

**Association for Engineering Education of Russia  
Accreditation Center**

**PROFESSIONAL ACCREDITATION  
OF EDUCATIONAL PROGRAMS  
IN ENGINEERING AND TECHNOLOGY**

**GUIDELINES  
FOR EVALUATION OF EDUCATIONAL PROGRAMS  
IN ENGINEERING AND TECHNOLOGY**

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## INTRODUCTION

These guidelines are designed for the program evaluators of the Association for Engineering Education of Russia (AEER) involved in the audit of educational programs in engineering and technology (hereinafter – *evaluation team* or *team*). The guidelines provide an overview of an evaluation process of the programs leading to a degree/diploma in accordance with the AEER criteria and procedures. The program has to meet the standards of the AEER in order to be accredited by the professional community. The criteria are sent to the program evaluators of the Accreditation Center of the Association for Engineering Education of Russia (the AC AEER) and are available on the web-site of the Accreditation Center: <http://www.ac-AEER.ru>.

The primary principle of the AEER evaluation procedure and criteria is to ensure that graduates of the program under accreditation are prepared for engineering practice adequately to the contemporary requirements for specialists in engineering and technology and that a higher education institution (HEI) has an effective system aimed at improvement of education and university programs.

The AEER Accreditation Center develops the evaluation system and criteria accumulating the experience of professional accreditation of engineering programs in Russia and worldwide and hiring observers from engineering organisations and accreditation agencies of the EU countries and the Washington Accord member states.

The main elements of the evaluation process are self-study of a program prepared by an institution and an audit visit of the AEER program evaluators. The Association for Engineering Education of Russia considers that they both are essential for helping the institution in quality evaluation of its educational services and defining measures for improvement of the program. It is essential that the relationship between the HEI and the AC AEER is based on terms of partnership to assure high quality of graduates' training.

The Accreditation Center of the AEER would appreciate all comments on these guidelines and suggestions on the criteria and procedure improvement that can be further e-mailed at [ac@ac-AEER.ru](mailto:ac@ac-AEER.ru).

## **EVALUATION TEAM REQUIREMENTS**

**An evaluation team** for examining a program consists of program evaluators that are experts in the field of examined engineering programs and one representative from industry.

One of the members of the expert team is appointed a team chair who acts as the team leader responsible for visit preparation. The team chair organizes and coordinates work of program evaluators during the audit and is responsible for preparation of accounting documents.

All members of the evaluation team should observe the Code of Ethics and share ideas and principles of professional accreditation of the Association for Engineering Education of Russia:

1. The program evaluators are responsible to the institution under evaluation and to the AEER.
2. The program evaluators should be ready to pay a great deal of time and efforts to manage the posed tasks.
3. The program evaluators must evaluate in qualitative and (where applicable) quantitative terms:
  - the mission of an institution of higher education,
  - the objectives of a program and their correspondence with the mission of the institution and constituencies' needs,
  - the adequacy of ways of the objectives achievement and assessment methods of their efficiency,
  - the system of ongoing monitoring of the educational process and improvement of its efficiency,
  - the complex system aimed at meeting the AEER criteria.

**4. The program evaluator must**

- be competent to examine the educational program,
- be educated at seminars and training workshops or have experience as an observer in audit.

**5. The team chair must**

- have experience as an expert involved in an educational programs audit visit

**6. The representative from industry must**

- have professional experience as a top manager not less than 5 years.

## **CODE OF ETHICS FOR THE AEER PROGRAM EVALUATOR**

To achieve the best results of evaluation procedure and to contribute to education quality, the Code of Ethics for the AEER expert poses main rules of conduct that an examiner should follow. The program evaluator involved in the program audit should meet high ethical standards: professionalism, honesty, impartiality and fairness.

