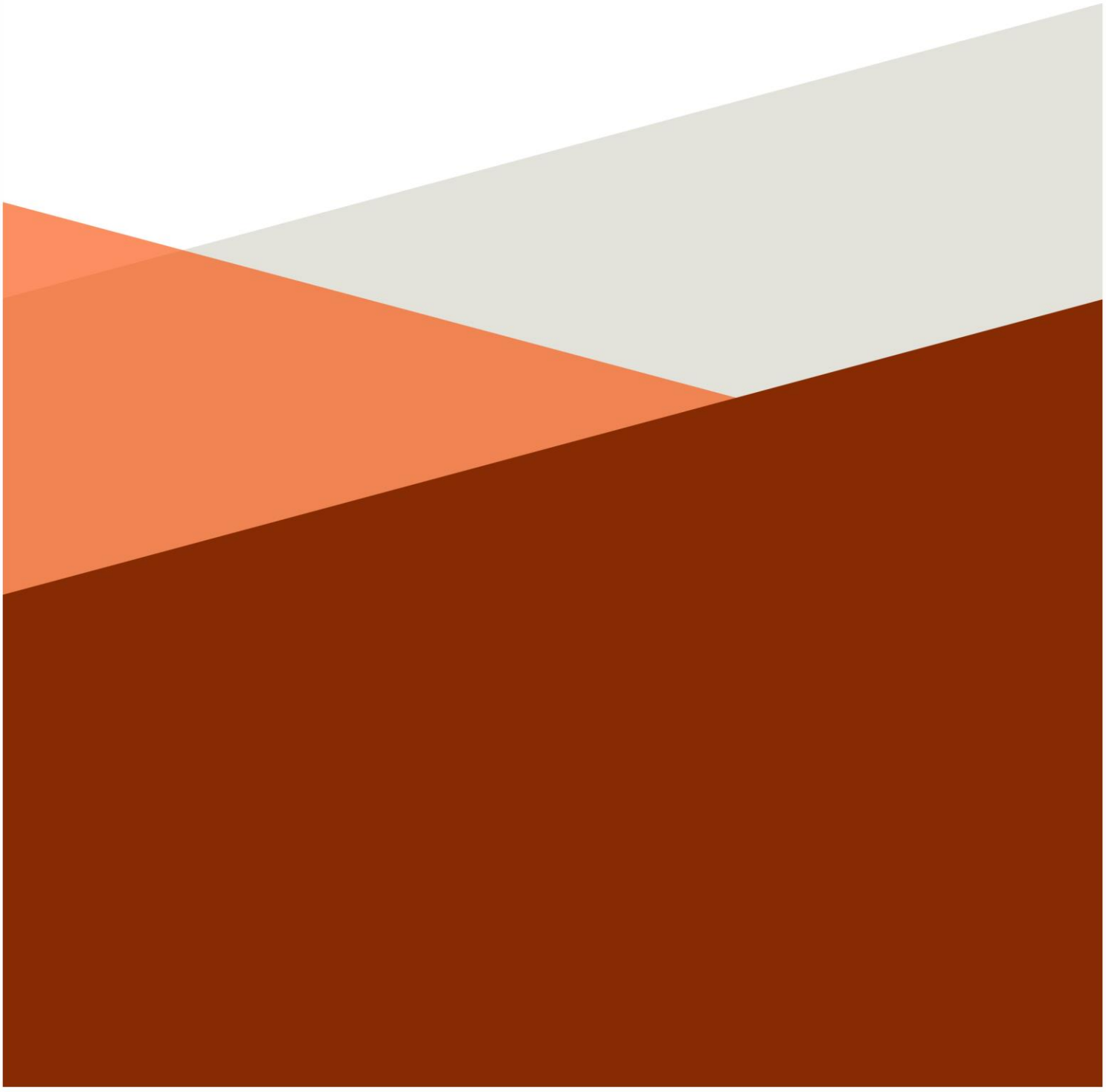
NCCA
An Chomhairle Náisiúnta Curaclaim agus Measúnachta
National Council for Curriculum and Assessment

# Brief for the review and redevelopment of Leaving Certificate Computer Science



# Brief for the review and redevelopment of Leaving Certificate Computer Science

NCCA has established a development group to undertake the task of redeveloping the curriculum specification for Leaving Certificate Computer Science. The work of the Development Group is, in general terms, agreed by the NCCA Board for Senior Cycle and approved by the Council in the form of the brief set out below.

This brief is designed to provide the basis for redeveloping the curriculum specification. The work of the Development Group is informed by the recommendations set out in the Report on the early enactment review of Leaving Certificate Computer Science (NCCA, 2023a), which resulted in an updated specification introduced to schools in September 2023. The work is also guided by the parameters for the design of assessment arrangements in the development of specifications for all Tranche 3 subjects (Appendix 1).

