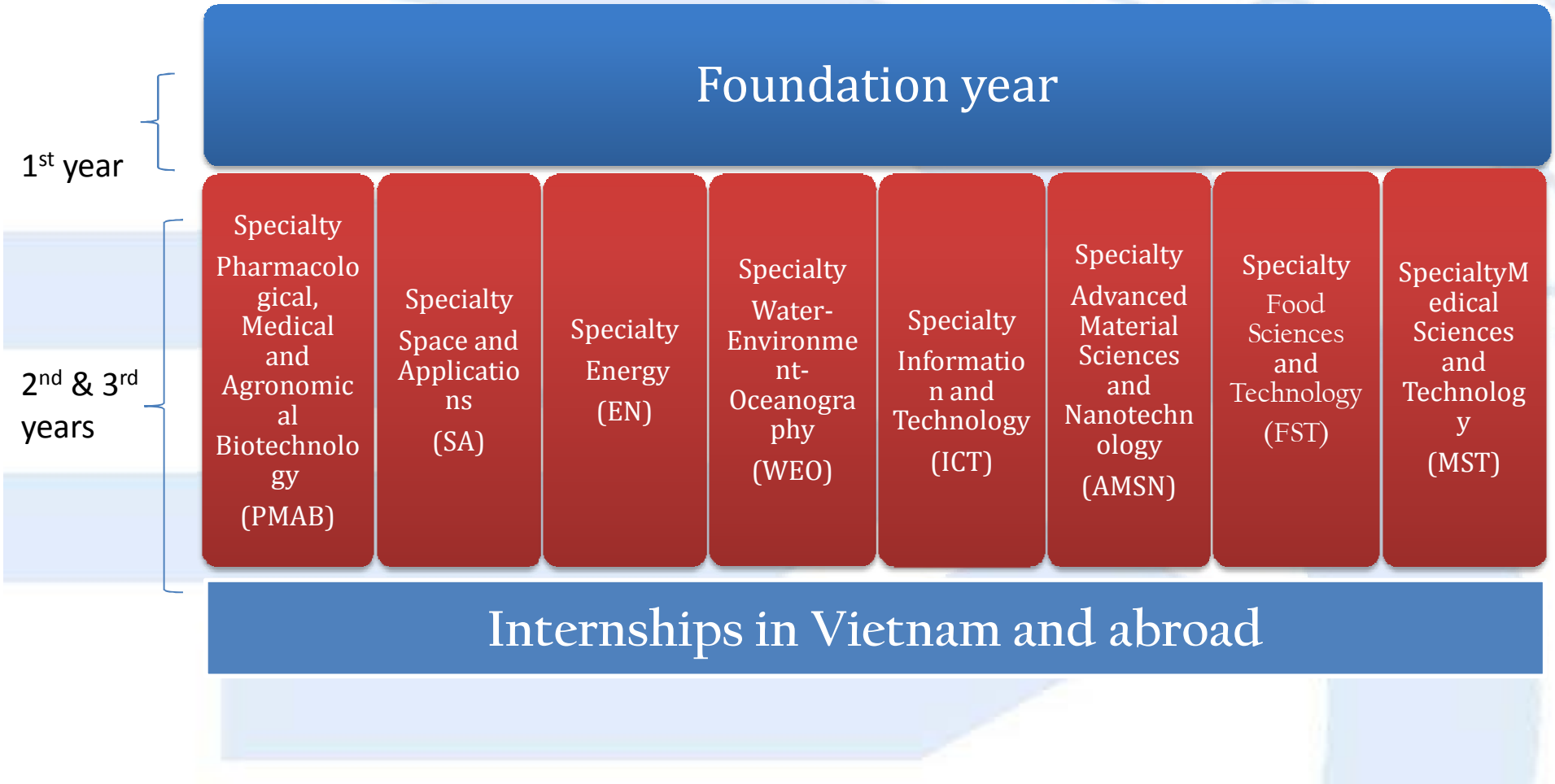
University of Science and Technology of Hanoi

Bachelor Program



UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor 1st-year program

Teaching Unit	Code	Courses	ECTS
EFL	EN1.3	English listening & note-taking	2
	EN1.4	English for science	2
	EN1.5	Basic English reading	1
	EN1.6	Basic English Writing	1
	EN1.7	Basic English Listening	1
	EN1.8	Basic English Speaking	1
	EN2.1	English presentation	1
	EN2.3	English Intensive Academic Writing	1
MS	MS1.1	Law of Science and Technology of Vietnam	1
	MS1.2	Foundation of economics	1
BIOLOGY	BIO1.1	Cellular biology	3
	BIO1.2	Biochemistry	3
	BIO1.4	Genetics	3
CHEMISTRY	CHEM1.1	General Chemistry I	3
	CHEM1.2	Organic Chemistry	3
	CHEM1.5	General Chemistry II	3
	CHEM1.6	Practical chemistry	2
ICT	ICT1.2	Basic programming	4
	ICT1.4	Introduction to informatics	4
MATHS	MATH1.1	Linear Algebra	3
	MATH1.4	Calculus I	3
	MATH1.5	Calculus II	3
PHYSICS	PHYS1.1	Mechanics & Thermodynamics	4
	PHYS1.2	Electromagnetism	3
	PHYS1.4	Optics and Quantum mechanics	2
	PHYS1.5	Practical physics	2
Total			**60**

