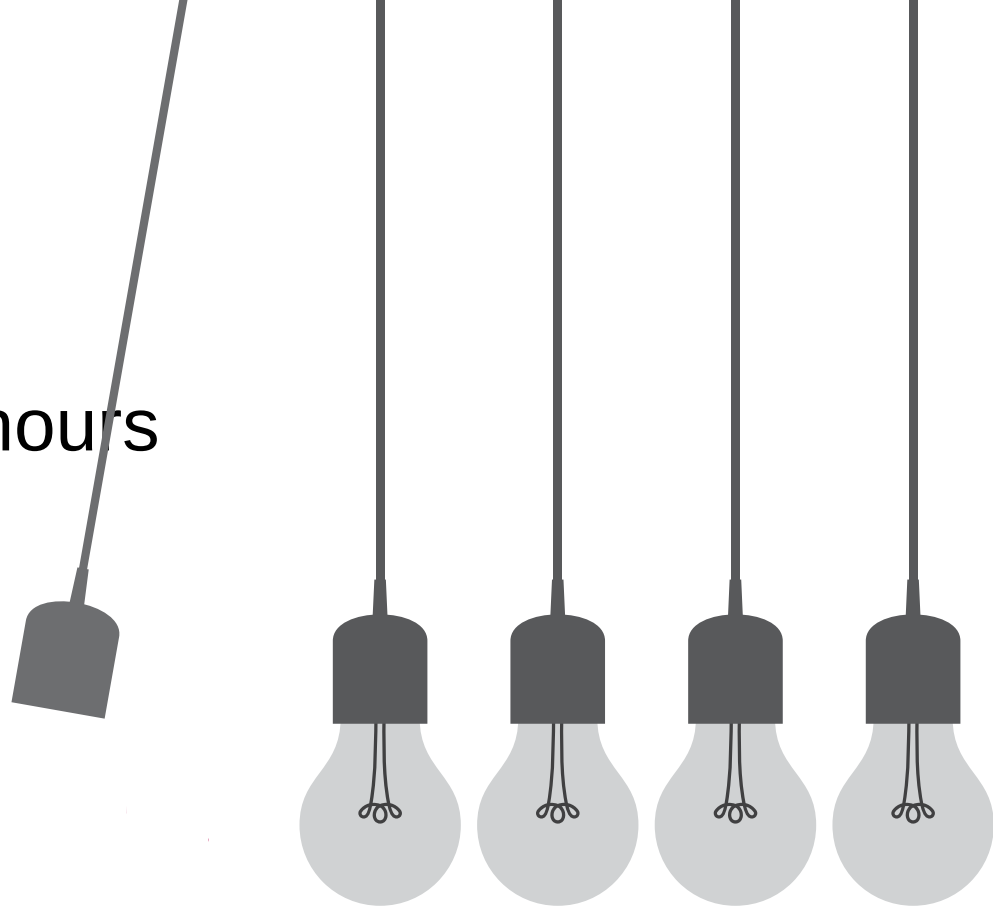
Conducting classes:	Lectures	2 hours per week: - Every Wednesday - 30 hours total
	Practical classes	2 hours per week - Every Friday - 30 hours total

Course information

- 5 ECTS credits = 150 student working hours
  - 30 hours of lectures
  - 30 hours of practical classes
  - 90 hours of working from home
- Obligatory course



Course objective

- operating systems and how they work
- how operating systems work with processes and threads
- concurrency and synchronization of processes
- how all the above interacts with practical use cases, like using computer to work with hard disk, multimedia systems and similar scenarios.

Learning outcome sets

Label of a learning outcome set	Name of a learning outcome set	ECTS credits
S1	Functions of modern operating systems	2
S2	Critical section management	2
S3	Memory systems	1

Learning outcomes

Set	Outcome	MINIMUM LEARNING OUTCOMES (upon succesful completion of the course, students will be able to)	DESIRED LEARNING OUTCOMES (successful students should be able to)
S1	I1	Discover similarities and differences between processes and threads, the relationship between operating system and file system, memory and virtual memory.	Compare similarities and differences between processes and threads, the relationship between operating system and file system, memory and virtual memory.
	I2	Distinguish between concurrent and parallel execution of processes and threads.	Evaluate concurrent and parallel execution of processes and threads.
	I3	Reassess context substitution and situations in which context substitution occurs.	Confirm context substitution and situations in which context substitution occurs.
	I4	Determine the existence of a critical section and implement a simple program to demonstrate the critical section.	Justify the existence of a critical section and implement a simple program to demonstrate the critical section.
	I5	Determine the specific causes of complete downtime in the critical section in multithreaded systems.	Critically argue the specific causes of complete downtime in the critical section in multithreaded systems.
S2	I6	Implement protection mechanisms to prevent complete downtime at a critical section (example: interrupt control instructions, algorithms, mutex, traffic lights, monitors).	Review protection mechanisms to prevent complete downtime at a critical section (example: interrupt control instructions, algorithms, mutex, traffic lights, monitors).
S3	I7	Evaluate the computer's memory system, its hierarchical organization, and elements.	Critically argue the computer's memory system, its hierarchical organization, and elements.
	I8	Compare the physical and logical organization of hard disk, optical and portable memory.	Justify the physical and logical organization of hard disk, optical and portable memory.
	I9	Connect input-output system, and different ways of exchanging data	Recommend the configuration of an input-output system, and different ways of exchanging dana

