Design Engineering Training Program

DETP

Program/Curriculum
Fee & Registrar
Main Site

BEA

Beytepe Engineering Academy

Updated February 19, 2021

Learning Outcomes of Beytepe Engineering Academy Engineering Training Programs

- an ability to apply knowledge of mathematics, science and engineering on engineering and product design and product development.
- an ability to discover, identify and analyze customer and latent needs, define the need(s) using engineering design concepts and terminology
- an ability to develop a realistic physical product starting from the need definition to manufacturing and commercialization,
- an ability to design a system, component, or process to meet defined needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, sustainability etc.
- an ability to lead and work, function in multidisciplinary/interdisciplinary teams.
- an ability to identify, formulate and solve engineering problems.
- an understanding of professional and ethical responsibility.
- an ability to communicate effectively.
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering design practice.

STRUCTURE of the TRAINING PROGRAMS

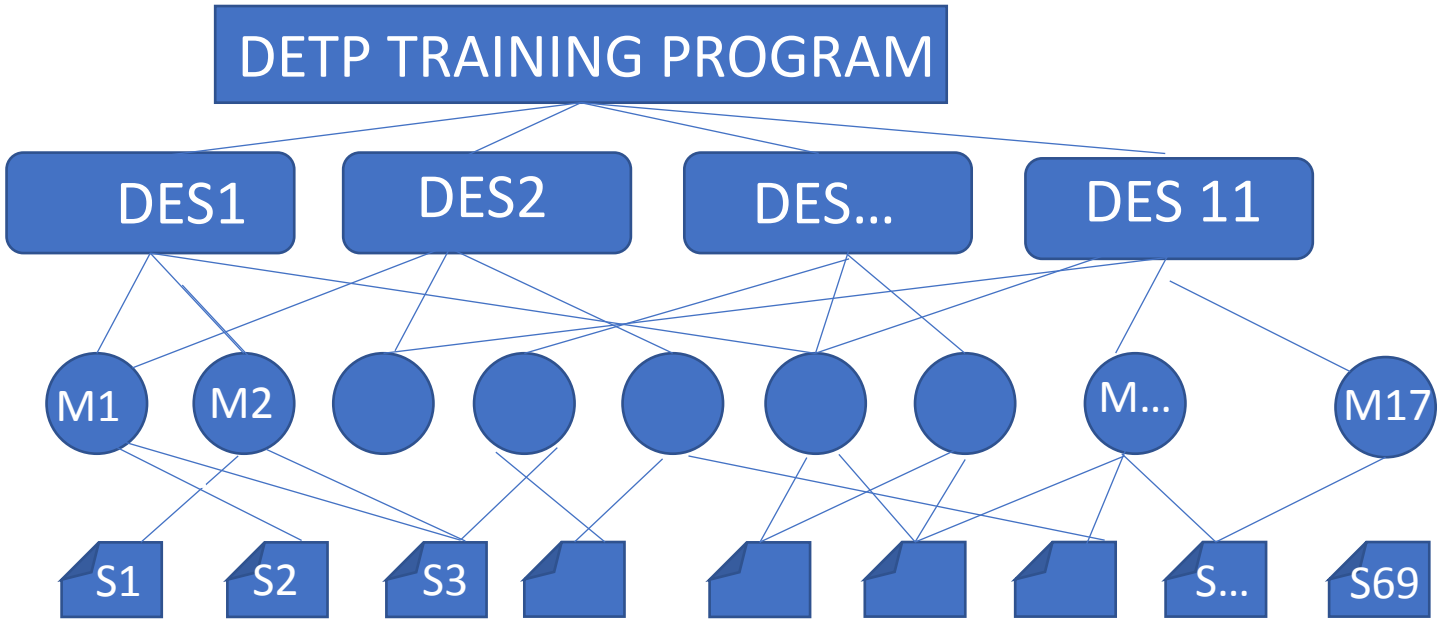
Beytepe Engineering Academy aims a high-level satisfaction of the learning outputs for the lifelong sustainable training programs.
Three-stage planning, unique to BMA, is applied in all of the programs.
Level 1: **Courses**
Level 2: **Modules**
Level 3: **Lectures**
Figure on the next page illustrates the structure for the Design Engineering Training Program.

