

## DESCRIPTION OF THE COURSE

Name of the course: <b>Mathematics III</b>	Code: <b>FBpIEe22</b>	Semester: 3
Type of teaching: Lectures, and Tutorial works	Lessons per week: L – 2 hours; T – 1 hour;	Number of credits: <b>4</b>

**LECTURER** : Assoc. Prof. Dr. Valentina Proicheva, tel. 032 6659 77 email: [yproicheva@abv.bg](mailto:yproicheva@abv.bg)

Technical University - Sofia, Branch Plovdiv

### **COURSE STATUS IN THE CURRICULUM:**

Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide an extensive treatment of some of the more advanced areas of Mathematics and the applications in various fields of engineering, particularly as tools for computer-based system modelling, analysis and design.

**DESCRIPTION OF THE COURSE:** The main topics concern: functions of two and more variables and their derivatives; multiple integrals; Laplace transforms and their applications; functions of a complex variable; Fourier series; the Fourier transform; Z-Transform and their applications.

**PREREQUISITES:** Mathematics I and II.

**TEACHING METHODS:** Lectures, tutorials and case studies

**METHOD OF ASSESSMENT:** Two tests, two homeworks (30%) and final written exam (70%).

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Donevska S., B.D. Donevsky, Advanced Mathematics, Technical University of Sofia, 2011;
2. The Staff of REA, Advanced Calculus Problem Solver, 2014;
3. Edwards C.H., D.E. Penny, Multivariable Calculus, Pearson, 2012;
4. Kreyszig E., Advanced Engineering Mathematics - 10<sup>th</sup> Ed., Pearson, 2012;
5. Wrede R.C., Advanced Calculus, Schaum's Outlines, 2014;
6. Thomas & Finny, Engineering Mathematics, 2012;
7. Zill D.G., W.S. Wright, **Advanced Engineering Mathematics - 4<sup>th</sup> Ed., Jones & Bartlett Publishers Series in Mathematics, 2009.**

## DESCRIPTION OF THE COURSE

Name of the course: <b>Strength of Materials</b>	Code: <b>FBpIEe23</b>	Semester: 3
Type of teaching: Lectures, Laboratory and Tutorialworks	Lessons per week: L – 2 hours; T – 1 hour; LW -1	Number of credits: <b>5</b>

**LECTURER** : Assoc. Prof.Alexandur Kazakov, email:Alex\_kazakov@[yahoo.co.uk](mailto:Alex_kazakov@yahoo.co.uk)

Technical University - Sofia , Branch Plovdiv

### **COURSE STATUS IN THE CURRICULUM:**

Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To introduce fundamental concepts in mechanics of deformable bodies. To link the concepts of stress, strain, force and deflection to the behaviour of real structures. To provide the knowledge and methodology for design and analysis of simple solid structures. To introduce students to strain energy methods and buckling.

**DESCRIPTION OF THE COURSE:** The main topics cover: Axial Loading - normal stress, strain, stress–strain diagram, Hooke’s law, stress check and design. Transformation of plane stress - principal stresses, maximum shearing stress. Transformation of plane strain. Generalized Hooke/s law. Pure bending - stresses, neutral axis, stress check and design of beams. Eccentric axial loading in a plane of symmetry - stresses, neutral axis, stress check and design. Unsymmetric bending - stresses, neutral axis, stress check and design. Yield criteria for ductile materials under plane stress. Transverse shear – shearing stress, strain, Hooke’s law, stress check and design. Torsion and bending of shafts - stress check and design. Torsion of thin-walled closed and opened cross-section beams. Castigliano’s theorem – deflection, slope , statically indeterminate structures. Stability of columns – Euler’s formula. Design and check of columns under centric loading.

**PREREQUISITES:** Mathematics, Physics, Mechanics, Materials Science

**TEACHING METHODS:** Lectures, tutorials, laboratories, course work preparation and defence.

**METHOD OF ASSESSMENT:** Two hours written assessments (70%), course work (24%), laboratories (6%).

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. R.C. Hibbeler, Mechanics of Materials, Prentice Hall, 2011;
2. F. P. Beer, E. R. Johnston et. al., Mechanics of Materials, Mc Graw Hill, 2012;
3. G. Stoychev, Strength of Materials, TU-Sofia, 2010;
4. Timoshenko S., J. Goodier, Theory of Elasticity, McGraw Hill (1951); 5. Jonson W., P.Mellor, Engineering Plsticity, Ellis Horwood, 1983.

## DESCRIPTION OF THE COURSE

Name of the course: <b>Electrical Engineering II</b>	Код: <b>FBpIEe24</b>	Semester: 3
Type of teaching: Lectures, tutorials and laboratory work, course work	Lessons per week: L – 2 hours; T – 1 hour; LW -1	Number of credits: 5

**LECTURER:** Assoc. Prof. Vasil Spasov, Ph.D., tel. 032 659535, e-mail: [vasilspasov@yahoo.com](mailto:vasilspasov@yahoo.com).  
Technical University- Sofia, branch Plovdiv.

### **COURSE STATUS IN THE CURRICULUM:**

The subject is compulsory for the students of the specialty Industrial Engineering, BEng programme.

### **AIMS AND OBJECTIVES OF THE COURSE:**

The aim of the course is to give the students the basic knowledge of electric power generation, transmission and control, as well as the main principles and devices, responsible for switching processes in electrical circuits, supply networks, electric power generation and utilization.

### **DESCRIPTION OF THE COURSE:**

The main topics concern: Introduction to industrial power supply networks; switching phenomena in AC and DC circuits; electric arc problems, protection and switching devices - fuses, electromagnetic contactors, automatic circuit breakers; transformers - principle of operation, equivalent circuit models and parameters, basic design features, instrument transformers; DC rotating machines - principle of motor and generator operation, equivalent circuit models and parameters, speed control, efficiency; AC rotating machines - principle of operation, equivalent circuit models and parameters, speed-torque characteristics, starting currents, speed control, efficiency.

### **PREREQUISITES:**

Mathematics, Physics 1 and 2, Electrical Engineering 1.

