PROFESSIONAL EDUCATION
MATERIALS SCIENCE PROGRAM

The Faculty of Materials Science & Technology has recently 03 departments and 02 laboratories: Department of Nanomaterials & Thin-films, Department of Polymer & Composite Materials, Department of Magnetic & Biomedical Materials; Fundamental Laboratory of Materials Science and Laboratory of Multifunctional Materials. The Faculty has a total of 49 staffs including 34 permanent members and 15 researchers who are studying abroad for their doctorate and post-doctorate (France, Belgium, Australia, Japan, Korea, Singapore, Taiwan…). According to 03 specialized majors in thin film materials, polymer & composite materials and biomedical materials, the professors of Faculty are qualified and dedicated to fulfilling the mission of bachelor education, postgraduate and scientific research in the field of science and materials technology, especially advanced materials such as: thin film and low-dimensional materials (nanostructures) applied in various fields such as energy, environment, healthcare...

The Faculty's educational programs, proudly approved by ASEAN University Network (AUN quality assessment), were built to provide prerequisite basic science courses for materials science students in order to produce graduates who have an elementary knowledge of materials science and engineering which is essential for the growth of basic research and industrial technology.

Academic program:

- There are four academic programs for undergraduate and one for graduate, including Nano and Thin Film Materials, Polymer and Composite Materials, Magnetic Materials and Biomedical Materials (BSc Program) and Materials Science (MSc Program).
- BSc and MSc programs follow a credit system of 140 credits for four years and 60 credits for two years, respectively.
- Jobs after graduate: Academic Institutes, University, High Technology Companies, and factories...

Student numbers:

- Undergraduate Degree for Materials Science program: 150 students/year.
- Undergraduate Degree for Materials Science & Technology program: 50 students/year
- Master's degree: about 20 students/year.

The professional education of Materials Science includes the foundation (40), specialization knowledge (30) and graduation thesis (10), which has Curricular schedule for 4^{th} year students as follow:

A. Theorical courses:

No.	Module Code	Module	No. of credits	Hours		M/O
				Theory	Practice	
Semester 6 (Polymer and Composite major)						
1	KVL459	Mechanical Properties of Polymer	3	45		M
2	KVL438	Technology of Synthesis and Recycle of Polymers	2	30		M
3	KVL457	Rubber: Chemistry and Technology	2	30		M
4	KVL440	Polymer Testing Characterization Methods	3	37.5	15	M
5	KVL461	Processing Technology of Polymer	3	37.5	15	M
6	KVL460	Composite and Nanocomposite Materials	3	45		M
7	KVL455	Modification of polymer	3	45		M
Semester 6 (Thin-film major)						
1	KVL336	Surface and Interface Science of Solids	2	22.5	15	M
2	KVL332	Thin film Physics	3	37.5	15	M
3	KVL206	Chemical Defects in Materials	2	225	15	M
4	KVL340	Computational Materials	2	30	0	M
5	KVL341	Micro and Nano Electronic Engineering	3	37.5	15	M
6	KVL342	Surface functionalization of materials	2	22.5	15	M
Semester 6 (Biomedical Materials major)						
1	KVL523	Coordination and Organometallic Compounds	2	22.5	15	M
2	KVL524	Specialized Biology	2	30		M
3	KVL557	Tissue Technology	3	45		M
4	KVL546	Physicochemical Laboratory	2		60	M
5	KVL547	Biochemical Laboratory	2		60	M
6	KVL525	Biosensors	3	37.5	15	M
7	KVL526	Fundamental Biomedical Materials	3	45		M
Semester 7 (Polymer and Composite major)						
1	KVL454	Polymer Blend	2	30		M

2	KVL444	Polymer Additives	3	45		M
3	KVL456	Specialization Seminar	2		60	M
4	KVL412	Mechanical Polymers Laboratory	2		60	M
5	KVL411	Polymer Synthesis Laboratory	2		60	M
Semester 7 (Thin-film major)						
1	KVL344	Materials and Devices for Energy storage	2	30		M
2	KVL344	Sound-thermal insulation and mechanical materials	2	30		M
3	KVL345	Fuel cells	2	30		M
4	KVL346	Gas sensor materials	2	30		M
5	KVL347	Photocatalytic Materials	2	30		M
6	KVL348	Electrical Memory Materials and Devices	2	30		M
7	KVL315	Materials synthesis and Characterization Laboratory 1	2		60	M
8	KVL316	Materials synthesis and Characterization Laboratory 2	2		60	M
Semester 7 (Biomedical Materials major)						
1	KVL529	Surface Modification of Materials	3	37.5	15	M
2	KVL527	Molecular Techniques in Diagnostics	3	37.5	15	M
3	KVL528	Biomedical engineering	3	45		M
4	KVL548	Biomedical Materials Synthesis Laboratory 1	2		60	M
5	KVL549	Biomedical Materials Synthesis Laboratory 2	2		60	M

B. Graduation (Semester 8):

Students of the three majors can choose 1 of 2 options: thesis-based graduation or seminar and optional courses. Beside, students of Polymer and Composite Materials major can choose 1 of 3 options: thesis-based graduation, seminar and optional courses or just take optional courses.

B.1 Polymer and Composite Materials

No.	Module Code	Module	No. of credits	Hours		M/O	Note
				Theory	Practice		
A	KVL499	Graduation thesis	10	0	300	M	
B	***Seminar + Optional courses (choose 2 of 5 courses)***						
1	KVL496	*Graduation Seminar*	6	0	180	M	
2	KVL484	Polymer Materials 1: Coating and Adhesive Materials	3	45	0	O2	Choose 2 of Optional 2
3	KVL485	Polymer materials 2: Packaging and textile	2	30	0	O2	
4	KVL487	Functional Polymeric Materials	2	22.5	15	O2	
5	KVL483	Radiation technology for modification of polymer materials	2	30	0	O2	
6	KVL280	Quality Management Systems	3	45	0	O2	
C	***Optional courses (choose 4 of 5 courses)***						
1	KVL484	Polymer Materials 1: Coating and Adhesive Materials	3	45	0	O2	Choose 4 of Optional 2
2	KVL485	Polymer materials 2: Packaging and textile	2	30	0	O2	
3	KVL487	Functional Polymeric Materials	2	22.5	15	O2	
4	KVL483	Radiation technology for modification of polymer materials	2	30	0	O2	
5	KVL280	Quality Management Systems	3	45	0	O2	
Total			10				

B.2 Biomedical Materials

No.	Module Code	Module	No. of credits	Hours		M/O	Note
				Theory	Practice		
A	KVL599	Graduation thesis	10	0	300	M	
B	***Seminar + 2 courses***						
1	KVL595	*Graduation Seminar*	4	0	120	M	
2	KVL581	Biomedical Materials Engineering and Equipments	3	45	0	M	
3	KVL280	Quality Management Systems	3	45	0	M	
Total			**10**				

B.3 Thin-film Materials

No.	Module Code	Module	No. of credits	Hours		M/O	Note
				Theory	Practice		
A	KVL399	Graduation thesis	10	0	300	M	
B	***Seminar + 2 courses***						
1	KVL397	*Graduation Seminar*	4	0	120	M	
2	KVL383	*Specialized seminar*	3	45	0	M	
3	KVL280	Quality Management Systems	3	45	0	M	
Total			**10**				