

# Software Systems Verification and Validation

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# Software Systems Verification and Validation

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"Tell me and I forget, teach me and I may remember, involve me and I learn."

(Benjamin Franklin)

# Outline

- **Class Management**
- Teachers
- Class schedule
- Grading
  - Overall activity
  - Seminar activity
  - Laboratory activity



# Class Management

- Microsoft Teams
- Join
  - Microsoft Team: InformaticaEngleza\_3\_SSVV
  - Code: **jaq62yy**
- **2021-2022 – SSVV – hybrid**
  - Lectures – online
  - Seminars – face to face
  - Laboratories – face to face

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# Teachers

- Lecture: Assoc. Prof. Vescan Andreea
- Laboratory:
  - Assistant Prof. Lazar-Lorincz Beata
    - [beata.lorincz\[at\]ubbcluj.ro](mailto:beata.lorincz[at]ubbcluj.ro)
  - Endava Associate Teacher Iudean Bogdan
    - [iudeanb\[at\]scs.ubbcluj.ro](mailto:iudeanb[at]scs.ubbcluj.ro)
  - Assoc. Prof. Vescan Andreea
    - [andreea.vescan\[at\]ubbcluj.ro](mailto:andreea.vescan[at]ubbcluj.ro)
- Seminar:
  - Assoc. Prof. Vescan Andreea

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# Class schedule

Software Systems Verification and Validation (tentative schedule)				
Week	Date	Lecture	Seminar	Laboratory
1	21-25 feb	Inspection	Inspection	Inspection
2	28 -4 mar	Testing. BBT		
3	7-11 mar	WBT	BBT	BBT
4	14-18 mar	Levels of testing		
5	21-25 mar	Invited Lecture EVOZON (pending)	WBT	WBT
6	28-1 apr	Agile		
7	4-8 apr	Invited Lecture Altom(pending)	Levels	Levels
8	11-15 apr	Symbolic exe.; Model checking		
9	18-22 apr	Correctness	Web?	Web
Vacation	22 apr – 1 may			
10	2-6 may	Invited Lecture Endava (pending)	Web?	Web
11	9-13 may	Invited Lecture Garmin (pending)		Bachelor Thesis testing
12	16-20 may	?		



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# Grading

- $F = 20\% L + 20\% S + 10\% Q + 50\% E$ 
  - L=lab; S=Seminar; Q=Quizzes; E=Written;
  - Bonus points! See the homepage of the course!
- Conditions to participate at the final exam
  - There is no restriction regarding the participation at the written examination regarding obtained marks at L, S, Q.
  - Attendance lab (5 out of 6) -90%
  - Attendance sem (4 out of 6) – 75%
  - Council of the Faculty of Mathematics and Computer Science
    - 28 September 2016
    - <http://www.cs.ubbcluj.ro/hotararea-1893-28-09-2016-a-consiliului-facultatii-privind-modificarea-regulamentului-de-functionare-al-fmi/>
    - Motivation of absences
    - 11 October 2016
      - Decision regarding the motivation of the absences of the students
    - <http://www.cs.ubbcluj.ro/hotarare-privind-motivarea-absentelor-studentilor-nivel-licenta/>
    - Students will present the documents to motivate absences from the seminar/laboratory within one week from the date of absence.
    - If the motivation comes after more than a week, then apply to the dean's office.
    - The procedure announced in September 2021 for students requesting participation in online activities will also continue (for objective reasons for a long time or only temporarily, in case of quarantine / isolation). <http://www.cs.ubbcluj.ro/cereri-de-participare-online-la-activitati-didactice-din-motive-medicale/>
- L/S/Q work may not be redone in the retake session.
- Students from Previous Years to 2021-2022 - All the above rules apply to students from previous years (except attendances).
- Conditions to pass/complete the SSVV discipline:
  - $F \geq 5$  final grade.

[https://www.cs.ubbcluj.ro/files/curricula/2021/syllabus/IE\\_sem6\\_MLE5014\\_en\\_avescan\\_2021\\_6105.pdf](https://www.cs.ubbcluj.ro/files/curricula/2021/syllabus/IE_sem6_MLE5014_en_avescan_2021_6105.pdf)

# Grading - Gamifying Education

<https://ieeexplore.ieee.org/document/8166715>

<https://ieeexplore.ieee.org/document/8658524>

	Heroic Quests (quizzes)	Side Quests (Lab Assignments)	Social Quests (Sem Assignments)	Epic Quests (Final Exam)	XP intervals	Grade
Normal session	300 XP	600 XP (in-class 25 XP + take- home 75 XP for each lab)	600 XP (300XP SLR+Video presentation + 50 XP for each sem activity)	Up to 1500 XP	[1400,1500]	5
					[1501,1800]	6
					[1801,2100]	7
					[2101,2400]	8
Retake session	Points obtained in the didactic activity period (labs and seminar and bonus activity cannot be redone in the normal/retake session).			Up to 1500 XP	[2401,2700]	9
					Over 2700	10

**Final exam – you must come (be present) to final exam in order to compute the grade!**

**Bonus points = 200 XP (1p)**

Participating in Education related Research study: collaboration between University of Namur and Babes-Bolyai University

Responses to the questionnaires will be anonymized at the end of the collection.