### **TEACHING METHODS:**

Lectures using multimedia, laboratory work in groups including protocols preparation, individual course work preparation.

### **METHOD OF ASSESSMENT:**

End of semester exam (80%) with taking into account the laboratory protocols assessment (10%) and individual course work project (10%).

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Darjanov P., I. Marinova, D. Darjanova, Electrical Engineering II, Amadeus's Company Ltd., Sofia, 2006;
2. Ganguly P., Introduction to electrical engineering, PHI Learning Pvt. Ltd., 2013;
3. Fitzgerald A. E., Electric machinery, McGraw-Hill, SI Metric Edition, 1985;
4. Chapmann S., Electric machinery fundamentals, 3<sup>rd</sup> ed., McGraw Hill, 1999;
5. Smeaton R., W. Ubert, Switchgear and Control Handbook - Third Edition, McGraw - Hill Book Company, 1998;
6. Ida N., Engineering Electromagnetics, Springer-Verlag, N. Y., 2000.

## DESCRIPTION OF THE COURSE

Name of the course <b>Electronics</b>	Code: FBpIEe25	Semester: 3
Type of teaching: Lectures and laboratory work	Lessons per week: L – 2 h.; LW–2 h.	Number of credits: 5

**LECTURER:** Prof. Dr. Galidia Petrova tel.: 032 659 719 email: [gip@tu-plovdiv.bg](mailto:gip@tu-plovdiv.bg)  
Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students of specialty Industrial Engineering BEng program of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide fundamental knowledge about basic semiconductor devices, circuits and systems of analogue, digital and power electronics.

**DESCRIPTION OF THE COURSE:** The main topics concern: Semiconductors and semiconductor devices; Discrete analogue electronics – amplifiers, oscillators, rectifiers, filters, regulators; Analogue integrated circuits - operational amplifiers, linear and nonlinear applications; Digital systems – basics, combinational logic, sequential logic, digital devices, memory devices; Data acquisition and conversion – D/A and A/D converters, specifications, data acquisition systems; Power electronics – power semiconductor devices, controlled rectifiers, and power supplies.

**PREREQUISITES:** Mathematics, Physics, Electrical engineering.

**TEACHING METHODS:** Lectures, using slides, case studies, laboratory and course work from laboratory manual, work in teams, protocols and of course work description and defense..

**METHOD OF ASSESSMENT:** A three-hour assessments at the end of semester 3 (80%) plus results of the lab assignments of course work (20%).

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Dinov R., Popov E., Kolev N., Electronics, part 1 and 2, TU, Sofia, 2007;
2. Kolev N., Popov E., Dinov R., Electronics - Laboratory manual, TU, Sofia, 2005;
3. Roth C.H., Fundamentals of Logic design, West Publishing Company 1992;
4. McCalla Th. R., Digital Logic and Computer Design, Macmillan Publishing Company in New York 1992;
5. Franco S., Design with Operational Amplifiers and Analog Integrated Circuits, McGraw Hill, 2002;
6. Agarwal A., J. Lang, Foundations of Analog and Digital Electronic Circuits, Elsevier Inc., 2005;
7. Horowitz P., W. Hill, The Art of Electronics, Cambridge University Press, 1992;
8. Rashid M. Microelectronic Circuits Analysis and Design, Cengage Learning, 2011;
9. Tooley M., Electronic Circuits: Fundamentals and Applications, Elsevier, 2006;
10. Hambley A., Electrical engineering: principles and applications / Allan R. Hambley. - 5th ed., Prentice Hall, 2011.
11. Bird B.M., King K.G., Pedder D.A.G., "An Introduction to Power Electronics", 2nd Edition, John Wiley & Sons, 1993;
12. Lander C.W., Power Electronics, 3rd Edition, McGraw - Hill Book Company, 1993.

## DESCRIPTION OF THE COURSE

Name of the course <b>Computing II</b>	Code: <b>FBpIEe26</b>	Semester: 3
Type of teaching: Lectures and laboratory work	Lessons per week: L – 1 hours, LW - 2 hour	Number of credits: <b>4</b>

### **LECTURER:**

Assoc. Prof. Nikolay Kakanakov Ph.D. tel. +359 32 659 725; e-mail: [kakanak@tu-plovdiv.bg](mailto:kakanak@tu-plovdiv.bg)

Technical University - Sofia, branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory basic course in the curriculum for BEng in Industrial Engineering, at the Faculty of Electronics and Automation (FEA).

**AIMS AND OBJECTIVES OF THE COURSE:** The aim of the course is that students should get acquainted with the fundamental concepts and techniques for the computer systems and organization.

**DESCRIPTION OF THE COURSE:** The main topics concern: Structure and Organization of the CPU, Memory Management, Interrupt system, Input / Output System, Bus System Architecture, Application Software Systems and Media - text processing, electronic tables, graphical data presentation and analysis.

**PREREQUISITES:** Computing I, Electronics.

**TEACHING METHODS:** Lectures with multimedia presentations, laboratory work, (based on instructions), with protocols, comprising the results of the experimental work.

**METHOD OF ASSESSMENT:** Two one-hour assessments at mid and end of semester (60%), plus laboratories (40%).

**INSTRUCTIONAL LANGUAGE:** English

### **BIBLIOGRAPHY:**

1. Lecture Materials (ELFE website).
2. David A. Patterson, John L. Hennessy, Computer Organization and Design, Fifth Edition: The Hardware/Software Interface, The Morgan Kaufmann Series in Computer Architecture and Design, October, 2013.
3. Pavlitov C., Gourbunov Y., Rusinov R., Ma Xiaoping, Wang Wei, Precise Model of a Class of Switched Reluctance Motors Based on a Neural Network Descriptions, Journal of Balkan Tribological Association, Vol.19, No 3, 2013.
4. Pavlitov C., MAXiaoping, Parallel Algorithms and Programmable Logic Devices in Electromechanics, Textbook in China University of Mining and Technology, Xuzhou-China, ISBN 978-7-5646-1778-3, 4, 2013.

