

FROM MICRO CONTROLLERS ARCHITECTURE THROUGH MATLAB CODE, UP TO A PROJECT IMPLEMENTATION - JOIN THIS ONLINE SUMMER SCHOOL

ECTS credits: 4.0











BRIEF DESCRIPTION

Summer School in POWER ELECTRONICS will allow you a deep immersion in electronics behind any modern industry. You will know the most sophisticated micro controllers today, their characteristics, architecture and programming.

Additionally, you will be able to simulate the operation of a productive device under certain requirements through the programming of the micro controller and the regulation of power signals.

Within this course you will be able to design an independent automatic control system with the advice of the best Polytechnic scientists.

Cost:

US\$450 - includes registration, teaching costs, 4.0 ECTS credits Certificate, 40 hours online russian language course and ALAR's Certificate















Program dates: JULY 20 — August 01, 2020

Registration deadline: July 04th, 2020

Entrance requirements:

- . Good command of English
- . All classes and out-of-class activities are conducted in English
- . Knowledge of the Russian language is not required
- . Applicants are expected to have at least 1 year of University level studies.

Professors and lecturers:

SPbPU professors, leading international professors and guest speakers from companies

Course and calendar description

Please find attached curricula and calendar at the end of this document

Program partners:

- Gazprom Transgaz Gazprom
- Neft Surgutneftegaz (Kirishi oil refinery)
- Rosenergoatom Rosseti





POWER ELECTRONICS

10:00	TIME	MON JULY 20th	TUE JULY 21st	WED JULY 22nd	THU JULY 23rd	FRI JULY 24th	SAT JULY 25th	SUN JULY 26th
10:15 10:30 10:45 11:00 11:0	10:00							
10:30	10.15			Generation of				
11:10 outputs of a microcontroller. Signal types. 11:15 Coffee Break Coffee Break Coffee Break Coffee Break Microcontroller programming. Automatic code generation: a modern approach to developing FPGA systems. 13:10 Consultation 12:15 Coffee Break Microcontroller programming. Automatic code generation: a modern approach to developing FPGA systems. 13:10 Consultation 13:15 13:30 13:45 14:10 Cultural Programme: Lesson 1 * Cultural Programme: Lesson 1 * Lesson 2 * Coffee Break Pl&PID controllers Project Consulting (Feedback mode) Project Consulting (Feedback mode) Project Consultation Consultation Consultation Consultation Consultation Consultation Consultation Consultation Consultation Programme: Lesson 1 * Lesson 2 * Campus Tour Lesson 3 * Lesson 4 * Lesson 5 * Coffee Break Coffee B			Signal	PWM signal				
11:10 microcontroller Signal types. Microcontroller Signal types. Microcontroller Signal types. Coffee Break Coffee		•	processing	_	•	<u> </u>		
11:15 Coffee Break		microcontroller.		Microcontroller				
11:45 programming. Automatic code generation: a modern approach to developing 12:45 PFGA systems. 13:00 Consultation 13:15 13:30 Consultation 13:45 Cultural Programme: Lesson 1* Lesson 2* Campus Tour 14:45 Programme: Lesson 1* Campus Tour Design of an automatic control system (Independent work) Project Consulting (Feedback mode) Project Consulting (Feedback mode) Project Consulting (Feedback mode) Ocnsultation Consultation	11:15		Coffee Break	Coffee Break	Coffee Break	Coffee Break		
12:15 12:30 12:45 12:45 13:30 13:45 14:00 Cultural Programme: Lesson 1 * Cultural Programme: Lesson 1 * Design of an automatic control system (Independent work) Design of an automatic control system (Independent work) Project Consultation Project Consulting (Feedback mode) Consultation Cons	11:30	Microcontroller						
Automatic code generation: a modern approach to developing FPGA systems. 13:00 Consultation	11:45		Sensors	Design of an				
12:15 modern approach to developing FPGA systems. With Microcontroller Work) (Feedback mode) Design of closed-loop control systems	12:00			_	Project	controllers		
12:15 to developing FPGA systems. 13:00 Consultation		1		_		Design of closed-		
12:30	12:15				(Feedback mode)	_		
13:00 Consultation			Microcontroller	work)		•		
Consultation Consultation Consultation Consultation Consultation Consultation 13:15 13:30 13:45 14:00 Cultural Programme: Lesson 1 * Cultural Programme: Lesson 2 * Campus Tour Lesson 3 * Cultural Programme: Lesson 4 * Cultural Programme: Lesson 4 * Cultural Programme: Lesson 5 * Cultural Programme: Lesson 6 * Cultural Programme: Lesson 7 * Cultural Programme: Lesson 8 * Cultural Programme: Lesson 9 * Cultural Programme: Lesso		TPGA Systems.						
13:30 13:45 14:00 Cultural Programme: Lesson 1 * Lesson 2* Cultural Programme: Lesson 3* Cultural Programme: Lesson 4* Cultural Programme: Lesson 4* Cultural Programme: Lesson 4* Cultural Programme: Lesson 4* Cultural Programme: Lesson 5*	13:00	Consultation	Consultation	Consultation	Consultation	Consultation		
13:45 14:00 Cultural Programme: 14:30 14:45 Cultural Programme: Lesson 1 * Campus Tour Camp	13:15							
Cultural Programme: Lesson 1 * Cultural Programme: Lesson 2 * Campus Tour Lesson 3 * Cultural Programme: Lesson 4 * Cultural Programme: Lesson 4 * Cultural Programme: Lesson 4 * Cultural Programme: Lesson 5 * Cultural Programme: Lesson 5 *								
Cultural Programme: Lesson 1 * Cultural Programme: Lesson 2 * Campus Tour Cultural Programme: Lesson 3 * Cultural Programme: Lesson 4 * Cultural Programme: Lesson 5 * Campus Tour Cultural Programme: Lesson 4 * Cultural Programme: Lesson 5 * Campus Tour Cultural Programme: Lesson 5 * Campus Tour Cultural Programme: Lesson 5 * Campus Tour Cultural Programme: Cultural Progr								
14:30 Lesson 1 * Lesson 2* Lesson 3* Lesson 4* Lesson 5*	14:00	Cultural	Cultural		Cultural	Cultural		Cultural
14:45	14:15	_	_	Campus Tour	_	_		$\overline{}$
		Lesson 1 *	Lesson 2*		Lesson 3*	Lesson 4*		Lesson 5*
TBA Live-chat Live-chat								
	TBA					Live-chat		Live-chat
TBA White Nights Live	ТВА						White Nights Live	
* - Recommended timing for Cultural Programme TBA - To Be Announced			0.111.0		T D 4			



