

PROJECT: EURO-AUDITS

**THE EUROPEAN ROAD SAFETY AUDITOR
TRAINING SYLLABUS**

MAIN REPORT

October 2007



A European Commission co-funded project

CONTENTS:

- | | |
|---|-------------------------------|
| 1. Background | <u>Appendices:</u> |
| 2. Proposed Directive of the European Parliament | A. Proposed course programmes |
| 3. Development of Training Modules | B. Training Materials |
| 4. Summary of existing European context for Safety Audit training | C. Document templates |
| 5. Road Safety Audit training syllabus | D. Selected Case Studies |
| 5.1. Training concept | E. EURO-AUDITS survey results |
| 5.1.1. Prerequisites for training | |
| 5.1.2. Safety Audit training courses | |
| 5.2. Teaching Syllabus | |
| 5.2.1. PowerPoint presentation | |
| 5.2.2. Session briefs | |
| 5.2.3. Case studies | |
| 5.2.4. Workshop materials | |
| 5.2.5. Templates and handouts | |
| 5.2.6. Teacher's manual | |
| 5.3. Course evaluation and development | |
| 5.4. Assessment and certification | |
| 5.4.1. Pre-assessment | |
| 5.4.2. Course examination | |
| 5.4.3. Assessment of Competence | |
| 5.4.4. Independent certification | |
| 5.4.5. Central register of Auditors | |
| 5.4.6. Continued professional development | |
| 6. Conclusions and summary of recommendations | |

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The European Road Safety Auditor Training Syllabus



1. Background

In the context of its Road Safety Action Programme (2003-2010) and its ultimate objective to halve the number of road fatalities on European roads by 2010, the European Commission has given its support to 13 European road safety projects. 'Euro-Audits', the European Road Safety Auditor Training Syllabus, has been selected to benefit from European Commission support.

The following partners form the Euro-Audits consortium:

European Union Road Federation (ERF) is the Project Coordinator. ERF is a non-profit organisation that coordinates the views and concerns of Europe's road sector and acts as a platform for dialogue, information and research on mobility issues.

TMS Consultancy is an independent company, which specialises in consultancy, research and training services in connection with road safety, traffic management and highway engineering. TMS has pioneered Road Safety Audit training in the UK, Ireland and Italy for over fifteen years.

Asociación Española de la Carretera (AEC) has been dedicated to the promotion of a better highway system in Spain for more than fifty years. AEC is a key contributor to the Guidelines to Black Spot Management project and has been running highly successful Road Safety Audit courses in Spain since 2005.

2. Proposal for a Directive of the European Parliament and of the Council

The European Commission has proposed a Directive on road infrastructure safety management. The objective of the Directive is to ensure that safety is integrated in all phases of planning, design, and operation of road infrastructure on the Trans-European Network. The Directive aims to ensure that safety is regarded in its own right in parallel with economic and environmental analysis. The Directive also aims to ensure that road managers are given the **guidelines, training and information** required to increase safety in the road network.

The European Road Safety Auditor Training Syllabus

The draft Directive states that training and certification of safety personnel by means of training curricula and tools for qualification validated by Member States should ensure that practitioners get the necessary up-to-date knowledge.

There are four elements of the directive:

- Road Safety Impact Assessment – a strategic comparative analysis of the impact of a new road or a substantial modification to the existing network on the safety performance of the road network;
- **Road Safety Audits – a detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to entry into operation;**
- Safety Development of the road network in operation – the reduction of future accidents by targeting remedial treatments to parts of the network where, respectively, accidents occurred most frequently during previous years and accident cost reduction potential is the highest. *This aspect is also known as ‘Road Safety Engineering’ in some Member States;*
- Safety Inspections –periodical routine visual check of features and defects that require maintenance intervention for safety reasons.

If implemented, the Directive would require Member States to enact legislation to ensure that the above activities take place on those parts of the Trans-European Road Network within their jurisdiction. Articles 3, 4, 5 & 6 of the Directive refer to each of the four elements described above. With respect to Road Safety Audits, Article 4 (2) states that Member States shall ensure that an auditor is appointed to carry out this work, and Article 9 sets out the training requirements for such auditors.

