

Virtual Exchange Global Alliance



EPFL	Digital Signal Processing (COM-303).			
Course description	Students learn digital signal processing theory, including discrete time, Fourier analysis, filter design, sampling, interpolation and quantization; they are introduced to image processing and data communication system design.			
Domain	Computer and Communication Sciences			
Keywords	signal processing	discrete-time	filter design	continuous-time
Prerequisites	calculus, linear algebra			
Level	Master			
Number of credits and workload	6 credits	6 hrs per week	84 hrs in total	
Semester period and Start date course	TBA			
Application deadline	TBA			
Full course description	<p>Digital Signal Processing is the branch of engineering that, in the space of just a few decades, has enabled unprecedented levels of interpersonal communication and of on-demand entertainment. By reworking the principles of electronics, telecommunication and computer science into a unifying paradigm, DSP is at the heart of the digital revolution that brought us CDs, DVDs, MP3 players, mobile phones and countless other devices. The goal, for students of this course, will be to learn the fundamentals of Digital Signal Processing from the ground up. Starting from the basic definition of a discrete-time signal, we will work our way through Fourier analysis, filter design, sampling, interpolation and quantization to build a DSP toolset complete enough to analyze a practical communication system in detail. Hands-on examples and demonstration will be routinely used to close the gap between theory and practice. To make the best of this class, it is recommended that you are proficient in basic calculus and linear algebra; several programming examples will be provided in the form of Python notebooks but you can use your favorite programming language to test the algorithms described in the course.</p>			
Platform and link to course description	Coursera	https://www.coursera.org/learn/dsp#syllabus		

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Course description in study guide	MA	
Lecturer(s)	Paolo Prandoni & Martin Vetterli	
Extra Course information	This course is primarily designed for STEM undergraduates who have already completed classes in calculus and linear algebra. It is also ideal as a Digital Signal Processing primer for students interested in a mathematically solid introduction to the subject. Note that this class is NOT a hands-on, applied DSP course. While many programming examples are provided, the focus is on the theory and not on the implementation.	
Final examination date and time /period	TBA	
Examination registration deadline or drop-out deadline	Examination registration before: TBA Drop- out deadline: TBA	
Type of examination	Written	
Midterm examination?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Previous exam papers available	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Specific rules for examinations		
Resit? and date	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Grade release and transcript release	TBA	