**Study 1 (50XP):**

2 questionnaires (first in week 1, second in the last week)

Your professor also participate in the study and will not have access to the data collected before they are anonymized.

**Study 2 (150XP)**

6 questionnaires ( week 1, lecture 2, lecture 3, lecture 7, lecture 9, lecture 12)

**Bonus points = 600 XP**

Research paper (See available topics in Teams)

Topic by teacher + 2 members/team + deliverables

Paper submitted to journal for review (before 20 May 2021)

**Remark: If you are interested in this activity, the deadline for enrollment (send email) is 18 March 2021 (week 4).**

# Grading - Seminar

- Attendance: 4 out of 6 required
  - 20% of the final grade
  - You can change the date of your scheduled seminar if you exchange your “place” with another student.

## Seminar structure

Assignment 1 – 10 minutes – discussion on a given topic (the teacher is an observer)

Assignment 2 – 60-70 minutes – assignments on a given topic

Assignment 3 – 10 minutes – quiz about required reading and seminar discussions.

Sem 1	Sem 2	Sem 3	Sem 4	Sem 5	Sem 6
Inspection	BBT	WBT	Levels	Web	All
50XP	50XP	50XP	50XP	50XP	50XP 300 XP – SLR Report +video+peer review



# Grading – Seminar (2)

Conduct a Systematic Literature Review on a provided research topic.

- SLR (Systematic Literature Review) – Report pdf – 150 XP
- Video presentation + Peer review – 150 XP
- References
  - Barbara Kitchenham, Procedures for Performing Systematic Reviews, 2004
  - Barbara Kitchenham, Guidelines for performing Systematic Literature Reviews in Software Engineering, 2007
- **Team: 3 persons/team**
- **Tasks (48h:12=4h/week for the team)**
- **Task a) Report pdf**
  - 01. Search and save the title (doi) of the articles (minimum 30 articles) (6h)
  - 02. Read abstracts and reduce from 30 to 10 articles (6h). **The papers will be provided by the teacher after you send your list of 10 articles.**
  - 03. Read each of the 10 papers and produce 1 paragraph/paper (approach, used method, dataset, obtained results) (3h\*10articles=30h)
  - 04. Summarizing table with the 10 articles (6h)
  - 05. Report containing
    - Explain the methodology applied (all the steps and findings regarding various characteristics of the selected articles).
    - The 10 paragraphs, one for each paper.
    - Summarizing table.
- **Task b) Pecha Kucha type Presentation**
  - Time for the Recorded presentation - 5 minutes
  - Presentations will be played during the last seminar.
  - Peer review minimum 3 presentations during the last seminar.

# Grading - Laboratory

- Attendance: 5 out of 6 required
  - 20% of the final grade
    - You can change the date of your scheduled laboratory if you exchange your “place” with another student.

## Laboratory structure

Assignment 1 – 10 minutes – current lab discussion, problem assignment

Assignment 2 – 40 minutes – in-class problem solving and delivery

Assignment 3 – 40 minutes – delivery of the previous lab (exception first lab)

Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6
Inspection	BBT	WBT	Levels	Web	All (Bachelor Thesis)
Assignment 1 (L1)	Assignment 2 (L2)	Assignment 3 (L3)	Assignment 4 (L4)	Assignment 5 (L5)	Assignment 6 (L6)
	L1_Delivery1	L1_Delivery2 L2_Delivery1	L2_Delivery2 L3_Delivery1	L3_Delivery2 L4_Delivery1	L4_Delivery2 L5_Delivery1 L6_Delivery1 (in-class only)

# Grading – Laboratory (2)

- Each Lab Assignment
  - In-class assignment
    - 25 XP
  - Take-home assignment
    - 75 XP
- Work in teams – Recommended: 2 members per team (maximum 3 allowed (one team in a semigroup) if one students does not have a partner in his/her own semigroup).
- No more than two lab problems will be delivered in one lab meeting. An extra lab problem is delivered **only if time allowed**.
- Delay in lab submissions (take-home only) – One third points from that lab grade.
- Maximum 2 weeks delay in submission of the homework assignment.
- Each time you deliver a laboratory - the Deliverables of the in-class and take-home assignments must be uploaded in Teams.
- 3 or 4 maximum retake students per semigroup