SUMMARY REPORT OF THE EXTERNAL EVALUATION

of the cluster of educational programmes in

- "Computer Science and Engineering" (230100.62, 230100.68),
- "Applied Computer Science",
- "Software Engineering" (231000.62, 231000.68),

delivered by Federal State Autonomous Educational Institution of Higher Professional Education "National Research University "MIET"

2014

While preparing this Summary Report we used information from the Self-Evaluation Report and the Report on the External Review of the cluster of educational programmes in "Computer Science and Engineering" (230100.62, 230100.68), "Applied Computer Science" (230700.62, 230700.68), "Software Engineering" (231000.62, 231000.68), delivered by National Research University "MIET".

The presentation document for the use by the National Accreditation Board.

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GENERAL INFORMATION ON EDUCATIONAL INSTITUTION

Full name of the educational institution	*Federal State Autonomous Educational Institution of Higher Professional Education "National Research University "MIET"*
Founders	*Ministry of Education and Science of the Russian Federation*
Year of foundation	*1965 – Moscow Institute of Electronic Engineering* *2010 – National Research University "MIET"*

Current state accreditation status:

Type	*Educational Institution of Higher Professional Education*
Kind	*National Research University*
Location	*124498, Moscow, Zelenograd, passage 4806, 5*
Rector	*Chaplygin Yuri, D.Sc., corresponding member of RAS, professor*
License	*Series 90LO1 No 0000723 reg. No. 0677 of 26.03.2013; permanent*
State Accreditation	*Certificate of State Accreditation Series 90A01 No. 0000782, reg. No. 0724 of 14.06.2013, valid till 24.03.2016 (reissuance)*
Number of students	*4635*

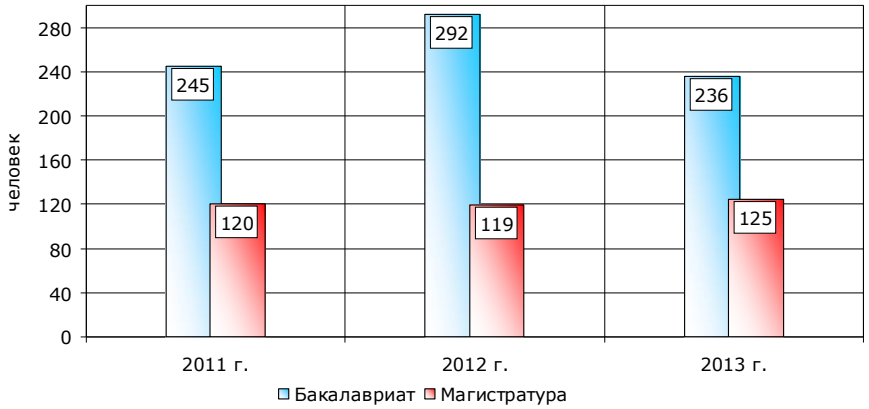
INFORMATION ON THE EDUCATIONAL PROGRAMMES UNDERGOING ACCREDITATION

Educational programmes	*"Computer Science and Engineering" (230100.62, 230100.68),* *"Applied Computer Science" (230700.62, 230700.68),* *"Software Engineering" (231000.62, 231000.68)*
Level of training / Standard period of training	*Bachelor's degree programme / 4 years* *Master's degree programme / 2 years*
Structural subdivisions (heads)	*Faculty of Microdevices and Engineering Cybernetics* *(Doctor of Technical Sciences., assist. prof. Gureev Alexander)* *Faculty of Applied Information Technologies* *(Candidate of Technical Sciences, assist. prof. Balashov Alexander)*
Major departments (heads of major departments)	*Department of Computer Engineering (Doctor of Technical Sciences, professor Barkhotkin Vyacheslav)* *Department of Corporate Information Technologies and Systems (Doctor of Technical Sciences, professor Ignatova Irina)* *Department of Computer Science and Computer Systems Software (Doctor of Technical Sciences, professor Gagarina Larisa)*
Date of the site visit	*February 12-14, 2014*
Person responsible for public accreditation of the study programme	*Vice Rector for Academic Affairs, Doctor of Technical Sciences, professor Ignatova Irina*

