Faculty of Mechanical Engineering

IMPORTANT NOTES

If for one subject you can find several different types (lecture, practice, laboratory) of courses then please choose one and only one course from each type in order to be able to perform the subject's requirements successfully.Civil Engineering courses are on the website seperately. Courses chosen from the offer of Faculty of Civil Engineering will be checked and arranged individually by the departmental coordinator.

Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTA4SD	BSc Final Project			Mid-semester mark	15
Course type	**Course code**	**Course language**	**Timetable information**		
Practice	A-2021o-G	English			
http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATA4SDhttps://gpk.bme.hu/en/content/42					
Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTBG11	Fluid Mechanics			Mid-semester mark	6
Course type	**Course code**	**Course language**	**Timetable information**		
Laboratory	A-2021o-L1prs	English			
Laboratory	A-2021o-L2prs	English			
Lecture	A-2021o-E	English			
Practice	A-2021o-G1	English			
Practice	A-2021o-G2	English			
http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATBG11https://gpk.bme.hu/en/content/42					
Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTBKSD	Final Project			Mid-semester mark	15
Course type	**Course code**	**Course language**	**Timetable information**		
Practice	A-2021o-G	English			
http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATBKSDhttps://gpk.bme.hu/en/content/42					
Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTMWDB	Final Project B			Mid-semester mark	15
Course type	**Course code**	**Course language**	**Timetable information**		
Practice	A-2021o-G	English			
https://gpk.bme.hu/en/content/42					
Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTNKDA	Master Thesis Project A			Mid-semester mark	15
Course type	**Course code**	**Course language**	**Timetable information**		
Practice	A-2021o-G	English			
Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTNKDB	Master Thesis Project B			Mid-semester mark	15
Course type	**Course code**	**Course language**	**Timetable information**		
Practice	A-2021o-G	English			
Subject code	Subject name			Requirement	ECTS credit
BMEGEÁTNKPR	Teamwork Project			Mid-semester mark	6
Course type	**Course code**	**Course language**	**Timetable information**		
Laboratory	A-2021o-L	English			

Subject code	Subject name	Requirement	ECTS credit
BMEGEÁTNW02	Computational Fluid Dynamics	Mid-semester mark	5

Course type	Course code	Course language	Timetable information
Lecture	A-2021o-E	English	
Practice	A-2021o-G1	English	
Practice	A-2021o-G5	English	
Practice	A-2021o-G2	English	
Practice	A-2021o-G3	English	
Practice	A-2021o-G4	English	

http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATNW02https://gpk.bme.hu/en/content/42

Subject code	Subject name	Requirement	ECTS credit
BMEGEÁTNW08	Building and Environmental Aerodynamics	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	A-2021o-Lprs	English	
Lecture	A-2021o-E	English	

http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATNW08https://gpk.bme.hu/en/content/42

Subject code	Subject name	Requirement	ECTS credit
BMEGEÁTNW10	Advanced Technical Acoustics and Measurement Techniques	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	A-2021o-Lprs	English	
Lecture	A-2021o-E	English	

http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATNW10https://gpk.bme.hu/en/content/42

Subject code	Subject name	Requirement	ECTS credit
BMEGEÁTNW19	Vehicle Aerodynamics	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	A-2021o-L	English	
Lecture	A-2021o-E	English	

http://www.ara.bme.hu/oktatas/tantargy/NEPTUN/BMEGEATNW19https://gpk.bme.hu/en/content/42

Subject code	Subject name	Requirement	ECTS credit
BMEGEÁTOF01	Individual Project	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	A-2021o-L	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENBGEB	Energy Processes and Equipment	Mid-semester mark	5

Course type	Course code	Course language	Timetable information
Laboratory	22-1-ENG-LAB	English	
Lecture	22-1-ENG-E	English	

