Braude College

IRO INTERNATIONAL RELATIONS OFFICE

ERASMUS+ STUDY ABROAD PROGRAMS AT BRAUDE COLLEGE OF ENGINEERING ISRAEL

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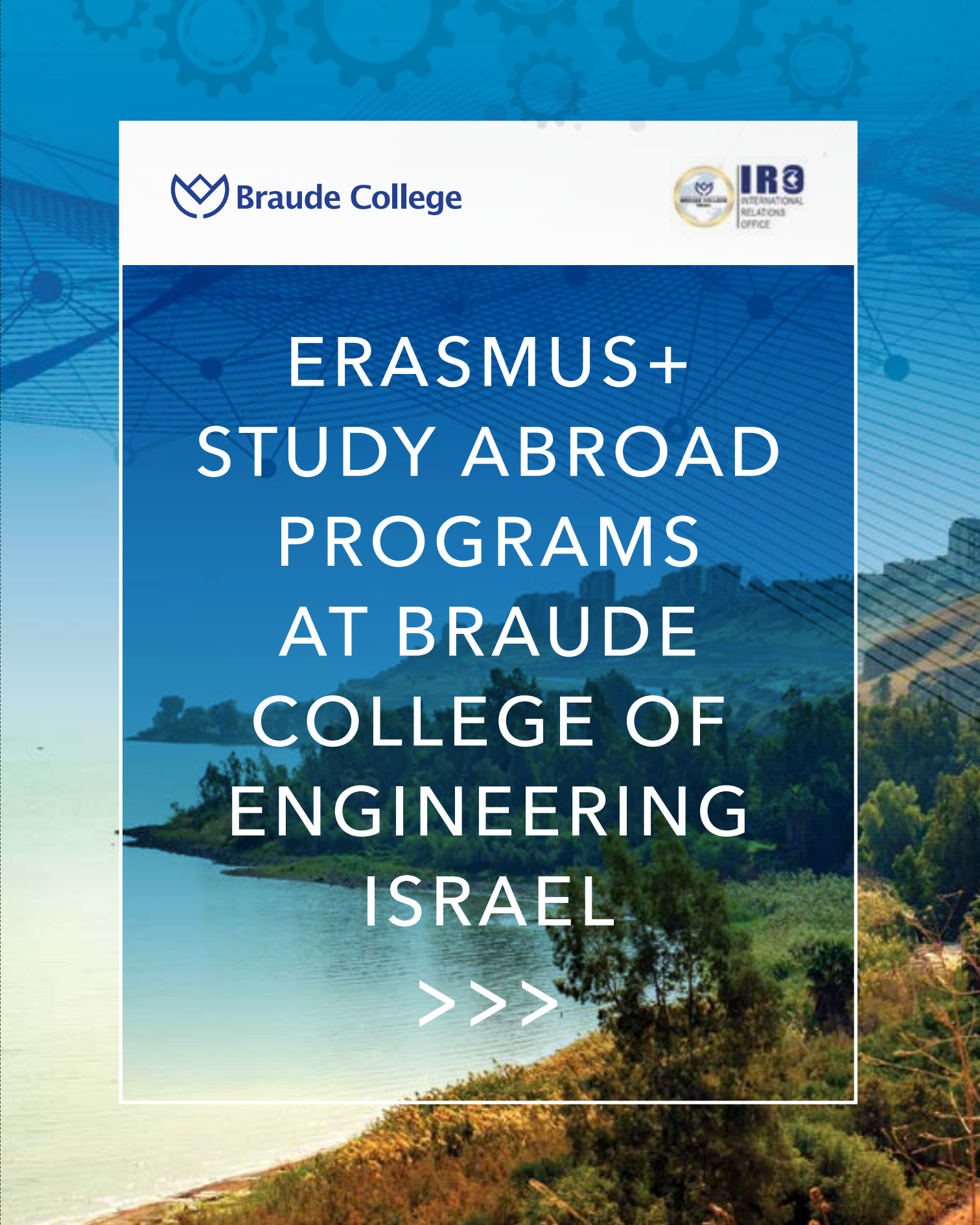


WELCOME TO BRAUDE COLLEGE

Braude College strives for excellence in teaching and research in the fields of engineering and the sciences. We achieve this by empowering the individual and by establishing strong ties with industry, academia and the community.

Braude College plays an important role in the development and prosperity of the Galilee and its communities, attracting a diverse range of students from around the country, many of whom choose to live and work in the region following graduation.

We are committed to our mission: upgrading productivity in classic/traditional industry. In collaboration with our commercial partners, Braude College has established the Galilee Center for Innovation and Advanced Manufacturing in Israel, a national hub providing industries with diagnostic and consulting services in various fields of engineering.

At Braude College, students develop a toolbox of skills which prepares them for lifelong learning and for their futures as engineers in a fast-changing technological world. This toolbox includes teamwork, critical thinking, and the ability to communicate their ideas in English as well as in Hebrew. Through investing substantial resources in training, in improved teaching methods, and in student support systems, our college has created an environment that is both nurturing and challenging for our students. A firm dedication to high academic standards ensures the quality of our graduates, providing them with the education and skills they need to meet their personal and professional goals in the fields of engineering most highly in demand today.

We look forward to welcoming you to Braude College for your Study Abroad experience and wish you every success.