## DESCRIPTION OF THE COURSE

Name of the course: <b>Economics</b>	Code: FBpIEe27	Semester: 3
Type of teaching: Lectures and tutorials	Lessons per week: L - 2 hours; T - 1 hours	Number of credits: 3

**LECTURER:** Assist. Prof. Desislava Shatarova Ph.D. tel.032 659 716; e-mail: [desi\\_shatarova@abv.bg](mailto:desi_shatarova@abv.bg)

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory course for students from Bachelor Degree programme in Industrial Engineering of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** The Economics course is a foundation course for the understanding of economics and is basis for following courses in economics and management. The course provides comprehensive introduction to the principle ideas, concepts and applications of the theory and practice of economics. It develops students' economic literacy and teaches them how economics relates to the everyday life of individuals, businesses and society in general. The difference between macro- and microeconomics is outlined, as the course is focused mainly on topic of microeconomics. The objectives of the course are to introduce students to some methods and tools applied in economics analysis; acquaint them with the fundamental principles of microeconomics; teach them how to apply the concepts to which they were introduced.

**DESCRIPTION OF THE COURSE:** The Economic Problem. Needs, Wants, and Demands. Production, Consumption, Exchange. Market Economy Models. Types of Business Organisations. Industrial Enterprises. Classification According to the Size. Forms of Business Ownership Markets. Supply and Demand Markets. The Public Sector. The Costs of Production. Productivity. Elasticity of Demand. Price Elasticity. The Competitive Firm. Competitive Markets. Imperfect Competition. The Labour Market.

**PREREQUISITES:** None

**TEACHING METHODS:** Lectures supported by power point presentation, video materials and case studies, and tutorials including discussion of case studies, solving a wide variety of economic problems and making economic analysis.

**METHOD OF ASSESSMENT:** Continuous assessment comprising two tests during the semester. Students have to receive a pass result on both tests in order to get a pass mark for the semester. The result from the tests forms 90% of the final mark and 10% of the mark is formed as a result from the student's work during tutorials.

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. McEachern, W. A. (2014). Economics: A Contemporary Introduction. 10<sup>th</sup> Ed. CENGAGE Learning. ISBN-13:9781133188124
2. Schiller, B. R., Hill, C., and Wall, Sh. (2012). The Micro Economy Today. 13<sup>th</sup> Ed. McGraw-Hill Series Economics. ISBN-13: 978-0077416539
3. Gillespie, A. (2013). Business Economics. 2<sup>nd</sup> Ed. OXFOD. ISBN-13: 978-0199657995

## DESCRIPTION OF THE COURSE

Name of the course: <b>Measurements and Instrumentation</b>	Code: <b>FBpIEe28</b>	Semester: 3
Type of teaching: Lectures and laboratory	Lessons per week: L - 2 hours; LW - 1 hours	Number of credits: 4

**LECTURER:** Assoc. Prof. Vania Rangelova, tel.: 032 659 684, email: [vaioran@abv.bg](mailto:vaioran@abv.bg)

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory course for students from Bachelor Degree programme in Industrial Engineering of the English Language Faculty of Engineering.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide the basic knowledge about theory of measurement and principles for measurement of electrical, non-electrical and magnetic quantities. Besides classical instrumentation methods the attention to the latest measurement technique and devices is paid. The aim is to concentrate the students' attention on the most important techniques to be practiced in the near future.

**DESCRIPTION OF THE COURSE:** The main topics concern: Measurements, Units, Standards and Errors; Electromechanical instruments, Instrument transformers and Potentiometers; Bridge Circuits – DC and AC bridges; Electronic Measuring Instruments - analogue and digital; Measurement of electrical voltage, current and power; Magnetic measurements - magnetic flux, magnetizing force, iron loss measurements; Sensors - strain gauges, inductive, capacitive, temperature, piezoelectric, optical, fiber-optic. Intelligent sensors; Displacement and motion measurements-industrial range of length measurement; Strain, Stress and Force measurement; Pressure measurement; Flow measurement - differential pressure, variable area, electromagnetic, ultrasonic and other types of flow-meters; Level measurement - capacitance, radiation and pressure technique; Temperature measurements..

**PREREQUISITES:** Electrical Engineering, Physics, Electronics, Control Theory, Elements of Industrial Automation, Computing.

**TEACHING METHODS:** Lectures, using slides, case studies, laboratory and course work from laboratory manual, work in teams, protocols preparation and defence.

**METHOD OF ASSESSMENT:** Three hours final exam at the end of 4<sup>th</sup> semester.

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Kolev N., I. Petrov (edited by-), Measurement and Instrumentation, TU - Sofia, 1998;
2. Kolev N. (edited by-), Laboratory Manual on Measurement and Instrumentation, TU - Sofia, 1999;
3. Doebelin E. O., Measurement Systems, Mc.Graw-Hill Book Co., Singapore, 1990;
4. Jones L. D., A. F. Chin, Electronic Instruments and Measurement, Prentice Hall, USA, 1992;
5. Feedback Instruments Ltd - Manuals 2942, 342A/B, EEC 470/1/2/3/4/7, UK, 1996.

## DESCRIPTION OF THE COURSE

Name of the course: <b>English Language</b>	Code: <b>FBpIEe29</b>	Semester:3
Type of teaching: Lectures and Tutorial work	Lessons per week: L -. 1 . hours; T – 1 hours	Number of credits: . <b>0</b> . . . .

**LECTURER:** senior lecturer P.Taneva, 032 659 722, email: [tanneva@tu-plovdiv.bg](mailto:tanneva@tu-plovdiv.bg)

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide basic knowledge and skills in the area of academic writing, listening and reading. To expand and ensure appropriate use of basic engineering terminology in English. To familiarise students with the requirements of international academic exams.

**DESCRIPTION OF THE COURSE:** The main topics include: Basic terminology-English for Science and Technology; International exams at CAE level; Academic writing skills; Academic reading and listening skills; Essay writing; Writing abstracts and summaries; Writing definitions; Referencing and quoting; Describing tables and graphs; Academic English language practice – word-formation, punctuation, signposting, functional exponents, cohesive devices, verb tenses, style, abbreviations.