The training requirements include the need for pre-auditing experience, formal training, certification of competence, and periodic re-training

This document provides the basis for a Road Safety Audit teaching syllabus that could be adopted by Member States as a mechanism for training Road Safety Auditors. In addition to the syllabus, the document comments on pre-training experience/qualifications, and also on certification of competence.

The European Road Safety Auditor Training Syllabus

The objective is to provide a syllabus that builds on existing best practice from courses already undertaken in some Member States.

3. Development of Training Modules

The Euro-Audits Consortium has undertaken specifically to develop core and advanced training modules that will provide the necessary knowledge and skills for competent Road Safety Auditing. The aim has been to develop an approach that will be suitable for local adoption whilst maintaining consistency throughout Europe.

3.1 Definition of core and advanced training modules

A generic description of the core syllabus for two three-day courses - an introductory and an advanced Road Safety Audit course, are proposed. This includes a brief for each session of the course, suggested case studies and workshop materials. Proposed course evaluation methods are included, together with a delegate feedback framework, which will enable systematic comparison of courses held at different venues and the overall improvement of course standards.

3.2 Elaboration of templates

Standard templates are provided for the formal input and output requirements of Road Safety Audit, e.g. the audit team brief, the audit report, the exception report and checklists for each stage of the audit process. The templates will be used during the training process and will be available for general use, with the aim of developing consistency and best practice in European auditing procedures.