### **1. Professionalism**

- 1.1. The program evaluator should be a professional in one of the specializations offered by the program due to accreditation.
- 1.2. The program evaluator takes responsibility for high quality of the audit by means of thorough analysis of the program in compliance with the AEER criteria. The expert has to reveal all latent and obvious contradictions with the AEER criteria.

### **2. Solution of the conflict of interest**

The program evaluator should refrain from actions averted objectivity and reliability of the evaluation process as follows:

- 2.1. To avoid contradiction between personal interests and the AEER objectives the program evaluator involved in the audit of an program must notify to AC Board of Directors of his/her concernment in order not to participate in the evaluation process if he/she has or had close contacts with this institution. Close contacts include, but are not limited to: current or past employment, consultancy on accreditation process, current or past negotiations on employment, education at this institution and financial or personal interests.
- 2.2. During the audit visit the program evaluator must keep himself/herself away from the meetings and decisions that may cause a conflict of AEER interest and must inform about a real or latent conflict of interest that may influence the objectivity of the evaluation process.

- 2.3. The program evaluator must not receive money or gifts from the institution that offered the program to accreditation since it may influence an audit decision.
- 2.4. The program evaluator must keep the audit process independent of influence of the institution representatives with the purpose to provide impartiality and objectivity of education quality assessment. **The self-study report submitted by the institution shows an official opinion of the institution representatives, it is the task of program evaluators to carry out the independent audit of verity and completeness of information presented by the institution.**

### **3. Confidentiality**

Confidentiality is an essential principle of the AC AEER activity. All information and documentation sent to the Accreditation Center of the AEER is subject to non-disclosure and should be used only for evaluation and accreditation purposes.

- 3.1. The evaluation team (chairman, program evaluators and observers) takes responsibility for non-disclosure of confidential information.
- 3.2. The information contained in a self-study report and work sheets completed during an audit visit can be used for a purpose of the program evaluation by the AEER and not for personal profit.
- 3.3. The information shall not be distributed and disclosed without consent of the AEER and the institution.
- 3.4. The work sheets of the AC AEER (Work sheets F-1 and F-2) are **for internal use only** and their content shall not be discussed with representatives of the institution. All audit documents are the intellectual property of the AC AEER. Evaluation contained in work sheets is not communicated to representatives of the institution.
- 3.5. Preparation of the audit report is to take place without participation of representatives of the institution.

3.6. Before the beginning of evaluation team signs the Statement of obligation of AEER program evaluator of absence of the conflict of interests and sends it to the AC AEER.

## EVALUATION PROCEDURE

1. The institution submits a written **application** for program accreditation to the Director of the AEER Accreditation Center (AC AEER). In the application the institution must indicate the title and the code of the program to be accredited. If the institution seeks accreditation for several programs, the title and the code of each program must be clearly indicated. The request is subject to initial analysis if the title of the qualification contains the words “engineer”, “technique”, “technology”. The analysis of the request is done collegially by the AEER AC Board of Directors. The AC Board of Directors consists of four persons: the AC Director, the AC Deputy Director, two Members of AC Board of Directors.

The members of the AC Board of Directors do not have a right to vote on the questions of initial screening of the HEI’s application that is in their sphere of interest. To avoid the perceived conflict of interest and to ensure the open and fair discussion of the application these members of the Board are leaving the meeting room during the session.

The request can be denied on the following reasons:

- Incorrect filling in of the request form.
- The program is not included in the state list educational programs.
- The program is not included to the list of engineering qualifications of the Russian Federation Ministry of Labor.
- The HEI lacks the federal license and state accreditation.
- The information about the educational program is not available on the HEI’s website.

The HEI has the right to consider the remarks and repeat the request. In case of disagreement with the AEER AC Board of Directors decision on the denial of the initial request concerning accreditation of education program, HEI appeal

in writing to the Appeal Commission of the AEER. The appeal should contain the reasons why the negative decision of the AEER AC is wrong (due to the factual mistakes or due to non-compliance to the document “Criteria and Procedure”).