**PREREQUISITES:** English language competence at level C1 as per ELFE entrance requirements.

**TEACHING METHODS:** Lectures, seminars and discussions, case studies, course work portfolio, group work, independent work.

**METHOD OF ASSESSMENT:** Project work portfolio, essay/summary writing, end-of-year test

**INSTRUCTIONAL LANGUAGE:** English.

**BIBLIOGRAPHY:** 1. Technical English Vocabulary and Grammar, Brieger N. And Pohl A., Summertown, 2007; 2. Oxford English for Electrical and Mechanical Engineering, Glendinning E.H. and Glendinning N., OUP, 2005; 3. Oxford Practice Grammar (Advanced), Yule G., OUP, 2007; 4. Ready for CAE, Norris R., Macmillan, 2008; 5. Advanced Language Practice, Vince M. With Sunderland P., Macmillan, 2003; 6. Passport to IELTS, Hopkins D. And Nettle M., Longman, 2002; 7. Academic Writing Course, Jordan, R.R., Harper Collins, 1990



## DESCRIPTION OF THE COURSE

Name of the course: <b>Sports</b>	Code: <b>FBpIEe30</b>	Semester: 3
Type of teaching: Laboratory works	Lessons per week: LW – 3 hour	Number of credits: 0

**LECTURER:** Assoc. Prof. Valentin Vladimirov, 032 659 646, email: [valdes@tu-plovdiv.bg](mailto:valdes@tu-plovdiv.bg)

Technical University - Sofia, Branch Plovdiv

### **COURSE STATUS IN THE CURRICULUM:**

Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To help students relieve from hard mental work. To teach them exercise regularly and to help them learn new things and skills related to a given sport.

**DESCRIPTION OF THE COURSE:** Compulsory and specialized education for 1 st and 2 nd year students and optional for 3rd and 4th year students. Students attend two classes a week, each lasting 2 hours, and they chose the days and the time to attend one or two different sports. During semester each student should attend sports classes at least 11 times/subject or 22 times for both sports. The semester is considered valid if confirmed by lecturer(s)' signature(s). Students enroll for the next semester over again because changes in the syllabus may have occurred.

**PREREQUISITES:** Basic knowledge, abilities and habits related to physical culture.

**TEACHING METHODS:** Teaching begins with a lecture during the first school week which helps students realise how useful for them is to practice sports, the practicing schedule and mode of practicing sports. Students pass a physical ability test, participate in university tournaments, republican student's championships and state championships. Students chose among 13 kinds of sports and exercise depending on the facilities available.

**METHOD OF ASSESSMENT:** Each student should pass a test for physical ability at the beginning and at the end of the academic year. Participation in local tournaments and championships and in the republican all-student championships.

**INSTRUCTIONAL LANGUAGE:** English.

**BIBLIOGRAPHY:**

## DESCRIPTION OF THE COURSE

Name of the course: <b>Bulgarian Language (for foreigners)</b>	Code: <b>FBpIE31</b>	Semester: 3
Type of teaching: Tutorial works	Lessons per week: T – 2 hours	Number of credits: 0

**LECTURER:** Senior Lecturer Mariana Ilieva tel.: 032 659 712, e-mail: mariyana@gmail.com

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Optional for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide basic knowledge and skills in the area of reproductive, productive and combined activity in Bulgarian language - writing, listening and reading. To ensure that the students use independently and fluently appropriate basic terminology in Bulgarian in everyday communications during their stay in Bulgaria.

**DESCRIPTION OF THE COURSE:** After preliminary teaching in writing and reading there follow 15 lexical topics: “Greetings and Introduction”, “In the room”, “Clock, time, calendar”, “Breakfast in the confectionary”, “Lunch in the canteen”, “Dinner in a restaurant”, “Shopping – at the bookstore, at the confectionary, at the greengrocer’s, at the food store, at the dress shop, etc.”, “Boyan is ill”- in a hospital, in the drug-store, etc.”, etc. Each lexical topic is related to a corresponding grammar unit. The basic textbook is full of various exercises.

**PREREQUISITES:** None

**TEACHING METHODS:** Communicative - situation principle.

**METHOD OF ASSESSMENT** A two-hour written exam and oral discussion at the end of each semester (70%), independent work during the exercises (30%).

**INSTRUCTIONAL LANGUAGE:** Bulgarian.

**BIBLIOGRAPHY:**

1. Стоянова М., С. Стоянов, Български език за чуждестранни студенти, с., 1994;
2. Антова Ю., Е. Кирякова, Т. Накова, Български език, България и българите, С., 1997;
3. Русинов Р., С. Буров, Български език, В. Търново, 1985.

## DESCRIPTION OF THE COURSE

Name of the course: <b>Control Theory I</b>	Code: <b>BpIEe32</b>	Semester: 4
Type of teaching: Lectures and laboratory work	Lessons per week: L – 2 hours; LW – 1 hour	Number of credits: <b>4</b>

**LECTURER:** Prof. Dr. A.Topalov, tel.032 659 528, email: [topalov@tu-plovdiv.bg](mailto:topalov@tu-plovdiv.bg)

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To give knowledge for the basic approaches and methods of analysis and design of control systems based on the classical concepts of transfer function, time-domain and frequency-domain characteristics. To introduce the state-space description of systems and their fundamental properties (stability, controllability, observability), as well as the root locus method, pole-placement design and the linear-quadratic design of control systems. To develop knowledge on MATLAB and SIMULINK and practical skills for simulation of continuous-time and discrete-time control systems.

**DESCRIPTION OF THE COURSE:** The main topics concern: Basic concepts and definitions - systems, control systems, classification, the control systems problem. Transfer function description and block-diagram representations. Time-domain characteristics - unit impulse and unit step responses. Frequency-domain characteristics - Nyquist and Bode diagrams. Stability analysis - Nyquist and Routh array criteria. The root locus method. Discrete-time systems and z-transform. State-space description. Solution of the state equation. Controllability and observability. Stability and the second method of Lyapunov. Pole placement design. Observers. Linear Quadratic Optimal Design. Software tools and languages - MATLAB, SIMULINK.

