

## BSc IN NETWORKING TECHNOLOGIES (TAUGHT IN ENGLISH)

Training program during the first two years cover general education courses; lecture courses: Programming (C + +), Computer Systems, Object Oriented Programming (C + +), Introduction to networks, Data Structures, Operating Systems, Local and global networks, databases and SQL, etc.; extracurricular forms of training: project programming, databases, network algorithms, independent course works. During the third and fourth year education is organized in specialized courses in the program and extracurricular forms of training, including practices and internships. From the third year the program offers two modules that lead to professional qualifications. Students will be able to specialise in Network administration or Network programming.

Major and professional qualification:

**Subject Module:** Network Administration

**Major:** Networking technologies (in English)

**Qualification:** Informatics specialist

**Module:** Network Programming

**Subject:** Networking technologies (in English)

**Qualification:** Informatics specialist

**Practices:** Practical training includes work at the HP laboratory, the Informatics laboratory of NBU, as well as practices and internships in software producing companies and IT departments.

**International mobility:** The program provides an opportunity for international student mobility to universities in Portugal, France, Belgium and Germany.

**Competences of Graduates:**

- Knowledge of designing computer networks, information systems and databases;
- Ability to manage, install, test and administer local and global networks, to design and develop software applications, to program applications in the Internet.

**Graduation:**

The educational undergraduate degree is completed with a bachelor thesis or state examination upon obtaining the necessary number of credits.

Besides the professional qualifications provided by the program, students can receive additional specialization by enrolling for a Minor-program - second specialty. The conditions for graduation are set out in the "Standards for completion of educational and qualification degree."

**Profession and possible positions:**

Graduates of the program are: specialist in information and communication technologies; system administrators, network administrators, specialists in computer networks, software developers, project and database administrators, application programmers.

**Department:** Informatics

### List of courses and program structure

#### First year

*Basic courses , first semester*

NETB103 Linear Algebra, Prof. Sava Grozdev, Ph.D - 30 hours, 3 credits

NETB102 Computer Systems, Prof. Vladimir Lazarov, D.Sc - 30 hours, 3 credits

NETB104 Physics, Assoc.Prof. Morris Greenberg ,Ph.D - 30 hours, 3 credits

*Practical credit courses*

NETB100 Programming, Assist. Prof, Lasko Laskov , Ph.D- 30 hours, 3 credits

NETB125 Laboratory programming work, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits.  
NETB126 Applications in C + + , Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits

*Practical non-credit courses*

NETB123 Applications of Linear Algebra , Prof. Sava Grozdev , Ph.D - 30 hours

*Extracurricular forms of training (credit courses)*

NETB122 Individual course work: Computer Systems, Prof. Vladimir Lazarov, D.Sc, 30 hours, 3 credits

NETB124 Individual course work: Physics, Assoc.Prof. Morris Greenberg ,Ph.D - 30 hours, 3 credits

NETB131 Project in Programming, Assoc.Prof. Nikolay Kirov , Ph.D -30 hours, 3 credits

NETB133 Individual course work: Linear Algebra, Academic Petar Kenderov, D.Sc, 30 hours, 3 credits

NETB140 Individual course work on programming, Assoc.Prof. Lasko Laskov, Ph.D - 30 hours, 3 credits

NETB143 Individual course work: Applications of linear algebra, Academic Petar Kenderov, D.Sc, 30 hours, 3 credits

*Basic courses , second semester*

NETB154 introduction to networks – Assoc. Prof. Vasil Furnadzhiev, Ph.D. - 30 hours, 3 credits

NETB153 Mathematical Analysis, Prof. Tsvyatko Rangel, D.Sc - - 30 hours, 3 credits

NETB173 Applications of mathematical analysis, Prof. Tsvyatko Rangel , , D.Sc - 30 hours, 3 credits

*Practical credit courses*

NETB156 Object-orientated programming, Assoc. Prof. Nikolay Kirov - 30 hours, 3 credits

NETB157 Automata and computability Prof. Ivan Landzhev, D.Sc and Assist. Prof. Stoyan Boev - 30 hours, 3 credits

NETB158 Laboratory work in object-oriented programming, Assist. Prof, Lasko Laskov , Ph.D - 30 hours, 3 credits

*Practical non-credit courses*

NETB155 Discrete Mathematics Assoc.Prof. Krassimir Manev, Ph.D and Assist. Prof. Stoyan Boev - 30 hours,

*Extracurricular forms of training (credit courses)*

NETB167 Individual course work: Automata and computability, Prof. Ivan Landzhev, D.Sc and Assist. Prof. Stoyan Boev - 30 hours, 3 credits

NETB174 Individual course work: Introduction to networks, Assoc. Prof. Vasil Furnadzhiev, Ph.D. - 30 hours, 3 credits

NETB181 Project on object-oriented programming, Assoc. Prof. Nikolay Kirov - 30 hours, 3 credits

NETB183 Individual course work: Mathematical Analysis, Prof. Tsvyatko Rangel, D.Sc - - 30 hours, 3 credits

NETB190 Individual course work: Object-Oriented Programming, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits.

