

TECHNOLOGY REPORT GUIDELINES

Name:	Technology Report Guidelines
Number:	A304
Prepared by:	IETO Admissions Committee
Version:	September 2006, revised December 2010
Scope:	All members seeking certification at the Certified Engineering Technologist level
Prerequisite:	OACETT Member
Method of Preparation:	Self-Study and Individual Preparation

General Guidelines

The Technology Report (TR) is normally the final academic technical requirement for certification by the Institute of Engineering Technology of Ontario (IETO) as a certified engineering technologist (C.E.T.).

The purpose of the TR is to demonstrate the candidate's ability to define a problem; examine and describe it logically and accurately through the use of technical fundamentals, designs, experiments, processes, data analysis or other appropriate means; and to draw conclusions or make recommendations from the study. The TR is expected to provide appropriate discussion and supporting analysis utilizing the candidate's academic background and experience gained in the workplace. The Technology Report must reflect a level of engineering or applied science technology knowledge commensurate with that required by an Engineering Technologist.

The report itself need not show originality of ideas, but the candidate must demonstrate an ability to appreciate, present, discriminate between, and draw conclusions from observations and ideas in an integrated fashion.

Reasonable modifications of the definition of a report will be accepted. Discussion and judgment of opposed theories or methods, or a description of a *novel* technique or process and a discussion of whether or not it is practicable, may be accepted. No area of knowledge or practice should be selected unless the candidate has either sufficient interest to learn the area, or has sufficient experience in the area, to deal with it at something more than the elementary level. However, the coverage of the particular subject available in textbooks will not normally be considered as satisfying the requirements of a report. It is the current state of the art, the novel or the contentious with which the report will be expected to deal.

The subject of the report is normally expected to be within the discipline of engineering or applied science technology of the candidate's academic training and the discipline in which certification is sought. If the subject chosen is not in the candidate's academic discipline, but is in another engineering or applied science technology discipline, it may be considered if the justification is that the candidate's experience has migrated into this new discipline area. The rigor of the treatment of the subject must be at the same level expected from someone trained in that subject's discipline area. If the subject chosen is remote from an engineering or applied science technology area, or is one which is not normally participated in by C.E.T.s at a responsible level, it may be considered, only if justification is migration of experience. However, the judgment of the examiner as to what is elementary will be increasingly harsh the further the subject strays. A compelling interest must be in evidence, and a sophisticated argument would be expected.

Reports must be guaranteed to be the candidate's own work. A TR prepared as a group activity will not normally be considered; however, a recent, undergraduate, final-year report, prepared as a requirement of an engineering or applied science technology program of studies, will be considered if all other requirements are met save actual work experience at the time the report was prepared.

Two-Step Process

Successful completion of the Technology Report involves two distinct steps; the first is a pre-requisite to the second.

First, candidates must submit for approval a "Proposal for a Technology Report". This proposal must be received and approved before proceeding to the second step.

Second, upon receiving approval of the proposal candidates may complete and submit the actual Technology Report. Candidates will be given a grade of "Satisfactory", "Unsatisfactory", or returned with suggested modifications. Only those who receive "Satisfactory" will be considered to have met the necessary requirements for completion of the Technology Report.

I The Technology Report Proposal

The TR Proposal advises the IETO Admissions Committee of the author's intent to submit a TR. It gives both the committee and the candidate an opportunity to determine whether the topic and proposed treatment would potentially result in an acceptable TR. The candidate must receive approval before proceeding to the TR.

Normally a proposal will be a total of about 500 words divided into several sections. The TR Proposal should contain:

Title page with the following information:

Title:	The proposed title for the TR. It should be specific, contain fewer than 10 words, and use standard terminology.
From:	Candidate's name, membership number and address
Discipline:	The Discipline in which certification is sought.
Date:	Date of submission
Introduction:	A short background statement, in about 100 words, of what the proposal covers and why this particular report is being prepared.
Body:	<p>This section outlines the problem and methodology which the TR will attempt to address.</p> <p>(a) The problem should provide sufficient detail using specific engineering or applied science concepts/techniques/processes to identify what is wrong. Care should be taken to ensure that it is really a problem versus a summary or overview. (Proposals that are summaries of an industry or situation without seeking to solve an issue are unlikely to be approved.) The problem statement typically would not exceed 50 words.</p> <p>(b) The methodology describes concisely the approach the author intends to use in the TR's investigation and documentation. The methodology description would normally be about 300 words.</p>

Hypothesis: An effective hypothesis statement describes what the author thinks the solution to the problem is expected to be and why. It should be strong and clear and not contain any words such as “may be”, “probably”, or “might”. A hypothesis statement typically would not exceed 50 words.

Proposal Submission

The proposal should be sent via email as a Word or PDF attachment to Vera Alexeeva, Admissions Coordinator at valexeeva@oacett.org

Approval Considerations

When the Proposal for a Technology Report has been approved, the TR may be prepared. A Technology Report will not be accepted for consideration unless a Proposal has been submitted and approved.