SAMPLING RESULTS OF THE PROJECT "THE BEST EDUCATIONAL PROGRAMMES OF INNOVATIVE RUSSIA"

Indicators	2013
Cluster of the educational programmes "Computer Science and Engineering", "Applied Computer Science", "Software Engineering"	
Number of the given programmes in the RF	1443
Number of higher educational institutions to offer the given programmes	814
Number of programmes – winners of the project (% from total amount of these programmes offered in the RF)	105 (7,3%)
Moscow	
Number of the given programmes offered in the region	182
Number of programmes – winners of the project (% from total amount of these programmes offered in the region)	27 (15%)
Number of higher educational institutions and subsidiaries in the region	335
Total number of programmes offered in the region	3961
Total number of programmes – winners of the project (% from total amount of these programmes offered in the region)	633 (16%)

REFERENCE DATA ON STUDENT ENROLLEMENT FOR PROGRAMMES



ACHIEVEMENTS OF THE EDUCATIONAL PROGRAMMES

Quality of the delivered educational programmes

Educational programmes undergoing accreditation are the winners of the project "Best Educational Programmes of Innovative Russia".

In 2009-2011 MIET took part in the Federal Internet-Exam. The results are positive. In 2012-2013 the HEI participated in the project "Internet Training in the Sphere of Education". In general, Internet Exam and Internet Training allow the HEI to evaluate the quality of training objectively as well as to prepare for external review.

Provision of up-to-date education

Provision of up-to-date education is ensured by the procedures which are specified by the Institute of Academic Process Organization (IAPO) of MIET using the current regulatory system. Introduction of actualization procedure is one of the results of the work of IAPO on practical application of the quality management system of students' training.

Employability of graduates

Graduates of the cluster are in demand in industrial, manufacturing, service-operational, scientific-research, analytical and project organizations as well as in social, educational and business spheres of any subject field, which is confirmed by the appropriate documents with a number of enterprises of different forms of ownerships and status. According to the Department of Practice and Employability of Students, almost 100% of graduates of the cluster are employed.

Material and technical base

Cluster of the educational programmes has 3 unique laboratories: the laboratory for information-management system modeling, which is equipped with 2 cluster computing systems with peak performance of 1,6 Tflops (43rd place in TOP50); the laboratory for development of hardware and software for automation of measurement and diagnostics, which is equipped with National Instruments tools; the laboratory, which is equipped by debug package on the base of PLD Altera and Xilinx and on the base of Philips microcontroller. Major departments of the cluster have computer classes with Internet access, which are equipped with modern work stations IntelCore2duoT8200/3Gbram/250Gb_hdd/scga8600 /19''971P- (28 stations).

Scientific activity

Students of the educational programmes of the cluster are involved in research and development activities when undergoing practical training within Bachelor's degree programme. Scientific research activity is required for Master's degree students and post-graduates. The results of research are presented at annual MIET conferences: All-Russian Interuniversity Scientific and Technical Conference "Microelectronics and Computer Science", All-Russian Scientific and Practical Conference "Actual Issues of Informatization in Science, Education and Economics" as well as at the conferences of other HEIs. Students publish their papers in source books edited by prof. Barkhotkina V. and by prof. Gagarina L., draw the certificates of registration of computer programmes, and participate in contests UMNIK and START as well as in grant contests of the Russian Foundation for Basic Research and the Ministry for Education and Science. Almost every state-funded postgraduate student is a holder of university grant.

Academic mobility

Students enrolled in the educational programmes of the cluster undergo internships in foreign universities within double-degree programmes with the University of Glyndwr (Great Britain), Sapienza (Italy) and Polytechnical University of Catalonia (Spain).

