



SEMESTER IN ELECTRICAL ENGINEERING

IUT ANNECY, UNIVERSITY SAVOIE MONT BLANC
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74940 ANNECY

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<https://www.iut-acy.univ-smb.fr/international/general-presentation/>

N.B. : Some changes may be brought to the contents of the modules.

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M 4305
		Workload (nb of hours): 15
	COURSE TITLE BUSINESS KNOWLEDGE	NB OF ECTS: 1
Module coordinator: Lydia Brabon		
Educational aims: Gain knowledge of the company as a social, business and human entity		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> ✚ Be able to understand the company within its environment ✚ Get the basic skills of business functions ✚ Get the basic skills of business culture ✚ Be able to describe a company in English and emphasize its marketing role 		
Assumed prerequisites: None		
Syllabus: <ul style="list-style-type: none"> ✚ Business organization: features, internal functions, relationship between the company and the employee, management ✚ The company as a for-profit organization: business, cost hierarchy, marketing ✚ The company within the business environment: business culture, the company's image 		
Assessment method: <ul style="list-style-type: none"> ✚ Written exam (weight 1) ✚ Oral presentation (weight 1) 		
Bibliography: <ul style="list-style-type: none"> ✚ 		
Latest modification: 09/09/2020		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M4212
	COURSE TITLE FROM THE SOLAR CELL TO THE PV SYSTEM	Workload (nb of hours): 27 NB OF ECTS: 2
Module coordinator: to be confirmed		
Educational aims: Provide technical skills in order to design a photovoltaic installation. Introduce MPPT (Maximum Power Point Tracker) command and associated power converters. Initiate students to grid connection of solar system.		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> ✚ be able to will use V-I characteristic of a solar cell ✚ be able to combine solar cells in a photovoltaic panel and deduce its V-I characteristic ✚ be able to connect a PV panel to its load through a DC-DC convert. Find the operating point ✚ be able to design and implement the power electronic converter and the MPPT command ✚ have gained an insight into grid connection of solar system 		
Assumed prerequisites: General purpose about electrical engineering, DC-DC and DC-AC converters		
Syllabus: <ul style="list-style-type: none"> ✚ Following on Interaction of light with matter ✚ Theoretical and practical approach of PV system ✚ Power electronics and associated commands ✚ MPPT command ✚ Grid connection 		
Assessment method: <ul style="list-style-type: none"> ✚ 1-hour written exam: 70% of module grade ✚ Practical report and final oral presentation: 30% of module grade 		
Bibliography: <ul style="list-style-type: none"> ✚ 		
Last modification: 28/06/2020		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M 4301
		Workload (nb of hours): 27
	COURSE TITLE ENGLISH COMMUNICATION SKILLS FOR ENGINEERING	NB OF ECTS: 2
Module coordinator: Sandrine GRUFFAZ		
Educational aims: Provide the students with the core language and skills that they need to communicate successfully in technical specializations.		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> + be able to understand a variety of written and oral technical documents, + have gained an insight into a variety of engineering issues + have developed critical thinking on the issues studied + be able to present oral reports using appropriate visual aids + be able to work well in multicultural teams + be able to express their ideas clearly in a technical discussion, using appropriate vocabulary 		
Assumed prerequisites: Requires the starting level B2 as defined by the Common European Framework of Reference for Languages.		
Syllabus: <ul style="list-style-type: none"> + Some energy sources (solar power, nuclear power), their uses and advantages / downsides + Product and system presentation / advertising + Describe, explain, justify a process / a system, both in writing and orally + Provide arguments to explain and justify one's point of view + Written and oral communication skills 		
Assessment method: <ul style="list-style-type: none"> + Two oral presentations (weight 1) 		

Bibliography / webography:

✚ <http://theconversation.com/uk> and <http://theconversation.com/us>: articles on current issues; a wide range of topics covered.

✚ <https://www.ted.com/>: videos on a variety of topics ranging from science to current

issues, politics, music, adventure, history, tourism, and many, many more...