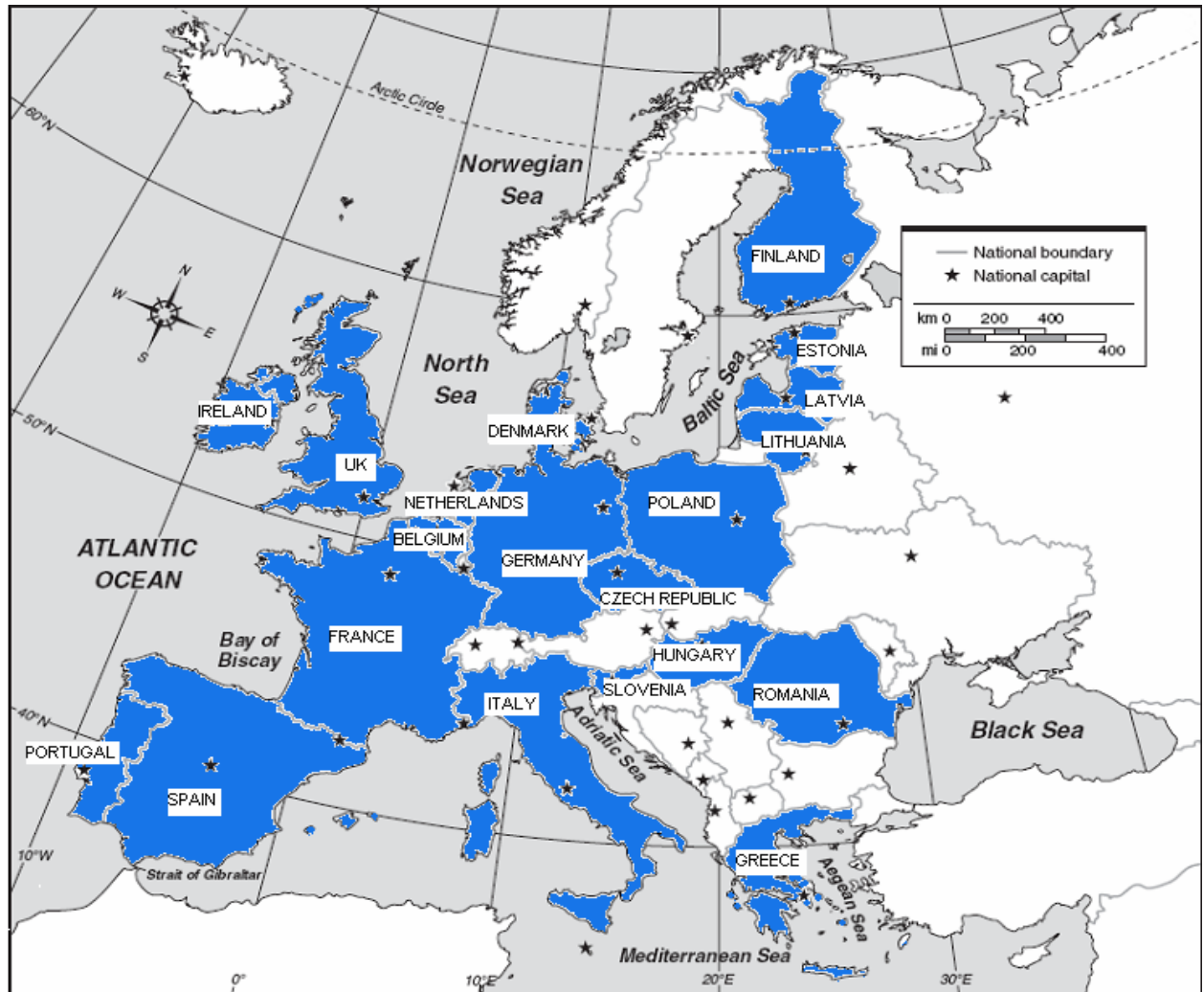
3.3 Teacher's manual

This document can be used as a teacher's manual, which includes PowerPoint templates, workshop guidelines, the evaluation framework and document templates, as listed above.

4. Summary of existing European context for Safety Audit training

The first part of this project involved a questionnaire distributed to contacts in Member States who had knowledge of Safety Audit practice in their country. The questionnaire sought responses regarding requirements to undertake Safety Audit, qualifications required for Safety Auditors in those situations where Safety Audit was mandatory, and any training courses available for Safety Auditors.

4.1 Countries surveyed



This questionnaire has been sent to professionals, road policies decision makers and experts on road safety in order to determine where Europe can be positioned in the matters of Road Safety Audits, road safety auditors and road safety proceedings. 27 EU member states were surveyed. 20 responses were received, from the following countries: Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovenia, Spain, the Netherlands and United Kingdom.

4.2 Main survey results

The situation throughout the Member States remains heterogeneous, but the initial survey found that convergences could be established:

- Around half the Member States surveyed have a requirement to carry out audits on all or part of their network.

The European Road Safety Auditor Training Syllabus

- Over half of the Member States surveyed have a voluntary training scheme in place, 10/20 have a mandatory training scheme. In half of the cases, the course is specific to Safety Auditing; in a small number of cases, there is additional training available on road safety engineering.
- The duration of these courses varies greatly, but the majority is between 2-5 days. All of the courses contain a mixture of theory and practice.
- More than half the Member States assess knowledge & competence by means of a formal exam or course work at the end of the training activity.
- Half of the Member States have the training certified by an independent body.
- The majority of Member States surveyed require some form of minimum requirements for admission to a Safety Audit course. This may take the form of previous academic qualifications and/or previous road safety engineering experience.
- In just half of the Member States surveyed, follow-up courses are offered for experienced auditors on a voluntary basis. 5 Member States have formal requirements for Safety Auditors to maintain their skills either through on-site experience or a refresher training course.

5 Road Safety Audit Training Syllabus

5.1 Training concept

5.1.1 Pre-requisites for training

Pre-requisite skills and qualifications currently vary considerably between those European states that provide Road Safety Audit training. Individual Member States should continue to be able to set their own mandatory or recommended attendance requirements. However, it is recommended that pre-requisites for auditor training include qualifications or experience in elements of road safety engineering, road design and/or traffic management. For example, in Spain and Denmark, delegates are required to be graduate engineers with significant experience in road safety. In the UK and Ireland, most auditors should have received formal training in road safety engineering, as well as having practical experience in road safety engineering (safety development of the road network in operation). In some cases, such as in Denmark, delegates are invited to undertake a test prior to attending the course.

The requirement for safety engineering experience as a pre-requisite for Road Safety Auditing poses a problem in those Member States where this type of work is not yet routinely carried out. A possible solution would be to accept

The European Road Safety Auditor Training Syllabus

auditors who are roads engineers on condition that they undertake a recognised course in road safety engineering (which could include Safety Audit training). A proposed programme for the equivalent of 10 days or 60-80 hours road safety engineering course is shown in **Appendix A**. One of the core modules should be an Introduction to Road Safety Audit.