Master's degree students and postgraduates also take an active part in foreign schools and conferences held by the INTAMT Academy (Dusseldorf, Germany) as well as in the international programme TEMPUS.

International projects

International cooperation is aimed at the participation of teachers, postgraduates and students of the cluster in international research projects implemented by the European Union - TEMPUS, DAAD. Teaching staff of the cluster undertook foreign internships and short-time professional development courses in the programmes "Development of Innovative Educational Activity and Ensuring Competitiveness of Higher Educational Institutions" (Open University, London), "Modern Information Technologies of Advanced Education" (INTAMT Academy, Germany), "Modernization of Educational Activity for Training in Electronics for High-Tech Areas of Economics and Social Sphere Based on the Integration of Educational and Scientific Processes" (UPC, Catalonia, Spain).

EXTERNAL REVIEW PANEL

Klaus Peter Kratzer (Germany)

Review Chair, Foreign Expert

Professor, Doctor of Technical Sciences, Vice-rector for academic and international affairs, Ulm University of Applied Sciences (Germany)

A nominee of Accreditation, Certification and Quality Assurance Institute (ACQUIN)

Rimma Akhmetsafina (Russia)

Deputy Review Chair, Russian expert

Candidate of Technical Sciences, Associate Professor. Deputy Head of the Department of Software Engineering, Faculty of Business Informatics, National Research University - Higher School of Economics, member of the Guild of Experts in the sphere of professional education

A nominee of the Guild of Experts in the sphere of professional education

Günter Baszenski (Germany)

Panel member, foreign expert

Professor at FH Dortmund University (Germany)

A nominee of the Agency for Accreditation of Engineering Programmes ASIIN e.V)

Oleg Ivashchenko (Russia)

Panel member, representative of professional community

Deputy Chief of the crystal production automation at JSC "NIIME i Mikron"

A nominee of JSC "NIIME i Mikron"

Alexey Egorov (Russia)

Panel member, representative of students

5th year student in Applied Mathematics and Computer Science (010501.65) at the National Research Nuclear University "MEPhI"

A nominee of National Centre for Public Accreditation

COMPLIANCE OF THE EXTERNAL REVIEW OUTCOMES WITH THE NCPA'S STANDARDS

STANDARD 1. Policy (mission, vision) and procedures for quality assurance

Compliance with the standard: **full compliance**

Good practice

Clearly articulated goals and development strategies of the programme are available.

Educational programmes are oriented to profile innovative manufacturing industries.

Employers take an active part in working out the development strategy.

The University has created the following structures: the Institution of organizing educational process (IOEP), the Department of management of basic educational programmes and the Department of management of educational projects, which provide system approach to quality assurance: methodological management of educational process, implementation of innovative technologies, cooperation with employers, etc.

Areas for improvement

- The level of involvement of students and teachers in the system of quality assurance should be increased.
- Students and teachers should be informed about the work on quality assurance in the university.

STANDARD 2. Approval, monitoring and periodic review of study programmes

Compliance with the standard: **substantial compliance**

Good practice

High level of the developed teaching materials is mentioned.

The university has in place the information support system for educational process.

Joint programmes with Glyndwr University (Great Britain) have external accreditation.

Areas for improvement

- Guidelines for the curricula revision should be developed.
- Working groups including teachers, employers, students and post-graduates for periodic review of the curricula and programmes of the academic disciplines should be created.
- The guidelines and methodology for regular monitoring of the effectiveness of the educational programme should be developed and implemented.

STANDARD 3. Assessment of student learning outcomes / competencies

Compliance with the standard: **full compliance**

Good practice

All the documents, which are developed and used for evaluation of students' knowledge / competencies, are available for every student at the Dean's office.

There are clearly articulated criteria and objective procedures, which are used for evaluation of students' knowledge / competencies.

Educational programmes of MIET regularly undergo state accreditation.

