

# Design Technical Report guidance



How to write a technical  
report focused on design, for  
your application to Chartered  
Chemical Engineer



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## How to write a technical report focused on design for your application to Chartered Chemical Engineer

IChemE is a party to the FEANI European mutual recognition agreement. If you studied a chemical engineering degree programme in Europe, your degree may be covered by this agreement, which means that IChemE recognises equivalence of your core chemical engineering knowledge. If confirmed that your degree is covered by the FEANI agreement, we will ask you to submit a short report focused on a design or similar project to demonstrate that your knowledge and understanding meet the advanced levels required for Chartered Member.

Visit [www.feani.org](http://www.feani.org) to check if your degree is covered by the agreement.

## Demonstrating design capability

IChemE's objective is to ensure that you have enough competence in the broad aspects of chemical engineering and an ability to integrate this understanding along with non-technical skills in addressing an open-ended design problem. In our experience, one of the best ways to demonstrate this is to show how you have approached a substantial engineering project, such as:

- design of a process, product or system to meet a particular specification
- research of a particular aspect of physical, chemical, biological or engineering science involving chemical engineering design techniques.

There are different ways in which you can gain and/or demonstrate the design skills to meet the minimum required level of knowledge and understanding for Chartered Member and IChemE can help in finding the right choice for you. Options include:

- participation in a university design project (many university departments are willing to enable this when contacted)
- a master's level programme (MSc) that includes an appropriate design project
- experience of design project activities in the work place
  - provide evidence to IChemE through a technical report focused on this aspect
  - if you complete a technical report focused on design, this work must come from postgraduate experience.

This guidance document is for those undertaking the latter option, and submitting a technical report focused on design as part of their application for Chartered Member.

# General guidance

## Word count

Up to a maximum of 2,000 words (unless otherwise specified).

## Objective

To demonstrate the ability to synthesize chemical engineering knowledge and apply to an open-ended problem in the area of design. Your technical report should describe the project specification (of a design, research or other matter of a similarly complex nature) with relevant critical assumptions, calculations and/or modelling appended to it.

Your report should:

- adequately and fully describe a complex chemical engineering activity that you have been involved with
- show integration with other engineering and technical management disciplines to produce an appropriate total design or solution(s) for safe and useful application.

You may submit as your technical evidence one of the following:

1. a report written specifically for the application, which addresses the objectives of the technical report
2. a pre-existing technical report, accompanied by a narrative which details how the report demonstrates that your knowledge and understanding is at the required academic level
3. a collection of published academic papers along a common theme, accompanied by a narrative which details how the papers demonstrate that your knowledge and understanding is at the required academic level.

Some examples include:

- preparation of process flow diagrams and mass and energy balances for a new system
- specification or process and equipment modifications to update a system
- work with engineers of other disciplines to build plans for a new plant
- sizing of manufacturing equipment for a new process system
- design specification of a globally scalable process system for manufacture.

You should state on the report's title page which option you have chosen and identify the narrative if it is required.

## Cover sheet

Please complete the Technical Report Cover Sheet to assist assessment and as an aid in structuring your report. The cover sheet must include a signed confirmation from someone familiar with your work, that the report is a true demonstration of your knowledge and understanding of chemical engineering.

## Your report

The purpose of a technical report is to provide evidence that your knowledge and understanding is of the minimum required level for a Chartered Member (MIChemE). Your technical report should:

1. be a substantive work of your choice that is sufficiently complex to challenge your chemical engineering capabilities
2. be an original work on which you have made a significant contribution
3. be focused on provision of evidence of your knowledge and understanding of the principles that underpin your chemical engineering competence
4. aim to provide evidence and confidence that your overall chemical engineering knowledge is at the minimum required level for assessment as a Chartered Chemical Engineer
5. include key calculations, engineering drawings, flow sheets, diagrams and appropriate references
6. show objectives, problems or development aims addressed by the selected project
7. include analytical and quantitative processes used in reaching and evaluating a specified solution
8. be concise, not exceeding the guidance on word count
9. clearly reference any material which is copied into the report, you should show the application of such material to demonstrate your knowledge of chemical engineering principles, and their application, at the required advanced level.

Your report is not:

10. a review of your training, employment and experience
11. a report on your managerial or organisational competency and experience.

### Important things to note:

IChemE's review process is such that you will be assessed by chemical engineering professionals; Chartered Members and Fellows of IChemE who volunteer their time to uphold the standards and support professional development of members.

Please submit your report in the best and most complete format possible. This will help IChemE to use the valuable time of our volunteer assessors effectively and to obtain a decision on your application as soon as possible.