Recommendation

Pre-requisites for Safety Auditor training should include the following:

- Professional experience in a roads engineering function (highway design and traffic engineering) and attendance on a recognised road safety engineering course;

Or

- Professional experience in road safety engineering.

In addition:

- Member States should be free to add pre-requisite formal qualifications in subjects such as civil engineering or transportation, should they desire, or to ask delegates to undertake simple tests prior to attending the course;
- Member States should be free to impose time-based restrictions on Safety Engineering experience, to ensure that this experience has been gained in recent years;
- Member States should be free to impose minimum time periods for both roads and road safety engineering experience requirements.

5.1.2 Safety Audit training courses

Once a delegate has pre-qualified for Safety Audit training, they will be in a position to attend an appropriate course. In order to cater for individual Member States' specific requirements, it is proposed that a selection of optional training modules is provided, in addition to the essential core modules that should form the basis of all auditor training.

Two three-day training courses are proposed, one at an Introductory level and one at an Advanced level. The proposed Introduction to Road Safety Audit course amounts to three days training, designed to give a comprehensive introduction to Road Safety Auditing. Interactive teaching methods will be used to provide knowledge of the background and principles of Road Safety Audit and to provide opportunities for delegates to acquire, share and practice the practical skills and knowledge required to carry out competent Road Safety Audits.

The European Road Safety Auditor Training Syllabus

If this training is obtained as part of the pre-requisite for Safety Auditors as described in 5.1.1 above, it is not necessary to repeat it at this stage.

A proposed programme of core and optional training modules for the Introductory Road Safety Audit Course is included at **Appendix A**

The proposed Advanced Road Safety Audit course is designed to develop the skills of practising Road Safety Auditors to an advanced level, and to keep them up to date with new developments in Safety Audit. This will continue their professional development in this area of work. Interactive teaching methods will be used to provide the additional knowledge and skills required to carry out competent Road Safety Audits of large and complex schemes. This course will again amount to three days training.

An outline programme of core and optional training modules for the Advanced Road Safety Audit course is included at **Appendix A**

The modular nature of the training syllabus will allow each full course to be delivered over three consecutive days, or in smaller sections over an extended period (possibly as an evening course).

Recommendations

- All prospective Safety Auditors should attend an 'Introduction to Road Safety Audit' course (which can form part of the pre-requisite training for Safety Auditors);
- Experienced Safety Auditors should attend an 'Advanced Road Safety Audit' course within a period of time specified by the Member State;
- Both courses should be modular in their approach, to allow maximum flexibility for delegates to attend courses;
- Courses should include key core elements and optional elements to allow Member States to select a course programme suitable for local needs.

5.2 Teaching Syllabus

5.2.1 PowerPoint presentation

Pre-prepared PowerPoint presentations will be used as the basis for the training courses, supplemented by case studies, workshop materials and open discussion. Consistency between courses can thereby be maintained, whilst also providing opportunities for addressing individual and local issues. A suggested PowerPoint presentation template is included at **Appendix B**.

5.2.2 Session briefs

The European Road Safety Auditor Training Syllabus

The core modules contained in both courses will be relatively prescriptive to ensure that the essential fundamental areas of Road Safety Audit are covered. Nevertheless, there will be opportunities for discussion and debate, and for delegates to raise issues of particular relevance to their own organisations.

The optional modules will enable trainers and delegates to explore the more complex and developing issues of Road Safety Audit and, consequently, the exact format will be less prescriptive, leaving options for topical issues to be included.

Core Modules will be developed from detailed session briefs to ensure some consistency across Member States. Examples of detailed session briefs for each course are included at **Appendix B**.

5.2.3 Case studies

Trainers should be experienced Road Safety Auditors. Examples of Road Safety Audit issues arising from actual audits of highway schemes will be presented for discussion, using plans, diagrams and photographs. **Appendix B** includes examples of case studies.

Delegates will be encouraged to raise issues from their own experience for discussion.

5.2.4 Workshop materials

Delegates will work together in small groups to carry out a number of workshop exercises that are designed to provide opportunities for them to practise Road Safety Audit skills. The following materials may be provided to enable a realistic audit of a variety of highway schemes, building in complexity as the course progresses.