**PREREQUISITES:** Mathematics I, II, III, IV, Physics, Mechanics, Computing, Electrical Engineering.

**TEACHING METHODS:** Lectures, laboratory work from laboratory manual, work in teams, protocols and course work description preparation and defense.

**METHOD OF ASSESSMENT :** Three and a half hours written test at the end of 4<sup>th</sup> semester and three and a half hours written test at the end of 5<sup>th</sup> semester. Each of the procedures carries up to 40% of the final marks. Defense of protocols from laboratory works (up to 20%).

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Kuo B. C., F. Golnaraghi, Automatic Control Systems - 9th ed., John Wiley & sons, N.Y., 2009;
2. Nise N., Control Systems Engineering 7th ed., John Wiley & sons, 2015;
3. Dorf R. C., R. Bishop, Modern Control Systems - 12th ed., Prentice Hall, 2010;
4. Antsaklis P., A. Michel, A Linear Systems Primer, Birkhauser, 2007;
5. Gatev G., K. Perev, Control Theory. Laboratory Manual, Technical University - Sofia, 2006.

## DESCRIPTION OF THE COURSE

Name of the course <b>Fluid Mechanics</b>	Code: <b>BpIEe33</b>	Semester: <b>4</b>
Type of teaching: <b>Lectures, Tutorials and Laboratory work</b>	Lessons per week: <b>L - 1 hour, T - 1 hour, LW- 1 hour</b>	Number of credits: <b>4</b>

**LECTURER:** Assist. Prof. Emil Toshkov, PhD, tel. 032 659 620,  
e-mail: emtoshkov@gmail.com

Technical University – Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory basic course in the curriculum for BEng in Industrial Engineering, at the Faculty of Electronics and Automation, FEA.

**AIM OF THE COURSE:** The aim of the course is to introduce the students with the basics of the Fluid Mechanics, and to provide them with new, practical skills related to the experimental studies of fluid flows, as well as with the analysis and assessment of various fluid flow systems.

**COURSE DESCRIPTION:** The main topics concern: introduction with the basic fluid properties; properties of ideal and real (viscous) fluids; measurement of basic flow parameters; Hydrostatics - surface and internal forces, pressure, fluid equilibrium under the action of external force fields; fluid flow kinematics - methods for mathematical description of the flow motion, streamlines and streamline surfaces; fluid dynamics - basic laws and derived dependencies, Euler's equations, Navier-Stokes and Bernoulli equations; laminar and turbulent flows, boundary layer; hydraulic losses in fluid systems; resistance of streamlined bodies, lift and drag forces.

**PREREQUISITES:** Knowledge in the field of Physics, Mechanics and Mathematics.

**TEACHING METHODS:** Interactive lectures and tutorials, based on multimedia slides. Laboratory classes, performed on specialized experimental settings. Within these classes, the students work in teams, and after the experimental studies they prepare and defend protocols.

**ASSESSMENT AND EVALUATION METHODS:** Final exam at the end of the 4<sup>th</sup> semester – 3 hours, with weighting coefficient 0.7 (up to 70 points) and continuous control throughout the semester's Laboratory works with weighting coefficient 0.3 (up to 30 points).

**TEACHING LANGUAGE:** English language

**RECOMMENDED LITERATURE:** 1. Fox R., McDonald A., Prichard Ph., "Fluid Mechanics", 8<sup>th</sup> Edition, John Wiley & Sons, ISBN: 978-1-118-02641-0, 2012; 2. Munson B., Huebsch W., Rothmayer A., "Fundamentals in Fluid Mechanics", 8<sup>th</sup> Edition, John Wiley & Sons, ISBN: 978-1-118-39971-2, 2012; 3. Ivanov M., "Fluid Mechanics – Laboratory Course and Short Theory", 1<sup>st</sup> Edition, "Avangard Prima", ISBN: 978-619-160-446-3, 2015.

## DESCRIPTION OF THE COURSE

Name of the course: <b>Principles of Mechanical Engineering Design</b>	Code: <b>BpIEe34</b>	Semester: 4
Type of teaching: lectures, tutorials, laboratory work, course project	Lessons per week: L-2 h.; T-1 h.; LW – 1 hour; CP – 2,1 h/student	Number of credits: <b>5</b>

**LECTURERS:** Assoc. prof. Georgi Dinev, PhD, tel.: 965 2996,

e-mail: gdinev@tu-sofia.bg,

Technical University of Sofia

assist. Zdravko Vitlarov, Technical University Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To develop basic machine design concepts of strength, deflection and failure, plus a study of basic mechanical components.

**DESCRIPTION OF THE COURSE:** The main topics concern: design methodology; design for static and for fatigue loading; strength and failure analyses; design of mechanical components and joints of common use such as: keys, splines, pins, rivets, threaded fasteners, press joints, welded joints, springs, shafts, axles, bearings, couplings, clutches, belts, chains, gears; fits, tolerances, orientation and position errors, and roughness; interchangeability.

**PREREQUISITES:** Physics, Mechanics, Applied Geometry and Engineering Graphics, Strength of Materials, Material Science, Mathematics.

**TEACHING METHODS:** Lectures, tutorials (case studies of design problems), laboratory work (defense of protocols) and personal course project with public defense.

**METHOD OF ASSESSMENT:** A two-hours assessments at the end of semester - 70%, tutorials (homework, attendance, ets.) – 20%, laboratory work – 10%. Personal project – 100%.

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Dimitrov L. Principles of Mechanical Engineering Design, Heron Press, Sofia, 2009.
2. Dimitrov L., et all. Design of Machine Elements. Laboratory work. Heron Press, Sofia, 2011.
3. Budinas R., J.K.Nisbett. Shigley's Mechanical Engineering Design, 10<sup>th</sup> ed., McGraw Hill, 2015.
4. Juvinal R., K. Marshek. Fundamentals of Machine Component Design. 5<sup>th</sup> ed., John Wiley & Sons, 2012.