Professor Arie Maharshak, President

CONTINENT

REGION

Western Asia
Middle East

SIZE

22,000 km²

NEIGHBORING COUNTRIES

Lebanon
Syria
Jordan
Egypt
Palestinian Authority

CAPITAL CITY

JERUSALEM

City population
936,425

POPULATION

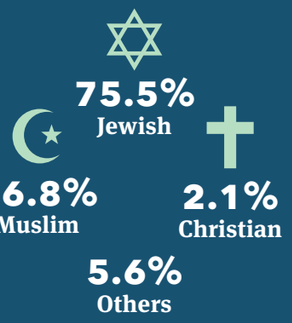
9,354,720

AVERAGE LIFE EXPECTANCY

81.28

LANGUAGEES

RELIGIONS



MONETARY UNIT

SHEKEL

INTERNATIONAL COUNTRY CODE

IL+972

CLIMATE

18˚c - 30˚c
hot and dry summers

6˚c - 15˚c
cool and mild winters

YEARLY RAINFALL

60 cm
(average) mostly in winter

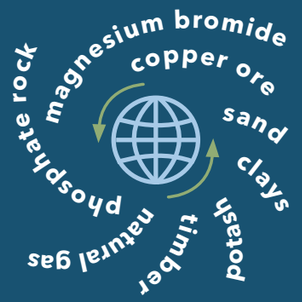
GEOGRAPHY

Coastal plain

Central mountains

Southern desert

NATURAL RESOURCES



INDUSTRY

electronics, plastics, wood and paper products, potash and phosphates, cement, food, beverages, tobacco, caustic soda, construction, metal products, chemical products, textiles, diamond cutting, footwear

AGRICULTURE

citrus,vegetables, cotton, poultry, beef, dairy products

ANIMAL LIFE

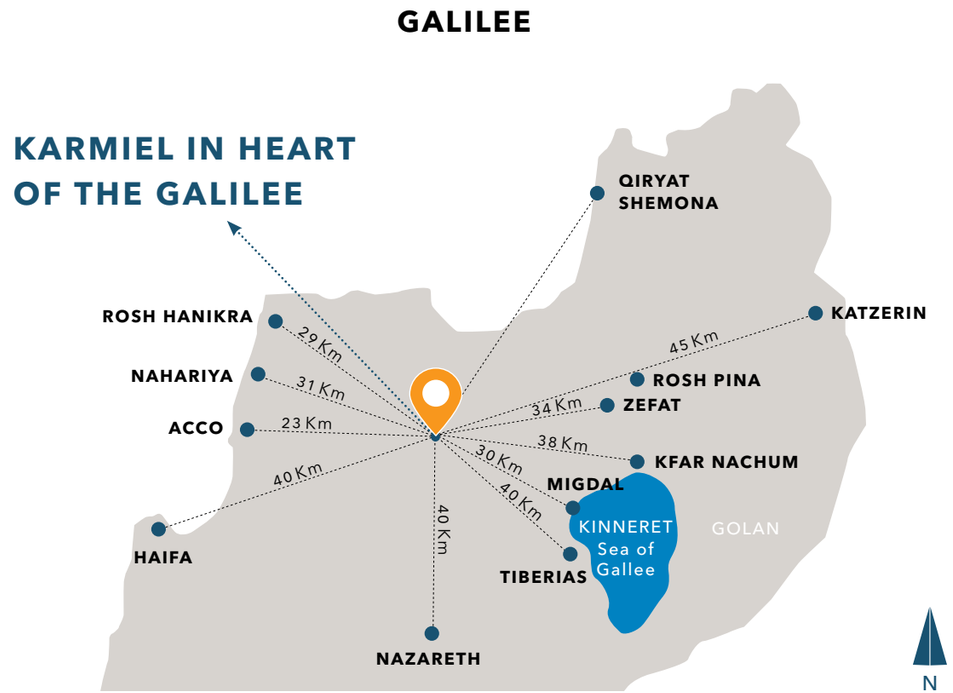
Jackal, Hyena, Wild boar, Gazelle, Fox, Deer

PLANT LIFE

Vines, Fig, Olive Citrus trees, Banana Avocado, Palm, Oak Broom, Numerous Wildflowers

BIRD LIFE

Buzzard, Pelican Starling, Vultures



Braude College is perched on a hill in the city of Karmiel, which divides the upper and lower Galilee. The Galilee is a mountainous region in the north of Israel, characterized by rocky hills, green fields and colorful wildflowers. Its relatively abundant water and fertile soil have made for thriving wildlife and thousands of years of human settlement.

The Galilee houses a tapestry of ethnic communities. Alongside Jewish cities and towns, there are Arab, Druze, and Circassian villages. A hub of tourism, the Galilee offers antiquities, parks, nature reserves, and religious sites. The Galilee is also a center of arts and culture, and of industry. Numerous high-tech companies are located here, having drawn some of Israel's finest scientists to the region.

The natural beauty, historical and archeological sites, cultural diversity, and innovative industries make the Galilee a fascinating region, with something to interest almost all visitors.

BRAUDE COLLEGE OF ENGINEERING IN KARMIEL

Braude College, based in the city of Karmiel, is a leading engineering institution in northern Israel. Established in 1987, the beautifully landscaped college has some 3,000 undergraduate and graduate students.

An academic, technological and scientific center in the Galilee, Braude College helps develop local high-tech industries.

Braude College offers B.Sc. degrees in biotechnology engineering, electrical and electronic engineering, industrial engineering and management, civil engineering, information systems engineering, mechanical engineering, software engineering, applied mathematics and industrial engineering and management.

The college confers M.Sc. degrees in biotechnology, software engineering, industrial engineering and systems engineering.

At Braude College, each student is valued, and receives personal attention from faculty and staff. Students also benefit from the college's connection with top-ranking industries.

BRAUDE COLLEGE
DEPARTMENTS

MECHANICAL ENGINEERING

- **Mechatronics**
- **Polymers**
- **Bio-Mechanics**
- **Design and Manufacturing**

ELECTRICAL & ELECTRONIC ENGINEERING

- **Computers**
- **Signal Processing Communication**
- **Devices & Systems**

SOFTWARE ENGINEERING

- **Algorithms**
- **Signals and Communication**
- **Software Engineering**

CIVIL ENGINEERING

- **Smart buildings**
- **Green buildings**
- **Infrastructure**

BIOTECHNOLOGY ENGINEERING

- **Food**
- **Bio-Molecular**
- **Environmental**

INDUSTRIAL & MANAGEMENT ENGINEERING

- **Management and Services**
- **Science and Technology**
- **Information Systems**
- **Management**

GENERAL STUDIES

APPLIED MATHEMATICS

BRAUDE COLLEGE
MAP

A Student Dormitory
B Dean of Students
C Staff dormitories
D Mechanical and Biotechnology Engineering
M Software and Industrial & Management Engineering
EM Student Dormitory
L Classrooms
P Optical Engineering

ERASMUS + SPRING SEMESTER

As part of the Erasmus+ exchange program, Braude College is delighted to welcome international students from our partner universities in Europe to join our spring semester study abroad program.

