

DT8022 (Robotics, VT 2024, Halmstad, E3436, V3436)

Number of possible respondents: 14

Answers: 8

Response rate: 57,14 %

Study pace: 50 %

Examiner's course analysis

Based on the course evaluation result - which are the strengths of the course?

The students expressed that the best aspects of the course were the practical implementation of the intelligent vehicles course material, the absence of mandatory written reports and exams, and the motivating end-of-course contest. They appreciated the collaborative and enjoyable environment in the robot lab, where everyone worked towards the same goal and helped each other. The hands-on project allowed them to apply knowledge from previous courses, particularly in building and designing the robot, and employ image analysis and methods learned in class. The course stood out for its physical, practical work, which was a refreshing change from the theoretical focus of previous courses. Testing knowledge through a fun, engaging project and implementing techniques like odometry, Cox, and Kalman filters were particularly enjoyable for the students.

Based on the course evaluation result - which are the weaknesses of the course?

The course required significantly more time than expected, with some groups spending up to 60 hours per week. To address this, students suggested increasing the number of supervision sessions and exercises and shortening lectures to provide more hands-on support. They proposed transforming some lectures into practical exercises to facilitate quicker access to sensors and components, which could reduce stress.

Students also recommended revising the grading system to reflect the complexity of tasks handled by the robot rather than the speed of lab completion. They suggested maintaining the reporting requirement for higher grades. They expressed the need for more timely and updated course materials and 24/7 access to the lab due to the course's high time demands. The students highlighted issues with the order and functionality of labs, noting that starting with the most straightforward lab delayed progress on the final project and that sometimes the provided software and hardware were faulty. They suggested focusing less on image analysis and implementing a proper path planner.

Some students felt that translating code from Matlab to C++ and fine-tuning algorithms did not offer substantial learning benefits and that too much time was spent on classification tasks which lacked robustness and relevance. They proposed shifting focus towards path planning and obstacle avoidance, using pre-built robots to work on more meaningful and applicable tasks. Overall, they called for the earlier distribution of kits, reduced emphasis on image classification, and a greater focus on practical robot driving and path-planning exercises.

Comments about the collaboration with the course ambassadors

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Conclusion and suggestions for course development or already made decisions

The students recommended setting up an additional stationary training arena with more blocks to allow more people to test simultaneously. Moving the labs earlier in the course could provide more time to work with the complete robot, though there is concern this might increase pressure early on. Students also advocated for receiving all materials at the beginning of the course to facilitate earlier start and progress.

They proposed providing an example design of a robot to guide the initial stages of building.

Detailed explanations of the communication between the lidar and the computer were requested.

Many students felt that the image classification task, particularly the classification of 1s and 0s, was overly time-consuming and not directly relevant to the course, suggesting its removal.

Lastly, they recommended a tiered grading system, where different levels of achievement correspond to different grades. For instance, a basic grade could be awarded for completing more straightforward tasks, with higher grades requiring more advanced path planning and classification tasks. This approach would make the course more adaptable to different skill levels, enhancing its educational value without adding unnecessary difficulty for all students.

Other comments

The students believe that providing all materials and components earlier in the course would significantly impact the number of students completing the course on time. Early access to materials would allow students to start working on their projects sooner, giving them more time to build, test, and refine their robots. Additionally, they suggested removing the time-consuming and less relevant image classification task, which would free up more time for focusing on essential aspects of the course. These changes, along with earlier and more detailed explanations of critical components like the lidar, would streamline the workflow and reduce delays, ultimately helping more students to complete the course within the allotted time.

Gender

	Number of responses	Distribution (%)
Female	1	12%
Male	6	75%
Do not want to define	1	12%
Total	8	100%

I am overall satisfied with the course.

	Number of responses	Distribution (%)	Index (%) I am overall satisfied with the course	60
0 = I definitely do not agree	1	12%		
1	1	12%		
2	0	0%		
3	2	25%		
4	3	38%		
5 = I definitely agree	1	12%		
No opinion	0	0%		
Total	8	100%		

How much time have you spent on the course in relation to the course's study pace?

	Number of responses	Distribution (%)
Less time than the course study pace	0	0%
Corresponding to the course study pace	0	0%
More time than the course study pace	8	100%
Total	8	100%

The design of the course (teaching methods, literature, pedagogy, etc.) has been well adjusted to help me achieve the learning outcomes in the syllabus.

	Number of responses	Distribution (%)	Index (%) The design of the course (teaching methods, literature, pedagogy, etc.) has been well adjusted to help me achieve the learning outcomes in the syllabus.	42
0 = I definitely do not agree	2	25%		
1	0	0%		
2	3	38%		
3	2	25%		
4	0	0%		
5 = I definitely agree	1	12%		
No opinion	0	0%		
Total	8	100%		

During the course examinations, I have had the opportunity to show that I have achieved the learning outcomes in the syllabus.

	Number of responses	Distribution (%)	Index (%) During the course examinations, I have had the opportunity to show that I have achieved the learning outcomes in the syllabus.	
0 = I definitely do not agree	0	0%		
1	0	0%		
2	1	12%		
3	3	38%		
4	3	38%		
5 = I definitely agree	1	12%		
No opinion	0	0%		
Total	8	100%		70

I have experienced the social study environment as good during the course.

	Number of responses	Distribution (%)	Index (%) I have experienced the social study environment as good during the course.	
0 = I definitely do not agree	0	0%		
1	0	0%		
2	2	25%		
3	0	0%		
4	1	12%		
5 = I definitely agree	5	62%		
No opinion	0	0%		
Total	8	100%		82

Course satisfaction index

Satisfaction index % (summary of all statements)	64
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To increase the number of students that complete the course in time, mention one improvement that will make the most significant impact.