NETB193 Individual course work: Applications of mathematical analysis, Prof. Tsvyatko Rangel, D.Sc - - 30 hours, 3 credits

**Second year**

*Basic courses, first semester*

NETB206 Computer Architecture, Prof. Vladimir Lazarov, D.Sc, - 30 hours, 3 credits

NETB201 Data Structures, Assoc. Prof. Nikolay Kirov - 30 hours, 3 credits

NETB253 Probability theory, Assoc.Prof Dimitar Atanasov - 30 hours, 3 credits

*Practical credit courses*

NETB202 Operating Systems, Assoc.Prof Yuri Velinov, Ph.D and Assist. Prof Iveta Goleva - 30 hours, 3 credits

NETB212 Laboratory work on operating systems, Assoc.Prof Yuri Velinov, Ph.D and Assist. Prof Iveta Goleva, Ph.D - 30 hours, 3 credits

NETB217 Laboratory work on computer architecture Assist. Prof Philip Philipov, Ph.D - 30 hours, 3 credits

NETB219 Analytical Geometry ,Assoc.Prof Marin Marinov, Ph.d and Assist. Prof. Stoyan Boev - 30 hours, 3 credits

NETB239 Laboratory work on analytical geometry ,Assoc.Prof Marin Marinov, Ph.d and Assist. Prof. Stoyan Boev - 30 hours, 3 credits

NETB263 Laboratory work on probability theory, Assoc.Prof Dimitar Atanasov - 30 hours, 3 credits

*Practical non-credit courses*

NETB234 Laboratory work on data structures, Assist. Prof. Emil Kelevedjiev, Ph.D – 30 hours

NETB303 Applied Statistics - Prof. Krasimir Kalinov, Ph.D – 30 hours

*Extracurricular forms of training (credit courses)*

NETB223 Project on data structures, Assoc. Prof. Nikolay Kirov, Ph.D - 30 hours, 3 credits

NETB224 Individual work: Operating Systems, Assoc.Prof Yuri Velinov, Ph.D and Assist. Prof Iveta Goleva, Ph.D. - 30 hours, 3 credits

NETB229 Individual course work on analytical geometry - Assoc.Prof Marin Marinov, Ph.d and Assist. Prof. Stoyan Boev - 30 hours, 3 credits

NETB236 Individual course work: Laboratory work in computer architectures, Assist. Prof Philip Philipov, Ph.D - 30 hours, 3 credits

NETB237 Individual course work: Applied Statistics, Assoc.Prof Dimitar Atanasov - 30 hours, 3 credits

NETB273 Individual course work: Probability, Assoc.Prof Dimitar Atanasov - 30 hours, 3 credits

*Basic courses, second semester*

NETB257 Databases and SQL, Assoc.Prof Peter Payne, Ph.D - 30 hours, 3 credits

NETB258 Web-programming with HTML and JavaScript

Assist. Prof. Emil Kelevedjiev, Ph.D – 30 hours, 3 credits

NETB269 Database system applications, Prof. Kalinka Kaloyanova, Ph.D - 30 hours, 3 credits

*Practical credit courses*

NETB240 Network Algorithms, Assoc.Prof Krassimir Manev - 30 hours, 3 credits

NETB250 Application of network algorithms, Assoc.Prof Krassimir Manev- 30 hours, 3 credits

NETB254 Global Networks, Ivo Vachkov - 30 hours, 3 credits

NETB265 Laboratory work on global networks,Ivo Vachkov - 30 hours, 3 credits

NETB294 Local Area Networks, Assosc. Prof. Vasil Furnadzhiev, Ph.D. - 30 hours, 3 credits

NETB356 Network hardware Assoc.Prof Emil Stoilov Ph.D. - 30 hours, 3 credits

*Practical non-credit courses*

NETB241Parallel programming, Assoc.Prof Krassimir Manev, Ph.D. - 30 hours, 3 credits