POWER ELECTRONICS

TIME	MON JULY 27th	TUE JULY 28th	WED JULY 29th	THU JULY 30th	FRI JULY 31st	SAT AUG 1st	SUN AUG 2nd
10:00							
10:00	PI&PID	Code Generation and Project Launch	Introduction to	Code generation	Project implementation in		
10:15	controllers						
10:30	Design of closed-	(1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	MATLAB/	in MATLAB/	Simulink		
10:45	loop control	(Independent work & Feedback	Simulink	Simulink	(Feedback mode)		
11:00	systems	mode)					
11:15	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break		
11:30		Code Generation	MATLAB/				
11:45	Stability of	and Project	Simulink Support	External	Project		
12:00	control system	Launch	Package for Microcontrollers		implementation in Simulink		
12:15	Closed-loop	(Independent		with Simulink	(Feedback mode)		
12:30	control setup	work & Feedback	Project	With Simanik	(1 Journal of mous)		
12:45		mode)	development				
13:00	Canaciltatian				Canadaltatian		
13:15	Consultation	Consultation	Consultation	Consultation	Consultation		
13:30							
13:45							
14:00							
=	Cultural	Sport Dov	Cultural	Cultural	Cultural		
14:15 14:30	Programme: Lesson 6*	Sport Day	Programme: Lesson 7*	Programme: Lesson 8*	Programme: Lesson 9*		
14:45	20000110		20000117	20000110	20000110		
TBA			Live-chat		Closing Ceremony		
TDA						VA/laifa Niialafa Li	
TBA						White Nights Live	