- Audit brief;
- Scale drawings of highway scheme proposals;
- Site photographs;
- Accident data;
- Traffic flow data;
- European accident statistics;
- European legislation dealing with infrastructure safety.

An example of materials to support a workshop exercise is included at **Appendix B**.

Some recently completed highway schemes will be identified within the locality of the training venue and supervised site visits will be organised for the

purpose of carrying out Pre-opening and Early Operation stage Road Safety Audit workshops.

5.2.5 Templates and handouts

Specimen reports and report templates are included in Appendix C to this document (please refer to the Contents page). These will be used throughout the two courses in workshop exercises and will be available for delegates to use in the course of their own employment. Further materials and documents will be used to support individual training sessions and will be supplied to delegates as required.

5.2.6 Teacher's manual

This document is intended to be used as a Teacher's Manual, as well as a basis for individual course design. PowerPoint presentations, workshop materials, specimen reports and standard form templates will be supplied in electronic format, which can be easily adapted to suit individual requirements.

Recommendation

- The teaching syllabus should be used by Road Safety Audit trainers as the basis for teaching the course

5.3 Course evaluation and development

Delegate feedback on the quality of the course, in terms of content and presentation, will inform the ongoing process of course development. Delegates will be requested to complete Course Evaluation Forms in respect of each day of the course. These will be collected and subsequently analysed by the course provider with a view to maintaining the relevance and effectiveness of the course.

A Delegate Feedback Form template is included at **Appendix C**.

An Evaluation Review Form template is included at **Appendix C**.

Some consideration should be given to exchange of information between course providers in terms of delegate feedback and subsequent course development.

Recommendation

- Delegate feedback should be evaluated in a consistent manner and analysis of feedback used to improve future courses
- Course providers should exchange information derived from feedback, possibly via a European platform for Road Safety Auditors

5.4 Assessment and certification

5.4.1 Pre-assessment (see also Section 5.1.1)

As an alternative, or in addition, to pre-requisite qualifications and/or experience, it may be desirable to require delegates to pass a test of their knowledge in the field of road safety engineering, design and/or traffic management. A pre-course examination or test is part of the auditor training system currently used in Denmark. Although passing this test is NOT a pre-requisite for attending the course, it is necessary for those who wish to go on to take a post-course examination (see 5.4.2).

In the UK and Ireland, Road Safety Audit team members are required to have previously attended at least ten days of formal training in accident investigation or road safety engineering to form a solid theoretical foundation on which to base practical experience.

One option would be to have an on-line multiple choice test available for delegates prior to them attending the course.

5.4.2 Course examination

Most European states that currently offer Road Safety Audit training do not require or provide certificates of competence. It is, therefore, not current practice to require delegates to undertake any formal assessment of their competence, either before or after a training course.

Those Member States that require evidence of having undertaken Safety Audit as a condition for undertaking more audits, usually do so via a self-completed curriculum vitae, checked by a client representative.

However, in order to provide the basis of a formal qualification in Road Safety Audit, it may be appropriate to require delegates to undergo an assessment of their competence at the conclusion of the training course. The first element of this formal assessment would be a test or examination on the final day of the introductory course.

It would be feasible for the course tutors to mark a short exam paper (e.g. multiple choice) and to notify the results to delegates before the end of the course. A more formal in-depth examination is likely to require the involvement of an independent external examiner and a subsequent notification of results. This latter system currently operates in Denmark.

The Danish examination lasts two hours, and is held directly following the course. It is an open-book exam.

5.4.3 Assessment of Competence

Article 9 of the Directive states that Member States shall ensure that Road Safety Auditors hold a certificate of competence (those awarded before the Directive comes into effect shall be taken in to account.)

The second element of a formal assessment of a delegate's competence to carry out Road Safety Audits should be an independent evaluation of the quality of his/her audit reports in respect of actual schemes audited during the period following audit training.

Road Safety Audit reports would be submitted for evaluation, together with supporting drawings and photographs, to an independent examining body, selected and approved by the Member State.

In Spain, delegates who attend the Safety Audit course have one month to prepare an audit report from guidelines and checklists delivered on the course.

In the UK, there has been recent movement towards professional certification in various vocational areas within the transportation field (for example development control, traffic signal design). Some certificates are awarded by academic institutions, others by professional institutes. In each case the awarding body works with a chosen training provider.