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	BIO1.4	Genetics	3
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	ICT1.4	Introduction to informatics	4
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	MATH1.5	Calculus II	3
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	PHYS1.2	Electromagnetism	3
	PHYS1.4	Optics and Quantum mechanics	2
	PHYS1.5	Practical physics	2
Total			**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Advanced Materials Science and Nanotechnology (AMSN)

Year	Semester	Type	Name of course	ECTS
B2		Management sciences	Law on Intellectual Right	1
			Project Management	1
		French	French	8
		Core courses	Probability and Statistics	4
			Numerical Method	4
			Electromagnetism II	4
			Quantum Mechanics	4
	Semester 3		Inorganic Chemistry	4
		Core courses	Fundamentals of Materials Science	3
			Optics	3
			Magnetism	3
			Physics of Surface and Interface	3
			Organic Chemistry	3
			Inorganic Materials & Ceramics	2
			Analytical Chemistry	4
			Electrochemistry	3
	Semester 4		Product Life Cycle Management	2
			TOTAL OF ECTS	**60**
B3		Sciences	Scientific Writing	2
		French	French	7
		Core courses	Chemistry of Polymer	3
			Materials Characterization Techniques I	3
			Semiconductor	3
			Nanomaterials Synthesis Techniques	3
			Optoelectronics and Nanophotonics	3
			Micro and Nano-fabrication	3
	Semester 5		Nanochemistry	3
		Core courses	Materials for Energy Conversion and Storage	3
			Materials for Environment Application	3
			Materials in Life Sciences	3
			Material Characterization Techniques	3
		Selective courses (choose 2 of 4 courses)	Nanoelectronics	3
			Bionanotechnology	3
			Solar-cell Technology	3
			Smart Hybrid Materials	3
			Microfluidics	3
			GROUP PROJECT	3
	Semester 6		INTERNSHIP	9
			TOTAL OF ECTS	**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Energy (EN)

Year	Semester	Type	Name of course	ECTS
B2	**S3**	Management sciences	Project management	1
			Law on intellectual property rights	1
		French	French	8
		Core courses	Probability and Statistics	4
			Numerical methods	3
			Thermodynamics II	3
			Fluid mechanics	3
			Electrical Circuits I	4
			Electric generation sources	3
	S4	Core courses	Electrochemistry	4
			Product Life Cycle Management	3
			Electrical Circuits II	4
			Electronics	4
			Heat and mass transfer	4
			Electric transmission and distribution	3
			Introduction to Renewable Energy	2
			Signal Processing	2
			Sensors and Analytical Devices	4
TOTAL OF ECTS				**60**
B3	**S5**	French	French	7
		Management	Scientific writing	2
		Core courses	Materials for energy	3
			Electrical machine	4
			Product Life Cycle Management II (Product design)	3
			Power Electronics and Application	4
			Control engineering	3
			Photovoltaic Systems	4
	S6	Core courses	Biomass & Biofuels	4
			Smart-Grid Technology	4
			Energy Economics and Markets	2
		Selective courses (choose 2 of 4 courses)	O1 -Power supply and energy management for	4
			O2 - Hydroelectric Power	4
			O3 - Wind power	4
			O4 - Solar Thermal Energy Systems	4
			Group Project	3
			Internship (10 – 12 weeks)	9
TOTAL OF ECTS				**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor of Food Science and Technology (FST)

Year	Semester	Type	Name of course	ECTS
B2	**Semester 3**	Management sciences	Law on Intellectual Right	1
			Project Management	1
		French	French	8
		Core courses	Introduction to food science and technology	2
			Biostatistics	3
			Food chemistry	3
			Nutrition metabolism	3
			Food physics I	3
			Food Microbiology	3
			Food Enzymology	3
			Toxicology	3
	Semester 4	Core courses	Food physics II	3
			Food Analytical Chemistry	3
			Food Microbiological Analysis	3
			Process and equipment in food Technology	4
			Food safety and sanitation	3
			Food legislation and regulation	3
			Food quality management	3
			Practice on food technology	2
		Selective courses (choose 3 of 5 courses)	Food-born Disease	2
			Functional Food	2
			Environmental safety in food industry	2
			Introduction to Ecological Agriculture	2
			Strategies of International Agri-food marketing	2
TOTAL OF ECTS				**60**
B3	**Semester 5**	Management Sciences	Scientific Writing	2
		French	French	7
		Core courses	Post-harvest Science and Technology	4
			Preservation technology	3
			Refrigeration technology	3
			Package technology	3
			Food formulation technology	3
			Food product development	3
			New trend in food technology	2
	Semester 6	Core courses	Sensory evaluation of food product	2
			Meat technology	3
			Tropical fruit and vegetable technology	3
			Dairy technology	3
			Beverage technology	3
		Selective courses (choose 2 of 5 courses)	Technology of tea, cocoa and coffee	2
			Candy and sugar technology	2
			Technology of oil product	2
			Aroma and food additive technology	2
			Seafood technology	2
			GROUP PROJECT	3
			INTERNSHIP	9
TOTAL OF ECTS				**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Information and Communication Technology (ICT)

