

**CEO, IIEI - Israel Institute for Empowering Ingenuity**Israeli, French citizenship
Mobile: +972 (54) 5580914Born: 20.12.1965, Port Elizabeth, South Africa
melanie@iiei.org.il , melaniesam@gmail.com**PROFILE**

- Engaged in the planning and execution of pioneering reforms in engineering education in Israeli academia and schools on a national level, based on the CDIO Framework Model (www.cdio.org).
- *Presently developing new learning processes and tools that foster ingenuity, based on Leonardo Da Vinci's transdisciplinary abilities and the deciphering of underlying design codes in multiple engineering and design disciplines.*
- Entrepreneur and experienced developer of multidisciplinary engineering programs in academia since 2003.
- Experienced and skilled in the development and teaching of multidisciplinary PBL engineering courses that develop higher-level thinking skills (including creativity), personal and professional skills since 2007.
- Experienced and skilled in teacher-training development since 2007.
- Qualified and experienced professional architect.

CORE ACCOMPLISHMENTS

- 2012 *Initiated and co-founded IIEI – Israel Institute for Empowering Ingenuity together with Prof. Yoram Reich, a non-profit, public-benefit company - to provide a national solution to bridge the gap between the expectations of engineers of the future and the drawbacks of contemporary Israeli engineering education.*
- 2003 – 2005 *Initiated and led the development of “B.Sc. Mech. Eng.– Product Design” program for SCE-Shamoon College of Engineering – 1st academic engineering program in Israel to integrate Mechanical Engineering and Product Design. Program authorized by the Council of Higher-Education (2007), more than 150 graduates, presently ~300 students.*
- 2007 - 2012 *Led the implementation of the B.Sc. Mech. Eng.– Product Design” program and co-founded the Mechanical Engineering Faculty at SCE-Shamoon College of Engineering.*

EDUCATION

- 2010 - 2013 *M.Sc. towards a Ph.D Architecture, Faculty of Architecture, Technion, IIT, Israel. Thesis subject: Synthesizing Multidisciplinary Knowledge in Engineering Design Education.*
- 1994 – 1996 *Bachelor of Architecture, (Cum Laude), Faculty of Architecture, Technion, IIT, Israel.*
- 1991 - 1992 *Master of Architecture Program, Graduate School of Architecture, Planning & Preservation, Columbia University, New York, USA.*
Major fields: History & Philosophy of Architecture. Advisor: Prof. Frampton K.
- 1986 – 1990 *Bachelor of Design, (Honors) Faculty of Environmental Design, Bezalel Academy of Art & Design, Jerusalem, Israel.*

ACADEMIC EMPLOYMENT

- 2011 - 2013 *Senior lecturer, Mechanical Engineering Department, SCE.*
- 2009 - 2012 *Head of Product Design Engineering, Lecturer. SCE, Mechanical Engineering Department*
- 2007 - 2010 *Lecturer. Mechanical Engineering Department, SCE.*

DEVELOPMENT OF ACADEMIC PROGRAMS

1. *B.Sc. in Mechanical Engineering – Product Design* program. SCE - Sami Shamon College of Engineering, Israel. Approved by the Israeli Council of Higher Education, 2007.
2. *B.Sc. in Engineering – Product Design* program. SCE - Sami Shamon College of Engineering, Israel. Submitted to the Israeli Council of Higher Education, 2007.
3. *M.Sc. ME - Smart Product Design & Development; M.Sc. ME - Design & Development of Biomedical Products; M.Sc. IEM - Human Technology Interaction; M.Sc. IEM – Product Development & Innovation Management* program. Submitted proposals for Ben-Gurion University of the Negev, Israel. 2005.

TEACHING

2019- 2012	<i>Introduction to Eng. & Design 1+2</i> , B.Sc. Mech. Eng. program, SCE.
2009 -2013	<i>History & Philosophy of Design</i> . B.Sc., Mech. Eng. program, SCE.
2007 - 2013	<i>Architectural Design</i> , Building Eng. B.Tech. program, SCE.
2009 - 2011	<i>Introduction to 20th Century Architecture</i> , B.Sc. Ind. Eng. program., SCE.

PROFESSIONAL EXPERIENCE

2003	<i>Architect</i> , Project Manager. Shevach Architects, Ramat-Gan, Israel.
1997 - 2000	<i>Architect</i> , Project Manager. Uzi Gordon Architects, Haifa, Israel.
1996	<i>Architect</i> . Ilan Zvi Architects, Haifa, Israel.
1993	<i>Architect</i> . Santiago Calatrava Architects , Paris, France.
1991	<i>Architect</i> . Jean-Paul Gommis Architects, Nice, France.

ACADEMIC ACTIVITIES

Jan. 2014-present	Developed and implemented innovative pedagogical training workshops for academic staff in engineering departments in “Systems Design of Pedagogy aligned to International Standards” and in “Active Teaching Methods” for Ort Braude College of Eng., Israel.
2013	Submitted (on 24.3.13) together with Prof. Yoram Reich (TAU), EU Tempus project proposal (grant = 1.5 million €) to promote wide-scale reform in Israeli engineering education. Created a national and international partnership of the majority of Israeli engineering universities and colleges and leading EU universities.
Jan. 2013	Developed pilot course for Ben-Gurion Univ. :“ <i>Programming Language for Mechanical Engineering</i> ” that emphasizes the development of higher thinking skills and team-work. Course successfully executed in summer 2013, reduced students failures from 15% (average over 4 year span 2009-2012) and raised average student grades by 28% .
Jan. 2013	Submitted a 5 year Strategic Plan together with Prof. Yoram Reich (TAU) to promote innovation in 12 engineering departments at Ben-Gurion University.
2007-2012	Designed and implemented pioneering multidisciplinary courses, recruited students and staff for Mech. Eng. Dept., trained staff and co-developed PBL engineering courses, formed industrial and academic collaborations, designed production laboratories, initiated and implemented program improvements, represented faculty in national and international conferences.

MEMBERSHIP IN PROFESSIONAL / SCIENTIFIC SOCIETIES

- Since 2011 *CDIO* - Leader and Collaborator (Member) www.cdio.org
Since 2011. *Design Society* – Member <http://www.designsociety.org/>