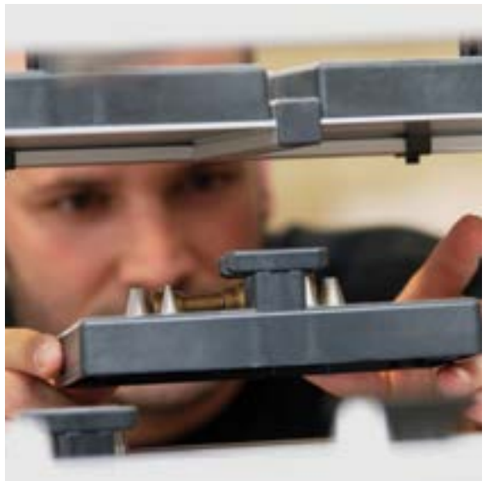
The 13-week semester begins on March 9th 2023, studies end on June 25th with the exam period beginning on June 26th and ends on August 13th.

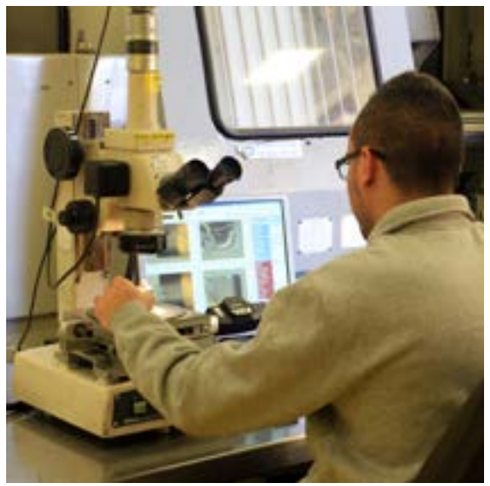
In building your Learning Agreement, you can choose from over 70 academic courses in English, and incorporate theory with practical laboratory work.

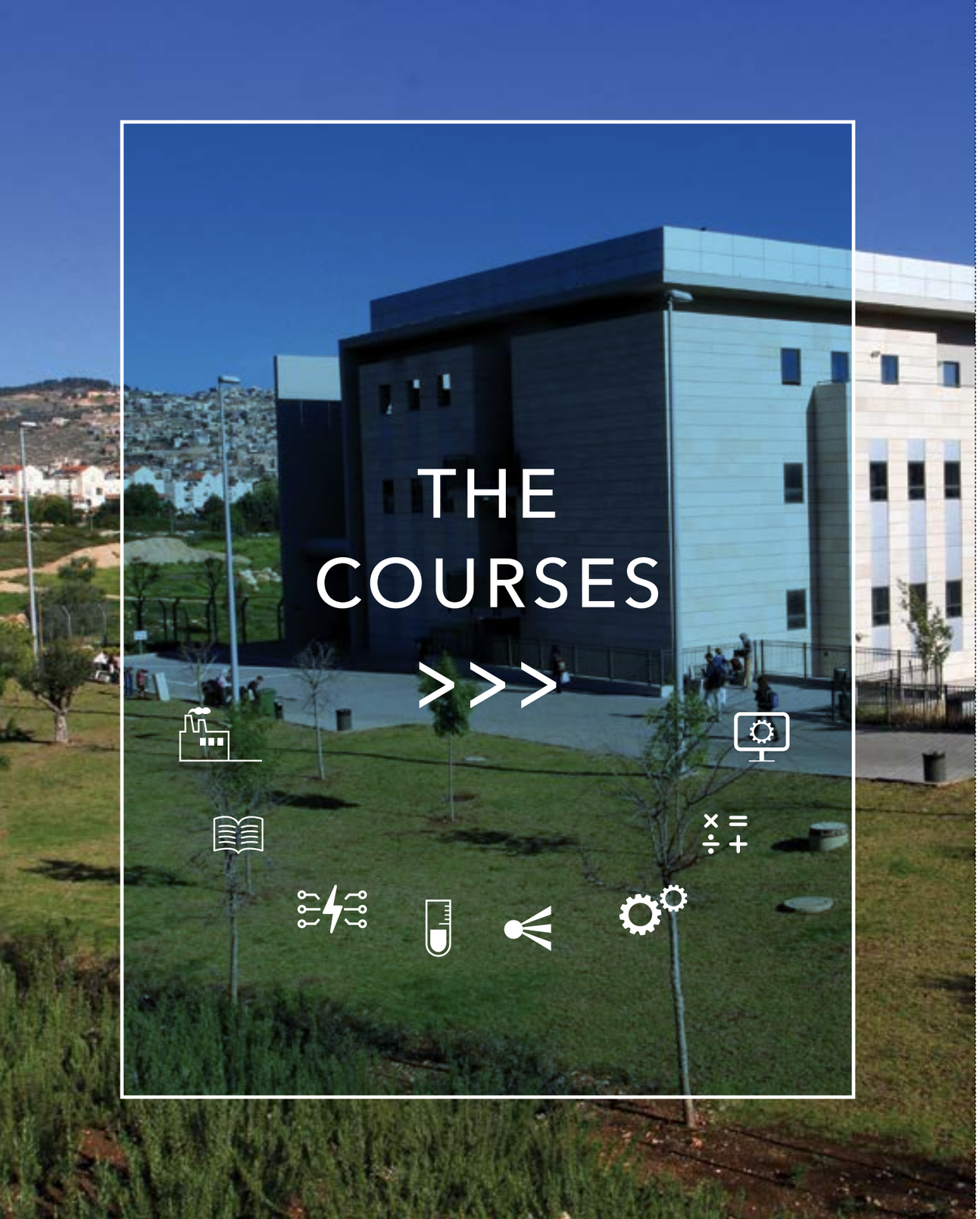
As part of your studies, you will complete projects that relate to real-world engineering challenges and gain valuable professional experience.

As an Erasmus+ student at Braude, you may choose to participate (for additional cost) in field trips and exciting extra-curricular activities through which you well get to know Israeli society and culture.