Year	Semester	Type	Name of course	ECTS
B2		Management sciences	Law on Intellectual Right	1
			Project Management	1
		French	French	8
		Core courses	Probability and Statistics	3
			Numerical methods	4
			Algorithms and data structures	3
			Object-oriented programming	4
			Signals and Systems	3
	Semester 3		Computer Architecture	3
		Core courses	Discrete Mathematics	4
			Analysis & algebraic structures	3
			Basic Databases	4
			Computer Networks	4
			Software Engineering	4
			Operating System	4
			Digital Signal Processing	4
		Selective courses (choose 1 of 2 courses)	Mobile Wireless Communication (Optional)	3
	Semester 4		Introduction to Embedded System with FPGA (Optional)	3
			TOTAL OF ECTS	**60**
B3		Sciences	Scientific Writing	2
		French	French	7
		Core courses	Object-Oriented System Analysis and Design	3
			Web applications development	4
			Communication Systems	4
			Advanced databases	3
			Graph Theory	3
	Semester 5		Artificial intelligence & machine learning	4
		Core courses	Information Security	3
			Mobile Application Development	4
			Interaction	4
			Data Mining	4
		Selective courses (choose 1 of 2	Image Processing (Optional)	3
			Distributed Systems (Optional)	3
			GROUP PROJECT	3
	Semester 6		INTERNSHIP	9
			TOTAL OF ECTS	**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Medical Science and Technology (MST)

Year	Semester	Name of course		ECTS
B2	3rd	Management Science		2
		French		8
		Human Anatomy		4
		Introduction to Image Processing		3
		Basic and Advanced Molecular Biology		4
		Basic Pathology		3
		Diagnostics		3
		Introduction to Medical Physics		3
	4th	Principle & Practical of Clinical Image Diagnostics		3
		Introduction to Medical Electronics and Instrumentation		3
		Human Genetics		2
		Medical Radiation Physics and Safety		2
		Introduction to Medical Ethics		2
		Human Physiology and Pathology		3
		Bio-statistics (+BP02)		3
		Immunology		3
		Advance Pathology (Optional)		3
		Introduction of Image Pathology (Optional)		3
		Diagnostic Laboratory Methods in Microbiology (Optional)		3
		Omics and Computational Biology (Optional)		3
		Introduction to Medical Instruments (Optional)		3
		Advanced Image Processing (Optional)		3
		Toxicology (Optional)		3
		Sonography Principles and Instruments (Optional)		3
B3	5th	Group Project		3
		French		7
		Scientific Writing		2
		Technologies	Medical Instrumental Technologies	
		Diagnostics (3 ECTS)	Medical Image Processing and Analysis (3 ECTS)	
		Diagnostics (5ECTS)	Evidence-Based Image Analysis (3 ECTS)	
		(5ECTS)	(Alternative)*	
		Hematology (4 ECTS)	X-ray Imaging (7 ECTS) (Alternative)*	
		Virology (3 ECTS)	Ultrasound Imaging (7 ECTS) (Alternative)*	
			Magnetic Resonance Imaging (7 ECTS)	
			(Alternative)*	
	6th	Lab Administration & Quality Management		4 ECTS
		Clinical Laboratory Techniques		5 ECTS
		Quality assurance in healthy care		5 ECTS
		Surging, Cold Plasma…)		2 ECTS
		Internship (Clinical)		12 ECTS
	7th	Continue Internship for Employ-ability		1 to 6 months

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Pharmacological, Medical and Agronomical Biotechnology (PMAB)