2. . The AEER AC Board of Directors takes the decision to start the procedure of public accreditation. The AEER signs a **contract** with HEI on educational program public accreditation. To avoid the perceived conflict of interest the administrative support of the accreditation process is done by the AC staff in one of the branches (Moscow, Novosibirsk or Tomsk) that is unbiased regarding the HEI applying for accreditation.

3. The Accreditation Center provides the institution with the latest version of the criteria and self-study questionnaires.

4. The institution carries out a **self-study process** according to the AEER requirements and submits a self-study report to the Accreditation Center.

5. The Accreditation Center appoints an **Evaluation Team** to carry out an auditing of the program. The Evaluation Team should comprise not less than four experts and consist of a chair, program evaluators as well as a representative from industry. If the institution seeks accreditation for several programs, the Accreditation Center appoints a separate Evaluation Team for each program.

6. The institution officially informs the Accreditation Center on refusal of a team member or on agreement to accept the proposed examination team.

7. Each program evaluator signs the statement for no-conflict of interests and sends it to the Accreditation Center.

8. Upon examination of a self-study report the Accreditation Center takes decision on continuation of accrediting procedure and running of the on-site visit or on necessity to re-elaborate the self-study report or decision on non-compliance of the program with criteria and failure to receive accreditation.

In the last cases the institution will receive a written statement from the Accreditation Center.

9. In case the decision on continuation of accrediting procedure is taken, the team chair and the institution agree on the dates and schedule of the visit.

10. An on-site visit takes not less than three days. At the end of the visit the team chair and the HEI rector sign **The Audit Memorandum**.

11. On the basis of the audit results and the self-study report analysis the Evaluation Team prepares an **evaluation report** that shall contain a detailed statement on compliance or noncompliance of the program with the AEER criteria as well as examiner opinion different from the team statement, if any.

12. Within three weeks following the on-site visit one copy of the report is presented to the institution. Within the two weeks of receiving the report the institution may send its **complaints** on team report or breach of accrediting procedure to the Accreditation Center.

13. The Accreditation Center reviews the report of the examination team and the institution complaints, if any, and prepares a **suggestion on accreditation or non-accreditation** for a final decision by the Accreditation Board.

14. The decision of the Accreditation Board **is to be approved by** the AEER Administrative Board. The AEER sends an accreditation certificate signed by the President to the institution. The accredited programs are included in the AEER register that is publishing in media and the Accreditation Center web site. The list of accredited programs is reported to the Ministry of Education and Science of the Russian Federation.

15. In case of program accreditation with awarding the EUR-ACE® Label the AEER AC issues for HEI the corresponding certificate signed by representatives of the AEER and ENAEE. The accredited program is placed to the ENAEE register.

## **Stage 1. Pre-Visit Activity**

Pre-visit activities begin with self-study documentation submitted by the institution to the AC AEER and appointing an evaluation team.

### **Objectives of the evaluation team at this stage:**

1. an HEI's educational programs will be initially evaluated on the basis of data submitted by the institution to AC AEER in the form of a self-study report;
2. to develop a plan for additional assessment to be conducted **during the on-site visit** and to request supplementary information to be provided by the institution prior to the visit and/or during the on-site visit. Since the team's task is the evaluation of the degree of educational program implementation within the context of AEER evaluation criteria, the plan should provide performance analysis of those AEER requirements which have not found sufficient evidence in self-study materials so far.

### **Participants:**

1. Members of the evaluation team;
2. Institution representatives responsible for the accreditation arrangements.
3. The AC AEER.

### **Step 1. Analysis of self-study materials**

1. **The AC AEER** confirms the receipt of the self-study report and sends **e-copies** of the report to the evaluation team members.
2. **The program evaluators** scrutinize the self-study report and share their opinion on information comprehensiveness and compliance with the AEER criteria with the team chair. Members of the evaluation team fill out the work sheet F-1 and send it **to the AC AEER**.