DESIGN ENGINEERING TRAINING PROGRAM (DETP)

COURSES
11 DETP Courses

MODULES
17 DETP Modules

LECTURES
69 DETP Lectures



*Course code DES is inspired from the initals of the term '**Design Engineering Science**'. If you're happy with **DES**ign, that's fine also!...*

Courses cover 4-10 training modules typically. The listed Module topics are purposfully selected and they are designed to gain a strong interpretation ability and project development capability with a broader and comprehensive perspective of engineers studying at the Course level.

Modules are subunits that focus on the fundamental narrower topics within the scope of the courses. Modules include; development and implementation of design projects and their proper presentations, case studies, evaluation and discussion sessions, reading assignments and similiar activities.

Lectures are traditional classroom presentations adapted in distance education format. They are intended to collect, reorganize and convey basic and advanced knowledge and experience to trainees in reasonable time.

PLAN YOUR TRAINING by SELECTING COURSE and/or MODULES

You may follow one of the procedures listed below;

1. One of the announced courses may be selected and enrolled to follow a well-structured program with personal and corporate applications.
2. Applicants may choose to design a custom program by personal and/or company-oriented selection of a bunch of modules. We will design unique courses to satisfy trainees/company requirements.
3. Lectures, modules and courses are prepared both in English and Turkish languages. The training programs are highly flexible so that enrolled students may prefer 'one-language' in their program documents, or a hybrid (English and Turkish together in paralel formats) program can be designed in accordance with his/her personal or company preferences.

(*) Design Engineering: It is a set of activities that cover all activities from the birth of a hidden or clear need (need) to the development of a commercial product.
Engineering Design: It is the process of developing an imaginative product with the use of individual, social, realistic, physically producable product using current scientific and accessible technological accumulation.

BEA TRAING PROGRAMS

TRAINING CLASSROOMS Suspended after pandemy.

DISTANCE EDUCATION Active

DETP (*)	METP (**)	SETP (**)	MECTP (**)
Design Engineering Training Program	Manufacturing Engineering Training Program	System Engineering Training Program	Mechatronics Engineering Complementary Training Program
Courses	Courses	Courses	… … …
Modules	Modules	Modules	… … …
Lectures	Lectures	Lectures	… … …

(*) Program is suspended in classrooms and active in distance education environments..
(**) Programs are open for a limited number of courses, development is in progress...

LECTURES (69)