Year	Semester	Type	Name of course	ECTS
B2	**Semester 3**	Management sciences	Law on Intellectual Right	1
			Project Management	1
		French	French	8
		Core courses	Organic Chemistry	3
			Bioanalytical Chemistry	3
			Integrated Physiology part I (Animal)	3
			Integrated Physiology part II (Plant)	3
			Biochemistry	4
			Basic and Advanced Molecular Biology	4
	Semester 4	Core courses	Bioinformatics	3
			Biostatistics	3
			Introduction to Plant Cell Biotechnology	3
			Introduction to Animal Cell Biotechnology	3
			Fundamental and Applied Microbiology	4
			Principles of Immunology	4
			Introduction to Enzymology	4
		Selective courses (choose 2 of 5 courses)	Developmental Biology	3
			Frontiers in Marine Biology	3
			Virology	3
			Principles of Drug Development	3
			Plant Genetics and Breedings	3
TOTAL OF ECTS				**60**
B3	**Semester 5**	Management	Scientific Writing	2
		French	French	7
		Core courses	Introduction to Biopharmaceutical Science	3
			Basic Pharmacology	4
			Basic Pharmaceutics	4
			Introduction to Stem Cell	4
			Introduction to Medicinal Chemistry	3
			Introduction to Medical Biotechnology	3
	Semester 6	Core courses	Protein Engineering	4
			Introduction to Food Biotechnology	4
			Introduction to Agroecology	3
			Plant Metabolic Engineering	3
		Selective courses (choose 2 of 4 courses)	Basics on Phytomedicine and Natural Product	2
			Fermentation Technology	2
			Introduction to Neuron Science	2
			Pathogenic Microbiology	2
			Plant Microorganism	2
			GROUP PROJECT	3
			INTERNSHIP	9
TOTAL OF ECTS				**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Space and Applications (SA)

Year	Semester	Type	Name of course	ECTS
SECOND YEAR	S 3	Management Science & Language	Law on intellectual property rights	1
			Project Management	1
			French	8
		Scientific Courses	Probability and Statistics	3
			Numerical methods	3
			Mathematic for Physicist	3
			Thermodynamics II	3
			Electromagnetism II	3
			Fluid Mechanics	3
			Introduction to Astronomy	2
	S 4	Management	Creativity - Innovation and Entrepreneurship	2
		Scientific	Mechanics II	3
			Quantum Mechanics	3
			Electronics	4
			Introduction to Geographic Information System	3
			Introduction to Earth System	3
			Control Engineering	3
			Finite Element Modeling Methods	3
			Mechanics of Materials	3
			Product Life-cycle Management	3
	TOTAL			60
THIRD YEAR	S 5	Management Science &	Scientific writing	2
			French	7
		Scientific Courses	Automatism and Industrial data processing	4
			Signal and Image processing	4
			Introduction Space System	3
			Introduction to Astrophysics and Instrumentation	3
			Product Design by Catia	3
			Communication, Antenna and Microwaves	4
	S 6	Scientific Courses	Introduction to Relativity	2
			Remote sensing of Earth's surface	3
			Data acquisition & Satellite sensors	3
			Space System Design (satellite)	3
			Space materials	3
			Photonics and Optoelectronics	2
			Monitoring natural disasters by using satellite data	2
			Group project (3 months)	3
			Internship (3 - 6 months)	9
	TOTAL			**60**

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF HANOI

Bachelor in Water - Environment - Oceanography (WEO)

Year	Semester	Type	Name of course	ECTS
B2	**Semester 3**	Management sciences	Law on Intellectual Right	1
			Project Management	1
		French	French	8
		Core courses	Probability and Statistics	3
			Advanced Thermodynamic	3
			Fluid mechanic	3
			Organic Chemistry	4
			Environmental water chemistry	3
			Analytical chemistry	3
			Ecology and Biodiversity	3
	Semester 4	Core courses	Fundamental microbiology	3
			Hydrology	3
			Oceanography	3
			Soil science	3
			Sustainable development	2
			Environmental impact assessment	2
			Climate change	3
			Water pollution	3
			Data treatment	2
		Selective courses (choose 2 of 5 courses)	Atmospheric pollution	2
			Soil Pollution	2
			Geographic Information system	2
			Environmental Toxicology	2
			Frontiers in Marine Biology	2
			TOTAL OF ECTs	**60**
B3	**Semester 5**	Management	Scientific Writing	2
		French	French	7
		Core courses	Numerical methods for engineers	4
			Ecosystem Modelling	3
			Ocean Dynamics	2
			Instrumental Analysis in Chemistry _Analytical separation methods _Basic spectroscopy and analyses _Electrochemistry	**8** 3 3 2
			Photochemistry	2
	Semester 6	Core courses	Metal and catalysis	4
			Recycling and waste treatment	2
			Water treatment _Drinking water treatment _Waste water treatment	**5** 2.5 2.5
			Environmental management	2
			Advanced Oceanography	3
		Selective courses (choose 2 of 4 courses)	Air treatment	2
			Soil treatment	2
			Biological indicators for environment	2
			Solid and Hazardous Waste Management	2
			GROUP PROJECT	3
			INTERNSHIP	9
			TOTAL OF ECTs	**60**