Latest modification: 10/09/2020

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M
		Workload (nb of hours): 27
	COURSE TITLE HYDROPOWER AND WIND POWER	NB OF ECTS: 2
Module coordinator: Sophie Olijnyk		
Educational aims: Learn about these two renewable energy sources.		
Learning outcomes: After completion of the course, the students will get an understanding of the process by which energy can be harvested and used.		
Assumed prerequisites: ✚ Basics of: Energy, Power, Ohm's Law.		
Syllabus <ul style="list-style-type: none"> ✚ How do we produce energy from wind and water ✚ Advantages and inconveniences 		
Assessment method: ✚ Oral presentation		
Bibliography / webography: ✚		
Latest modification: 25/06/2020		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M4212C
		Workload (nb of hours): 27
	COURSE TITLE INTERNET OF THINGS	NB OF ECTS: 2
Module coordinators: Eric BENOIT		
Educational aims: Provide the students with the core knowledge of IoT field and the skills to implement a full IoT application.		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> • understand the concept of IoT community • have gained a strong knowledge on protocols for IoT • be able to create an IoT distributed application • be able to configure and insert an object into an IoT community • be able to configure and program a local IoT server • be able to configure an IoT gateway • be able to configure and program a cloud-based IoT application 		
Assumed prerequisites: Requires programming capabilities in C like languages (C, C++, C#, java, javascript or python), basic knowledge on networking (TCP/IP) and on embedded systems.		
Syllabus: <ul style="list-style-type: none"> • Introduction to IoT area and related fields: Home Automation, Smart Cities, Healthcare, Smart transportation • Protocols for IoT: UDP-TCP/IP, REST, HTTP, MQTT, AMQP, CoCAP, Bluetooth, Zigbee • Tools & OS for IoT: Linux, Docker middleware, Nodejs/Node-red • Network security • Web-service based applications, Publish/subscribe based applications • Cloud based applications 		
Assessment method: <ul style="list-style-type: none"> • 1-hour written exam: 1/3 of module grade • 1-hour practical exam: 1/3 of module grade • practical reports: 1/3 of module grade 		
Bibliography:		
Latest modification: 30/06/2020		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M4211C
		Workload (nb of hours): 27
	COURSE TITLE INTERACTION OF LIGHT WITH MATTER: FROM THE PHOTON TO THE SOLAR PANEL	NB OF ECTS: 2
Module coordinator(s): Iro KOLETSSOU		
Educational aims: understand the physical phenomena which allow the exploitation of the solar energy		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> • have studied the corpuscular nature of light • be able to identify the energy bands of an insulator, a semiconductor and a conductor • use the above theoretical elements to explain the principle of a PN junction • have studied different types of solar panels 		
Assumed prerequisites: students will find it useful to have basic knowledge on the structure of matter		
Syllabus: <ul style="list-style-type: none"> • corpuscular nature of light • structure of matter, energy bands • semiconductors and band gaps • PN junctions • photovoltaic effect • types of solar cells 		
Assessment method: <ul style="list-style-type: none"> • 1 written exam: 70% of the module grade • 1 oral presentation: 30% of the module grade 		
Bibliography: 		
Latest modification: 10/06/2019		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE : M 4306 C
		Workload (nb of hours): 27
	COURSE TITLE : STAT 4 SPC Statistical Process Control	NB OF ECTS: 2
Module coordinator(s): Marion GOY		
Educational aims: Knowing basic probability principles and laws in order to use them in a statistic field. Understanding statistical process control. Using tools to compute statistics & probabilities.		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> + Summarize distributions + Use probability models + Use random sampling to draw inferences 		
Assumed prerequisites: Fundamental maths, basic knowledge of statistics & probabilities.		
Syllabus: <ul style="list-style-type: none"> + Probability basics (counting with permutations & combinations, rules, conditional probability...) + Discrete and continuous random variables and probability models (uniform model, binomial law, normal distribution, Poisson distribution; expected value, variance, standard deviation...) + Statistics (mean, median, range, variance, standard deviation...) + Relationships in quantitative datas (covariance, linear regression) + Inferential statistics (confidence interval, hypothesis test) + Use of a graph calculator (such as Casio 35+ or TI82stat) to compute statistical & probability results. 		
Assessment method: <ul style="list-style-type: none"> + Two 1-hour written tests (weight 1 each) 		
Bibliography: Descriptive Statistics - The Hong Kong Polytechnic University http://www.mypolyuweb.hk/machanck/lectnotes/c1_des.pdf Introduction to Probability – by Hossein Pishro-Nik – University of Massachusetts Amherst https://www.probabilitycourse.com/ Free online tutorials http://stattrek.com/tutorials/statistics-tutorial.aspx?Tutorial=Stat		
Latest modification: 15/06/2019		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M 4203
		Workload (nb of hours): 90
	COURSE TITLE PROJECT	NB OF ECTS: 5
Module coordinator(s): Eric BENOIT		
Educational aims: To give to students the opportunity to apply their Electrical Engineering and Computing skills on an industrial project by the design and the implementation of a technological model.		
Learning outcomes: On completion of the course the students will: <ul style="list-style-type: none"> • be able to apply their technical skills on an industrial project • be able to follow an industrial project from the design to the implementation • be initiated to the management a small team on an industrial project • be initiated to technological intelligence • be able to perform technical choices • be able to validate a technological model • be able to present their results with a technical report and a presentation 		
Assumed prerequisites: Requires skills related to good command of project management skills		
Syllabus: <ul style="list-style-type: none"> • 18 periods of 5 hours where a team of 4 students has to design and implement a technological model. 2 periods per week Students work mainly in autonomy. A teacher assists each team for 1h once a week to help the team on management aspects and on technical aspects 		
Assessment method: <ul style="list-style-type: none"> • Global technical assessment: 50% of module grade • Technical Report: 25% of module grade • Oral presentation: 25% of module grade 		
Bibliography: <ul style="list-style-type: none"> • 		
Latest modification: 30/06/2019		