5.4.4 Independent certification

Certificates of Competence in Road Safety Audit should be awarded by independent examining bodies, approved by individual Member States, when they are satisfied that the applicant has successfully completed the appropriate training course and further demonstrated his/her competence by either sitting an examination and/or by submitting completed audit reports of the required standard.

A methodology for certification is suggested below:

- Professional institute or Academic body appointed to provide certification within Member State
- Delegates for training pre-qualify according to EuroAudit Syllabus/ Member State guidelines
- Delegates attend training course
- Delegates complete post-course examination and/ or assessment of competence, through the professional institute/ academic body
- Certificate of competence awarded
- Top-up courses required to maintain continuing professional development

5.4.5. Central register of auditors

A central register of auditors who have achieved certificates of competence could be made available within each Member State.

In the UK, the IHT has set up a branch specific to Road Safety Audit (SORSA), which could act as a basis for such a list. The Republic of Ireland and Portugal maintain lists of “approved” auditors.

However, many Safety Audit clients will wish to maintain the ability to choose auditors in relation to the scheme being considered. In Ireland, for example, it is being proposed that prospective auditors demonstrate experience, (through their *curriculum vitae*), of having audited schemes of a similar nature to the one being considered.

5.4.6. Continued professional development

It is suggested that a Certificate of Competence should be valid for a limited period of time and that an auditor should be required to demonstrate a continued commitment to professional development in the field in order to renew his/her authorisation to carry out Road Safety Audits. Continuing professional development could be evidenced by attendance on further related training courses, including the Advanced Road Safety Audit Course, as well as by carrying out a minimum number of Road Safety Audits within a given time period.

Recommendations

- Member States may wish to introduce a pre-training course test for those delegates who wish to gain a certificate of competence;
- Road Safety Audit competence should be assessed through an examination following the course and/or independent assessment of Audits carried out following the course;
- Certificates of competence should be awarded by appropriate academic or professional bodies within each Member State;
- Each Member State should maintain a central register of competent Road Safety Auditors;
- Auditors should be required to maintain their professional standing by undertaking additional (Advanced) Road Safety Audit courses.

6 Conclusions and Summary of Recommendations

6.1 In response to the EC draft Directive on road infrastructure safety management, the Euro-Audits consortium has proposed a European Road Safety Auditor Training Syllabus. The comprehensive and practical training syllabus is designed to provide the essential core knowledge and skills to prospective road safety auditors in order to ensure that Road Safety Audits of all relevant schemes across the Member States of the European Union are carried out to a consistent high quality by appropriately qualified and experienced auditors.

6.2 The syllabus aims to provide training at both introductory and advanced levels, using a combination of teaching methods, including interactive presentations by experienced Road Safety Auditors, case studies and practical workshops. A certain level of prior knowledge and experience will be a pre-requisite to training and formal delegate assessments are proposed at the conclusion of the syllabus, as a means to obtain accreditation from an independent body. An expectation of continued professional development will ensure that a high level of expertise is maintained.

6.3 The Euro-Audits consortium makes the following recommendations in relation to European Road Safety Auditor Training:

6.3.1 Pre-requisites for Safety Auditor training should include the following:

- Professional experience in a roads engineering function (highway design and traffic engineering) and attendance on a recognised road safety engineering course;

Or

- Professional experience in road safety engineering.

In addition:

- Member States should be free to add pre-requisite formal qualifications in subjects such as civil engineering or transportation, should they desire, or to ask delegates to undertake simple tests prior to attending the course;
- Member States should be free to impose time-based restrictions on Safety Engineering experience, to ensure that this experience has been gained in recent years;
- Member States should be free to impose minimum time periods for both roads and road safety engineering experience requirements.

The European Road Safety Auditor Training Syllabus

6.3.2 Training Courses

- All prospective Safety Auditors should attend an 'Introduction to Road Safety Audit' course (which can form part of the pre-requisite training for Safety Auditors);
- Experienced Safety Auditors should attend an 'Advanced Road Safety Audit' course within a period of time specified by the Member State;
- Both courses should be modular in their approach, to allow maximum flexibility for delegates to attend courses;
- Courses should include key core elements and optional elements to allow Member States to select a course programme suitable for local needs.