Subject for BSC students, MSC students bpease choose Energy Conversion (BMEGEENNWEC) subject Energy Processes and Equipment Aims and objectives and description of the course: The course gives a general overview of energy production and energy generation systems functioning and operation, importance of energy management. Opportunities and challenges are also discussed. Learning outcomes: General overview of energy production and energy generation systems function and operation. Course description: The Detailed topics are: basic processes of energy conversion fossil, and renewable energy sources. Steam and gas turbine, IC engines, fuel-cells, solar collectors, power stations: gas, steam, nuclear, and combined heat and power generation. Energy saves consumer equipments. Methodology to be used: Three hour lectures and two laboratory test per week. The presentations are oral presentations, with computer projection, and notes on the blackboard. URL: ftp://ftp.energia.bme.hu/pub/TAD/SDS_BMEGEENAG71_Energy_Processes_and_Equipments.pdf

Subject code	Subject name	Requirement	ECTS credit
BMEGEENBGEK	Energy and Environmental Measurements	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	22-1-ENG-LAB	English	
Practice	22-1-ENG-G	English	

Measurement at Energy and Environment Protection Aims and objectives and description of the course: middot; Fundamentals of measurement theory and basic metrological concepts. middot; Measurement procedures and data processing techniques. middot; The measuring system components and characteristics. middot; Basics of emissions, temperature, energetic and heat engines measurements. Learning outcomes: The main outcomes are the general overview of measurements of energetic systems, different temperature and emission measuring systems. The students has practice to use this elements. Course descriptiption: The role of measurements in maintaining and controlling the energy conversation processes. Hardware and software tools of the control and measurement systems. Laboratory tests of different engines and equipments. Simultaneous determination of system variables (flow rates, pressures, temperatures, etc.). Methods of determination of performance, efficiency, exhaust gas composition. Methodology to be used: Three hour lectures and laboratory test per week. The presentations are oral presentations, with computer projection, and notes on the blackboard. Presentation of the theoretical background and lab tests. URL: ftp://ftp.energia.bme.hu/pub/TAD/SDS_BMEGEENAG51_Measurement_at_Energ_and_Environment_Protection.pdf

Subject code	Subject name	Requirement	ECTS credit
BMEGEENBGHK	Heat Transfer G	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Lecture	22-1-ENG-E	English	
Practice	22-1-ENG-G2	English	
Practice	22-1-ENG-G1	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENBGTD	Engineering Thermodynamics G	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Lecture	22-1-DEU-E	German	
Practice	22-1-DEU-G	German	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENBKSD	Final project	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENBMHO	Thermal engineering	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Lecture	22-1-ENG-E	English	
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENMLCA	LCA of Power Generation Systems	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Laboratory	22-1-ENG-LAB	English	
Lecture	22-1-ENG-E	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENMWDA	Final project A	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	22-1-ENG-G	English	

In course of the Final Project A one student or group of 2 students will work on one selected challenging problem of mechanical engineering. Several experimental and/or numerical project proposals will be announced by the project leaders. The aim of the course is to develop and enhance the capability for complex problem solving of the students under advisory management of their project leader. At the end of each semester a written Project Report is to be submitted and the summary and findings of the investigations on the selected problem is to be presented as Project Presentation.

Subject code	Subject name	Requirement	ECTS credit
BMEGEENMWDB	Final project B	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	22-1-ENG-G	English	

The aim of the subject of is to demonstrate the ability of the student to solve high level, practical engineering problems, based on acquired knowledge in the fields of mechanical engineering. The projects have to be prepared by the students under the guidance of supervisors. The Final Projects include tasks in design, simulations, laboratory tests, manufacturing as well as controlling, interfacing and software tasks. The expected result is mostly a Final Report prepared according to written formal requirements. During the Final Exam, the results have to be explained in an oral presentation.

