Datos de la materia

Nombre de la materia	Control Computarizado
Clave de la materia	MR2007
Liga al programa de la asignatura	https://samp.itesm.mx/Materias/VistaPreliminarMateria?clave=MR2007
Competencias a desarrollar	El alumno será capaz de: - Estructurar lógicamente las soluciones a problemas (pensar algorítmicamente) - Utilizar las tecnologías para la solución efectiva de problemas - Realizar reportes escritos y exposiciones de forma efectiva. - Realizar una investigación sobre temas de vanguardia utilizando recursos tecnológicos. - Trabajar colaborativamente.
Idioma	**The course will be taught in english**

Datos del grupo y docente

Horario de clase	J 19:05 - 21:55
Salón de clase	Aulas V – 305
Nombre del docente	Dr. Kjartan Halvorsen
Datos de contacto	Aulas I, planta baja, kjartan@itesm.mx , tel. 55 62 19 40 48

Objetivo general de la asignatura

Analizar, diseñar, implementar y evaluar sistemas de control computarizado de procesos y productos con un enfoque de aplicación práctica.

Course policy

Rules It is your responsibility as student to know and comply with the rules of ITESM.

In class In class we work on tasks related to control engineering, and nothing else. I expect every student to take an active part in the class. Students who detect and correct mistakes made by me during class, will be awarded two (2) bonus points for the next exam.

Punctuality There is a 5 minute tolerance for coming late. If you arrive later, you can not expect to enter the classroom.

Academic honesty You will not learn the material unless you work focused and independently. This applies both to work in class and homework. I strongly encourage discussing the topics of the course, as well as assignments and homework with other students. But copying the work of others (even parts of work) and hand in under own name is plagiarism and a dishonest act that will *not* help you become a productive and valuable professional engineer.

Learning methodology

Preparation and quizzes Detailed instructions will be provided for how to prepare for each week's class, typically consisting of text to study and videos to watch. Before each class, you should answer a short test (quizz) on Canvas. There are two motivations for the quizzes. Firstly, it is a chance for you to test your understanding of the material. Secondly, it gives me information about what parts to emphasize

during class. Each quizz accounts for 1% of the final grade. Each quizz has 7 to 10 questions, and a good answer to each question gives 20 points, with a maximum score of 100 in total on the quizz.

Cheat sheet Each student will have an individual "cheat sheet", a colored letter-size page, on which he/she can make notes at the end of each class.

Homework Homeworks will be given about every second week. The homeworks are solved in groups of two (except first homework) and handed in on Canvas. All steps should be well motivated and all figures should be commented and discussed. On follow-up of homeworks, some students will be asked to explain their solution in class, which can give up to 4 bonus points on the final exam if the presentation is clear and show insight into the problem and solution.

Project A project is offered, accounting for 10% of the final grade. Students form project groups of up to four (4) members. The 100p of the project grade is distrubuted as follows: Partial reports (end of each partials) 30p, final report 30p, working open-loop set-up 10p, working closed-loop system 20p, individual journal 10p.

Partial exams There are two partial exams. These are 1.5 hours. Permitted aids are 1) calculator, 2) Laplace table and 3) the colored "cheat sheet".

Final exam The final exam is 3 hours. Same aids permitted as for the partial exams.

Bibliography

Text book	Åström, K J & Wittenmark, B. Computer-controlled systems – Theory and design, 3rd Ed., Dover publications, 2011.
Reference books	- Ogata, Ingeniería de Control Moderna, 4ta Ed. Prentice Hall. - Ljung, L & Glad, T. Control Theory – Multivariable and nonlinear methods, Taylor & Francis, 2000. - Dorf, Richard C., & Robert H. Bishop. Modern control systems. Pearson, 2011. - Nise, Sistemas de Control para Ingeniería, 3a. Ed. CECSA, 2002.

About the professor

- PhD in Electrical Engineering with specialization in Systems Analysis, 2002, Uppsala University, Sweden. MSc in Vehicle Engineering, 1996, KTH – Royal Institute of Technology, Stockholm, Sweden
- Associate Professor / Senior Lecturer in Systems and Control, 2009-2017, Department of Information Technology, Uppsala University, Sweden
- Researcher, 2017-, Department of Information Technology, Uppsala University, Sweden
- Profesor de Catedra, 2015-, Department of Mechatronics, CEM, ITESM
- Actor, Roma (2018)

Evaluation system

Parcial 1					
Week	Quizz	Homework/proj	Partial exam	Final exam	Total
1					
2	1 %	2 %			
3	1 %	4 %			
4	1 %				
5	1 %	4 %			
6			18 % (Sep 19)		
Ev. acum.	4 %	10 %	18 %		**32 %**

Parcial 2					
Week	Quizz	Homework/proj	Partial Exam.	Final exam	Total
7	1 %	4 %			
8	1 %				
9	1 %	4 %			
10	1 %				
11			18 % (Oct 24)		
Ev. acum.	4 %	8 %	18 %		**30 %**

Parcial 3					
Week	Quizz	Homework/proj	Partial Exam.	Final exam	Total
12			Semana-i		
13	1 %				
14	1 %				
15		10 %			
16				26 % (Nov 28)	
Ev. acum.	2 %	10 %		26 %	**38 %**

Course grade	10 %	28 %	36 %	26 %	**100 %**