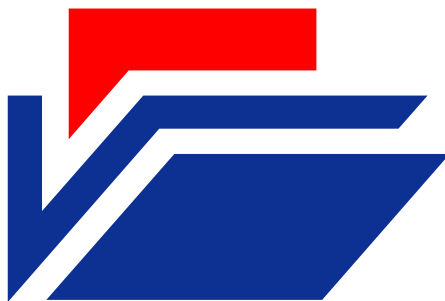


Education council for Electric and Electronics
Iceland



2009

Electrical sector in Iceland



The organizing of a study in the electrical sector.

Getting an education in the electrical sector is organized according to the learning outcome that require knowledge and skills of the students in the additional parts of the electrical sector.

The basic education requires 80 units which normally takes two years to achieve at school. Students who start the basic study, must have finished compulsory education according to official curriculum and must have finished „standard examinations“ in Icelandic and mathematic. They also must have achieved a minimum examination-results according to official regulations § 2, signing up as a student in a secondary school.

Students that enrol for a journeyman’s examination in the electrical sector(f.x. as a electrician or in electronic) must have finished „basic electrical education“.

A journeyman’s examination study normally takes 4 years and divides between a study in school and occupational education.

There are two different ways to finish the education:

1. Vocational training, where average time in school is 3.5 year, including basic study, plus 24 weeks occupational education.
2. Contractual apprenticeship, where average time in school is 3 years, including basic study, plus 48 weeks occupational education.

Those who want to be an electrician or an electro-mechanic technician, can choose between the two choices. To be a electric distribution technician, the choice line 2 is the only way and in electronic, line 1 is the only choice.

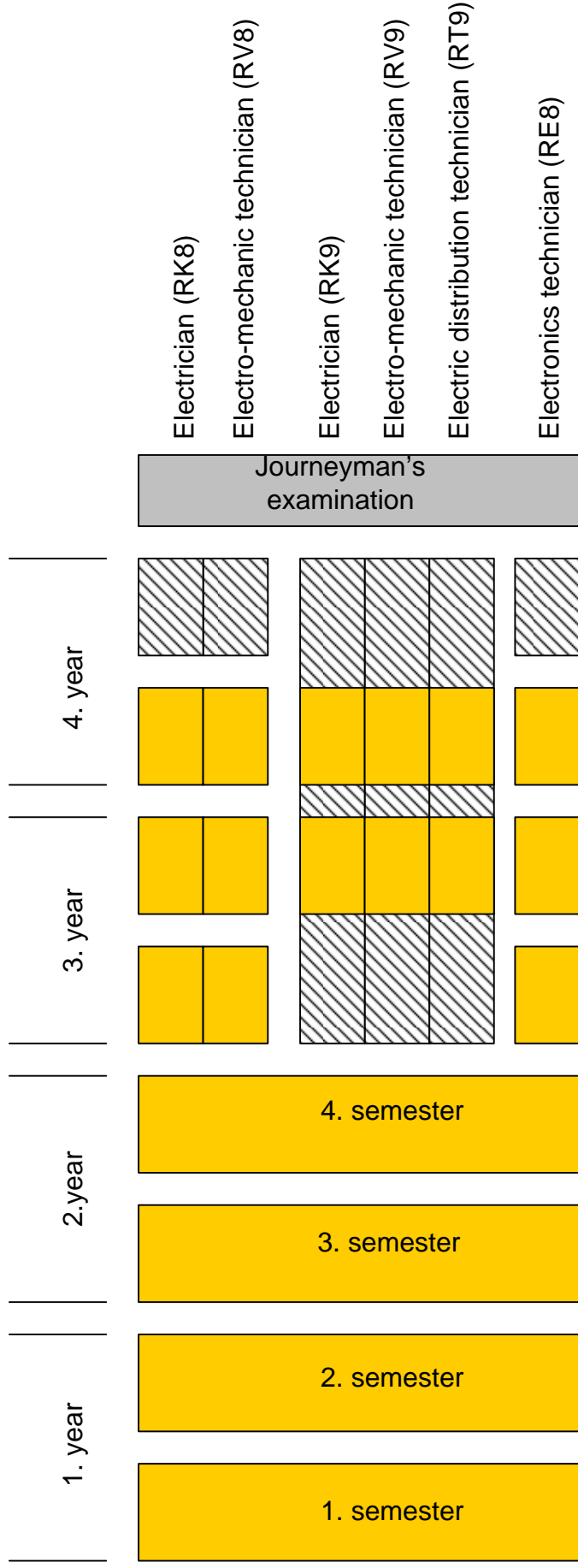
Today, there is a great similarity between the jobs of electricians, electric distribution technician or electro-mechanic technician, and therefore the same material at school occurs in all three studies. The specialization is reached in the final end of the study and in the occupational education. This makes it easier than before, for a individual, f.x. educated as an electrician to get an education as a electro-mechanic technician.