Literature

Official literature

- Stallings, W. (2018) Operating systems internals and Design Principles, 190 High Holborn, London WC1V 7BH, UK, Pearson.

Recommended literature

- Tanenbaum, A. (2016) Modern Operating Systems, 190 High Holborn, London WC1V 7BH, UK, Pearson.
- Silbershatz, A., Gagne, G., B.Galvin P. (2021) Operating System Concepts, 111 River Street, Hoboken, NJ 07030-5774, John Wiley and Sons.

What is necessary to get a signature?

In order to obtain the right to a signature, it is necessary to participate in class at the percentage rate prescribed by the Book of Regulations on studies and studying.

Lectures and practical classes participation	
At least 50 % of physical presence in lectures	At least 60 % of physical presence in practical classes

Whoever fails to obtain a signature will have to enroll in the same course the following year, to pay the enrollment and does not have the right to take the exam.

In addition to the attendance, the condition for obtaining a signature is the preparation of a seminar paper according to the given criteria and within a precisely defined deadline.

Passing courses

- A course has 6 defined learning outcomes divided into 3 learning outcome sets.

- **In order for students to pass a course, they need to achieve at least 50% of credits of the total credit amount within each of the learning outcome**.
- **If students fail to achieve at least 50 % of credits of a learning outcome, they are required to take the learning outcome during the next exam period.**

- The learning outcome sets evaluation methods:
  - Midterm exams
  - Practice preparations

How does this relate to learning outcomes

SET	Outcome	M1	M2	Blic test	MAX
S1	I1	8		2	10
	I2	8		2	10
	I3	8		2	10
	I4	8		2	10
S2	I5	16		4	20
	I6		16	4	20
S3	I7		8	2	10
	I8		4	1	5
	I9		4	1	5
Outside of the outcome					**0**
	TOTAL	**48**	**32**	**20**	**100**

Grading

Number of points achieved	Grade
0,00 – 50,00	1 (insufficient)
50,01 – 58,00	2 (sufficient)
58,01 – 75,00	3 (good)
75,01 – 92,00	4 (very good)
92,01 – 100,00	5 (excellent)

Exams

- Each course complies with the **3 + 1 rule**.
  - This means that a student can take an exam a maximum of 4 times.
    - 3 regular exams – included in the tuition fee
    - 1 extraordinary exam – 700 HRK for 4th registration of exam pursuant to the Decision on Reimbursement of Expenses
  - The deadline for passing an exam is **12 months** from the day of enrolment in the course.
  - If a student fails to pass a course within 12 months, **he/she must re-enrol in the course and re-take all learning outcomes defined in the course**.
- **Keep track of deadlines for registering and cancelling exams on IE.**
  - If you failed to register an exam on time, you cannot take neither the written nor the oral exam.
  - If a student registers for multiple examination periods of the same course, after obtaining a satisfying grade, he/she must cancel his/her registration for all subsequent examination periods of that course. Otherwise, an insufficient (1) will be recorded in Infoeduka for that student.

Academic standard of conduct

- In written and oral communication it is necessary to follow the rules of business communication appropriate for the academic level.
- It is necessary to abide by the strictly defined deadlines for task submissions (homework, seminar papers, projects, etc…).
  - Every task, homework, project etc…, submitted after the defined deadline will not be evaluated nor graded.
- Only those students who can confirm their attendance, will be considered as present.
  - Signing other students, or registering their card is not allowed and may be subject to disciplinary action. The teacher will delete the student's attendance if he / she determines that the student is registered and is not present at the class.

Rules of conduct during classes

- One has to come to class on time.
- Each student should disinfect their hands before accessing the workplace.
- Upon entering the classroom, student registers for classes with a card and then sits in an accessible place for work.
- Compliance with epidemiological measures is mandatory: currently this means wearing a mask in a way that it covers mouth and nose all the time. A student who violates that will be removed from class and reported to the Disciplinary Board.
  - If and when epidemiological measures change, we will adjust the rules.
- Disruption of class and inactive class participation is not allowed.
  - Continuous breaking of this rule is sanctioned by reporting students to the Disciplinary Board.

Thank you for your attention!