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNKDA	Master Thesis Project A	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNKDB	Master Thesis Project B	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNKSG	Intenrship M	Signature	0

Course type	Course code	Course language	Timetable information
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNWEC	Energy Conversion	Mid-semester mark	5

Course type	Course code	Course language	Timetable information
Lecture	22-1-ENG-E	English	
Practice	22-1-ENG-G	English	

ONLY FOR MSc STUDENTS!BSc students should choose BMEGEENBGEB, bdquo;Energy processes and equipments" subject.

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNWME	Measurement in Energy Engineering	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	22-1-ENG-LAB	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNWPR	Teamwork Project	Mid-semester mark	6

Course type	Course code	Course language	Timetable information
Laboratory	22-1-ENG-LAB	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNWSE	Dynamic simulation of energy engineering systems	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Lecture	22-1-ENG-E	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENNXTU	Turbines	Mid-semester mark	5

Course type	Course code	Course language	Timetable information
Lecture	22-1-ENG-E	English	
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEENUVHT	Advanced thermodynamics	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Lecture	22-1-ENG-E	English	
Practice	22-1-ENG-G	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEÉPAG62	Air-Conditioning	Exam	4

Course type	Course code	Course language	Timetable information
Lecture	A23	English	
Practice	A24	English	

Air-Conditioning BMEGEÉPAG62 Main aims and objectives, learning outcomes of the subject: The objective is the introduction to the fundamentals of air-conditioning systems in buildings providing a comprehensive knowledge on the theory and practice of system design and dimensioning with particular attention to the most recent technologies. By the end of this course you will: - Have knowledge about the aims of air-conditioning: providing comfort - both thermal and good indoor air quality, reduce energy consumption, increase energy performance, etc. - Be able to apply appropriate mathematical and computer-based methods for the calculation of buildings' heat loads and cooling loads, sizing of air-conditioning elements. - Be able to apply knowledge of techniques, codes and standards of practice to the design of cooling components and systems. Method of education: The theoretical background will be interpreted via lectures, the calculations and tools will be presented during the seminars. Calculation problems/examples will require active participation. Detailed thematic description of the subject (by topic, min. 800 character): Date of class Topics to be discussed, readings required for the class Week 1 Introduction, AC systems, types Heat transfer Week 2 Thermal comfort Heat load calculation Week 3 Thermal comfort, examples Indoor Air Quality Week 4 Cooling load calculation h-x diagram, psychrometric chart Week 5 Elements, heat exchangers, hum. Volume flow rate calculation Week 6 Elements, heat exch. cooling, hum Injection Week 7 Test 1, HW out Injection Week 8 Pressure diagram Air Inlets, SCHAKO Week 9 Elements, heat recovery Week 10 Elements, filters Week 11 Air handling processes Duct network, sizing Week 12 Air handling processes Week 13 Air handling unit, calc. example Week 14 Test 2 HW in Requirements and grading a) in term-period Knowledge, understanding and skills are assessed through a combination of written tests and homework throughout the semester. Homework will be distributed during the semester and will have to be turned in by the end of the course, before the exam period. Later submission is allowed but a fee has to be paid and homework will have to be turned in by the 3rd week of the exam period. Homework will not be graded but is compulsory in order to receive a grade. b) in examination period The course ends with an exam in the exam period. Student will be allowed to take the exam if both mid-term and end-term tests are passed. c) Disciplinary Measures Against the Application of Unauthorized Means at Mid-Terms, Term-End Exams and Homework URL: https://epget.bme.hu/subjects.php?lepes=2amp;tid=216

Subject code	Subject name	Requirement	ECTS credit
BMEGEGIBGG1	Machine elements 1.	Exam	5

Course type	Course code	Course language	Timetable information
Laboratory	AL2	English	
Laboratory	AL1	English	
Lecture	AE	English	
Practice	AG1	English	
Practice	AG2	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEGIBXGA	Fundamentals of Mechanical Engineering Drawing	Mid-semester mark	5

