



*Azrieli, College of Engineering Jerusalem (JCE)
Department of Advanced Materials Engineering*

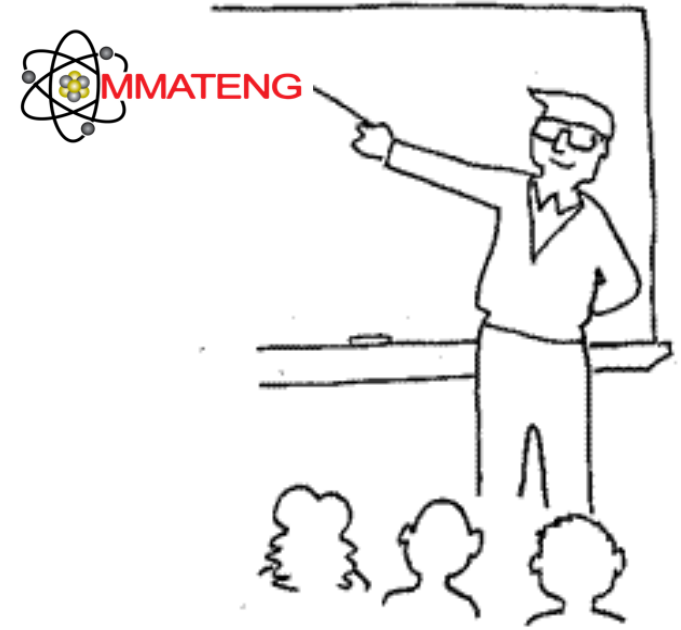
*Prof. Eitan Manor, Prof. Avigdor Zangvil, Dr. Rakefet Ofek Almog,
Eng. Michael Mizrahi, Ms. Sarit Yazdi*

College: facts and figures


- ❑ ***Founded 1999*** (*Non-profit public institution - Tuition fee ... in line with Universities*)
- ❑ ***About 1800 students in 2016-2017***
 - ➔ ***76% students from Jerusalem & surroundings***
 - ➔ ***30% female students***
- ❑ ***About 45 faculty members***
- ❑ ***About 250 adjunct faculty***

Alumni

- ❑ ***About 2750 graduates***
 - ➔ ***87% working as engineers***
 - ➔ ***21% studying toward advanced degrees***



College structure

- ➔ **Software Engineering** (B.Sc. & M.Sc.)
(Computer Communications and Decentralized Systems)
- ➔ **Advanced Materials Engineering** (B.Sc.)
(Materials for Microelectronics)
- ➔ **Industrial Engineering and Management** (B.Sc.)
(Information Systems & Operations Management)
- ➔ **Electrical & Electronics Engineering** (B.Sc.)
(Communications & VLSI & Signal Processing & Computer Engineering)
- ➔ **Pharmaceutical Engineering** (B.Sc.)
(with  Drugs & Food)
- ➔ **Mechanical Engineering** (B.Sc.)
(Energy & Fluid Mechanics)
- ➔ **Pre-Academic Program**



...Study Program: in Development ...

...2017-2018

➡ *Technology Entrepreneurship (M.Sc.)*
(For Engineers)

...Collaboration: JCE with Technion ...

➡ *Civil & Environmental Engineering (B.Sc.)*
(with  Technion Israel Institute of Technology)

...Dual Degree Program: JCE with H^UJ^I - The Hebrew University of Jerusalem...

➡ *H^UJ^I - Chemistry (B.Sc.)*

➡ *JCE - Advanced Materials Engineering (B.Sc.)*



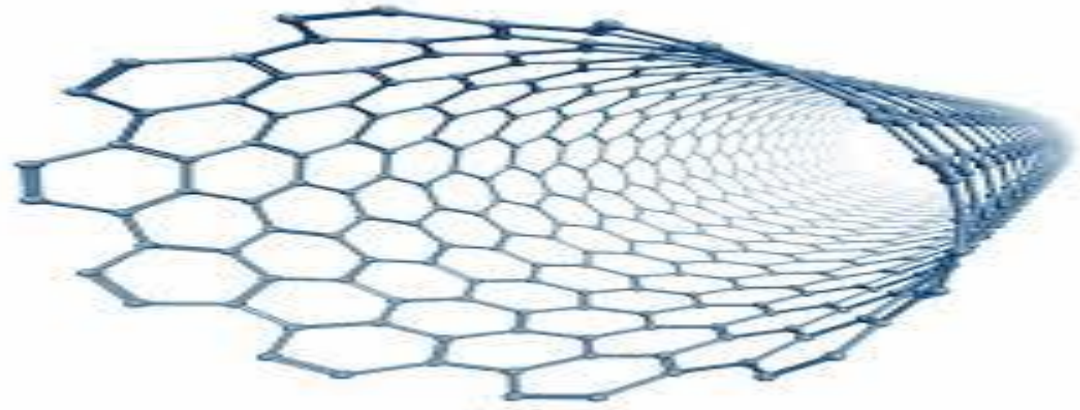
Department involved:

- ➔ *Advanced Materials Engineering (B.Sc.)*
 - Classical Materials Engineering*
 - Materials for Microelectronics*

Stakeholders interested in the project outcomes/activities:

*Hi-Tech. industries in Israel
Seeking to hire materials engineers*

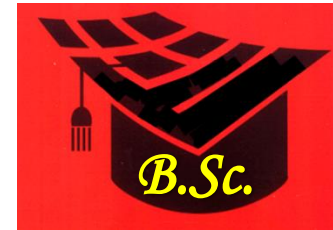




Aim of Tempus project at JCE:

To adopt/integrate teaching materials, developed by Universities responsible for developing the curricula:

- Present B.Sc. Program & future M.Sc. Program (Hebrew) - Materials Engineering**
- Future M.Sc. International Program (English) - Materials Engineering**



Advanced Materials Engineering B.Sc. Program

1st Academic Year		Israeli Credit System *				European Credit System					
1st Semester		Weekly Hours			Credit Points	Semester Hours				ECTS	
Course Code	Course Title	Lecture	Practice	Lab.		Lecture	Practice	Lab.	Home		Total
91022	Introduction to Calculus and Analytic Geometry	2			2	26			40	66	2
96002	Differential and Integral Calculus 1	4	2		5	52	26		120	198	8
96004	Linear Algebra	4	2		5	52	26		120	198	7
96000	Introduction to Chemistry	4	2		5	52	26		120	198	7
96035	Introduction to Computer Programming	3	2		4	39	26		100	165	6
Total		17	8		21	221	104		500	825	30
<div style="border: 1px solid red; padding: 5px; width: fit-content;"> * Israeli Credit System: 1 lecture hour = 1 credit point 1 practice/Lab. hour = 0.5 credit point </div>		Israeli Credit System *				European Credit System					
		Weekly Hours			Credit Points	Semester Hours				ECTS	
Course Code	Course Title	Lecture	Practice	Lab.		Lecture	Practice	Lab.	Home		Total
96003	Differential and Integral Calculus 2	3	2		4	39	26		120	185	7
96014	Physics 1 - Mechanics	3	2		4	39	26		110	175	7
96005	Analytical Chemistry 1	1	0.5		1.25	13	7		30	50	2
96006	Analytical Chemistry 1- Laboratory			1.5	0.75			20	35	55	2
96008	Physical Chemistry	2	1		2.5	26	13		60	99	4
20093	Organic Chemistry	2	1		2.5	26	13		60	160	4
96022	Introduction to Engineering Drawing		2		1		26		50	76	3
20082	Introduction to Materials Engineering	2			2	26			4		1
Total		13	8.5	1.5	18	169	111	20	469	800	30

Future M.Sc. International Study Program

Course Title	Course Type (obligatory/ laboratory/ seminar)	Israeli Credit System *			European Credit System				
		Weekly Hours		No. of Credit Points	Semester Hours				ECTS
		Lecture	Lab.		Lecture	Lab.	Home	Total	
Phase transformations and kinetic processes	oblig.	3.0		3.0	39.0		85.0	124.0	5.0
Advanced mechanical properties	oblig.	3.0		3.0	39.0		100.0	139.0	5.5
Materials selection	oblig.	3.0		3.0	39.0		75.0	114.0	4.0
Durability and reliability of materials	oblig.	3.0		3.0	39.0		80.0	119.0	4.5
High temperature materials	oblig.	3.0		3.0	39.0		75.0	114.0	4.0
Advanced composite materials	oblig.	3.0		3.0	39.0		75.0	114.0	4.0
Nanotechnology- materials and processes	oblig.	3.0		3.0	39.0		80.0	119.0	4.5
Casting and solidification technology	oblig.	3.0		3.0	39.0		75.0	114.0	4.0
Electron microscopy and x-ray diffraction	oblig.	3.0		3.0	39.0		80.0	119.0	4.5
Materials engineering seminar	oblig./seminar	3.0		3.0	39.0		90.0	129.0	5.0
Final project	oblig.		14.0	7.0		182.0	180.0	362.0	14.0
Elective 1	elective	3.0		3.0	39.0		70.0	109.0	4.0
Elective 2	elective	3.0		3.0	39.0		70.0	109.0	4.0
Total		36.0	14.0	43.0	468.0	182.0	1135.0	1785.0	67.0