For all occupational education, as seen above, there are „official regulations“ which include contracts and occupational education.

National Curriculum for Upper Secondary Schools



Electrical field



School terms



On-the-job-training

The average duration of the education and training program in the electrical field is four years, organized as follows:

RK8 and RV8, formal education for seven school terms, and 24 weeks of on-the-job-training.

RK9, RV9 and RT9, formal education for six school terms and 48 weeks on-the-job-training.

Those programs conclude with a journeyman's examination



CERTIFICATE SUPPLEMENT (*)

ICELAND

1. TITLE OF THE CERTIFICATE

Rafiðngreinar – sérgrein: rafvirkjun

2. ÞÝTT HEITI SKÍRTEINISINS

Electrical trades – specialty: Electrician

Þessi þýðing hefur ekkert lagalegt gildi.

3. PROFILE OF SKILLS AND KNOWLEDGE

The holder

- Is able to work on electrical installations and look after the maintenance of old electrical installations and equipment according to current standards and regulations
- is able to calculate quantities, make project plans and fill in logbooks and timesheets
- is able to locate fault in electrical equipment and electrical lines and use measuring instruments among other things for fault detection
- is able to install and hook up electrical devices in fuse boxes and connect electrical wires to electrical equipments.
- is able to design electrical wiring for the installation of electrical equipments, locate fault and look after maintenance as well as supplying final installation drawings of electrical installations
- is able to install and look after the maintenance of all types of electrical devices, industrial control equipment and control equipment in industrial companies and plants
- is familiar with the electrical devices used for power operation, understands symbols and drawings, is able to locate faults and rectify them
- is able to install generators, electrical distribution central and electrical distribution systems in electrical power plants
- is familiar with the fundamental theory of electrical motors and understands the induction of magnetic fields and is aware of the effect it has on electrical equipment
- is familiar with the main concepts concerning heating and ventilation systems
- is familiar with various ways of sensing and regulating temperature and knows the main controlling methods (PID-regulators)
- is able to service and look after the maintenance of electrical equipments and devices; install and operate electrical systems in marine vessels according to standards
- is familiar with security aspects applicable to the electrical industry such as emergency switches, emergency stops and the danger of contact
- is able to program and finalise programmable electrical installation systems and advise on the use of such systems
- is familiar with electrical lighting systems
- can install electrical networks for larger buildings and industrial plants and knows the necessary protective measures for installation of building networks, their operation and testing
- is able to install all interior networks for communication installations, connect peripherals (local end systems) and test the reliability of the systems
- is able to install, connect and finalise the most common antennae-, intercom-, signal- and alarm systems and instruct on how to use them.

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE

Electricians work in electrical workshops, new buildings, vehicles on land and sea, in wholesale and electrical retail shops, industrial companies or plants, on the installation, maintenance, repair and inspection of electrical equipment for the processing and distribution of electricity, electrical appliances and electrical systems. Those who have earned a journeyman's certificate issued by the Minister of Industry and Trade are authorised to work as electricians.