The TR must be submitted within one year of the approval of the Proposal for a Technology Report.

Sample Topics and Titles

A Technology Report should relate to the discipline in which certification is sought and describe a comprehensive study of an engineering or applied science topic. Sample topics might include a **Design; Testing and Analysis; Selection or Development of a Process or Equipment; or a Technical Site Assessment.**

Titles from previous TRs have been:

Chemical

- A Study of the Effects of Filler Concentration and Shear Rate on the Viscosity of a Filled Polymer Compound
- Heavy Water Properties in a Computer Blowdown Code for Nuclear Reactors
- Analysis of Ethyl Carbonate in Wine

Electronics

- Three Position Elevator Model with Soft Start and Soft Stop
- Continuous Online Catalyst Loading
- Audio Spectrum Analyzer
- Subcarrier Multiplexing on Fiber Optic Networks
- Gas Monitoring Measurement Techniques

Civil

- Traffic Calming: An Evaluation of Tools and Policy for Ontario
- Lake Oxygen Restoration Project
- Fuel Oil Tank Decommissioning and Impacted Soil Removal
- The Design and Analysis of a Retaining Wall on an Irregular Slope

Environmental

- An Environmental Health Assessment of Grenadier Pond
- Laboratory Analysis Utilizing an Atomic Absorption Spectrometer
- Quantifying the Stormwater Pollutant Reduction Benefits Associated with Traditional Public Works Maintenance Practices

Mechanical

- The Design and Development of a Coat Hook Assembly for an Automotive Interior Application
- How to Manufacture More Effectively Using Laser Technology
- Improving Indoor Air Quality in a Residential Application

II The Technology Report

In addition to providing a reasoned investigation and analysis into an engineering or applied science technology problem, the TR must communicate the information in a standard, comprehensible manner following acceptable style, formatting and language considerations. Thus, the report will be evaluated in two major areas: Structure and Mechanics; and Technology Content. Each must be considered acceptable to achieve a final grade of “Satisfactory”.

1. Structure and Mechanics

Typically the following components will be present in the TR:

- Title Page (include the following):
 - ◊ Your name, current OACETT designation (if any), and membership number
 - ◊ Title should be brief, ten words or less.
 - ◊ Date of submission
- Declaration of Sole Authorship
- Copy of the approved proposal, not the approval letter/email
- Abstract (also known as a Summary or Executive Summary or Foreword)
 - ◊ An accurate condensation of the TR. State the main idea or thesis by answering questions such as:
 - What is the TR about?
 - Why is it significant?
 - What should I do about it?
- Table of Contents
- List of Illustrations or Diagrams (if any)
- Introduction (Including the problem statement)
 - ◊ What is the technical problem?
 - ◊ Why was the work described in the TR undertaken?
 - ◊ What is included and/or omitted? What is the scope of the report and what procedures are used?
 - ◊ What is your objective?
 - ◊ What unique problems were encountered in doing or interpreting the work?
 - ◊ Are there unique approaches in the study?
- Body (Content) (discussion of the problem with diagrams, illustrations, tables, calculations, observations, etc.) with section headings
- Conclusion(s)
 - ◊ A conclusion interprets the data found in the Body. It is reasoned judgment and not opinions. Consider the variables. Relate cause and effect. Analyze, evaluate, make comparisons and contrasts. Base the conclusion on fact.
- Recommendation(s) (if any)
 - ◊ Recommendations are not required for all studies. They suggest a course of action and would generally be provided when there are additional areas for study, or if the reason for the TR was to determine the best action going forward.
- Bibliography (Technical References)
- Appendices (including detailed calculations, tables, drawings, specifications, technical literature, acknowledgements, etc.)

Each TR should follow acceptable style and language usage including:

- Typed, double-spaced using Arial, Univers, or a Sans Serif 12-point font
- Justified left, with numbered pages and appropriate page breaks (no “widows” or “orphans”)
- Correct spelling, punctuation, and grammar
- Consistent voice, subject-verb agreement, tense
- Little or no use of jargon
- Acronyms explained
- Correct use of references, footnotes, quotations, paraphrasing

2. Technology Content

The body of the TR must contain at least 3000 words not including Bibliographies and Appendices.

Assume readers know little about the area of study. Provide sufficient background to give a reasonable understanding of the presentation. Supply details of what was done in the study including what materials, equipment and procedures were used; and why they were selected over other alternatives. If the work is experimental provide drawings of the setup. If the work is a design development be sure to include the calculations. Additional calculations and references can be included in an Appendix rather than the Body.

Ensure the following:

- The methodology is scientifically sound and that the engineering technology principles are appropriate to the subject area.
- The data and results are complete.
- Mathematical formulae have been applied appropriately.
- Illustrations/Diagrams/Charts are technically correct.
- The analysis is complete.