	INTERNATIONAL ELECTRICAL ENGINEERING SEMESTER	MODULE CODE M4101
	COURSE TITLE INTERNSHIP	Workload: 11 weeks NB OF ECTS: 12
Module coordinator(s): Sandrine GRUFFAZ / Eric BENOIT		
<p>Educational aims: discover the working world and a company in its social, technical, organizational and economical aspects. Discover the realities of the job of skilled technician. Apply the skills and knowledge acquired during training. Acquire professional know-how.</p> <p>The missions can include research on and/or implementation of the field of studies in a company or organization.</p>		
<p>Learning outcomes:</p> <p>On completion of the course the students will be able to:</p> <ul style="list-style-type: none"> ✚ Use the whole of the knowledge and know-how acquired during his university years in the framework of his internship ✚ Develop personal and inter-personal skills such as - but not limited to - initiative, team work and autonomy 		
<p>Assumed prerequisites: academic training and project-related skills</p>		
<p>Priority will be given to internships in an English-speaking environment. A member of staff will be in charge of the follow-up of the student and will be in touch with the tutor within the company. Help will be provided regarding the writing of the final report.</p>		
<p>Assessment method:</p> <p>The internship will be assessed jointly by the company tutor and the academic tutor from the department. The following elements will be assessed:</p> <ul style="list-style-type: none"> ✚ Work within the company / organization, meeting the requirements ✚ Written report ✚ Oral presentation in front of an academic examination board <p>The assessment will concern:</p> <ul style="list-style-type: none"> - the student's capacity to use academic knowledge in the framework of his mission - the technical and inter-personal skills acquired in a professional environment 		
<p>Bibliography:</p> <ul style="list-style-type: none"> ✚ 		
Latest modification: 30/06/2019		