L01 Welcome
L02 Course Projection
L03 Multi-Disciplinary Design
L04 General Morphological Analysis
L05 Requirements Analysis & Design
L06 Function-Means Approach
L07 Bio-Inspired Engineering Design
L08 Decision Making as applied in Engineering Design
L09 Conceptual Design
L10 Concepts of Root Cause in Engineering Design
L11 Mechatronics Design Concepts
L12 Creativity in Engineering Design
L13 Engineering Design and Future Trends
L14 Understanding Consumer Needs
L15 Why we need design?
L16 Systems Engineering
L17 Systems Engineering; Concepts
L18 System Design and Logic
L19 System Design and Intelligence
L20 Design and Research (R&D)
L21 Ethics for Design Engineering
L22 What is Engineering Design
L23 Design Process Models
L24 Design Product Modelling
L25 Uncertainity in Design
L26 Design and Reasoning
L27 Scenario-based Design
L28 Design Abstraction
L29 Technological Feasibility Study
L30 Top-Down vs Bottom-Up
L31 Make/Buy Decisions in Design
L32 Reliability Concepts in Design
L33 Innovation and Creativity in Design
L34 Virtual Reality in Engineering Design
L35 Design, Need, Environment
L36 Behavioral Modeling in Engineering Design
L37 Philosophy of Engineering Design
L38 Modularity in Design of Products and Systems
L39 Education for Design Engineering
L40 Mechatronics Engineering; Concepts
L41 Mechatronic Machines
L42 Mechatronics 2020
L43 Mechatronics Engineering; Future Technology
L44 Mechatronics Design PNDN
L45 Linear Programming for Engineering Design
L46 Communications in Design Engineering
L47 Design for Strength
L48 Optimization for Design Engineering
L49 Design for Production
L50 Concepts of Artificial Intelligence for Design Engineering
L51 Design of Physical World, Life Scenerario and End-of-Life for Design Products
L52 Computational Intelligence
L53 Design Thinking
L54 Engineering Design and Mathematics
L55 Generative Design Approach
L56 Responsible Design
L57 Ergonomy for Engineering Design
L58 Transdisciplinary Design
L60 Reporting (Communication) in Engineering Design
L61 Sensoric Subsystems-Applications and Selection for Design
L62 Motoric Subsystems-Applications and Selection for Design
L63 Cognitive Subsystems-Applications and Selection for Design
L64 Future Technologies for Design Engineering and Engineering Design
L65 Recent Developments for Conceptual Robot Design
L66 Contemporary Artificial Intelligence Technologies for Engineering Design
L67 Contemporary Neural Networks for Engineering Design
L68 Human-Machine (Robot) Interface Design
L69 Future of Design Engineering

MODULES (17)

M01	*Design Engineering; Fundamentals*
M02	*Design Engineering; Concepts*
M03	*Identification and Definition and Analysis of Needs*
M04	*Design Product; Definition and Concepts*
M05	*Concepts and Tools for Design Product I*
M06	*Concepts and Tools for Design Product II*
M07	*Conceptual Design*
M08	*Modelling of Design Products*
M09	*Design Process Modelling*
M10	*Creativity and Innovation for Design Engineering*
M11	*Education and Communication for Design Eng'g*
M12	*Future Technologies for Design Engineering I*
M13	*Future Technologies for Design Engineering II*
M14	*Mathematics and Optimization in Design Eng'g*
M15	*Other Topics*
M16	*Mechatronics Eng'g; Fundamentals and Concepts*
M17	*Subsystems for Mechatronics Products*

DETP Structure; Courses (DES), Modules (M), Lectures (L)

	DES01	DES02	DES03	DES04	DES06	DES08	DES12
M01	S01,S02, S15, S22	S01,S02, S15, S22	S01,S02, S15, S22	S01,S02, S15, S22	S01,S02, S15, S22	S01,S02, S15, S22	S01,S02, S15, S22
M02	S20, S21, S37, S53	S20, S21, S37, S53	S20, S21, S37, S53	S20, S21, S37, S53	S20, S21, S37, S53	S20, S21, S37, S53	S20, S21, S37, S53
M03	S05, S10, S13, S14, S35	S05, S10, S13, S14, S35	S05, S10, S13, S14, S35	S05, S10, S13, S14, S35	S05, S10, S13, S14, S35	S05, S10, S13, S14, S35	S05, S10, S13, S14, S35
M04	SXY, SXY, S51	SXY, SXY, S51	SXY, SXY, S51	SXY, SXY, S51	SXY, SXY, S51	SXY, SXY, S51	SXY, SXY, S51
M05	S06, S30, S31, S32	S06, S30, S31, S32	S06, S30, S31, S32	S06, S30, S31, S32	S06, S30, S31, S32	S06, S30, S31, S32	
M06	S08, S18, S19, S25, S34	S08, S18, S19, S25, S34	S08, S18, S19, S25, S34	S08, S18, S19, S25, S34	S08, S18, S19, S25, S34	S08, S18, S19, S25, S34	
M07		S11, S03, S09, S04	S11, S03, S09, S04	S11, S03, S09, S04	S11, S03, S09, S04	S11, S03, S09, S04	S11, S03, S09, S04
M08		S24, S28, S38, S44	S24, S28, S38, S44	S24, S28, S38, S44	S24, S28, S38, S44	S24, S28, S38, S44	
M09			S23, S29, S16, S17	S23, S29, S16, S17	S23, S29, S16, S17	S23, S29, S16, S17	S23, S29, S16, S17
M10		S0, S12, S33	S0, S12, S33	S0, S12, S33	S0, S12, S33	S0, S12, S33	S0, S12, S33
M11		S39, S46, S60	S39, S46, S60	S39, S46, S60	S39, S46, S60	S39, S46, S60	S39, S46, S60
M12				S55, S64	S55, S64	S55, S64	
M13				S50, S56, S66	S50, S56, S66	S50, S56, S66	
M14			S45, S48, S54*	S45, S48, S54*		S45, S48, S54*	S45, S48, S54*
M15			S47, S49, SXY, SXY	S47, S49, SXY, SXY		S47, S49, SXY, SXY	
M16				S40, S41, S42, S43, S65	S40, S41, S42, S43, S65	S40, S41, S42, S43, S65	
M17					S61, S62, S63	S61, S62, S63	