You will live on campus with Israeli students and will have the option of an adoptive family from Karmiel to enable you to feel right at home.







BIOTECHNOLOGY – B.Sc.

41181 - IMMUNOLOGY

Academic hours: 26

Basic concepts of Immunology. The Innate and Acquired immune systems. Cells and tissues of the immune response. Antibody genetics and structure. Antibody classes and their specific functions. The T-cell receptor, its recognition of self and non-self antigens. The Major Histocompatibility Complex (MHC), its recognition of antigens and cooperation with the T-cell receptor. Humoral and cellular immunity. Cytokines. Mechanism of immune reactions against pathogens and tumor-specific antigens. Regulation of the immune response and autoimmunity.

BIOTECHNOLOGY – M.Sc.

43105 + 43114 - ADVANCED TECHNOLOGIES IN CELL AND TISSUE

Academic hours: 39

Tissue engineering is a key method in the practical aspects of regenerative medicine. Due to the importance of the field, it is important to expose students to existing advanced technologies. The course deals with practical aspects of culturing and monitoring animal cells by using advanced tissue engineering methods. The course focuses on hands-on practice. Students will be exposed to common laboratory work: medium preparation and change, cells splitting, and routine culture of cell lines in the lab. During the laboratory work, students will practice tissue formation (cell differentiation) by using different types of cells seeded on various scaffolds\ hydrogels: Alginate, Matrigel matrix™ and a unique GAG mimetic hydrogel. Cultured cells features will be examined by morphology and by Immunostaining using specific cells markers.

43106 - DRUG DESIGN AND DEVELOPMENT

Academic hours: 39

The course aim is to provide a framework of basic drug design and development into which current and future drugs may be fitted. The difference between innovative and generic drugs will be discussed. Principles such as: methods for drug discovery, drug targets, the concept of Structure Activity Relationship (SAR) and Quantitative Structure Activity Relationship (QSAR) and optimization of the drug interactions with the target will be studied. Those principles will be applied in two computational laboratory exercises.

43501 - SCIENTIFIC AND BUSINESS COMMUNICATION IN ENGLISH

Academic hours: 26

Practice in written and spoken technical, scientific and business English. The course includes basic and essential English grammar and vocabulary, summary writing, scientific and technical reporting, meeting agenda composition, significance and execution of minute taking, audience-directed language (register), company presentation, composition of scientific protocols, verbal and written presentation of original research/ business proposals.

ELECTRICAL AND ELECTRONICS ENGINEERING

31910 - INTRODUCTION TO CONTROL

Academic hours: 52

The subject matter of this course encompasses the fundamental principles and relevant techniques for designing continuous-time SISO LTI control systems that satisfy practically relevant system performance specifications. Topics of the course are: introduction and foundations, feedback control fundamentals, loop transfer function fundamentals, linear SISO systems, and tracking design with uncertain plants. Expected outcome of the course: students will be able to design continuous-time SISO LTI control systems that satisfy practically relevant system performance specifications in frequency domain.

31651 - IMAGE PROCESSING

Academic hours: 78

Basic properties of the human visual system. Pixel. Computer presentation of the Gray and RGB images as arrays. Creating a set of synthetic test images by using C and C++. Contrast and brightness. Pixel-to-pixel operations: contrast stretch, automatic min-max contrast stretch, histogram equalization. Usage of LUT and pointers for fast implementation of pixel-to-pixel operations. Geometrical transformations: scaling, rotation, affine transform. Image registration. Median filtration. Filtration by convolution. Gaussian filter. Usage of FFT for image processing. Unsharp masking. Edge detectors. Usage of MATLAB for fast prototyping image processing systems. Design and properties of digital camera. In the frames of the course, laboratory, students implement a selection of the Image Processing algorithms by using Visual Studio (C, C++, C#, .NET).

31215 - MICRO-PROCESSORS

Academic hours: 78

This course provides an introduction to micro-processor based systems, inside architecture of 16 bit processor (Intel 8086). Principles of micro-processor programming in Machine Code, Assembly 8086 language and modular programming. Principle operation of RISC and CISC processors. Programming for Windows OS, based on DLL files. Advanced architecture of modern processors “Intel 32bit”, Pentium4- dual core, Pentium– pro and inside architecture of "Intel 64”, Itanium. Fundamentals of development of a micro-processor-based system, Pentium- main memory organization, virtual memory, paging mechanism, cache memory organization. Principles of serial communication, RS-232, USB. Detailed studies of computer I/O and

interrupt techniques, timers, parallel and serial interfaces. Laboratory activities provide the student with experience in developing the hardware and software required to incorporate microprocessors into systems in ASM86 language. PC peripherals including – keyboard, screen, drives, serial port and mouse.

31565 - REAL TIME DIGITAL SIGNALS PROCESSING

Academic hours: 39

Basic analog and digital signals. Examples of medical signals (ECG, EEG, EMG, ERG, PPG). “Arduino Due” board as software defined signal generator controlled by UART command. “EasyStart Kit – PIC32MX7” board as fast prototype board for RT-DSP algorithms test. Practical aspects of the signal’ acquisition by using ADC: pre-amplifiers, anti-aliasing filters, usage of timers and interrupts. Usage of TFT screen to present graphs of the signals and textual information. Basic DSP algorithms and their practical implementation: filtration by convolution and by using FFT, normalized correlation, autocorrelation, median filtration. In the frames of the course “Arduino Due” board and “EasyStart Kit – PIC32MX7” board are used to create working prototypes of RT-DSP systems: “Spectrum Analyzer”, “Medical signals smart monitor”, “Filtration of audio signals” and others.