(*) Explanatory note: This document is designed to provide additional information about the specified certificate and does not have any legal status in itself. The format of the description is based on the following texts: Council Resolution 93/C 49/01 of 3 December 1992 on the transparency of qualifications, Council Resolution 96/C 224/04 of 15 July 1996 on the transparency of vocational training certificates, and Recommendation 2001/613/EC of the European Parliament and of the Council of 10 July 2001 on mobility within the Community for students, persons undergoing training, volunteers, teachers and trainers. For further information visit: www.cedefop.eu.int/transparency
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5 OFFICIAL BASIS OF THE CERTIFICATE

Name and status of the body awarding the certificate: An Icelandic upper secondary school operating on the basis of the Upper Secondary School Act and the National Curriculum for Upper Secondary Schools, issued by the Minister of Education, Science and Culture.	Name and position of governing body or region that looks after certifying or confirming the certificate The Ministry of Education, Science and Culture
Level of the certificate (national or international): Upper secondary school level. Isced 3	Grading scale / Pass requirements: 1-10 Passing grade 5.
Access to next level of education/training: Additional studies for matriculation or studies for a master of crafts examination, electrical technology or other technical studies.	International agreements:
Legal basis The Upper Secondary School Act no. 92/2008, regulation regarding journeyman's examination no. 698/2009. The Industrial Act no 42/1978, regulation on Authorised Branches of Industry no 940/1999.	

6. FRAMEWORK AND ORGANISATION OF TRAINING

The average duration of the education and training programme is four years,

Programme 1: Formal education for seven school terms, or 126 weeks including examinations, and 24 weeks of on-the-job training;

Programme 2: Formal education for six school terms, or 108 weeks including examinations, and 48 weeks of on-the-job training. Both programmes conclude with a journeyman's examination.

Entry requirements

To have passed final exams of compulsory education

Additional information

Further information (including the national education system) can be found on following website: www.menntamalaraduneyti.is

National Contact Point

The Ministry of Education, Science and Culture, www.menntamalaraduneyti.is



CERTIFICATE SUPPLEMENT (*)

ICELAND

1. TITLE OF THE CERTIFICATE

Rafiðngreinar – sérgrein: rafvélavirkjun

2. TRANSLATED TITLE OF THE CERTIFICATE

Electrical trades – specialty: Electro-mechanical technician

Þessi þýðing hefur ekkert lagalegt gildi.

3. PROFILE OF SKILLS AND KNOWLEDGE

The holder

- Is able to work on electrical installations and look after the maintenance of old electrical installations and equipment according to current standards and regulations
- is able to calculate quantities, make project plans and fill in logbooks and timesheets
- is able to locate fault in electrical equipment and electrical lines and use measuring instruments among other things for fault detection
- is able to install and hook up electrical devices in fuse boxes and connect electrical wires to electrical equipments.
- is able to design electrical wiring for the installation of electrical equipments, locate fault and look after maintenance as well as supplying final installation drawings of electrical installations
- is able to install and look after the maintenance of all types of electrical devices, industrial control equipment and control equipment in industrial companies and plants
- is familiar with the electrical devices used for power operation, understands symbols and drawings, is able to locate faults and rectify them
- is able to install generators, electrical distribution central and electrical distribution systems in electrical power plants
- is familiar with the fundamental theory of electrical motors and understands the induction of magnetic fields and is aware of the effect it has on electrical equipment
- is familiar with the main concepts concerning heating and ventilation systems
- is familiar with various ways of sensing and regulating temperature and knows the main controlling methods (PID-regulators)
- is able to service and look after the maintenance of electric equipments and devices; install and operate electrical systems in marine vessels according to standards
- is familiar with security aspects applicable to the electrical industry such as emergency switches, emergency stops and the danger of contact
- is able to program and finalise programmable electrical installation systems and advise on the use of such systems
- is familiar with electrical lighting systems
- is familiar with excitation winding and understands the winding methods of electrical equipment and transformers
- is able to construct and wind the most common rotor and stator windings for electrical motors and use electrical measuring instruments to prove their correct operation
- is able to plan and draw rotor and stator windings