Course type	Course code	Course language	Timetable information
Lecture	A_EA	English	
Practice	A_Gy1	English	
Practice	A_Gy2	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEGTAG93	CAD/CAM application	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	2	English	
Lecture	1	English	

https://manuf.bme.hu/?page_id=1797amp;lang=en#mmme

Subject code	Subject name	Requirement	ECTS credit
BMEGEGTAG94	Manufacturing processes	Exam	4

Course type	Course code	Course language	Timetable information
Laboratory	2	English	
Lecture	1	English	

https://manuf.bme.hu/?page_id=1797amp;lang=en#mmme

Subject code	Subject name	Requirement	ECTS credit
BMEGEGTNWNC	NC Machine Tools	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Lecture	1	English	
Practice	2	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEGTNWPP	Process Planning	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Lecture	1	English	
Practice	2	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEMMBXM1	Statics	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Lecture	NE	German	
Lecture	LEC	English	
Practice	SEM1	English	
Practice	NG	German	

Subject code	Subject name	Requirement	ECTS credit
BMEGEMMBXM3	Dynamics	Exam	5

Course type	Course code	Course language	Timetable information
Lecture	LEC	English	
Lecture	NE	German	
Practice	NG	German	
Practice	SEM	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEPTAGE2	Injection molding	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	LAB_ERASMUS	English	
Lecture	LECT_ERASMUS	English	

http://www.pt.bme.hu/targyalapadat/88_BMEGEPTAGE2_targyleiras.pdf Objectives: theoretical and practical understanding of the injection molding technology. Knowledge of production engineering and design aspects of modern plastic products. Understanding of the most advanced design and simulation procedures. Topics: detailed description of the injection molding technology. Analysis of the process cycle diagram. Construction and operation of injection molding machines. Design for injection molding. Materials for injection molding, and fiber reinforced materials. Methods for the identification and elimination of molding defects. Injection mold design and injection molding simulation. /* Font Definitions */ @font-face {font-family:"Cambria Math"; panose-1:2 4 5 3 5 4 6 3 2 4; mso-font-charset:238; mso-generic-font-family:roman; mso-font-pitch:variable; mso-font-signature:-536870145 1107305727 0 0 415 0;} @font-face {font-family:Calibri; panose-1:2 15 5 2 2 2 4 3 2 4; mso-font-charset:238; mso-generic-font-family:swiss; mso-font-pitch:variable; mso-font-signature:-536870145 1073786111 1 0 415 0;} @font-face {font-family:"Palatino Linotype"; panose-1:2 4 5 2 5 5 5 3 3 4; mso-font-charset:238; mso-generic-font-family:roman; mso-font-pitch:variable; mso-font-signature:-536870265 1073741843 0 0 415 0;} /* Style Definitions */ p.MsoNormal, li.MsoNormal, div.MsoNormal {mso-style-unhide:no; mso-style-qformat:yes; mso-style-parent:""; margin-top:0cm; margin-right:0cm; margin-bottom:8.0pt; margin-left:0cm; line-height:107%; mso-pagination:widow-orphan; font-size:11.0pt; font-family:"Calibri",sans-serif; mso-ascii-font-family:Calibri; mso-ascii-theme-font:minor-latin; mso-fareast-font-family:Calibri; mso-fareast-theme-font:minor-latin; mso-hansi-font-family:Calibri; mso-hansi-theme-font:minor-latin; mso-bidi-font-family:"Times New Roman"; mso-bidi-theme-font:minor-bidi; mso-fareast-language:EN-US;} .MsoChpDefault {mso-style-type:export-only; mso-default-props:yes; font-family:"Calibri",sans-serif; mso-ascii-font-family:Calibri; mso-ascii-theme-font:minor-latin; mso-fareast-font-family:Calibri; mso-fareast-theme-font:minor-latin; mso-hansi-font-family:Calibri; mso-hansi-theme-font:minor-latin; mso-bidi-font-family:"Times New Roman"; mso-bidi-theme-font:minor-bidi; mso-fareast-language:EN-US;} .MsoPapDefault {mso-style-type:export-only; margin-bottom:8.0pt; line-height:107%;} @page WordSection1 {size:595.3pt 841.9pt; margin:70.85pt 70.85pt 70.85pt 70.85pt; mso-header-margin:35.4pt; mso-footer-margin:35.4pt; mso-paper-source:0;} div.WordSection1 {page:WordSection1;} --> /* Style Definitions */ table.MsoNormalTable {mso-style-name:"Normál táblázat"; mso-tstyle-rowband-size:0; mso-tstyle-colband-size:0; mso-style-noshow:yes; mso-style-priority:99; mso-style-parent:""; mso-padding-alt:0cm 5.4pt 0cm 5.4pt; mso-para-margin-top:0cm; mso-para-margin-right:0cm; mso-para-margin-bottom:8.0pt; mso-para-margin-left:0cm; line-height:107%; mso-pagination:widow-orphan; font-size:11.0pt; font-family:"Calibri",sans-serif; mso-ascii-font-family:Calibri; mso-ascii-theme-font:minor-