31090 - ANALOG INTEGRATED CIRCUITS DESIGN LAB

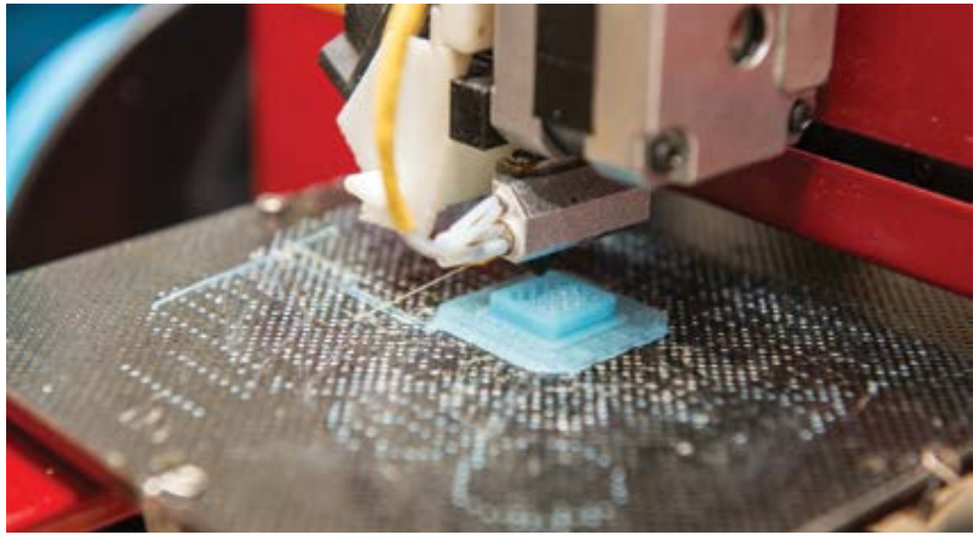
Academic hours: 65

Analog CMOS integrated circuits design focuses on the basic building blocks including current source/mirror, single stage amplifiers, differential stage amplifier. The lab experiments involve hands-on design using state of the art CAD tools. Lectures complement the experiments providing theoretical background.
The course follows the design cycle: from specification definitions, through architecture selection and basic design, to fine-tuning providing precise simulations. Simulation employing CAD tools of performance parameters such as gain, frequency response, stability, voltage span, operating point, slew rate and offset.
To conclude the course, the students will be given independent design tasks (mini-projects) to implement the techniques studied.

31891 - DYNAMICAL SYSTEM MODELLING AND SIMULATION

Academic hours: 52

The subject matter of this course covers two distinct but interlinked areas of knowledge or expertise: dynamical system modelling and numerical simulation of dynamical systems. Students will learn to derive mathematical models by applying the 'law of conservation' to various common



processes with lumped parameters. Students will analyze the transient behavior of these models in a laboratory-type environment, where they will use numerical simulation methods to solve a model's non-linear state differential equations.

31430 - DISCRETE SYSTEMS AND NETWORKS

Academic hours: 39

Discrete time signals and systems. Energy and power signals. Classification of digital systems: static/dynamic, time-variant/time-invariant, linear/non-linear, causal/non-causal and BIBO stable/non BIBO stable. LTI systems and convolution in discrete time. Stability and causality of an LTI system. Linear difference equations with constant coefficients. Zero Input Response (ZIR) and Zero State Response (ZSR). General and particular solutions to homogeneous difference equations. General and particular solutions to non-homogeneous difference equations. The bilateral Z transform: definition, Region of Convergence (ROC), properties, well-known transform pairs. The inverse Z transform: definition, three methods of calculation, the importance of the ROC. Transfer function of an LTI system. Rational transfer functions, poles and zeros, pole-zero plots. Realness, stability and causality of an LTI system in Z domain. The Discrete Time Fourier Transform (DTFT): definition, properties, well-known transform pairs, examples of application.

31695 - OBJECT ORIENTED PROGRAMMING

Academic hours: 52

The course will provide concepts in the Object Oriented Paradigm, and will review practical tools used for Object Oriented Programming. The topics of the course will include the following concepts: abstract data types (ADT), overloading, encapsulation, classes, objects, inheritance, multiple inheritance, polymorphism, generic programming, casting and more. We will also discuss practical programming skills such as efficient programming, libraries, and top-down design. Each frontal lecture is followed by lab work where students practice the new concepts and skills, and during the semester there will be 2-4 projects.

31440 - INTRODUCTION TO DIGITAL SIGNAL PROCESSING

Academic hours: 39

Sampling and digital signals. Fourier transforms for analog and digital signals. Discrete Fourier Transform (DFT). Fast Fourier Transform (FFT) algorithm to calculate the DFT. Spectral analysis using windows. Digital filters and continuous phase representation. Generalized Linear Phase (GLP) filters. The four types of GLP filters: properties and comparison. Introduction to filter design: filter types and specifications. Finite Impulse Response (FIR) filter design: the window method. The bilinear transform. Frequency transforms. Infinite Impulse Response (IIR) filter design. Principles of multi-rate digital signal processing systems. Decimation and interpolation filter design.

31476 - MATLAB APPLICATIONS IN ELECTRONICS

Academic hours: 52

MATLAB programming applications, advantages and disadvantages, MATLAB working environment. MATLAB coding fundamentals: matrix programming, data types, loops and control statements, writing scripts and functions, efficiency considerations of coding. Matrix calculations: transposing and inverting matrices, solving linear equation systems, finding eigenvalues and eigenvectors, calculating trace and determinant. Solving equations with symbolic variables, finding analytic solutions to differential equations, analytic transforms. Reading from files and writing to files, file system operations. Plotting graphs in MATLAB. Statistical processing of data in MATLAB: calculating standard deviation, variance, co-variance and correlation, calculating histograms, linear and polynomial regression. Working with audio signals: reading and writing, playing, recording, practical and ideal filtering, generating synthetic signals. Reading and writing image files, basic operations on images. Applications of image processing: contrast and brightness adjustment, Look-Up Tables (LUTs), filtering and noise removal, sharpening, edge detection, binarization. Graphical User Interface (GUI) in MATLAB: writing applications.

31281 - PYTHON PROGRAMMING

Academic hours: 52

Python language for quick and easy development of algorithms and programs: in this course, you will learn an Object-Oriented Programming language, based on the C language. Data structures used in the language, input/output, modules, packages, special libraries, GUI, advanced material, packaging, version control system.