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE

Electro-mechanic technicians work on installations, connection, maintenance and repair of any type of machinery and electrical equipment in homes, companies and institutions. They also look after maintenance and repair of machinery used in the production of electricity. Those who have earned a journeyman's certificate issued by the Minister of Industry and Trade are authorised to work as electro-mechanic technicians.

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Level of the certificate (national or international): Upper secondary school level. Isced 3	Grading scale / Pass requirements: 1-10 Passing grade 5.
Access to next level of education/training: Additional studies for matriculation or studies for a master of crafts examination in electrical technology or other technical studies.	International agreements:
Legal basis The Upper Secondary School Act no. 92/2008, regulation regarding journeyman's examination no. 698/2009. The Industrial Act no 42/1978, regulation on Authorised Branches of Industry no 940/1999.	

6. FRAMEWORK AND ORGANISATION OF TRAINING

The average duration of the education and training programme is four years,
Programme 1: Formal education for seven school terms, or 126 weeks including examinations, and 24 weeks of on-the-job training;
Programme 2: Formal education for six school terms, or 108 weeks including examinations, and 48 weeks of on-the-job training. The programme concludes with a journeyman's examination.

Entry requirements

To have passed final exams of compulsory education.

Additional information

Further information (including the national education system) can be found on following website:
www.menntamalaraduneyti.is

National Contact Point

The Ministry of Education, Science and Culture, www.menntamalaraduneyti.is



CERTIFICATE SUPPLEMENT (*)

ICELAND

1. TITLE OF THE CERTIFICATE

Rafiðngreinar – sérgrein: rafveituvirkjun

2. TRANSLATED TITLE OF THE CERTIFICATE

Electrical trades – specialty: Electric distribution technician

Þessi þýðing hefur ekkert lagalegt gildi.

3. PROFILE OF SKILLS AND KNOWLEDGE

The holder

- Is able to work on electrical installations and look after the maintenance of old electrical installations and equipment according to current standards and regulations
- is able to calculate quantities, make project plans and fill in logbooks and timesheets
- is able to locate fault in electrical equipment and electrical lines and use measuring instruments among other things for fault detection
- is able to install and hook up electrical devices in fuse boxes and connect electrical wires to electrical equipments.
- is able to design electrical wiring for the installation of electrical equipments, locate fault and look after maintenance as well as supplying final installation drawings of electrical installations
- is able to install and look after the maintenance of all types of electrical devices, industrial control equipment and control equipment in industrial companies and plants
- is familiar with the electrical devices used for power operation, understands symbols and drawings, is able to locate faults and rectify them
- is able to install generators, electrical distribution central and electrical distribution systems in electrical power plants
- is familiar with the fundamental theory of electrical motors and understands the induction of magnetic fields and is aware of the effect it has on electrical equipment
- is familiar with the main concepts concerning heating and ventilation systems
- is familiar with various ways of sensing and regulating temperature and knows the main controlling methods (PID-regulators)
- is able to service and look after the maintenance of electrical equipment and devices; install and operate electrical systems in marine vessels according to standards
- is familiar with security aspects applicable to the electrical industry such as emergency switches, emergency stops and the danger of contact
- is able to program and finalise programmable electrical installation systems and advise on the use of such systems
- is familiar with electrical lighting systems
- is familiar with energy distribution systems and carrying capacity requirements of electrical distribution systems
- is familiar with standard requirements on power cables transporting high voltage electricity and is able to work according to standard safety rules
- is able to dress appropriately and prepare for outdoor work in inhabited areas
- is familiar with environmental standards and off road driving

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE

Electric-distribution technicians work on installations, performing of measurements, maintenance and repair of any type of wiring and electrical equipment for the transport and distribution of electricity from its production to the end user. Those who have earned a journeyman's certificate in electric distribution technology issued by the Minister of Industry and Trade are authorised to work as electric distribution technicians.