Work sheet **F-1** is a preliminary conclusion about conformity of the program to AEER criteria and is filled out on the basis of self-study materials. On the one hand, F-1 is used for the AC AEER decision on expediency of carrying out the audit at the present time; on the other hand, it is a basis for scheduling work in

the institution. If all experts have come to conclusion that any criterion is not carried out completely (evaluation grade “-2”), it can be the reason for termination of accreditation or inexpediency of audit in the institution at the present moment. Accordingly, grades “-1” and “0” should lead to more careful performance analysis concerning criteria requirements during the visit, which has to be reflected in the plan of the evaluation team. The grade “+” in Work sheet **F-1** shows that the criterion meets the established requirements.

To evaluate the degree of meeting the criteria requirements, it is recommended to use the following system:

“+” – fully meets a criterion

“0” - the disputable indicator (*questionable matter*) shows that at present the expert has no the information sufficient for taking the unequivocal decision and additional information is required during the visit.

“- 1” – a program has weaknesses; it shows that conformity to the criterion requirement is reached but the conformity degree is still inadequate to secure the program quality till the next accreditation period.

“-2” – a program has deficiencies; it shows that conformity to the criterion requirement is not reached.

3. The decision on continuation of the accreditation procedure or its rejection is made **by the Board of Directors of the AC AEER** on the base of the compiled work sheets F-1 submitted by the experts. Obvious contradictions between the program and the AEER criteria are among the reasons for the rejection. Besides, if the program evaluators consider submitted information insufficient for arranging the audit visit, they might suggest that the institution has to be re-examined. If the audit visit is canceled, **the AEER AC** sends a conclusion on required improvement of self-study documentation and/or non-compliance with the AEER criteria thus

explaining impossibility of accreditation of the offered program under these circumstances.

## **Step 2. Coordination of the visit agenda**

1. Thorough analysis of self-study materials and a detailed plan of work in many respects will facilitate team work in the institution under accreditation. When drawing up the agenda for meetings with teaching staff and students and planning visits to laboratories/classrooms/departments, it is necessary to divide the team into working groups for more efficient use of time and detailed study according to program evaluators' specialization and interests.

Development of the plan of work is a responsibility of the chairman. The draft plan is developed on the basis of self-study materials and consultations of experts (the sample plan is presented in Appendix 1).

When scheduling the work of the evaluation team, the AEER AC pays attention at the following:

- The plan should provide performance evaluation of all AEER criteria requirements to the program under accreditation. The program evaluators have to be convinced that the program provides acquisition of ALL skills and competencies and the students' works confirm acquisition of these skills in compliance with AEER requirements.
- The evaluation team should prepare the list of materials which, if necessary, should be presented by the institution under accreditation during the visit for specification and/or addition of self-study materials.
- It is strongly advisable to avoid group tours in academic buildings and to specify the laboratories and classrooms that should be visited by a particular program evaluator instead; all visits should be purposeful and proved.

- Meetings with the representatives of the institution should be productive and aimed at verification or acquisition of the information lacking in self-study materials. The evaluation team should specify the teachers (usually they are course developers) whom they might want to meet.
- Meetings of the team with the representatives of the program under accreditation should be normally spent in a premise allocated for work of the evaluation team. It is necessary to minimise the loss of time caused by unnecessary movement of the team.
- For filling out Work sheet **F-3** the experts are to request supplements to the students diploma of the most recent graduates of the program under accreditation.

**The evaluation team** prepares a list of materials to be presented by the institution during the audit visit to specify and/or add self-study documentation (if necessary) (e.g. to fill out Work sheet **F-3**, the experts should request for diploma supplements of the program graduates of the last academic year).

## 2 **The team chair:**

- requests the institution for additional information indicating the deadline for its submitting;
- specifies the dates for the on-site visit and coordinates them with the institution;
- coordinates the development of a preliminary schedule for the on-site visit with each member of the evaluation team;
- adjusts the schedule for the on-site visit with the institution (Appendix I), informs the institution about the dates and time of arrival and departure of the evaluation team.