31632 - DATA STRUCTURES & ALGORITHMS

Academic hours: 52

Based on prior knowledge from previous courses, learn data structures and advanced algorithms used in engineering and electrical engineering in particular. Covering complexity costs, general search and sort algorithms, strings and different data structures and algorithms utilizing these structures. Advanced data structures: trees, graphs and algorithms like minimum path, spanning trees and more. Pattern matching and text compression, greedy algorithms.

GENERAL STUDIES

11899 - ADVANCING GLOBAL HEALTH THROUGH ENGINEERING

Academic hours: 26

This course is open to students of electrical, mechanical, software, biomedical and industrial engineering, and is designed to provide them with platforms to develop skills in interdisciplinary teamwork, lateral thinking, problem-solving, and communication with each other, with health personnel, and with the community. Thus, class discussion and work in the community form an essential part of learning and assessment on the course. In addition, students are encouraged to take a broad world view in terms of the benefits to communities of functioning and well-maintained engineering projects (the bigger picture for sustainable projects) while at the same time honing memory skills and the attention to detail necessary in all engineering tasks.

11874 - EMBRACING DIVERSITY

Academic hours: 26

This course is an online course entitled Embracing Diversity that targets undergraduate and graduate students, and aims to expose students to diversity in four modules:

a. Multiculturalism:
b. Disability and Accessibility
c. Facial Appearance
d. Gender and Sexual Orientation

Students will be exposed to diversity's different dimensions using diverse technological tools.

INDUSTRIAL ENGINEERING AND MANAGEMENT

51302 - INTRODUCTION TO MARKETING

Academic hours: 39

This course covers specific aspects that put Marketing at the leading edge of the modern firm's activities: understanding customers' needs and designing a comprehensive approach aiming to fulfill these special needs. Students will be exposed to the basic principles, perspectives, concepts, theories and models that have been crystallized into the contemporary science of marketing.

51113 - CASES IN INDUSTRIAL ENGINEERING

Academic hours: 39

This course is about integrating three concepts in a real-world context: problem-solving, creativity, and modelling. Problem-

solving is a critical skill to develop and nurture. Due to the increasing complexity of challenges creativity has become a necessity rather than an advantage. To fully utilize the two in a systematic way, modelling is adopted. Via real-world case studies, we will identify, formulate, analyze, and validate models to solve the challenges stemming from these case studies, utilizing tools, and practicing techniques through which the above-three concepts are materialized. More specifically, the modelling approach will be the vehicle through which we capture the essence of the dynamics of the major problem at hand, and creativity will aid in developing and soliciting innovative solutions at the various stages of the problem-solving process. Advanced Excel will be the platform via which these models will be developed. The course requires working in teams.

51422 - INTRODUCTION TO BEHAVIORAL SCIENCE

Academic hours: 26

Behavioral science is a branch of the sciences which is concerned with the study of human behavior. Behavioral science looks at individuals and their behavior along with the behavior of societies and groups, and at

processes which can contribute to specific behaviors. Learning behavioral science is an important part of becoming a team or project manager. More and more, professions and organizations are explicitly endorsing the necessity of engineers being skilled and well-trained in these areas. This course will focus on human personality, motivation and other work attitudes, learning, perceptions, stereotypes and discrimination, burnout and stress. The theories and insights of major studies will be discussed, while emphasising their relevancy to organizations and industry. Required reading: Greenberg, J., Baron, R.A. (2000). Behavior in organizations: Understanding and managing the human side of work. Prentice Hall International, Inc. (eighth edition).

MATHEMATICS

201022 - APPROXIMATION THEORY

Academic hours: 52

The course focuses on the approximation of real-valued continuous functions by some simpler class of functions, such as algebraic polynomials. Some of the topics that will be investigated include: Chebyshev polynomials, least square problems, projection methods, iInterpolation (for example: Lagrange, Chebyshev, Hermite), Remez's algorithm, and Padé approximant. These and more related topics will be practiced using Chebfun (an open-source package for computing).

201015 - MODERN ALGEBRA

Academic hours: 52

Groups, subgroups. Abelian group, cyclic group. Generators of a group. Order of an element. Normal subgroups, cosets, index of a subgroup. Lagrange's theorem. Quotient group. Homomorphism, kernel, isomorphism theorem. Applications. Rings, zero divisors, integral domains, ideals. Principal ideals, maximal ideals. Quotient ring. Isomorphism theorem. Fields, extension fields. Finite fields. Algebraically closed fields, significance in linear algebra. Factorization of polynomials over various fields. Algebraic number, transcendental number.

MECHANICAL ENGINEERING

22210 - INTRODUCTION TO MANUFACTURING PROCESSES

Academic hours: 39

The course gives students a basic acquaintance with various manufacturing processes starting with selection and ordering materials to final product manufacturing together with exposure to techno-economic considerations and production in a competitive environment. After completing this course, students should be able to plan manufacturing operations and acceptance testing and to prepare a routing chart that includes all the operations performed during production.

22610 - FLUID MECHANICS

Academic hours: 65

Introduction. Hydrostatics: manometers, forces on immersed bodies. Fluid dynamics: Integral conservation laws, Bernoulli equation, differential conservation Laws, Navier-Stokes and Euler equations. External flows around immersed bodies: boundary layers, potential flow, lift, drag, wing profiles. Internal flows: Laminar flow in ducts and pipes, turbulent flow in pipes. Flow measuring devices. Pumps. Dimensional analysis and similarity. Introduction to compressible flow.

22861 - INTRODUCTION TO MECHATRONIC SYSTEMS

Academic hours: 65

This course is an overview of mechatronic systems. Students study principles of microcontroller, microcontroller programming, digital and analog I/O, theory of measuring systems, sensors for measuring: force, displacement, temperature, acceleration. Actuators:

DC brush and brushless motors, stepper motors, modelling a position control system, introduction to signal processing, design and implementation of digital position controller, and autonomous mechatronic system. The course includes a laboratory segment.