Subject code	Subject name	Requirement	ECTS credit
BMEGEPTAGE3	Polymer processing	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	LAB_ERASMUS	English	
Lecture	LECT_ERASMUS	English	

http://www.pt.bme.hu/targyalapadat/90_BMEGEPTAGE3_targyleiras.pdf The aims of this subject is at familiarizing the students with the polymer processing technologies in details: preliminary techniques, extrusion, blow molding, thermoforming, rotational molding, polymeric foams and elastomers technology. Topics: classification of polymer processing technologies. Basic rheological aspects of polymers. Preliminary techniques of polymer processing (material conveying, drying, mixing, dosing etc.). Calendering. Extrusion. Extruder constructions, single and twin screw extruders. Compounding wit extruder. Extrusion dies (film blowing, flat film-, pipe, sheet, profile extrusion; extrusion blow molding; extrusion coating). Thermoforming: vacuum and pressure forming. Rotational molding. Foams technology: thermoplastic and thermoset foams. Elastomer technologies. Finishing and decoration. Joining technologies: welding and adhesive bonding. /* Font Definitions */ @font-face {font-family:"Cambria Math"; panose-1:2 4 5 3 5 4 6 3 2 4; mso-font-charset:238; mso-generic-font-family:roman; mso-font-pitch:variable; mso-font-signature:-536870145 1107305727 0 0 415 0;} @font-face {font-family:Calibri; panose-1:2 15 5 2 2 2 4 3 2 4; mso-font-charset:238; mso-generic-font-family:swiss; mso-font-pitch:variable; mso-font-signature:-536870145 1073786111 1 0 415 0;} @font-face {font-family:"Palatino Linotype"; panose-1:2 4 5 2 5 5 5 3 3 4; mso-font-charset:238; mso-generic-font-family:roman; mso-font-pitch:variable; mso-font-signature:-536870265 1073741843 0 0 415 0;} /* Style Definitions */ p.MsoNormal, li.MsoNormal, div.MsoNormal {mso-style-unhide:no; mso-style-qformat:yes; mso-style-parent:""; margin-top:0cm; margin-right:0cm; margin-bottom:8.0pt; margin-left:0cm; line-height:107%; mso-pagination:widow-orphan;

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Subject code	Subject name	Requirement	ECTS credit
BMEGEVÉAG02	Diffusion Processes	Exam	2

Course type	Course code	Course language	Timetable information
Lecture	A44	English	
Practice	A45	English	