## 3 **The program evaluators:**

- print necessary worksheets;
- fill out those parts of the work sheets that should be completed prior to the on-site visit (**F-1, F-2, F-4**).

#### **4. The institution provides to the evaluation team:**

- a premise equipped with the computer with the Internet access, the printer and the phone;
- the documents prepared for the evaluation team, including self-study materials, teaching and methodology materials and documents, samples of students' works, course and degree projects, etc.

#### **Stage 2. On-site visit**

On-site visit activities begin with the initial meeting of the members of the evaluation team in a hotel and are over when agenda of the visit has been accomplished and the team leaves the institution.

#### **Objectives of the evaluation team at this stage:**

1. To assess (both in qualitative and quantitative terms) those factors that cannot be documented in a written questionnaire;
2. To scrutinize the information presented by the institution;
3. To be aware of the fact that the representative of industry should pay particular attention to estimation of graduates' preparedness for professional activity and compliance of their training with the present-day requirements and needs of potential consumers;
4. To provide the institution with preliminary assessment of its strong and weak points.

#### **Participants:**

1. Institution representatives including the administration of the institution and the department, teaching and support staff involved in the program;
2. Students of the program;
3. Members of the evaluation team.

The schedule for the on-site visit must contain the meetings of experts with:

- the students;
- the teaching staff.

## **Attention!**

The meetings of program evaluators with the students should be held without attendance of the teaching staff and the administration of the Faculty and the institution.

The meetings of program evaluators with the teaching staff should be held without attendance of the administration of the Faculty and the institution.

The on-site visit activities should present a set of logical, step-by-step actions. For convenience, it is described here chronologically on a day-by-day basis. Time indicated for the events can vary.

### **Day 1**

Prior to the official visiting of the institution, members of **the evaluation team** hold an initial meeting in the hotel.

#### **1. Evaluation team members:**

- exchange opinions on conformity of the program under accreditation to AEER criteria on the basis of self-study materials presented by the institution;
- discuss the problems which should be solved during the visit;
- appoint working sessions and activities which should be performed during the evaluation visit;
- discuss the questions connected with the interaction of team members.

#### **2. The Team Chair:**

- adjusts the plan of work according to the discussion outcomes;
- defines the duties of the representative of industry during the audit and appoints meetings and activities in which he/she participates.

#### **3. The representative of the AEER AC:**

- fills out a copy of Work sheet **F-4** (a column “Before visit / Day 1”) on the basis of the evaluation made by program evaluators on self-study materials (working copies of Work sheet **F-4**), and their discussion; the copy is sent to the AEER AC when the visit has been accomplished;
- submits the relevant information for the draft report using the criteria fulfillment of which is undoubtedly presented in the self-study materials.

### **Day 2**

1. The evaluation team meets with the administration of the institution and individuals responsible for accreditation visit arrangements. The team chair introduces members of the evaluation team and requests for the rector’s approval on the plan of evaluation team activities during the audit visit.
2. The program evaluators follow the approved plan of activities that obligatorily includes a meeting of the team chair with a Dean of the Faculty under evaluation.
3. The program evaluators complete the work sheet **F-2** (**the section** that should be completed during the visit), and the column “Day 2” of the Work sheet **F-4** based on the information received during the day.
4. At the evening meeting the program evaluators discuss the findings concerning program assessment and adjust the plan of activities for the next day.

### **Day 3**

1. The program evaluators follow the approved plan of activities.
2. The program evaluators complete the column “Day 3” of the form **F-4** upon the information received during the day.

3. At the evening meeting the program evaluators discuss the findings concerning program assessment and adjust the plan of activity for the next day.