- ensure that the information contained in the report sufficiently demonstrates that your chemical engineering knowledge and understanding meets the minimum required level for Chartered Member
- please complete and submit the 'Technical Report Cover Sheet' to refer the assessors to the relevant information within your report and as an aid to structure
- if your technical report:
  - includes papers which were not wholly authored by you, or
  - if you are referencing group activity

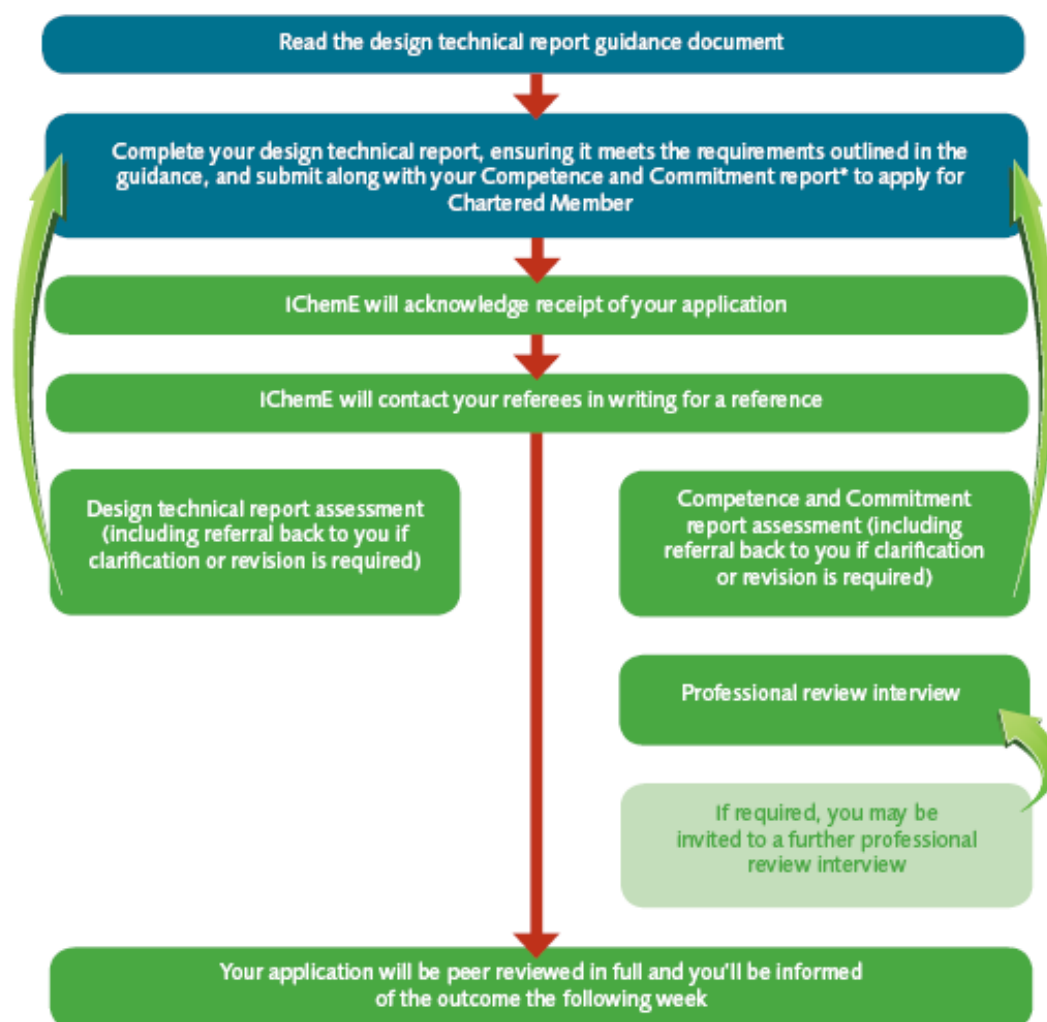
please include a narrative which details precisely what your contribution to the submitted work was, referencing the relevant sections, and clarifying what was undertaken by others

- practical and common sense solutions are a useful contribution but must be supported by science or appropriate theory – the report must demonstrate a level above 'catalogue engineering'
- acronyms and sector or company specific terms must be defined, either within the document if it is written for IChemE assessment, or with use of a glossary
- the use of imported or adopted information, standards or guides must be clearly referenced as such
- your report must be in English. IChemE is sympathetic to minor errors where English is not your first language, however, please ask someone to review your report, or use spell check software carefully to ensure your meaning is always clear
- do not submit a report in excess of 20% more than the stated word count
- ensure that you will remember the work in your report well enough to discuss at interview.

Focus your report on:		Avoid:	
✓	technical content	✗	description
✓	personal involvement	✗	observation
✓	Explanation	✗	discussion
✓	Analysis	✗	opinion
✓	Evaluation	✗	commercial detail

# Chartered Member (MIChemE)

Review process for technical report focused on design



\* See our Competence and Commitment (C&C) report guidance document for further details

## Additional information

View past report examples at [www.icheme.org/chartered](http://www.icheme.org/chartered)

If you have any questions or need further information contact [members@icheme.org](mailto:members@icheme.org)

Led by members, supporting members,  
serving society

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