Diffusion Processes Aim of the subject: To teach to the students the theory of the mass transfer operations and the methods and equipment of one of the most important diffusion process (distillation). Topics of the subject: 1st week: Applications of mass transfer, more important diffusion processes. Batch and continuous operation. Continuous and stagewise contact. Equilibrium stage. Phase rule of Gibbs. Vapour-liquid equilibrium of a binary mixture. 2nd week: Steady state and transient diffusion. Theory of diffusion, Fick's 1-st law. Analogy with momentum and heat transfer. 3rd week: Relation between the diffusivities DA,B and DB,A. Equimolar counter diffusion. One way (unimolar) diffusion. 4th week: Prediction of diffusivities for gases, influence of pressure and temperature. Diffusion in small pores (Knudsen diffusion, in pores of intermediate size). Diffusion in liquids. Dilute aqueous solutions. 5th week: Schmidt number. Turbulent diffusion. Transient diffusion. Mass transfer coefficients. 6th week: Theory of film. Two film theory. The rate of mass transfer. Relation between the overall (Ky) and film transfer coefficients (kx, ky). 7th week: Determination of mass transfer coefficients. Measurements: wetted wall column. Correlations, Sherwood-number. 8th week: Vapour-liquid equilibrium conditions. Basic notions and laws. Vapour-liquid equilibrium of ideal mixtures. Temperature-composition (T-x,y) and y-x equilibrium diagrams of ideal and azeotropic (minimum and maximum boiling point) mixtures. Optimal feed plate location. 9th week: Distillation methods. Flashing and its calculation. 10th week: Rectification. Determination of the number of theoretical plates. Heat condition of feed (q). Intersection of the operating lines (q-line). 11th week: Heat balance of the column. Total reflux, minimum number of plates. Minimum reflux ratio. Optimal reflux ratio. 12th week: Rectification calculations. 13th week: Differential distillation, calculations. Batch rectification under constant reflux ratio and constant distillate composition. 14th week: Plate efficiencies. Different types of plates. URL: https://epget.bme.hu/subjects.php?lepes=2amp;tid=103

Subject code	Subject name	Requirement	ECTS credit
BMEGEVÉAG04	Measurement Techniques for Chemical and Environmental Processes	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	A26	English	
Practice	A25	English	

BMEGEVÉAG04 Measurement for Chemical and Environmental Processes (0/1/2/f/3) Aim of the subject: Basic measurement techniques and their application possibilities in chemical industry and environmental protection. Topics of the subject: 1-6. week : Classroom / Dep. of Building Services and Proc.Engin./ 5x3 lessons. - Basic concepts for process plant instrumentation. Instrument selection. (Temperature, flow rate, pressure, level and weight measurement methods.). - Mixing autoclave. Mixing performance is calculated. Torque measurement. Data processing. -Instrumentation and control of dryers.Measurement of heat- and mass transfer coefficients. Air humidity measurement. - Instrumentation and control of evaporators. Measurement of heat- and mass transfer coefficients. Composition Measurement. - Water quality monitoring. pH, conductivity, turbidity measurements. 6-7week: Lab. Exercises / Dep. of Building Service and Proc.Engin./ 2x3 lessons LAB1. Measurement of a convective dryer. LAB2. Measurement of a single effect evaporator. 8-9. week: Lab. Exercises / Department of Fluid Mechanics/ 2x3 lessons. LAB3. Investigation on capture hood of hot flue gas LAB4. Wind tunnel investigation on pollutant transport 10-11. week: Lab. Exercises / Department of Energy Engineering/ 2x3 lessons. LAB5. Reduction in emissions with Catalytic Converters LAB6. Determination of the Three-way Catalyst Conversion Efficiency 12-13. week: Lab. Exercises / Department of Hydrodynamic Systems/ 2x3 lessons. LAB7. Measurement of fluidization LAB8. Measurement of cyclone 14. week: /Dep. of Building Services and Proc.Engin. TEST practices material URL: https://epget.bme.hu/subjects.php?lepes=2amp;tid=331

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGA4SD	BSc Final Project	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	AnGy_a	English	

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN One-semester long individual project work. 10 hours/15 credits. * VG in the code stand for the supervising Department of Hydrodynamic Systems.

