Software Systems Verification and Validation

Vescan Andreea, PhD, Assoc. Prof. Habil.

Faculty of Mathematics and Computer Science
Babeș-Bolyai University
Cluj-Napoca

2024-2025

Software Systems Verification and Validation

"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: 2024_2025_InfoEng_SSVV
  - Code: 37ajw2j

- **2024-2025 – SSVV – face to face**
  - Lectures
  - Seminars
  - Laboratories

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Teachers

- Lecture: Assoc. Prof. Vescan Andreea
- Laboratory:
  - PhD Student Iudean Bogdan
    - bogdan.iudean[at]ubbcluj.ro
  - PhD Student Galbîn-Năsui Andreea
    - nasui.galbin[at]ubbcluj.ro
  - PhD Student Nădejde Camelia
    - camelia.nadejde[at]ubbcluj.ro
  - PhD Student Custură Octavian Stefan
    - Stefan.custura[at]ubbcluj.ro
  - Assoc. Prof. Habil. Vescan Andreea
    - andreea.vescan[at]ubbcluj.ro
- Seminar:
  - Assoc. Prof. Habil. Vescan Andreea
  - PhD Student Iudean Bogdan
  - PhD Student Galbîn-Năsui Andreea

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Class schedule

Software Systems Verification and Validation (tentative schedule)				
Week	Date	Lecture	Seminar	Laboratory
1	24 -28 feb	Inspection	Inspection	Inspection
2	3 - 7 mar	Testing. BBT		
3	10-14 mar	WBT	BBT	BBT
4	17-21 mar	Levels of testing, Pipeline, Bogdan Iudean		
5	24-28 mar	Invited Lecture EVOZON (pending)	WBT	WBT
6	31 mar - 4 apr	Agile [to be rescheduled]		
7	7-11 apr	Symbolic execution	Levels	Levels
8	14 -18 apr	Model checking		
Holidays	18-25 apr	Holidays	Web	Web
9	28 apr.- 2 may	Correctness		
10	5-9 may	Invited Lecture Altom (pending)		
11	12-16 may	Invited Lecture FundMore (pending)	All	Bachelor Thesis testing
12	19-23 may	Soft skills Exam preparation		

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Grading

https://www.cs.ubbcluj.ro/files/curricula/2024/syllabus/IE_sem6_MLE5014_en_avescan_2024_8602.pdf
F = 25% L +25% S + 50% E (+ 1p bonus)

- F = 20% L +20% S + 50% E (+ 1p given for anonymous feedback)
  - L=Laboratory; S=Seminar; 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.
  - 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.
- L/S work may not be redone in the retake session.
- Students from Previous Years to 2024-2025 - All the above rules apply to students from previous years (except attendances).
- Conditions to pass/complete the SSVV discipline:
  - F >= 5 final grade.

Grading - Gamifying Education

https://ieeexplore.ieee.org/document/8166715
https://ieeexplore.ieee.org/document/8658524

	Given points	Side Quests (Lab Assignments)	Social Quests (Sem Assignments)	Epic Quests (Final Exam)
Normal session	300 XP Feedback	600 XP (in-class 25 XP + take-home 75 XP for each lab)	600 XP (300XP SLR+Video presentation + 100 XP for each Portfolio activity)	Up to 1500 XP
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

XP intervals	Grade
[1400,1500]	5
[1501,1800]	6
[1801,2100]	7
[2101,2400]	8
[2401,2700]	9
Over 2700	10

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

Bonus points = 300 XP (1p)
- **Participating in Education related Research study**
- **Information to be provided after the first lecture**

Bonus points = 600 XP
- Research paper (available topics – discuss with the teacher in teams-chat)
- Maximum 1 team.
- Topic by teacher + 2 members/team + deliverables
- Paper submitted to journal for review (before 23 May 2024)
- Remark: If you are interested in this activity, the deadline for enrollment (send email) is 7 March 2024 (week 2).

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 Exploratory T.	Web RIMGEN	All
		100XP Portfolio About SSVV Tool (your choice)	100XP Portfolio About Test Case Design	100XP Portfolio About Exploratory Testing	300 XP – SLR Report +video+peer review

Grading – Seminar (2)

Portfolio activities

- **1. Portfolio about a topic from SSVV**
  - **Details provided in Lecture 1**
  - **To be submitted in Seminar 3**
  - **Team: 3 persons/team**
- **2. Portfolio about Test Case Design**
  - **Details provided in Lecture 3**
  - **To be submitted in Seminar 4**
  - **Team: 3 persons/team**
- **3. Portfolio about Exploratory Testing**
  - **Details provided in Lecture 7**
  - **To be submitted in Seminar 5**
  - **Team: 3 persons/team**

Grading – Seminar (3)

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 15 articles (6h). The papers will be provided by the teacher after you send your list of 10 articles (if you do not find them by yourself).**
  - **03. Read each of the 15 papers and produce 1 paragraph/paper (approach, used method, dataset, obtained results) (3h*10articles=30h)**
  - **04. Summarizing table with the 15 articles using various perspectives (6h)**
  - **05. Report containing**
    - **Explain the methodology applied (all the steps and findings regarding various characteristics of the selected articles).**
    - **Research questions**
    - **The 15 paragraphs (one for each paper).**
    - **The 3 paragraphs with similarities/differences between the 15 papers (from various perspectives).**
    - **Summarizing table using various perspectives**
    - **Charts using various perspectives**
    - **Answers to the research questions**
- **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.**

You can create an account here https://www.e-nformation.ro/ (use @scs.ubbcluj.ro account) and download the papers. If the papers are not available, please email the teacher the doi id of the paper.

SLR report template
Use the zip template 2025_SSVV_SLR_Student1Student2Student3.zip
Create a project in Overleaf and change the names for Student1 and Student2 and Student 3.

SLR Report pdf + Recorded 5 min Video
Must be submitted in Teams under the Assignment
Assignment_SRL_Report – one day before seminar 6, in the morning, 8.00am.

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 semi-group).
- 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