*** Israeli Credit System:**
1 lecture hour = 1 credit point
1 practice/Lab. hour = 0.5 credit point

Summary of Activities

Meeting/Visit/Activity	Dates of Activity	JCE Participants
KU Leuven University Antwerp – Kick-off meeting	11/3/2014 – 12/3/2014	Avigdor Zangvil
Project Consortium Meeting in Tel Aviv University & JCE	2/11/2014 – 5/11/2014	Eitan Manor, Avigdor Zangvil, Rakefet Ofek Almog, Michael Mizrahi, Sarit Yazdi
Field monitoring at Tel Aviv University	26/11/2014	Eitan Manor, Avigdor Zangvil, Rakefet Ofek Almog
Training course in KU Leuven- campus De Nayer	17/1/2015 – 1/2/2015	Michael Mizrahi
CUT- Train the trainer sessions Krakow	24/7/2015 – 2/8/2015	Eitan Manor, Avigdor Zangvil, Michael Mizrahi, Sarit Yazdi
Meeting in Berlin- Technische Universität Berlin	2/10/2015 – 3/10/2015	Eitan Manor, Avigdor Zangvil, Rakefet Ofek Almog, Michael Mizrahi
Field monitoring at Tel Aviv University	5/11/2015	Eitan Manor, Avigdor Zangvil, Rakefet Ofek Almog, Michael Mizrahi, Sarit Yazdi
Staff Training for a Network of MESO Infrastructure at Technische Universität Berlin	2/12/2015 – 5/12/2015	Rakefet Ofek Almog, Michael Mizrahi
Meeting in JCE + Professor Jan Ivens' master class	30/5/2016 – 31/5/2016	Eitan Manor, Avigdor Zangvil, Rakefet Ofek Almog, Michael Mizrahi, Sarit Yazdi
Field monitoring at Tel Aviv University	7/7/2016	Avigdor Zangvil, Rakefet Ofek Almog, Michael Mizrahi, Sarit Yazdi

Summary of Achievements

- ❖ Existing B.Sc. curricula reviewed and converted to the ECTS European system;
- ❖ New modernized M.Sc. Program developed, in accordance with the ECTS European system;
- ❖ Materials selection ECS EduPack was incorporated into the course “Composite Materials”;
- ❖ A contact person with the industry has been appointed;
- ❖ Important equipment received from the Tempus project:
 1. A Four Point Probe for Materials for Microelectronic Labs;
 2. Detector - Retractable BSE for TESCAN SEM;
- ❖ A website was established for the MMATENG project:
<https://www.jce.ac.il/academics/advanced-materials-engineering/tempus-mmateng/>

Prof. Eitan Manor
Materials Engineering
Head, Department of Advanced Materials Engineering
Research Interests: Ceramic-Metal Composites, Nanostructured Ceramics, Hydrogen Embrittlement



Prof. Avigdor Zangvil
Materials Engineering
Deputy Head, Department of Advanced Materials Engineering
Research Interests: Processing of Ceramics and Ceramic Matrix Composites, Advanced Ceramic Armor Materials, Ceramic Phase Equilibria and Solid Solutions, Sintering of Nanoscale Ceramics



Dr. Rakefet Ofek Almog
Materials Engineering
Research Interests: Polymer-based nano-technologies Conductive polymers, Composite materials, Implanted electrode devices, Electrochemical characterization of biochips and electrode devices



Eng. Michael Mizrahi
Materials Engineering
Manager, AtoBe Entrepreneurship Center



Ms. Sarit Yazdi
Administrator, Tempus program at JCE



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