22784 - MODELLING AND FABRICATION OF MICRO MECHANICAL SYSTEMS

Academic hours: 39

This is an introductory course to the field of micro mechanical systems (also known as Micro Electro-Mechanical Systems-MEMS). Micro system is characterized by its micro scale dimension (1 micron) and by the potential of manufacturing mechanical and electronic components on the same substrate. The aim of the course is to expose students to the field of modelling and

fabrication of micro mechanical systems (MEMS). The course deals with applying engineering principles to obtain the desired mechanical and other physical properties of micro systems. The course will include the following subjects: introduction to modelling and fabrication of micro systems; micro beams and mechanical springs that determine the mechanical stiffness of floating micro systems; electrostatic micro sensors and micro actuator; piezo-electric and piezo-resistive micro sensors and actuators; micro thermal sensors and actuators; and micro fabrications processes such as lithography, deposition and etching.

22968 - INDUSTRY 4.0 - ADVANCED MANUFACTURING TECHNOLOGY

Academic hours: 52

The main objective is to become acquainted with various aspects related to "Industry 4.0", including efficiency and productivity, process chains, optimization, sensors and automation, sustainability, biologicalisation, energy and resources, digitization, and the use of data in the world of new manufacturing systems, conventional processes, and advanced technologies like AM, EDM, ECM, Waterjet, and Laser in industry. In addition, students will acquire up-to-date knowledge on industrial and scientific developments, new materials, powder materials, composite, and micro-machining.

OPTICAL ENGINEERING

391310 - LIGHT SOURCES AND LASERS

Academic hours: 52

This course covers the fundamental physical processes of lasers, introduces relevant engineering and explores a variety of specific laser systems. In the first part of the course, the principles and main features of black body radiation and incoherent sources are introduced. The main part of the course focuses on the physical principles, structure, and operation modes of optical lasers. Topics include absorption/emission and optical gain, population inversion in three- and four-level systems, laser oscillator, resonator and beam propagation, modes structure and methods of mode-selection, Q switching, and phase locking. In addition, laser applications are addressed. The course also includes many relevant exercises relating to technical problems and solutions which will be carried out during the practical sessions.

391525 - OPTICAL IMAGING SYSTEMS

Academic hours: 39

This course covers the basic principles of optical imaging systems. Starting from the fundamentals of the diffraction theory of light, the main features, limitations, and engineering aspects of imaging systems are covered. Topics include diffraction-limited imaging, optical modulation function and modulation contrast function, contrast-limited resolution and target acquisition, and noise-limited imaging and target acquisition. In addition, the effects of atmosphere, turbulence, and motion on image quality are treated. Furthermore, the structure and main characteristics of imaging devices are covered. In the practical sessions, relevant problems on imaging systems characterization, analysis and design are addressed. The course includes theoretical problems for homework and numerical tasks.

31715 - OPTICAL COMMUNICATION SYSTEMS COMPONENTS

Academic hours: 52

This course provides a basic understanding in the physics of optical fiber and in optical fiber communication technologies, and provides basic tools for designing and applying components in optical communication systems.

SOFTWARE ENGINEERING

61966 - SEMINAR IN MACHINE LEARNING

Academic hours: 39

The course is an introduction to machine learning and deep learning concepts and algorithms. Today, Convolution Neural Networks (CNN) are in great use in many systems and are developed for classification and regression purposes. Subjects of this course include: supervised learning, generalization and overfitting, optimization methods, computer vision, CNN basics, CNN architectures and current advanced topics. The course will include lectures and seminars given by students on papers from leading scientific journals.

61994 - DEEP LEARNING FOR COMPUTER VISION

Academic hours: 39

The course is an introduction to deep learning, concepts and algorithms of this field of machine learning and its implementation using advanced modern neural networks. Subjects in this course include: introduction to python, computer vision, neural networks, architectures, objects detection, visualization, and image classification.

61985 - ANDROID DEVELOPMENT LAB

Academic hours: 39

This lab-based course will introduce students to the mobile software developing arena. Students will become acquainted with the Android OS architecture and master the development of interactive and responsive UI components for mobile devices while taking into consideration various localization and target devices constraints. Among other topics, we will cover layout designs (declarative & imperative), fragments, inter- and intra-communication methods within/between mobile applications, and practice various methods to persist app and user data. As part of the lab evaluation, you will have the opportunity to design and develop your own application to practice and demonstrate the course topics.

61979 - CLOUD COMPUTING

Academic hours: 39

Students will learn various concepts in the area of cloud computing, including cloud models (private, public, hybrid), and cloud services (SAAS, PAAS, IAAS). We will discuss the implications of using cloud computing from different aspects, such as the economic aspect, maintaining data privacy, and cloud migration. The course will also include

practical assignments, developing a web-based cloud application in a commercial framework. The application will be implemented using common programing languages. The application will be deployed in a cloud environment. The course will also include reading assignments, where students will analyze academic papers addressing contemporary issues in cloud computing research. Upon completion of the course, students will be able to build and deploy a cloud application, using commercial frameworks.

61997 - SEMINAR IN DISTRIBUTED COMPUTING

Academic hours: 39

The seminar focuses on algorithmics in distributed systems and networks. The aim is to study basic topics and techniques related to design and analysis of Al algorithms in non-faulty networks, and algorithms and impossibility results in faulty networks. Within faulty networks the seminar also considers self-stabilizing systems. In addition, basic concepts concerning online algorithms and approximation algorithms in networking problems are addressed.

BEYOND the CLASSROOM >>>

SECURITY

The safety and security of the students is taken very seriously. All students receive a comprehensive security orientation upon their arrival. Guards and security teams are on duty around the clock. All student activities, on and off campus, meet the strictest security requirement.

LEARNING FACILITIES

On campus, learning facilities are spacious and comfortable, equipped with today's most advanced technology, computerized libraries, up-to-date laboratories and computer labs. Free access to WiFi is enabled across campus.

HOUSING

During the spring semester at Braude, students will live on campus in spacious and comfortable dormitories, sharing living space with fellow international and Israeli students. Every dormitory unit has a kitchenette equipped with a refrigerator, a hot plate for cooking, and other basic kitchen accessories.

HEALTH INSURANCE

Braude College purchases health insurance coverage for students who participate in the Study Abroad Program.

SPORTS

Braude's sports facilities include a gym featuring aerobic and weight-training machines. A subscription to the Karmiel Country Club can be purchased for multiple entries to the indoor and outdoor swimming pools and tennis courts.