COURSES

COURSES / Moduls	M 01	M 02	M 03	M 04	M 05	M 06	M 07	M 08	M 09	M 10	M 11	M 12	M 13	M 14	M 15	M 16	M 17
DES01 *Engineering Design, Concepts, Theory and Practice*	+	+	+	+	+	+											
DES02 *Conceptual Engineering Design and Practice*	+	+	+	+	+	+	+	+		+	+						
DES03 *Design Engineering, Concepts, Tools and Practice*	+	+	+	+	+	+	+	+	+	+	+			+	+		
DES04 *Interdisciplinary Engineering Design and Practice*	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
DES06 *Mechatronics Engineering Design*	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+
DES08 *Bio-Inspired and Bio-Mimetics Engineering Design*	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
DES12 *Systems Engineering for Engineering Design*	+	+	+	+			+		+	+	+			+			

Modules & Lectures

M01 Design Engineering; Fundamentals
L01 Welcome
L02 Projection
L15 Make-Buy Decisions in Engineering Design
L22 What is Engineering Design?

M02 Design Engineering; Concepts
L20 Design and Research (R&D)
L21 Ethics for Design Engineering
L37 Philosophy of Engineering Design
L53 Design Thinking

M03 Identification and Definition and Analysis of Needs
L05 Requirements Analysis & Design
L10 Concepts of Root Cause in Engineering Design
L13 Engineering Design and Future Trends
L14 Understanding Consumer Needs
L35 Design, Need, Environment

M04 Design Product; Definition and Concepts
L68 Scenario Based Design in Engineering
L69 Physical/Virtual Models and Prototypes of Design Products
L51 Design of Physical World, Life Scenerario and End-of-Life for Design Products

M05 Concepts and Tools for Design Product I
L06 Function-Means Approach
L30 Top-Down vs Bottom-Up
L31 Make/Buy Decisions
L32 Reliability Concepts in Design

M06 Concepts and Tools for Design Product II
L08 Decision Theory in Engineering Design
L18 System Design & Logic
L19 System Design & Intelligence
L25 Uncertainity in Design
L26 Design and Reasoning
L34 Virtual Reality in Engineering Design
L52* Computational Intelligence

M07 Conceptual Design
L11 Mechatronic Design-Concepts
L03 Multi-Disciplinary Design
L09 Conceptual Design
L04 General Morphological Analysis

M08 Modelling of Design Products
L24 Artifact Models
L28 Design Abstraction
L36 Behavioral Modeling in Engineering Design
L38* Modularization in Engineering Design
L44 Mechatronics Design: PNDN