Summarize the results and illustrate the most significant ones. A result is something obtained by calculation or investigation. They should be accurate and follow sound scientific and engineering principles. Results lead to meaningful conclusions from the data whether it was determined from experiments, theories or secondary sources. The conclusion/recommendation should be logical and relate to and reflect the Problem Statement.

Ownership of TR

The TR will remain the property of OACETT and may be used to assist others in the preparation of their TRs. Arrangements may be made for members to view TRs in the OACETT office. See the preparation section below for further details.

Confidentiality

On occasion, a member may wish to submit a TR prepared on behalf of an employer which is proprietary to that employer. Special arrangements may be made with the Registrar for confidential or proprietary TRs, provided a written request is made in advance. OACETT will issue a standard, signed, confidentiality agreement for such requests. The TR will not become the property of OACETT and all copies will then be returned to the member on completion of the evaluation. Candidates must obtain their employer's written permission prior to submitting the TR to OACETT.

Authorship

A signed declaration that the TR is the candidate's own work must be provided. A TR prepared as a group activity will not normally be considered. A statement of sole authorship (included on the Title Page or as a separate page) should be worded as follows:

I, _____, confirm that this work submitted for assessment is my own and is expressed in my own words. Any uses made within it of the works of any other author, in any form (ideas, equations, figures, texts, tables, programs), are properly acknowledged at the point of use. A list of the references used is included.

It is mandatory that all sources of information be acknowledged in the TR. Plagiarism is unethical and a candidate suspected of plagiarizing may be referred to the Complaints Committee.

Preparation

Candidates are responsible for their own self study and individual preparation using these guidelines.

From time to time OACETT may offer Technology Report Seminars. For information on TR Seminar dates and registration, please see the OACETT website www.oacett.org.

To review satisfactory TRs, please contact OACETT during office hours (8:30 a.m. to 4:30 p.m.) Monday through Friday at 416.621.9621. Members are requested to call ahead and arrange appropriate times for reviewing Technology Reports. A declaration of confidentiality must be signed by all members prior to viewing these reports.

Evaluation

The Technology Report will receive a grade of either "Satisfactory" or "Unsatisfactory" or returned with suggested modifications. All unsatisfactory reports will be automatically re-reviewed prior to informing the member of the results of the evaluation. If "Unsatisfactory", the Examiners will provide comments to assist with rewriting the TR. It may be resubmitted only once and only after appropriate revisions have been made. This must be done within three (3) months of the notification date of the results. If, after revisions the TR does not meet the OACETT standard, a new topic must be chosen and a new Proposal for a Technology Report submitted.

Resources

The following references may be useful in the preparation of a Technology Report:

Blicq, Ron S. *Technically Write!* Pearson Education, 7th edition, 2007

Rubens, Philip. *Science and Technical Writing: A Manual of Style*, Routledge, 2nd edition, 2000

Submission of the Technology Report

Submit one hard copy of the report, appropriately bound (spiral-bound, binder, duo-tang folder), plus a copy of the actual proposal you submitted earlier, addressed to:

Institute of Engineering Technology of Ontario
OACETT
10 Four Seasons Place
Suite 404
Toronto ON M9B 6H7

Use the following checklist to ensure that the Technology Report meets OACETT basic requirements.

Report Check List

- Yes**
- PS. 01 ☐ Has a Proposal for a Technology Report been submitted and accepted and a copy of the approved proposal included in the TR?
- PS. 02 ☐ Has the TR been submitted within one year since the proposal was approved?
- PS. 03 ☐ Is the TR consistent with the Proposal (as approved and with the comments and suggestions made by the proposal reviewer/examiner)?
- PS. 04 ☐ Is the TR typed, double-spaced and justified left?
- PS. 05 ☐ Has a 12 point Arial, Univers, or similar Sans Serif font been used?
- PS. 06 ☐ Is the body of the report a minimum of 3,000 words?
- PS. 07 ☐ Are the components in the following order: Title Page; Declaration of Authorship; Executive Summary/ Abstract/ Introduction/ Foreword; Table of Contents; Lists of Illustrations/Diagrams; Body of the TR; Conclusions and Recommendations; Bibliography/Technical References; and Appendices ?
- PS. 08 ☐ Is there a signed Declaration of Sole Authorship?
- PS. 09 ☐ Is the report dated?
- PS. 10 ☐ Is the TR current? (The TR should be less than 5 years old.)
- PS. 11 ☐ Is there a Title Page?
- PS. 12 ☐ Is there a Table of Contents?
- PS. 13 ☐ Does the Table of Contents correctly reflect the Components: Headings, Illustrations/Diagrams and Appendices?
- PS. 14 ☐ Are the pages numbered with appropriate page breaks?
- PS. 15 ☐ Is there an Abstract/Executive Summary, Introduction/Foreword? (any one is acceptable)
- PS. 16 ☐ Does the body of the report contain Section Headings?
- PS. 17 ☐ Are Conclusions and/or Recommendations provided?
- PS. 18 ☐ Is there a Bibliography with Technical References?