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Level of the certificate (national or international): Upper secondary school level. Isced 3	Grading scale / Pass requirements: 1-10 Passing grade 5.
Access to next level of education/training: Additional studies for matriculation or studies for a master of crafts examination, electrical technology or other technical studies.	International agreements:
Legal basis The Upper Secondary School Act no. 92/2008, regulation regarding journeyman's examination no. 698/2009. The Industrial Act no 42/1978, regulation on Authorised Branches of Industry no. 940/1999.	

6. FRAMEWORK AND ORGANISATION OF TRAINING

The average duration of the education and training programme is four years. Formal education for six school terms, or 108 weeks including examinations, and 48 weeks of on-the-job training. The programme concludes with a journeyman's examination.

Entry requirements

To have passed final exams of compulsory education

Additional information

Further information (including the national education system) can be found on following website: www.menntamalaraduneyti.is

National Contact Point

The Ministry of Education, Science and Culture, www.menntamalaraduneyti.is



CERTIFICATE SUPPLEMENT (*)

ICELAND

1. TITLE OF THE CERTIFICATE

Rafiðngreinar – sérgrein: rafeindavirkjun

2. TRANSLATED TITLE OF THE CERTIFICATE

Electrical trades – specialty: Electronics technician

Þessi þýðing hefur ekkert lagalegt gildi.

3. PROFILE OF SKILLS AND KNOWLEDGE

The holder

- is able to install, set, repair and look after the maintenance of electronic equipment according to current standards and regulations
- can make use of circuit drawings and technical information on the equipment provided by the manufacturers in English and one Scandinavian language
- is able to design and install communication systems according to current standards, quantify and make project plans for such installation projects
- is familiar with most types of electronic equipment on board ships and boats and their operation
- is able to utilize and program simple industrial microprocessors and connect them to sensors and peripherals
- is able to design and draw, simulate, make and program electronic circuits that connect detectors, microcomputers and motors (electronic mechanics)
- is able to install and repair computers
- is able to install and set up most common user software, e.g. office and accounting software
- is able to install and set up user services, e.g. internet, mail and database software
- is able to structure and connect principal internet software and install and set up such software
- is able to install the principal software for network servers according to the main security requirements
- is able to install and set up the principal internet service in network servers and workstations
- is able to install and set the architecture of all main services for internet communications
- knows and is able to structure the main security aspects regarding internet communications
- is able to install, connect and finalise the most common antennae-, intercom, signal and emergency systems, set them and instruct on how to use them

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE

Electronics technicians work on installations, maintenance and repair of any type of communication systems and electrical equipment, computer and user equipment for homes, companies and institutions as well as on transport vehicles on air, land and sea. Those who have earned a journeyman's certificate in electronics technology issued by the Minister of Industry and Trade are authorised to work as electronics technicians.

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Level of the certificate (national or international): Upper secondary school level. Isced 3	Grading scale / Pass requirements: 1-10 Passing grade 5.
Access to next level of education/training: Additional studies for matriculation or studies for a master of crafts examination, electrical technology or other technical studies.	International agreements:
Legal basis The Upper Secondary School Act no. 92/2008, regulation regarding journeyman's examination no. 698/2009. The Industrial Act no 42/1978, regulation on Authorised Branches of Industry no 940/1999.	

6. FRAMEWORK AND ORGANISATION OF TRAINING

The average duration of the education and training programme is four years. Formal education for six school terms, or 108 weeks including examinations, and 48 weeks of on-the-job training. The programme concludes with a journeyman's examination.