FOOD ON AND OFF CAMPUS

During week days there are several food services available for students on campus – vegetarian and meat based. On Friday afternoons and Saturdays, the food services are closed. For your convenience, we have provided the following price list of common food products that you may want to buy while living in the dormitories. As you might expect, the prices vary somewhat from store to store, and the lowest prices can be typically found in outdoor markets. Prices in supermarkets may be higher. The table below lists price ranges of typical products. Eating habits are personal, and every student manages their food consumption individually. However, from experience, we have noticed that students who used the kitchen in the dormitory unit during the study abroad program for cooking, spent between 220-280€ per month for food. The information here is presented to help you budget your financial resources during the study abroad program.







PRODUCTS	€
Milk (3% fat), (1 liter)	2
Loaf of Fresh Bread (500g)	1.5
Rice (white), (1kg)	3
Eggs (regular) (12)	3.5
Local Cheese (1kg)	6.2-9.9
Chicken Breasts (1kg)	5.5-8.8
Beef Round (1kg)	10.5-16.8
Apples (1kg)	1.5-2.6
Bananas (1kg)	1.2-1.8
Oranges (1kg)	0.8-1.5
Tomatoes (1kg)	2-4
Potatoes (1kg)	1-3
Onions (1kg)	0.5-0.8
Lettuce (1 head)	0.8-1.4

If you are planning to travel in Israel during the program, you should consult with internet sites and experienced travelers in Israel, to gauge the cost of travelling in Israel.

HOW TO GET TO BRAUDE

Entering Israel

The best way to get to Israel is by air. The international airport of Israel is Ben Gurion Airport which is approximately a 2-hour train journey from Karmiel.

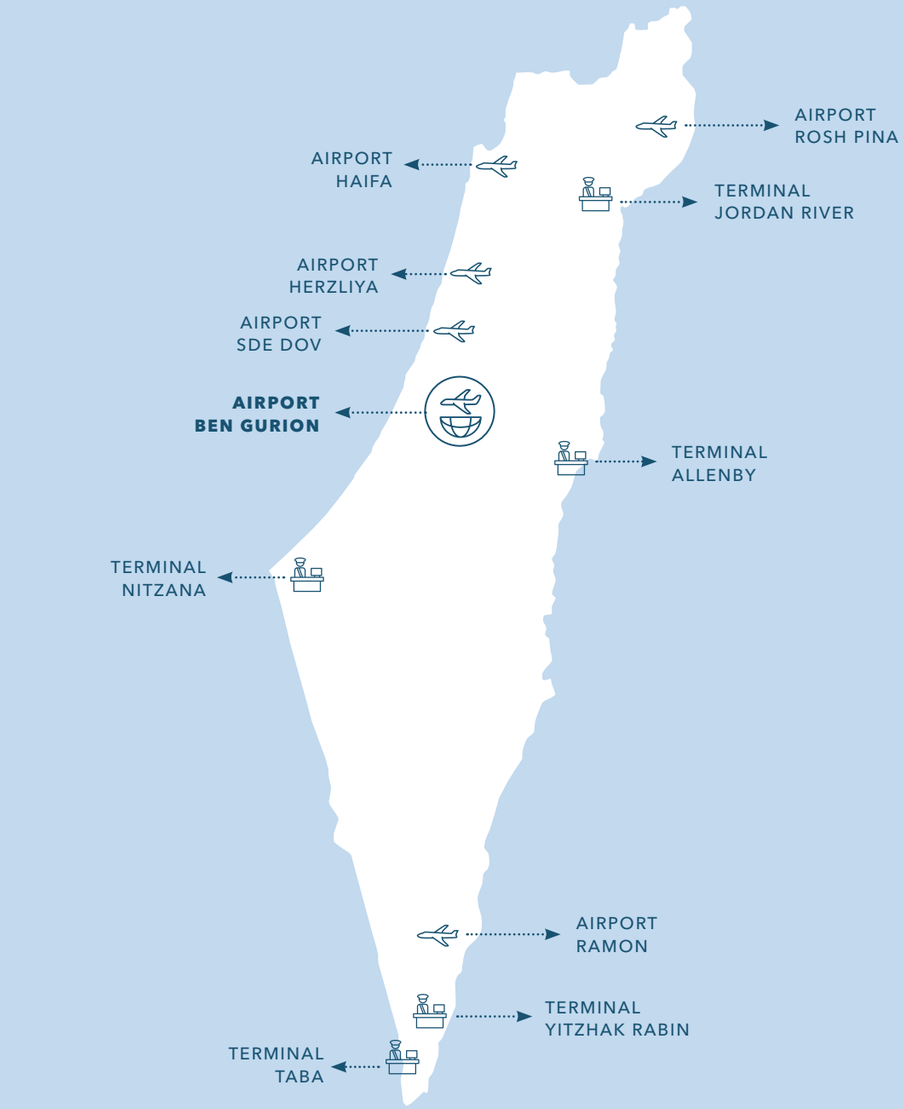
Train service

Information regarding the timetable and routes of all train services is available through the Israel Railways information site and by telephone:
***5770 or 972-3-5774000**

Bus service

Detailed information on travel times and service frequencies on various bus lines can be obtained from the **Egged site**.

Israel's public transport card



DATES AND FEES

ERASMUS+ / SPRING SEMESTER
AT BRAUDE

Dates 3.3.22 - 3.8.22

A non-refundable registration fee is required.

FEES INCLUDE

• Housing • Health insurance
• Tuition fees for academic courses are paid at the home institution

EXCURSION FEES

Extra curricular activities such as excursion trips will be available for an additional fee. Activities and fees will be published on our website before the semester begins.

APPLICATION

Apply here for one of the Study Abroad programs at Braude.

Candidates are required to submit the following documents:

1. Letter of application
2. CV/resume
3. University transcript
4. Learning agreement

Please address all queries to:
Ms. Yael Chen, Administrator,
International Relations Office
international@braude.ac.il
Tel: **972-4-9901971**

* * Braude College reserves the right to make changes to the published programs * *

Braude College

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