Bachelor's and Master's degree students and postgraduates participate in research work, including the work on priority trends of science and technology.

The University has in place the operating double degree programme with European Universities (Glyndwr University, Great Britain).

There is high level of students' and graduates' employability in research institutions and high-technology sectors of industry.

Areas for improvement

- The level of English proficiency of students should be improved for international professional communication.
- The funds of evaluative facilities should be certified.
- Conditions for professional certification of students should be provided.
- Independent evaluation of students' knowledge should be conducted on a regular basis (participation in projects OIIO – open International Internet-Olympiads, FEPE – Federal Internet-Exam in the sphere of professional education, etc.).

STANDARD 4. Quality assurance of teaching staff

Compliance with the standard: **substantial compliance**

Good practice

Qualification level of the teaching staff is high. Teaching staff of the cluster is represented by corresponding member of RAMAS, 12 Doctors of Sciences, 11 professors, 29 Candidates of Sciences, 20 assistant professors. Members of the teaching staff are awarded the State Prize (11 members) and the RF Government Prize in Education (2 members).

Laureate of Vladimir Potanin Charity Fund, 3 laureates of the contest "UMNIK", laureates of All-Russian Exhibition Center and the Exposition "Scientific-Technical Creativity of Youth" are among the young teachers of the cluster (under 35 years). For the last 5 years 16 textbooks of the total volume of 200 printed sheets are published by the teaching staff in central publishing houses.

Many teachers develop courses on the basis of employers' needs. They are employed by leading domestic companies – manufacturers of electronics.

The University has in place the cooperation agreements with a number of Eastern European Universities, such as the double degree programme with Glyndwr University (Great Britain).

The University has in place the system of promotion of further training of the teaching staff.

Teachers participate in international projects, research and exchange visits.

Areas for improvement

- Regular surveys of students on the quality of teaching should be conducted. All the stakeholders should be informed of the obtained results, and the mechanisms for using these results should be developed.
- Various mechanisms for motivation of the teaching staff should be used (for the achievements in teaching, research and administrative work).

INFORMATION ON THE LEADING TEACHERS OF THE EDUCATIONAL PROGRAMMES

Barkhotkin Vyacheslav

Academician of RAMAS, Doctor of Technical Sciences, professor, Deputy Vice-Rector for scientific work of MIET, Director of National Research Institute of Computing Means and Controlling Systems, Chair of the Department of Computer Engineering, Head of the scientific school in the field of design of information management systems for special purposes, Honoured scientist of the RF, laureate of USSR State Prize, awarded various orders and medals, laureate of Mosin Prize and the RF President Prize for scientific and practical development for professional education and scientific-innovative infrastructure of regions, Honoured worker of higher professional education of the RF, holder of 136 copyright certificates. Scientific school of V. Barkhotkin is a laureate of the RF President Grant for state support of the leading scientific schools of the RF in 2006-2008.

Ignatova Irina

Doctor of Technical Sciences, professor, Vice-Rector for Academic Affairs of MIET, Chair of the Department of Corporate Information Technologies and Systems, laureate of the RF Government Prize in Education and the Prize of International Fund for Science and Education Informatization, holder of Gold and Silver Medals of All-Russian Exhibition Centre, Honoured worker of higher professional education of the RF, certified leader of the Federal Agency on Technical Regulating and Metrology in the field of quality of information systems, author of more than 90 scientific papers

Gagarina Larisa

Doctor of Technical Sciences, professor, Honoured worker of higher professional education of RF, Chair of the Department of Computer Science and Computing Systems Software, expert in science and technology of the Ministry of Education and Science of the Russian Federation, member of the expert council for information technologies of All-Russian exhibition "Scientific-Technical Creativity of Youth", author of more than 120 scientific papers and 21 intellectual property items

Bazhanov Evgeny

Doctor of Technical Sciences, professor, senior researcher of National Research Institute of Computing Means and Controlling Systems, author of more than 100 scientific papers and 28 copyright certificates and patents

Savchenko Yuri

Doctor of Technical Sciences, professor, laureate of the USSR State Prize, awarded the orders, author of 37 scientific papers

STANDARD 5. Learning resources and student support

Compliance with the standard: **substantial compliance**

Good practice

Educational programmes are provided with laboratories which are equipped with modern facilities.