## DESCRIPTION OF THE COURSE

Name of the course <b>Computing II</b>	Code: <b>BpIEe35</b>	Semester: 4
Type of teaching: Lectures and laboratory work	Lessons per week: L - 1 hour, LW - 1 hours	Number of credits: <b>3</b>

**LECTURER:** [Assoc. Prof. Nikolay Kakanakov Ph.D. tel. 032 659 725; e-mail:kakanak@tu-plovdiv.bg](mailto:kakanak@tu-plovdiv.bg)  
assist prof., Mitko Shopov Ph.D.tel. 032 659 725; e-mail:[mshopovtu-plovdiv.bg](mailto:mshopovtu-plovdiv.bg)  
Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory basic course in the curriculum for BEng in Industrial Engineering, at the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** The aim of the course is that students should get acquainted with the fundamental concepts and techniques of the computer systems structure and modern operating systems, computer networks and protocols, as well as to get experience with application program systems and environments, applied in industrial engineering.

**DESCRIPTION OF THE COURSE:** The main topics concern: fundamental concepts and techniques of the structure and organization of computer systems and networks, modern operating systems and environments, data protection and security, process management, architecture of computer networks and network protocols.

**PREREQUISITES:** Lectures with multimedia presentations, laboratory work, (based on instructions), with protocols, comprising the results of the experimental work.

**METHOD OF ASSESSMENT:** Two one-hour assessments at mid and end of semester (60%), plus laboratories (40%).

**INSTRUCTIONAL LANGUAGE:** English

### **BIBLIOGRAPHY:**

1. Lecture Materials (ELFE website) and <http://81.161.243.12/bgmoodle/course/view.php?id=127>
2. David A. Patterson, John L. Hennessy, Computer Organization and Design, Fifth Edition: The Hardware/Software Interface, The Morgan Kaufmann Series in Computer Architecture and Design, October, 2013
3. Andrew S. Tanenbaum and Herbert Bos, Modern Operating Systems (4th Edition), March, 2014
4. Thomas A. Limoncelli, Strata R. Chalup, Christina J. Hogan, The Practice of Cloud System Administration: Designing and Operating Large Distributed Systems, September 13, 2014
5. Plamenka Borovska, Desislava Ivanova, Pavel Tsvetanski, Parallel Simulation and Communication Performance Evaluation of a Multistage BBN Butterfly Interconnection Network for High-Performance Computer Clusters, International conference on Applied Informatics and Computing Theory (AICT '12), Barcelona, Spain, ISBN: 978-1-61804-130-2, pp. 237-242
6. Borovska Plamenka, Ivanova Desislava, Architectural Design of Grand Clos Collective Network for Supercomputers, Recent Advances in Computer Science, Rhodos, Greece, 2013, ISBN: 978-960-474-311-7, pp. 146-151

7. Plamenka Borovska, Desislava Ivanova, "Silicon Galaxy" system area network for collective communication in supercomputers, CompSysTech'14, June 2014, Russe, Bulgaria, ISBN: 978-1-4503-2753-4, pp. 86-93.

## DESCRIPTION OF THE COURSE

Name of the course: <b>Measurements and Instrumentation</b>	Code: <b>BpEe36</b>	Semester: 4
Type of teaching: Lectures and laboratory	Lessons per week: L - 1 hours; LW - 2 hours	Number of credits: 4

**LECTURER:** Assoc. Prof. Vania Rangelova, tel.: 032 659 684, email: [vaioran@abv.bg](mailto:vaioran@abv.bg)

Assist. Prof. Rositca Kazakova Ph.D.

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory course for students from Bachelor Degree programme in Industrial Engineering of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide the basic knowledge about theory of measurement and principles for measurement of electrical, non-electrical and magnetic quantities. Besides classical instrumentation methods the attention to the latest measurement technique and devices is paid. The aim is to concentrate the students' attention on the most important techniques to be practiced in the near future.

**DESCRIPTION OF THE COURSE:** The main topics concern: Measurements, Units, Standards and Errors; Electromechanical instruments, Instrument transformers and Potentiometers; Bridge Circuits – DC and AC bridges; Electronic Measuring Instruments - analogue and digital; Measurement of electrical voltage, current and power; Magnetic measurements - magnetic flux, magnetizing force, iron loss measurements; Sensors - strain gauges, inductive, capacitive, temperature, piezoelectric, optical, fiber-optic. Intelligent sensors; Displacement and motion measurements-industrial range of length measurement; Strain, Stress and Force measurement; Pressure measurement; Flow measurement - differential pressure, variable area, electromagnetic, ultrasonic and other types of flow-meters; Level measurement - capacitance, radiation and pressure technique; Temperature measurements..

**PREREQUISITES:** Electrical Engineering, Physics, Electronics, Control Theory, Elements of Industrial Automation, Computing.

**TEACHING METHODS:** Lectures, using slides, case studies, laboratory and course work from laboratory manual, work in teams, protocols preparation and defence.

**METHOD OF ASSESSMENT:** Three hours final exam at the end of 4<sup>th</sup> semester.

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

- 1.Kolev N., I. Petrov (edited by-), Measurement and Instrumentation, TU - Sofia, 1998;
2. Kolev N. (edited by-), Laboratory Manual on Measurement and Instrumentation, TU - Sofia, 1999;
3. Doebelin E. O., Measurement Systems, Mc.Graw-Hill Book Co., Singapore, 1990;
4. Jones L. D., A. F.Chin, Electronic Instruments and Measurement, Prentice Hall, USA, 1992;
5. Feedback Instruments Ltd - Manuals 2942, 342A/B, EEC 470/1/2/3/4/7, UK, 1996.



## DESCRIPTION OF THE COURSE

Name of the course: <b>Industrial Management</b>	Code: BIpEe37	Semester: 4
Type of teaching: Lectures and tutorials	Lessons per week: L - 2 hours; T - 1 hour	Number of credits: 4

**LECTURER:** Assist. Prof. Georgi Georgiev, tel. 032 659 706; e-mail: [georgi@tu-plovdiv.bg](mailto:georgi@tu-plovdiv.bg)

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory course for students from Bachelor Degree programme in Industrial Engineering of the Faculty of Electronics and Automation FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** The Industrial Management course is a foundation course for the understanding of basics of management. The aim of the course is to introduce students to the development of managerial science, the basic management concepts and to provide them with comprehensive understanding of the application of different approaches, functions and processes related to the management of the contemporary industrial enterprises, as well as to the methods for analysis of their business activity. The course provides students opportunity to acquire new knowledge and skills needed to handle industrial operation; plan, control and solve managerial problems. At the completion of the course the students will have a firm understanding of the core of the basic management issues, related the industrial enterprises management in the conditions of market economy

**DESCRIPTION OF THE COURSE:** The Industrial Management course makes a comprehensive review of the development of management studies and focuses on basic managerial functions, such as planning, organising, direction, administration and leading people, controlling and coordinating.

