# Software Systems Verification and Validation

## Assoc. Prof. Andreea Vescan

Babeș-Bolyai University
Cluj-Napoca
2020-2021

# Outline

- Teachers
- Class schedule
- Grading
  - Seminar activity
  - Laboratory activity

# Teachers

- Lecture: Assoc. Prof. Vescan Andreea
- Laboratory:
  - Assistant prof. Lorincz Beata
  - Endava Associate teacher Iudean Bogdan
  - Assoc. Prof. Vescan Andreea
- Seminar: Assoc. Prof. Vescan Andreea

| Software Systems Verification and Validation (TENTATIVE) | | | | | |
|---|---|---|---|---|---|
| Week | Date | Lecture | Seminar | Laboratory | Assignment |
| 1 | 22-27Feb | Intro+Inspection | 1.    Inspection/Review | 1.    Inspection/Review | A1 |
| 2 | 1-5March | Testing. BBT | | | |
| 3 | 8-12March | WBT | 2. BBT | 2. BBT | A2 |
| 4 | 15-19March | Levels of testing | | | |
| 5 | 22-26March | IT firm – EVOZON | 3. WBT | 3. WBT | A3 |
| 6 | 29-2April | Agile, SBTM | | | |
| 7 | 5-9Apr | Correctness | 4. Levels | 4. Levels | A4 |
| 8 | 12-16April | It firm – Endava | | | |
| 9 | 19-23April | IT firm – Altom (?) | 5. Web | 5. Web | A5 |
| 10 | 26-29April | Symbolic execution Model checking | | | |
| 11 | 30-9May 10-14May | Holiday Security | 6. Correctness | 6. Correctness | A6 |
| 12 | 17-21May | ? | | | |

# 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.
- L/S/Q work may not be redone in the retake session.
- Students from Previous Years to 2020-2021 - All the above rules apply to students from previous years (except attendances).
- Conditions to pass/complete the SSVV discipline:
  - F >= 5 final grade.

https://www.cs.ubbcluj.ro/files/curricula/2020/syllabus/IE_sem6_MLE5014_en_avescan_2020_5248.pdf

# 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 students.

- **Required readings before seminars!**

- Seminar structure
  - **Assignment 1** - 10-minutes – discussion on a given topic (the teacher is an observer!)
  - **Assignment 2 -** 60-80 minutes – assignments on a given topic
  - **Assignment 3** – 10 minutes – quiz about required reading and seminar discussions.

# 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 students.
- Lab structure
  - **First hour of each lab** - current lab discussion, problem assignment and **in-class** problem solving.
  - **The second hour of each lab** - delivery of previous lab (exception first laboratory).
- 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).
- Lab grading for each laboratory (except the last one)
  - **In class** assignments! (3 points)
  - **Take-home** (Homework) assignments! (7 points)
- 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 -2/3points from that lab grade.
- Maximum 2 weeks delay in submission of the homework assignment.
- **Remark**:
  - Each time you deliver a laboratory - the Deliverables of the in-class and take-home assignments must be uploaded in canvas.
  - 3 or 4 maximum retake students per semigroup

# Laboratory

| Lab 1 | Lab 2 | Lab 3 | Lab 4 | Lab 5 | Lab 6 |
|-------|-------|-------|-------|-------|-------|
| Inspection<br><br>Assignment 1 (A1) | BBT<br><br>Assignment 2 (A2) | WBT<br><br>Assignment 3 (A3) | Levels<br><br>Assignment 4 (A4)<br>Assignment 6 (A6) | Web<br><br>Assignment 5 (A5) | Correctness |
| | A1_Delivery1 | A2_Delivery1<br>A1_Delivery 2 | A2_Delivery2<br>A3_Delivery1 | A4_Delivery1<br>A3_Delivery2 | A5_Delivery1<br>A6_Delivery1<br>A4_Delivery2 |

# Grading
## Gamifying Education

| | Heroic Quests (quizzes) | Side Quests (Lab projects) | Social Quests (Seminars +Video Presentation) | Epic Quests (Final exam) |
|---|---|---|---|---|
| Normal session | 300 XP | 900XP Each Lab [100,200] XP (in-class 25XP/50XP+ take-home 75XP/150XP) | 600 XP Each Sem 100XP (in-class 25XP + Quiz 75 XP) | 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 1500XP |

| 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)
  - 300 XP – activities during lectures or take-home for next lecture
- Bonus points = 600 XP
  - Research paper (See available topics in Canvas)
  - Topic by teacher + 2 members/team + deliverables
  - Paper submitted to journal for review (before 21 May 2021)
  - Remark: If you are interested in this activity, the deadline for enrollment (send email) is 19 March 2021 (week 4).

# Software System Verification and Validation
## Lectures/Laboratory assignments/Seminar topics

- https://www.cs.ubbcluj.ro/~avescan/?q=node/273

- For the SSVV class we will be using
  - Canvas (for resources and tasks)
  - MicrosoftTeams (online live classes)

- **Canvas (https://canvas2.cs.ubbcluj.ro/)**

- To do: Please enroll in the class at the link that you received via scs email. You will find there all the information about SSVV.

- **Atentie!** Nu este legatura intre parola de pe canvas si cea de pe scs. La prima logare trebuie utilizata pe ramura "am uitat parola"si atunci sistemul trimite un mail pe adresa data de pe scs cu ajutorul caruia fiecare isi seteaza parola.

- **Careful!** There is no link between the canvas password and the scs password. The first login should be used on the "forgot password" branch and then the system sends a mail to the scs address which will help to set your password for canvas.

- MicrosoftTeams

- **Join the Microsoft Team InformaticaEngleza_3_SSVV**

- code: **orz3093**