Entry requirements

To have passed final exams of compulsory education

Additional information

Further information (including the national education system) can be found on following website: www.menntamalaraduneyti.is

National Contact Point

The Ministry of Education, Science and Culture, www.menntamalaraduneyti.is



CERTIFICATE SUPPLEMENT (*)



1. TITLE OF THE CERTIFICATE ()

Telecommunication technician, telecommunication technics

2. TRANSLATED TITLE OF THE CERTIFICATE ()

This translation has no legal status.

3. DESCRIPTION OF KNOWLEDGE AND SKILLS

The holder

- Is familiar with the main qualities and workings of materials used in telecommunication technics, knows the correct handling of those and understands the possible dangers and environmental effects they may have
- Is familiar with and knows the correct application of all major machines and tools that telecommunication technicians use in their work, as well as their maintenance and care
- Is familiar with safety precautions in the workplace and arranges his or her work in such a way that health and safety, of self and others, is not at risk
- Knows the qualities and types of cables and knows how to handle them under different circumstances
- Can lay cables, coax and fibre optic cables, and understands the order of lines in a cable, as well as colour coding
- Is able to connect copper cables, plastic coated cables, coax and fibre optic cables manually and mechanically
- Can find and repair malfunctions in cables, open a cable and dry it out
- can find out line numbers in cables and connect lines on connections module and order lines
- Is familiar with and can use devices used to measure the specific location of malfunctions in cables
- Can draw up a diagram of old and new cables and measure the position of a street cable from a building or other fixed point
- Can perform or supervise the digging of ditches for cables or pipes, sanding, compression and final preparation for use
- Can lay cables from a building box to a building outlet and/or user equipment based on a diagram, and assess the materials needed for the job
- Can connect user equipment according to a diagram and knows what each and every connecting point on the equipment represents
- Can test telephone lines, connect them into measuring devices, read from those and locate a malfunction in a line system
- Can fill out working notes, make entries in line books and card indexes and update those

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE

Telecommunications technicians lay telephone cables in the ground, connect them with intake boxes and connect those with telephones and other user equipment, such as modems, teletext machines, fax machines, computers and more. They lay cables over to building systems. Telecommunications technicians search for malfunctions and oversee repairs of cables for building systems. They work only at low voltage, i.e. 48 volts or less. Authorised to work as telecommunications technicians are those who have earned a journeyman's certificate in telecommunications technics, issued by the Minister of Industry and Trade.

(*) Explanatory note

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More information on transparency is available at: www.cedefop.eu.int/transparency

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Level of the certificate (national or international) Upper secondary school level Isced 3	Grading scale / Pass requirements 1-10 Passing grade 5.
Access to next level of education/training Additional studies for matriculation, studies for a master examination or technical studies.	International agreements
Legal basis The Upper Secondary School Act no. 80/1996, regulation regarding journeyman's examination no. 525/2000 The Industrial Act no. 42/1978 and regulations on Authorised Branches of Industry no. 940/1999.	

6. FRAMEWORK AND ORGANISATION OF TRAINING

The average duration of the education and training programme is three years, organised as follows: formal education for four school terms, or 72 weeks including examinations, followed by 48 weeks of on-the-job training. The programme concludes with a journeyman's examination.

Entry requirements

Primary school graduation certificate

Additional information

Further information may be found on <http://eng.menntamalaraduneyti.is/>

National reference point

The Ministry of Education, Science and Culture, <http://eng.menntamalaraduneyti.is/>



Education council for Electric and Electronics

Our role is:

- Supervision and making of contracts for apprentices in the EI-branch
- Supervision and processing the Journeyman's tests in the EI-branch
- Supervision of examination bank for the EI-branch
- Supervision in the making of the curriculum for the EI-branch on behalf of The Ministry of Education, Science and Culture
- Supervision of the net library www.rafbok.is textbooks in the electrical sector.
- Supervision of Competence validation in the EI-branch

Behind our office we have the Union of electrical workers and The Federation of Icelandic Electrical and Electronic Employers al together membership of around 6000 people.