The university has a library and available electronic resources.

The university has in place the conditions for independent work of students; all the laboratories provide time for independent work. There is the information system with educational resources; Internet access is available in the buildings and hostels of MIET.

The university provides the conditions for students with disabilities in one of the buildings.

The faculty supervises an inclusion education school. There are disabled first-year students.

Areas for improvement

- Students' culture of using electronic library resources should be developed. Accessible environment for disabled people should be created.
- The feedback system for students' evaluation of the teaching quality should be worked out.

STANDARD 6. Information system providing effective implementation of the study programme

Compliance with the standard: **full compliance**

Good practice

University administration supports the project of creating the information educational environment.

Students, postgraduates and teachers take an active part in the development of information systems of the university.

The university uses the system which provides control of the main performance indicators of the structural divisions of the educational institution.

The Department for practice and employment monitors the employability of graduates at the labour market.

The university has developed the system which provides access to all the resources of the local network of the HEI including the access from the university campus.

Areas for improvement

The modules in corporate information and technological platform ORIOKS should be created.

STANDARD 7. Public information

Compliance with the standard: **full compliance**

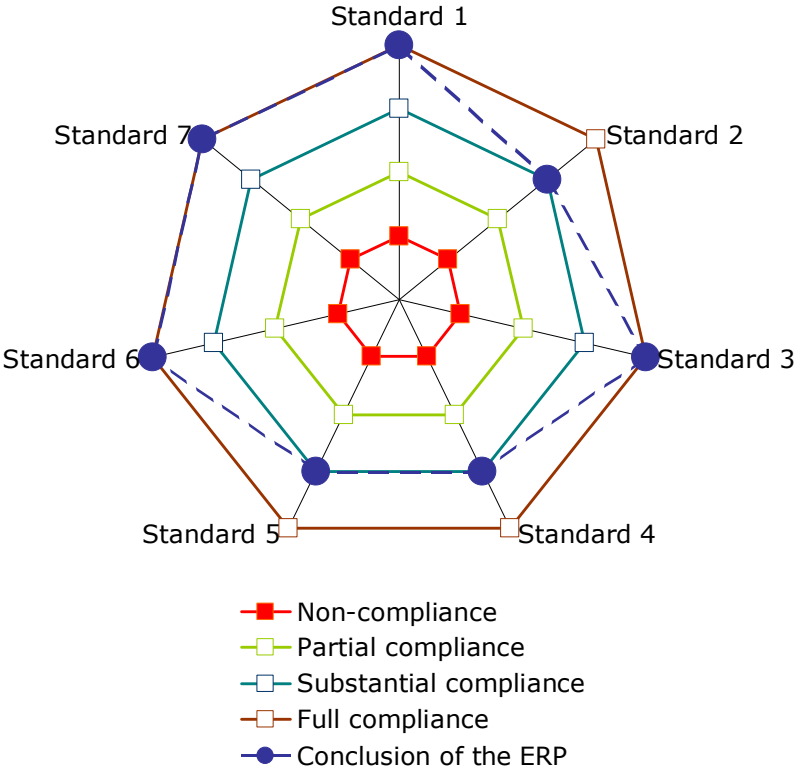
Good practice

The policy of informing the public of the university and educational programmes fully complies with the requirements of the standard.

Areas for improvement

The work for registering the employability of graduates should be adjusted with the active involvement of the departments in employability monitoring.