6.3.3 Teacher's Manual

- The teaching syllabus should be used by Road Safety Audit trainers as the basis for teaching the course

6.3.4 Course Evaluation

- Delegate feedback should be evaluated in a consistent manner and analysis of feedback used to improve future courses
- Course providers should exchange information derived from feedback, possibly via a European platform for Road Safety Auditors

6.3.5 Continued Professional Development

- Member States may wish to introduce a pre-training course test for those delegates who wish to gain a certificate of competence;
- Road Safety Audit competence should be assessed through an examination following the course and/or independent assessment of Audits carried out following the course;
- Certificates of competence should be awarded by appropriate academic or professional bodies within each Member State;
- Each Member State should maintain a central register of competent Road Safety Auditors;
- Auditors should be required to maintain their professional standing by undertaking additional (Advanced) Road Safety Audit courses.

6.4

An overview of the requirements is shown in the flow chart in Figure 6.1.

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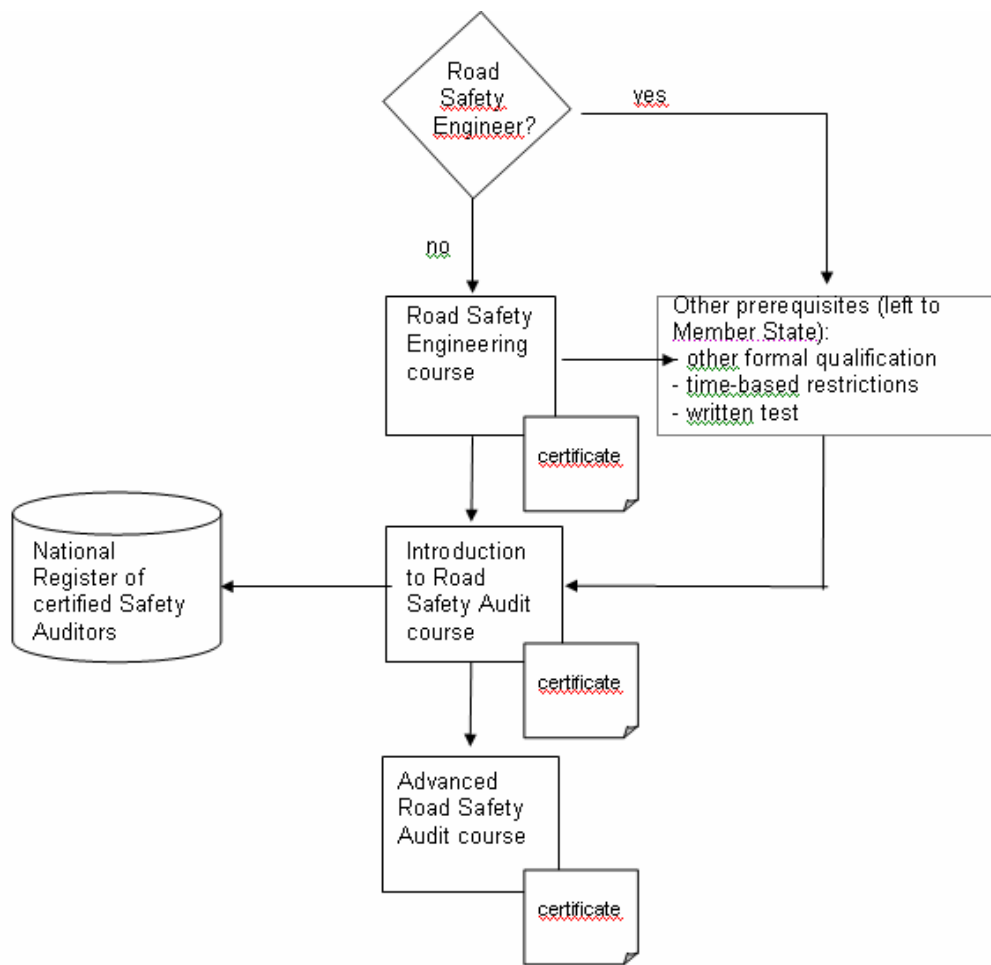


Figure 6.1 – EUROAUDITS training process