NETB298 Laboratory work on local networks, Assosc. Prof. Vasil Furnadzhiev, Ph.D. - 30 hours

*Extracurricular forms of training (credit courses)*

NETB228 Project network algorithms, Assoc.Prof Krassimir Manev, Ph.D. - 30 hours, 3 credits

NETB275 Individual course work: Global Networks, Ivo Vachkov - 30 hours, 3 credits

NETB280 Project on Databases, Assist. Prof. Philip Andonov, Ph.D- 30 hours, 3 credits

NETB281 Individual course work: Web-programming with HTML and JavaScript, Assoc.Prof Petya Assenova, Ph.D and Assist. Prof. Emil Kelevedjiev, Ph.D – 30 hours, 30 credits

NETB295 Individual course work: Local Area Networks, Assoc. Prof. Vasil Furnadzhiev Ph.D. - 30 hours, 3 credits

NETB386 Individual work on network hardware, Assoc.Prof Emil Stoilov - 30 hours, 3 credits

In the 5<sup>th</sup> and 6<sup>th</sup> semester students choose 6 of 8 lecture course (lectures and practical sessions) and enroll two extracurricular forms of training (one practical and one individual course work, seminar or project). In 7<sup>th</sup> semester students again choose 6 of 8 lecture course and pass internship of 120 hours and during the 8<sup>th</sup> semester students select 4 of 6 lecture courses and pass internship of 180 hours.

### **Network administration**

Third year

#### *Basic courses, first semester*

NETB274 Routing, Georgi Georgiev -30 hours, 3 credits

NETA302 Real-time systems, Prof. Zdravko Karakehayov, D.techn.sc. - 30 hours, 3 credits

NETB307 Distributed databases, Assoc.Prof. Georgi Tuparov, Ph.D. -30 hours, 3 credits

NETB308 Soundproofed coding, Prof. Ivan Landzhev, Ph.D. -30 Hours, 3 credits

NET309 Net design, Assoc.Prof Emil Stoilov Ph.D. -30 hours, 3 credits

NETB317 Applications on distributed databases, Assoc.Prof. Georgi Tuparov, Ph.D. and Assist.Prof. Mariana Raikova-Sokolova, Ph.D. -30 hours, 3 credits

NETB324 Remote Access network technologies, Assoc.Prof Emil Stoilov, Ph.D -30 hours, 3 credits

NETB341 Next Generation Networks, Prof. Margarita Petkova, Ph.D -30 hours, 3 credits

#### *Practical non-credit courses*

NETB276 Laboratory work on routing, Georgi Georgiev -30 hours

NETB369 Project Management of Information Technology, Assist. Prof. Valentina Ivanova, Ph.D -30 hours

#### *Extracurricular forms of training (credit courses)*

NETB300 Practice in the design of local area networks, Prof. Zdravko Karakehayov, D.techn.sc. and Assoc. Prof. Vasil Furnadzhiev, Ph.D. - 90 hours, 9 credits

NETB318 Individual course work: Soundproofed coding Prof. Ivan Landzhev, Ph.D. -30 Hours, 3 credits

NETB322 Individual course work: real-time systems, Prof. Zdravko Karakehayov, D.techn.sc. -30 hours, 3 credits

NETB337 Individual course work: Distributed databases, Assoc.Prof George Tuparov and Assist. Prof. Mariana Raikova-Sokolova -30 hours, 3 credits

### **Network administration**

Third year

#### *Basic courses, second semester*

NETB238 Network Architecture, Assoc.Prof Emil Stoilov Ph.D. - 30 hours, 3 credits

NETB352 UNIX / Linux operating systems, Assist. Prof Iveta Goleva, Ph.D. - 30 hours, 3 credits

NETB353 Cryptography, Prof. Ivan Landzhev, D.Sc - 30 hours, 3 credits

NETB357 Mobile Communications, Prof. Zdravko Karakehayov, D.techn.sc. -30 hours, 3 credits

NETB358 Programming with Java, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits

NETB362 Laboratory work on Linux, Assist. Prof Iveta Goleva, Ph.D. - 30 hours, 3 credits

NETB367 Security of systems and data, Veselin Hadjitodorov - 30 hours, 3 credits

NETB371 Network multimedia applications, Assist. Prof. Ioana Minkova, Ph.D. - 30 hours, 3 credits

#### *Practical non-credit courses*

NETB334 Laboratory work on network technologies, Assoc.Prof Emil Stoilov – 30 hours  
NETB368 System and user applications with Java, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours

*Extracurricular forms of training (credit courses)*

NETB248 Individual course work: Network Architectures, Assoc.Prof Emil Stoilov Ph.D. - 30 hours, 3 credits

NETB370 Practice in the administration of networks Assoc.Prof Emil Stoilov Ph.D. and Assist. Prof Iveta Goleva, Ph.D. - 90 hours, 9 credits

NETB378 Individual work: Programming with Java, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits

NETB381 Individual course work: Network multimedia applications, Assist. Prof. Ioana Minkova, Ph.D. - 30 hours, 3 credits

**Network administration**

Fourth year

*Basic courses, first semester*

NETB348 MPLS Core Networks,Dr. Nikolay Milovanov - 30 hours, 3 credits

NETB401 Client-Server Web programming, Assist. Prof. Valentina Ivanova, Ph.D -30 hours, 3 credits

NETB402 Virtualization, Georgi Georgiev -30 hours, 3 credits

NETB435 Systems Internet Programming, Prof. Rumen Staynov , Ph.D.-30 hours, 3 credits

NETB452 Distributed Systems, Prof. Zdravko Karakehayov, D.techn.sc -30 hours, 3 credits

NETB464 Management of corporate networks, Georgi Georgiev -30 hours, 3 credits

NETB469 Laboratory work on systematic Internet Programming, Prof. Rumen Staynov , -30 hours, 3 credits

NETB474 Network Operations and testing, Prof. Todor Stoilov, D.Sc.-30 hours, 3 credits

*Practical non-credit courses*

NETB411 Client-Server Web Applications Assist. Prof. Valentina Ivanova, Ph.D -30 hours, 3 credits

NETB439 Development of software projects, Assist .Prof. Valentina Ivanova, Ph.D and Assist. Lachezar Tomov, Ph.D -30 hours, 3 credits

*Extracurricular forms of training (credit courses)*

NETB496 Internship, Assoc.Prof. Lasko Laskov , Ph.D -120 hours, 12 credits

**Network administration**

Fourth year

*Basic courses, second semester*

NETA391 Risk in Information Technologies, George Sharkov, Ph.D. - 30 hours, 3 credits

NETB400 Multifunctional WEB interface , Assist. Prof. Valentina Ivanova, Ph.D -30 hours

NETB409 Network Security, Ivo Vachkov -30 hours, 3 credits

NETB419 Laboratory work on network security, Ivo Vachkov -30 hours, 3 credits

NETB457 Technologies for Internet applications, Assoc.Prof Rumen Radev -30 hours, 3 credits

NETB467 Design of Internet application, Assoc.Prof Rumen Radev -30 hours, 3 credits

*Practical non-credit courses*

NETB434 Contemporary manufacturing communications -30 hours,

*Extracurricular forms of training (credit courses)*

NETB498 Internship: Network technologies, Assoc.Prof Petya Assen -180 hours, 18 credits

## **Network Programming**

Third year

### *Basic courses, first semester*

NETB301 Secure code programming, Ivo Vachkov - 30 hours, 3 credits  
NETB307 Distributed data processing, Assoc.Prof Georgi Tuparov - 30 hours, 3 credits  
NETB308 Soundproofed coding, Prof. Ivan Landzhev, Ph.D. -30 Hours, 3 credits  
NETB309 Network programming - Prof. Ivan Landzhev, Ph.D. -30 Hours, 3 credits  
NETB311 Programming applications with security code, Ivo Vachkov - 30 hours, 3 credits  
NETB317 Applications on distributed databases, Assoc.Prof. Georgi Tuparov, Ph.D. and Assist.Prof. Mariana Raikova-Sokolova, Ph.D. -30 hours, 3 credits  
NETB328 Applications for soundproofed coding, Prof. Ivan Landzhev, Ph.D. -30 Hours, 3 credits  
NETB329 Programming with Python, Assist. Prof. Emil Kelevedjiev, Ph.D – 30 hours

### *Practical non-credit courses*

NETB342 Applications with Python, Assist. Prof. Emil Kelevedjiev, Ph.D – 30 hours  
NETB369 Project Management in Information Technology, Assist. Prof. Valentina Ivanova, Ph.D -30 hours

### *Extracurricular forms of training (credit courses)*

NETB318 Individual course work: Soundproofed coding Prof. Ivan Landzhev, Ph.D. -30 Hours, 3 credits  
NETB330 Individual work: Advanced Programming - Part I, Assoc.Prof. Nikolay Kirov , Ph.D -30 hours, 3 credits  
NETB339 Individual work: Programming with Python, Assist. Prof. Emil Kelevedjiev, Ph.D – 30 hours, 3 credits  
NETB375 Practice Programming, Assoc.Prof. Nikolay Kirov , Ph.D -90 hours, 9 credits