DISTRIBUTION DIAGRAM OF THE EXTERNAL REVIEW OUTCOMES



Standard 1. Policy (mission, vision) and procedures for quality assurance
Standard 2. Approval, monitoring and periodic review of programs and qualifications
Standard 3. Assessment of student learning outcomes / competencies
Standard 4. Quality assurance and competencies of teaching staff
Standard 5. Learning resources and student support
Standard 6. Information system providing effective implementation of the study programme
Standard 7. Public information

CONCLUSION OF THE EXTERNAL REVIEW PANEL

Based on the self-evaluation report analysis, documents and data submitted, interviews with the representatives of the professional communities, students, post graduates, doctor-degree students, staff and administration of the educational institution the External Review Panel came to the conclusion that educational programmes "Computer Science and Engineering" (230100.62, 230100.68), "Applied Computer Science" (230700.62, 230700.68), "Software Engineering" (231000.62, 231000.68) to a full or large degree comply with the standards and criteria of public accreditation of the National Centre for Public Accreditation.

The Panel recommends the National Accreditation Board to **accredit the educational programmes "Computer Science and Engineering" (230100.62, 230100.68), "Applied Computer Science" (230700.62, 230700.68), "Software Engineering" (231000.62, 231000.68), delivered by MIET, for the period of 6 years.**

SCHEDULE OF THE SITE VISIT OF THE EXTERNAL REVIEW PANEL

Time	Activity	Participants	Venue
February 12, Wednesday			
09.45	Arrival at MIET		
10.00 – 11.45	The first meeting of the External Review Panel (ERP) members and coordinators of the review of the educational programmes of MIET		Staff Library Room
11.45 – 13.00	**Meeting of the ERP with the university administration and staff members responsible for accreditation**	Rector, vice-rectors, Head of the Educational Process Department, Head of the Centre for Licensing, Accreditation and Main Activities Analysis, two ERPs	Staff Library Room
13.00 – 14.00	Lunch	ERP	Cafeteria, MIET
14.00 – 15.00	**Excursion around the university**	ERP, coordinators from MIET	
15.00 – 15.30	Internal meeting of the ERP	ERP	Room 4228
15.30 – 16.30	**Meeting with staff members responsible for accreditation of the cluster of educational programmes and chairs of the educational programmes under review**	Dean of the faculty, deputy deans, department heads, ERP	Room 3239a
16.30 – 17.00	Work with documentation/attending classes (on request of the ERP members)	ERP	Room 4228
17.00 – 18.00	**Meeting with alumni**	Alumni, ERP	Room 3239a
18.00 – 18.30	Internal meeting of the ERP	ERP	Room 4228
February 13, Thursday			
Time	**Activity**	**Participants**	**Venue**
9.45	Arrival at MIET		
10.00 – 11.00	**Meeting with teaching staff**	Teaching staff, ERP	Room 3239
11.00 – 11.30	Internal meeting of the ERP	ERP	Room 4228
11.30 – 12.30	**Meeting with students**	Students, ERP	Room 3239
12.30 – 13.00	Internal meeting of the ERP	ERP	Room 4228
13.00 – 14.00	Lunch		Cafeteria, MIET
14.00 – 14.30	**Meeting with doctorate students**	Doctorate students, ERP	Room 3239
14.30 – 16.30	Work with documentation/attending classes (on request of the ERP members)	ERP	Room 4228

Time	Activity	Participants	Venue
16.30 – 17.30	**Meeting with employers**	Employers, ERP	Room 3239
17.30-18.00	Internal meeting of the ERP	ERP	Room 4228
February 14, Friday			
9.45	Arrival at MIET		
10.00 – 13.00	Internal meeting of the ERP: discussion of preliminary results of the site visit, preparation of the oral report of the panel	ERP	Room 4228
13.00 – 14.00	**Closing meeting of the External Review Panel with MIET representatives**	University administration, heads of the major departments, teaching staff, students, two ERPs	The Academic Council Hall Room 3103
14.00 – 15.00	Lunch		Cafeteria, MIET
	Departure of the ERP members		