Listenin devamı var…

Modules & Lectures

M09 Design Process Models
L23 Design Process Models
L29 Technological Feasibility Study
L16 System Eng. Process Overview
L17 System Eng. Design Steps

M10 Creativity and Innovation for Design Engineering
L07 Bio-Inspired Design
L12 Engineering Creativity
L33 Innovation and Creativity in Design

M11 Education and Communication for Design Eng'g
L39* Education for Design Engineering
L46 Communications in Design Engineering
L60* Reporting (Communication) in Engineering Design

M12 Future Technologies for Design Engineering I
L55* Generative Design Approach
L64* Future Technologies for Design Eng'g and Eng'g Design

M13 Future Technologies for Design Engineering II
L50* Concepts of Artificial Intelligence for Design Engi'g
L56* Responsible Design
L66* Artificial Intelligence Technologies for E.D.

M14 Mathematics and Optimization in Design Eng'g
L45 Linear Programming for Engineering Design
L48 Optimization for Design Engineering
L54 Engineering Design and Mathematics

M15 Other Topics for Design Engineering
L47 Design for Strength
L49 Design for Production
L70 Materials and Material Selection in Engineering Design
L71 Human-Machine (Robot) Interface Design and Ergonomy

M16 Mechatronics Eng'g; Fundamentals and Concepts
L40 Mechatronics Engineering; Concepts
L41 Mechatronic Machines
L42 Mechatronics 2020
L43 Mechatronics Engineering; Future Technology
L65 Recent Developments for Conceptual Robot Design

M17 Subsystems for Mechatronics Products
L61 Sensoric Subsystems-Applications and Selection for Design
L62 Motoric Subsystems-Applications and Selection for Design
L63 Cognitive Subsystems-Applications and Selection for Design

PARTICIPATION AND SUCCESS CERTIFICATES

Due to the structure of Moodle software, moodle courses are not accessable without registration. Courses (12), Modules (17) and Lectures (69) within the training program are defined as moodle courses by the system. Due to this restriction, it is a must to register all training units and use (username)+(Password). You may attend lectures – after moodle identification – in '*guest*' status. For this; you just need to choose guest status when you are asked to register when you are studying lectures, modules and courses at the 'site home page', However, it is not possible for participants with guest status to participate in project studies, tutorial sessions, online courses and studios. Guest registeration does not entitle you to receive Participation Certificate or Certificate of Success. Registered trainees can access all lectures, modules and courses with their unique username and password. With the facilities of Moodle software, their locations and duration can be monitored. If the duration of the participants' stay on the site and in the training programs is sufficient, they are granted a Certificate of Participation if requested. Registered participants have the right to participate in exam and project studies and are expected to participate normally. A Certificate of Success is given to the trainees who exhibite a sufficient performance(*) by participating in exam, tutorials and project works. However, participants who do not want to participate in exam and project studies and submit his/her preferences accordingly, are not given any Certificate of Success. Trainees who participate in the program but have problems in their performance expected can continue the program they are enrolled in for another semester by paying a fee again.

*(*) The level of performance required to issue a **Certificate of Success** has been considered as the equivalent of a CC grade in similar studies of universities. A Certificate of **Outstanding Achievement** is issued for performances above the BB level.*

PRICING

Course and module fees vary depending on the status of the participants. Below are nominal and discounted rates per person for employees of commercially qualified organizations. Various exemptions are provided for trainees without any permanent salary. Up to 100% fee exemption will be provided if they apply by specifying their status. NOTE: For example; There is no charge for people with severe disabilities.