## **Network Programming**

Third year

### *Basic courses, second semester*

NETB351 Interactive vector graphics for web, Assist Boyko Banchev- 30 hours, 3 credits  
NETB352 UNIX / Linux operating systems, Assist. Prof Iveta Goleva, Ph.D. - 30 hours, 3 credits  
NETB353 Cryptography, Prof. Ivan Landzhev, D.Sc - 30 hours, 3 credits  
NETB358 Programming with Java, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits  
NETB362 Laboratory work on Linux, Assist. Prof Iveta Goleva, Ph.D. - 30 hours, 3 credits  
NETB367 Security of systems and data, Veselin Hadjitodorov - 30 hours, 3 credits  
NETB371 Network multimedia applications, Assist. Prof. Ioana Minkova, Ph.D. - 30 hours, 3 credits  
NETB373 Applied Cryptography and Information Protection, Prof. Ivan Landzhev, D.Sc - 30 hours, 3 credits

### *Practical non-credit courses*

NETB368 System and user applications with Java, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours  
NETB385 Visual Programming, Assist. Lachezar Tomov, Ph.D -30 hours, 3 credits

### *Extracurricular forms of training (credit courses)*

NETB378 Individual work: Programming with Java, Assoc.Prof. Lasko Laskov , Ph.D - 30 hours, 3 credits

NETB380 Programming practice, Assist. Prof. Philip Andonov, Ph.D and Assist.Prof. Mariana Raikova-Sokolova, Ph.D. -90 hours, 9 credits

NETB381 Individual course work: Network multimedia applications, Assist. Prof. Ioana Minkova, Ph.D. - 30 hours, 3 credits

NETB390 Individual course work: Advanced Programming - Part II, Assoc.Prof. Nikolay Kirov , Ph.D - 30 hours, 3 credits

## **Network Programming**

Fourth year

*Basic courses, first semester*

NETB401 Client-Server Web programming, Assist. Prof. Valentina Ivanova, Ph.D -30 hours, 3 credits

NETB421 Management of Information Technologies Company, Prof. Nelly Maneva, Ph.D - 30 hours, 3 credits

NETB422 Software Technologies, Assist. Prof. Valentina Ivanova, Ph.D -30 hours, 3 credits

NETB435 Systems Internet Programming, Prof. Rumen Staynov , Ph.D.-30 hours, 3 credits

NETB453 Mobile Applications, Assoc.Prof Evgeniy Krastev, Ph.D.-30 hours, 3 credits

NETB469 Laboratory work on systematic Internet Programming, Prof. Rumen Staynov , -30 hours, 3 credits

NETB478 Web Programming with Java, Assoc.Prof Evgeniy Krastev, Ph.D.-30 hours, 3 credits

NETB481 Cloud Technologies, Pano Panov - -30 hours, 3 credits

*Practical non-credit courses*

NETB411 Client-Server Web Applications Assist. Prof. Valentina Ivanova, Ph.D -30 hours, 3 credits

NETB438 Modelling with UML , Assoc.Prof Georgi Tuparov, Ph.D. --30 hours, 3 credits

*Extracurricular forms of training (credit courses)*

NETB480 Internship in project development, , Assist. Prof. Valentina Ivanova, Ph.D -30 hours

## **Network Programming**

Fourth year

*Basic courses, second semester*

NETB409 Network Security, Ivo Vachkov -30 hours, 3 credits

NETB419 Laboratory work on network security, Ivo Vachkov -30 hours, 3 credits

NETB454 Semantic web, Kamenka Staykova -30 hours, 3 credits

NETB461 . Net system and user applications Assoc.Prof Evgeniy Krastev, Ph.D.-30 hours, 3 credits

NETB470 Marketing Information Industry - Prof. Nelly Maneva, Ph.D - 30 hours, 3 credits

NETB475 Multifunctional WEB interface- Assist. Prof. Valentina Ivanova, Ph.D -30 hours

*Practical non-credit courses*

NETB434 Contemporary manufacturing communications -30 hours,

NETB476 Legal aspects of information society, Denitza Topchiyska, Ph.D -30 hours

*Extracurricular forms of training (credit courses)*

NETB490 Internship: Network technologies, Assist. Prof, Lasko Laskov , Ph.D- 180 hours, 18 credits