**PREREQUISITES:** The course is based on the knowledge in economics acquired in previous semester and more specifically Microeconomics.

**TEACHING METHODS:** Lectures supported by power point presentation, video materials and case studies. During the tutorials a wide variety of problems will be solved, cases will be discussed and some interactive simulation games will be done.

**METHOD OF ASSESSMENT:** Written exam at the end of the semester – test with open and closed questions. The result from the exam forms 90% of the final mark and 10% of the mark is formed as a result from the student's work during tutorials.

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

1. Cole, G. and Kelly Ph. (2011). Management Theory and Practice. South-Western Cengage Learning. 7<sup>th</sup> Edition. ISBN 978-1844805068
2. Mullins, L. J. (2013). Management and Organisational Behaviour. Pearson. 3<sup>rd</sup> Edition. ISBN 978-0273792642
3. Liraz, M. (2013). How to Improve Your Management and Leadership Skills – Effective Strategies for Business Managers. Kindle edition.
4. Krogerous, M. and Tschappeler, T (2011). The Decision Book: Fifty Models for Strategic Thinkig. Profile Books.

## DESCRIPTION OF THE COURSE

Name of the course <b>Operations Research</b>	Code: <b>BIpEe38</b>	Semester: 7
Type of teaching: Lectures and seminary work	Lessons per week: L - 2 hours, SW - 1 hour	Number of credits: <b>4</b>

**LECTURER:** Assoc. Prof. Dr. Vasil Petrov, tel. 032 659 677, [email: vasil1106@abv.bg](mailto:vasil1106@abv.bg),  
assist Todor Kostadinov, tel. 032 659 677,

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory basic course in the curriculum for BEng in Industrial Engineering, at the Faculty of Electronics, and Automation, FEA.

**OBJECTIVES OF THE COURSE:** To show the application of the cybernetics methods for finding an optimal solution of problems in the field of technics and economics.

**COURSE DESCRIPTIONS:** Basic concepts of the course is on building and analyses of optimization models including a prior and a posterior uncertainty in the process of modelling. Different types of optimization models and algorithms for their solving are presented in the course. Many optimization problems are illustrated by examples from the real systems.

**PREREQUISITES:** Physics, Mathematics, Control Theory, Signals and Systems.

**TEACHING METHOD:** Lectures, using slides, case studies, seminary work with problems definition and solving, work in teams.

**EXAMINATION AND ESTIMATION METHOD:** Two test during the semester at the middle and at the end of the 4<sup>th</sup> semester – 1 hour each with weighting coefficient 0.9 (up to 90 points) and continuous control throughout the semesters seminary works with weighting coefficient 0.1 (up to 10 points).

**ЕЗИК НА ПРЕПОДАВАНЕ:** English

**ПРЕПОРЪЧИТЕЛНА ЛИТЕРАТУРА:** Lecture copies available on FAIO web site; ;  
Taha H, Operations research:An introduction, 2011, Prentice Hall, ISBN-13: 978-0132555937; Sapundjiev G., Georgiev M., Stoitzeva-Delitcheva D., Operations research, TU – Sofia, 2013, ISBN 978-9544389512; Bellman R., Dynamic Programming (Dover Books on Computer Science), Dover Publications; Reprint edition (March 4, 2003), ISBN-13: 978-0486428093; Dantzig G., Linear Programming and Extensions, 1998, Princeton University Press, ISBN-13: 978-0691059136. Dantzig G., Linear Programming 1: Introduction (Springer Series in Operations Research and Financial Engineering) (v. 1), Springer, ISBN-13: 978-0387948331

## DESCRIPTION OF THE COURSE

Name of the course: <b>English Language</b>	Code: <b>BIPe39</b>	Semester:4
Type of teaching: Lectures and Tutorial work	Lessons per week: L - 1 . hours; T – 1 hours	Number of credits: . <b>0</b> . . . .

**LECTURER:** Senior lecturer Konstantina Niagolova, tel. 032 659 722, [email: konstantinanic@yahoo.com](mailto:konstantinanic@yahoo.com)

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide basic knowledge and skills in the area of academic writing, listening and reading. To expand and ensure appropriate use of basic engineering terminology in English. To familiarise students with the requirements of international academic exams.

**DESCRIPTION OF THE COURSE:** The main topics include: Basic terminology-English for Science and Technology; International exams at CAE level; Academic writing skills; Academic reading and listening skills; Essay writing; Writing abstracts and summaries; Writing definitions; Referencing and quoting; Describing tables and graphs; Academic English language practice – word-formation, punctuation, signposting, functional exponents, cohesive devices, verb tenses, style, abbreviations.

**PREREQUISITES:** English language competence at level C1 as per ELFE entrance requirements.

**TEACHING METHODS:** Lectures, seminars and discussions, case studies, course work portfolio, group work, independent work.