Courses	Time hr	Nominal Fee TL	Special Offer TL	Nominal Fee USD	Special Offer USD
DE**S01** *Engineering Design, Concepts, Theory and Practice*	25	750 TL	375 TL	$ 95	$ 57
DES02 *Conceptual Engineering Design and Practice*	39	1170 TL	585 TL	$ 147	$ 88
DES03 *Design Engineering, Concepts, Tools and Practice*	50	1500 TL	750 TL	$ 188	$ 113
DES04 *Interdisciplinary Engineering Design and Practice*	60	1800 TL	900 TL	$ 225	$ 135
DES06 *Mechatronics Engineering Design*	56	1680 TL	840 TL	$ 210	$ 126
DES08 *Bio-Inspired and Bio-Mimetics Engineering Design*	63	1890 TL	945 TL	$ 237	$ 142
DES12 *Systems Engineering for Engineering Design*	33	990 TL	495 TL	$ 124	$ 75

The fees listed here cover the distance education program during the covid19 pandemic period and offline courses, workshops and project organizations to be organized within the scope of this program as online zoom meetings.

Modules		Time hr	Nominal Fee TL	Special Offer TL	Nominal Fee $	Special Offer $
M01	*Design Engineering; Fundamentals*	4	120	60	15	10
M02	*Design Engineering; Concepts*	4	120	60	15	10
M03	*Identification and Definition and Analysis of Needs*	5	150	75	18,75	12
M04	*Design Product; Definition and Concepts*	3	90	45	11,25	8
M05	*Concepts and Tools for Design Product I*	4	120	60	15	10
M06	*Concepts and Tools for Design Product II*	5	150	75	18,75	12
M07	*Conceptual Design*	4	120	60	15	10
M08	*Modelling of Design Products*	4	120	60	15	10
M09	*Design Process Modelling*	4	120	60	15	10
M10	*Creativity and Innovation for Design Engineering*	3	90	45	11,25	8
M11	*Education and Communication for Design Eng'g*	3	90	45	11,25	8
M12	*Future Technologies for Design Engineering I*	2	60	30	7,5	8
M13	*Future Technologies for Design Engineering II*	3	90	45	11,25	8
M14	*Mathematics and Optimization in Design Eng'g*	3	90	45	11,25	8
M15	*Other Topics*	4	120	60	15	8
M16	*Mechatronics Eng'g; Fundamentals and Concepts*	5	150	75	18,75	12
M17	*Subsystems for Mechatronics Products*	3	90	45	11,25	8

APPLICATION and REGISTRATION

1. Open the Beytepe Engineering Academy web page http://www.beytepeakademi.com/en/
2. Select TRAINING PROGRAMS on the main menü.
3. Click on the "Apply" button under the "Design Engineering Training Program" window. .
4. Select the courses and/or modules you want to register by clicking tiles.
5. Fill in the "Application Form" and click on the "Send" button.
6. Your temporary application is completed. If your application is accepted, an email will be sent you with a temporary username and password. Temporary username and password will be valid for 24 hours.
7. Send the training fee to the appropriate bank IBAN numbers given below according to the number of courses or modules that you had selected. Download the bank receipt to your computer.
8. Send the receipt to info@beytepeakademi.com address using your email account that you typed in the application form.
9. Your username and password will be extended for 60 days. You can start your training immediately. The period may be extended free after a request.

Bank Accounts, Beytepe Mühendislik Akademisi, T. İş Bankası, ODTÜ Şubesi)

TL	TR360006400000142291294026
$ USD	TR400006400000242293846989
€ Euro	TR830006400000242294046132

Note

Beytepe Engineering Academy is not legally a higher education institution (university) in its current status. Our aim is to provide an advanced and focused training program in undergraduate and predominantly graduate levels to fresh graduate engineers after undergraduate education in the universities. Due to the university-level academic qualifications of the founders; the traing environment and approaches are more like universities, however; scope and focus of the tutorials are heavily on design engineering practice at company levels. Our future programs, manufacturing engineering, mechatronics engineering and system engineering will be developed in similar structure and philosophy.

BEA

We would like to thank you for visiting Beytepe Engineering Academy Distance Education Site...

... and wish you every success...

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Academy website for registration