Course analysis template

After the course has ended, the course leader fills in this template.

Course code	Course title	Credits
5HI020	Standardisation within health informatics	5
Semester	**Period**	
2	1	

Course leader	Examiner
Stefano Bonacina	Stefano Bonacina
Other participating teachers	**Other participating teachers**
Rosario Silva, Luis Marco Ruiz	

Number of registered students	Number passed after regular session	Response rate for course survey (%)
44	43	38,64 %
Methods for student influence other than course survey Feedback and comments on the schedule and the agenda, while the course is running.		
How will the results from the course analysis be communicated to students The course analysis will be published on the course website on Canvas and submitted to the Board of Education at LIME Department.		

1. Description of any implemented changes since the previous course

Compared with the VT24 edition, in VT25 5HI020 course, two guest lecturers were involved in the demonstration and laboratory sessions of Health Level Seven International - Fast Healthcare Interoperability Resources (HL7 FHIR) data standard and openEHR specifications, one per each subject. They were also involved in the assessment of laboratory group assignments. Then, four new sessions were added. Two sessions were devoted to the Guideline Definition Language and two sessions were devoted to "Form Builder", a proprietary software for creating openEHR based applications. Other two guest lecturers were involved for those sessions. Finally, the laboratory session and the related laboratory assignment on HL7 v2. messaging standards were not implemented. This is because the software for HL7 v2. messaging standards is currently only available for Windows systems, and unfortunately not for Mac.

2. A brief summary of the students' evaluations of the course

(Based on the students' quantitative answers to the course evaluation and comments. Quantitative compilation and possible graphs attached. Enclose results from the course evaluation)

Seventeen (17) out of 44 students completed the course evaluation survey. Sixteen have clinical/medical education background, while one has "technical" education background. For each question of the survey, mean, standard deviation and coefficient of variation, as a percentage, are presented in Table 1.

In Table 1, the mean value of the answers varies from 2.8 to 4.4, while the standard deviation ranges from 0.9 to 1.1. Finally, the coefficient of variation ranges from 13.3 to 41.5 per cent. From those numbers, it appears that respondents' views are heterogeneous.

Table 1. Mean,standard deviation and coefficient of variation for questions of the survey.

#	Question	Mean	Standard Deviation	Coefficient of Variation (%)
1	In my view, I have developed valuable expertise/skills during the course.	4.2	1.0	22.8
2	In my view, I have achieved all the intended learning outcomes of the course.	4.1	0.9	22.5
3	In my view, there was a common theme running throughout the course – from learning outcomes to examinations.	4.2	0.6	13.3
4	In my view, the course has promoted a scientific way of thinking and reasoning (e.g., analytical and critical thinking, independent search for and evaluation of information).	4.0	0.9	23.4
5	In my view, during the course, the teachers have been open to ideas and opinions about the course's structure and content.	4.4	1.0	22.9
6	Teaching was based on real examples to develop students' professional knowledge.	3.8	1.0	26.5
7	My previous knowledge was sufficient to follow the course.	2.8	1.1	41.5
8	The course was challenging enough for me.	3.6	0.9	23.6
	Average	3.9	0.9	24.6

3. The course-responsible reflection on the course implementation and results

As for the implementation, the course was composed by six different parts, as follows:
- Introduction to standardisation and standards within Health Informatics, including some recaps on medical terminology (i.e., SNOMED CT, LOINC, UMLS).
- Health Level 7 standard, v.2.x, including a lecture and a demonstration session of software to generate HL7 v.2 messages.
- C Language Integrated Production System (CLIPS) including a lecture, an installation session of the software, a demonstration session, and practical sessions with exercises to do in groups, and to submit as assignment.
- HL7 FHIR standard, including a lecture, an installation session of software to generate and check FHIR resources, a demonstration session, and practical sessions with exercises to do in groups, and submit as assignment.

- OpenEHR standard, including a lecture, an installation session of software to generate template and archetypes, a demonstration session, practical sessions with exercises to do in groups, and to submit as assignment.
- Guideline Definition Language (GDL v.2) + "Form Builder", including an installation session of the software, and demonstrations /experiential sessions.

Guest lecturers gave lectures on HL7 FHIR and openEHR standards, standards organisations and their functioning (e.g., SIS, CEN, ISO standard development organisations), on the application of standards for implementing the Swedish eHealth Infrastructure, and on OpenEHR adoption in specific European contexts (Catalonia - Spain, and Norway).

The course was implemented by 32 sessions: 15 of two hours, 15 of three hours, and two of one hour. Sixteen of them were by international guest lecturers, and four were given remotely by international guest lecturers. Guest lecturers were from governmental organizations, and from a company developing health IT systems. The implementation of the course was satisfying; improvements can be done according to the received feedback from the students.

In terms of results, four students received an 'A' grade, 14 earned a 'B' grade, 16 achieved a 'C' grade, and nine were awarded a 'D' grade.

Course strengths:

1. Teaching quality and instructor support.
2. Supportive learning environment.
3. Course structure and content.
4. Practical and interactive learning.
5. Guest lectures and external insights.

Course weaknesses:

1. Format and duration of exam.
2. Need for more diverse instructional materials and resources.
3. Increase interactive sessions.

4. Other comments

-

5. The course-responsible conclusions and any proposals for changes

(If any changes are proposed, please specify who is responsible for implementing these and a time schedule.)

In Table 2, reflections on aspects to improve and proposals for changes are presented. Responsible for changes is the course director.

Table 2. Reflections on aspects to improve and proposals for changes.

#	Topic/short summary	Teacher reflections	Actions for improvement
1	Format and duration of exam	The current exam format allows for a thorough evaluation of students' understanding and mastery of the subject matter. A 100-point exam can cover a wide range of topics and skills, ensuring that students have a well-rounded grasp of the material. The eight-hour exam format has been introduced to prevent collaboration among students. The exam requirements are designed to fit within the allotted time. The exam rehearsal provides an opportunity to assess their understanding and practice managing time constraints.	Confirming that learning materials can be used during the exam, further clarify that the exam time is intended for answering questions, not for studying course topics. Additionally, provide further clarification about the required text length. The time schedule will be discussed during the introductory session of the course. The format of the exam remains "Individual written digital examination via distance".
2	More diverse instructional materials and resources	We aim to provide more diverse instructional materials and resources. The software used in the course comes with user manuals and guides, which can be explored, although official video manuals are not available. Reading these manuals requires time, especially since the course involves at least four distinct software tools. The software presented by the guest lecturers from the company does not have a video manual, as it is an internal tool still under refinement. Due to its restricted accessibility and ongoing development, a detailed video manual would be of limited value.	While software tools are subject to changes, video guides for the usage of open access software used in the course can be prepared, provided that those tools fulfill the course needs. As for getting more exercise, we can provide additional exercises for individual preparation. More time of availability would be asked for the proprietary software. Time schedule: four months – before the next iteration of the course.

3	Increase interactive sessions	There were concerns about the engagement and clarity of the teaching methods, and the pacing of the course, perceived too fast for some sessions.	Incorporating more interactive sessions, real-world case studies, and live demonstrations to make the classes more engaging and practical. Time schedule: four months – before the next iteration of the course.