**METHOD OF ASSESSMENT:** Project work portfolio, essay/summary writing, end-of-year test

**INSTRUCTIONAL LANGUAGE:** English.

**BIBLIOGRAPHY:** 1. Technical English Vocabulary and Grammar, Brieger N. And Pohl A., Summertown, 2007; 2. Oxford English for Electrical and Mechanical Engineering, Glendinning E.H. and Glendinning N., OUP, 2005; 3. Oxford Practice Grammar (Advanced), Yule G., OUP, 2007; 4. Ready for CAE, Norris R., Macmillan, 2008; 5. Advanced Language Practice, Vince M. With Sunderland P., Macmillan, 2003; 6. Passport to IELTS, Hopkins D. And Nettle M., Longman, 2002; 7. Academic Writing Course, Jordan, R.R., Harper Collins, 1990

## DESCRIPTION OF THE COURSE

Name of the course: <b>Industrial Practice</b>	Code: <b>BIpEe40</b>	Semester: 4
Type of teaching: Laboratory work	Lessons per week: LW – 2 hours	Number of credits: 2

**LECTURER:** Assist. Ptof. Dr. Georgi Levicharov, tel. 032 659 624, [email: gmlemo@abv.bg](mailto:gmlemo@abv.bg)

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Compulsory for the students specialty Industrial Engineering BEng program of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To acquaint the students with real life production, including organization of the enterprise's activity, marketing, human resources, company policy, etc.

**DESCRIPTION OF THE COURSE:** The subject aims to get students acquainted with different types of production. To accomplish this goal visits in different successfully operating public and private enterprises and labs are organized. During the visits students can understand how work companies operating in real Bulgarian market economy. They can learn the details of the subject, organization of work, the policy of the company, and the motivation of the personnel working in it. They can see different types of production organization, technological processes, machines etc.

**PREREQUISITES:** Introduction to manufacturing and industrial practice

**TEACHING METHODS:** Visits in real operating factories, Explanations from accompanying lecturers and high ranked factory staff.

**METHOD OF ASSESSMENT:** For each visit every student prepares a report, which is presented to a lecturer.

**INSTRUCTIONAL LANGUAGE:** English.

### **BIBLIOGRAPHY:**

4. TIMINGS, R.L, Manufacturing Technology: volume 1. 3rd ed. Harlow: Longman, 1998.
5. Timings R. L. and S. P. Wilkinson, Manufacturing Technology: volume 2, Second Edition, Pearson Education Ltd., 2000
6. Andrew Y. C. Nee – editor Handbook on Manufacturing Engineering and Technology, Springer – Verlag London 2015
7. Helmi A. Youssef, Hassan A. El-Hofy, Mahmoud H. Ahmed Manufacturing Technology: Materials, Technology, and Equipment, CRC Press, 2011

## DESCRIPTION OF THE COURSE

Name of the course: <b>Sports</b>	Code: <b>BpIEe41</b>	Semester: 4
Type of teaching: Laboratory works	Lessons per week: LW – 3 hour	Number of credits: 0

**LECTURER:** Assoc. Prof. Dr. Valentin Vladimirov, tel. 032 659 646, [email:valdes@tu-plovdiv.bg](mailto:valdes@tu-plovdiv.bg)

Technical University - Sofia, Branch Plovdiv

### **COURSE STATUS IN THE CURRICULUM:**

Compulsory for the students specialty Industrial Engineering BEng programme of the Faculty of Electronics and Automation, FEA.

**AIMS AND OBJECTIVES OF THE COURSE:** To help students relieve from hard mental work. To teach them exercise regularly and to help them learn new things and skills related to a given sport.

**DESCRIPTION OF THE COURSE:** Compulsory and specialized education for 1 st and 2 nd year students and optional for 3rd and 4th year students. Students attend two classes a week, each lasting 2 hours, and they chose the days and the time to attend one or two different sports. During semester each student should attend sports classes at least 11 times/subject or 22 times for both sports. The semester is considered valid if confirmed by lecturer(s)' signature(s). Students enroll for the next semester over again because changes in the syllabus may have occurred.

**PREREQUISITES:** Basic knowledge, abilities and habits related to physical culture.

**TEACHING METHODS:** Teaching begins with a lecture during the first school week which helps students realise how useful for them is to practice sports, the practicing schedule and mode of practicing sports. Students pass a physical ability test, participate in university tournaments, republican student's championships and state championships. Students chose among 13 kinds of sports and exercise depending on the facilities available.

**METHOD OF ASSESSMENT:** Each student should pass a test for physical ability at the beginning and at the end of the academic year. Participation in local tournaments and championships and in the republican all-student championships.

**INSTRUCTIONAL LANGUAGE:** English.

**BIBLIOGRAPHY:**

## DESCRIPTION OF THE COURSE

Name of the course: <b>Bulgarian Language (for foreigners)</b>	Code: <b>BpIE42</b>	Semester: 4
Type of teaching: Tutorial works	Lessons per week: T – 2 hours	Number of credits: 0

**LECTURER:** Senior Lecturer Mariana Ilieva tel.: 032 659 712, e-mail: mariyana@gmail.com

Technical University - Sofia, Branch Plovdiv

**COURSE STATUS IN THE CURRICULUM:** Optional for the students specialty Industrial Engineering BEng programme of the English Language Faculty of Engineering.

**AIMS AND OBJECTIVES OF THE COURSE:** To provide basic knowledge and skills in the area of reproductive, productive and combined activity in Bulgarian language - writing, listening and reading. To ensure that the students use independently and fluently appropriate basic terminology in Bulgarian in everyday communications during their stay in Bulgaria.

**DESCRIPTION OF THE COURSE:** After preliminary teaching in writing and reading there follow 15 lexical topics: “Greetings and Introduction”, “In the room”, “Clock, time, calendar”, “Breakfast in the confectionary”, “Lunch in the canteen”, “Dinner in a restaurant”, “Shopping – at the bookstore, at the confectionary, at the greengrocer’s, at the food store, at the dress shop, etc.”, “Boyan is ill”- in a hospital, in the drug-store, etc.”, etc. Each lexical topic is related to a corresponding grammar unit. The basic textbook is full of various exercises.

**PREREQUISITES:** None

**TEACHING METHODS:** Communicative - situation principle.

**METHOD OF ASSESSMENT** A two-hour written exam and oral discussion at the end of each semester (70%), independent work during the exercises (30%).

**INSTRUCTIONAL LANGUAGE:** Bulgarian.

**BIBLIOGRAPHY:**

1. Стоянова М., С. Стоянов, Български език за чуждестранни студенти, с., 1994;
2. Антова Ю., Е. Кирякова, Т. Накова, Български език, България и българите, С., 1997;
3. Русинов Р., С. Буров, Български език, В. Търново, 1985.