#### **Day 4**

1. The evaluation team finishes discussion of conformity of the program to AEER criteria, and fills out report work sheets.
2. Work sheets F-1, F-2, F-4 F -6 (or F-7) are to be signed individually by all members of the evaluation team and are passed to the representative of the AC AEER.
3. The final program evaluation Work sheets F-4, F-3 and F-5 are to be signed by all members of the evaluation team and are passed to the representative of the AC AEER.
4. On the basis of the all-round analysis of audit outcomes and self-study materials the evaluation team prepares the draft report on educational program evaluation which represents the detailed conclusion concerning the conformity of the program under accreditation to the established accreditation criteria and includes alternative opinions, if any, of evaluation team members.
5. The Chairman of the evaluation team prepares the **Minutes of the Audit (Appendix 3)**.
6. The evaluation team discusses the results of the visit with the management of the institution and the persons responsible for carrying out accreditation at a final meeting. The Chairman of the evaluation team will read the **Evaluation Team Message (Appendix 4)**.
7. The Rector of the institution and the chairman of the evaluation team sign two copies of the **Minutes of the Audit**. One copy remains in the institution, another one is passed to the representative of the AEER AC.

Report structure:

**a. General description of the institution and the program.**

The given section is to contain the following:

- information on how long the institution has been providing specialists training on the program under accreditation;
- information concerning enrollment figures for the program under accreditation;
- certificate number and the date of state accreditation, license number for carrying out educational activities;
- information concerning the institution structure, number of implemented programs (including engineering programs).

**b. The Body.**

The body contains the detailed conclusions concerning conformity of the program under accreditation to AEER criteria and specifies strong and weak points of the program with each criterion in view.

Using the evaluation in Work sheet F-4, it is necessary to give one of possible evaluation descriptors for each criterion:

- *“acceptable”*
- *“acceptable with recommendations”*
- *“acceptable with remarks”*

For the evaluation descriptors *“acceptable with recommendations”* and *“acceptable with remarks”* the team program evaluator has to:

- specify the weaknesses or disadvantages of the program;
- make recommendations on elimination of weaknesses and to note whether the institution is capable of providing relevant measures aimed at elimination of these disadvantages.

General evaluation of criterion performance should be resulted from the discussion of program evaluators with estimations given by each program evaluator in view.

If the team has not come to agreement concerning estimation of concrete

criterion, it is necessary to specify individual experts' opinions with a mark "Separate opinion".

### **c. Conclusion**

If the body of the report contains weaknesses of the program under accreditation and provides recommendations on their elimination, it is necessary to specify the schedule for the institution to take all necessary steps on performance improvement such as corrective action plan and progress report.

Further the evaluation team should specify the recommendations concerning acceptable accreditation decisions. The following suggestions are possible:

#### ***To accredit for the full term (5 years):***

- If the program under accreditation shows full conformity to requirements of each criterion if the evaluation has been recognized as ***“acceptable”*** by all criteria.
- If the program under accreditation has been recognized as ***“acceptable with recommendations”*** by one or several criteria and experts provided recommendations about elimination of weaknesses are made.

#### ***To accredit for a shorter term:***

- If the program under accreditation has been recognized as ***“acceptable with remarks”*** by one or several criteria but improvements can be reached during the reasonable period of time (no more than half of full term of accreditation).

#### ***To refrain from accreditation:***

- If the program under accreditation has been recognized as ***“unacceptable”*** since at least one criterion failed.

### **Stage 3. Program evaluation report**

1. The AEER AC prepares The Program Evaluation Report on the basis of the draft report developed by evaluation team. The report is to be coordinated with all team members.
2. The Program Evaluation Report prepared by the AEER AC is to be directed to the institution for correction of inaccuracies, if any.
3. The Program Evaluation Report, signed by the Director of the AEER AC should be sent to the institution not later than in three weeks after audit termination. Within two weeks after reception of the Report the institution can make their remarks and comments on the report or on infringement of the audit procedure, if any.