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGAV03	Chemical Engineering Fundamentals	Exam	2

Course type	Course code	Course language	Timetable information
Lecture	AnE-Vegy	English	THU:08:15-10:00(ONLINE)

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGAV04	Chemical Engineering Practice	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	AnL-Vegy	English	WED:08:15-10:00(L-HIDROLAB)
Practice	AnGy-Vegy	English	WED:08:15-10:00(D327)

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBG01	Introduction to mechanical engineering	Exam	4

Course type	Course code	Course language	Timetable information
Laboratory	AnL2	English	
Laboratory	AnL1	English	
Laboratory	AnL3	English	
Lecture	AnE	English	
Practice	AnGy2	English	
Practice	AnGy3	English	
Practice	AnGy1	English	

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBG03	Measurement Technique of Processes	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	AnL	English	
Lecture	AnE	English	

Main objectives of the subject: The aim of this subject is to present the fundamental devices and methods of measurement techniques of processes. The course presents the mathematical methods of the measuring techniques and the signal processing; shows the practical usage of them; and points out the achievable results. Detailed thematic description of the subject: Lectures: 7*2h Reviewing the basic concepts of probability theory and mathematical statistics; Error Estimation for indirect measurements; estimating systematic errors Estimating systematic (accuracy class) and random errors ensemble for indirect measurement results; Calibration The fundamentals of measuring time variant signals: Sampling and Quantization Theorems; Theoremrsquo;s analysis; Consequences in measuring techniques Fourier series and transformation, and their role in signal processing; The Spectrum and itrsquo;s applications; Recognizing periodic and noise processes Application of spectrum and cepstrum analysis for investigation operating machines The real measurement result; Noise, as the characterization of stochastic processes; Amplitude density function; Autocorrelation and Cross correlation functions Application of Autocorrelation and Cross correlation technique for analyzing periodic and transient signals Laboratory practices: 4*3,5h Pressure transducerrsquo;s response to step function Pressure transducerrsquo;s response to harmonic excitation Measuring transmission characteristics of an impulse line Investigating the effects of sampling parameters

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBG06	Individual project 1.	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Laboratory	AnL-HDR	English	
Laboratory	AnL-EGR	English	
Laboratory	AnL-ÉPGET	English	
Laboratory	AnL-ARA	English	

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN Independent Study 1 BMEGEVGAG06 One-semester long individual project work. 4 hours/4 credits.

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBG13	Fluid Flow Systems	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Laboratory	AnL	English	
Lecture	AnE	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBG16	Positive Displacement Pumps and Compressors	Mid-semester mark	3

Course type	Course code	Course language	Timetable information
Laboratory	AnL	English	
Lecture	AnE	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBKSD	Final project	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	AnGy	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGBKSZ	Summer Internship	Signature	0

Course type	Course code	Course language	Timetable information
Practice	AnGy	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGMWDA	Final Project A	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	AnGy_m	English	

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGMWDB	Final Project B	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	AnGy_m	English	

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGNKDA	Master Thesis Project A	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	AnGy	English	

http://www.hds.bme.hu/oktatas.php?sm=1amp;lang=EN

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGNKDB	Master Thesis Project B	Mid-semester mark	15

Course type	Course code	Course language	Timetable information
Practice	AnGy	English	

Subject code	Subject name	Requirement	ECTS credit
BMEGEVGNKSG	Internship M	Signature	0

Course type	Course code	Course language	Timetable information
Practice	AnGy	English	

Subject code	Subject name		Requirement	ECTS credit
BMEGEVGNWPR	Teamwork Project		Mid-semester mark	6
Course type	**Course code**	**Course language**	**Timetable information**	
Laboratory	AnL	English		

Subject code	Subject name		Requirement	ECTS credit
BMEGEVGNX26	Hemodynamics		Mid-semester mark	3
Course type	**Course code**	**Course language**	**Timetable information**	
Lecture	AnE	English		

Subject code	Subject name		Requirement	ECTS credit
BMEGEVGNX27	Flow Stability		Mid-semester mark	3
Course type	**Course code**	**Course language**	**Timetable information**	
Lecture	AnE	English		