The redevelopment of the new specification for Leaving Certificate Computer Science will take account of current research and developments in the field of computer science education. It will remain student-centred and outcomes-based and, in general terms, the specification should be aligned with levels 4 and 5 of the National Framework of Qualifications.

The specification will align to the template, agreed by Council, for curriculum specifications as set out in the Technical form of curriculum specifications for subjects and modules in a redeveloped senior cycle (NCCA, 2023b).

The Senior Cycle Key Competencies will be embedded in the learning outcomes. Leaving Certificate Computer Science will be available at both Higher and Ordinary level. It will be designed to be taught and assessed in a minimum of 180 hours.

The development will be completed in Q2, 2026.

More specifically, the updating of the specification will consider and address the following:

- How the specification aligns with the guiding principles of senior cycle and the vision for senior cycle education.
- How the specification can support continuity and progression, including how to connect with and build on related learning at junior cycle, transition year and in other senior cycle subjects and modules as well as future learning in life, study, entrepreneurship, further education and training, higher education, apprenticeships, traineeships, and the world of work.
- How to widen the appeal of the subject and encourage broad uptake and participation.
- How to make the curriculum more inclusive.

- How to embrace and embed emerging ideas and technologies in teaching, learning and assessment, while remaining open to the constantly evolving landscape of computer science.

- The clarity of the *Students learn about* column and *Students should be able to* column, with particular regard initially to those areas identified in Appendix 2 of the early enactment review.
- How the specification, in its presentation and language register, can be more strongly student-centred and have a clear focus on how students develop and demonstrate key competencies.
- How to develop assessment arrangements that are aligned to the parameters for the design of assessment arrangements in the development of specifications for all Tranche 3 subjects (Appendix 1).
- How the specification, in its presentation, can support teachers in planning for teaching, learning and assessment.

The work of the Leaving Certificate Computer Science Development Group will be based, in the first instance, on this brief. In the course of the work and deliberations of the Development Group, elaborations of some of these points and additional points may be added to the brief.

# References

National Council for Curriculum and Assessment (NCCA) 2023a. Report on the *early enactment review of Leaving Certificate Computer Science*. [accessed September 2024]

National Council for Curriculum and Assessment (NCCA) 2023b. *Technical form curriculum specifications for subjects and modules in a redeveloped senior cycle* [accessed September 2024]

# Appendix 1: Overarching parameters for the design of assessment arrangements in the development of specifications for all Tranche 3 subjects

1. **Executive summary**
    - The Minister for Education announced an update on September 20, 2023, on the approach to be taken to the introduction of new and revised subject specifications including how assessment would be addressed in those specifications. Specifically, each subject shall have an assessment component in addition to the final written examination.
    - This assessment component (an AAC) will be worth at least 40% of the total available marks.
    - Each subject is to have one written examination; typically marks for the written examination will be 60%,
    - Typically, there should be two assessment components: One written examination and one other assessment component (an AAC).

- More than one AAC or written examination may be justified in exceptional circumstances and after extensive consideration of the overall assessment load on students. Such exception, however, would be based on strong, clear evidence that a second AAC or a second written paper in the final examination is essential to assess student learning which cannot be achieved through a single AAC and a single written examination paper.

2. **Introduction**

This document outlines the overarching assessment arrangements and parameters to guide the design of specifications for all Tranche 3 subjects which include:

- Agricultural Science
- Computer Science
- Design and Communication Graphics
- History
- Home Economics
- Mathematics
- Music
- Physics and Chemistry.

This advice is informed by ongoing work with Tranche 1 and 2 subjects and will be amended, as appropriate, for future tranches which may take account of their subject areas and existing assessment arrangements.

The arrangements as detailed here reflect the policy direction issued by the Minister of Education that all subjects will have an assessment component, to be in a form that is not a traditional written examination, for those components to be set and assessed by the SEC and thereby lead to a reduced emphasis on final examinations in June of 6th year.

Specifically, the arrangements for all assessment components as outlined in this document are framed by the Minister's announcement(s) on March 29, 2022, and subsequently on September 20 2023. Underpinned by the following understandings, the assessment components:

- will not take the form of traditional written examinations.
- will be set and marked by the SEC.
- will be subject to SEC arrangements for their completion, authentication, and submission.

In developing the arrangements outlined below, the following rationale for moving towards all subjects having another assessment component is central. This rationale is informed by deliberations on research commissioned by the NCCA and the SEC, and on the assessment literature more generally. From this work, it is evident that these components have the potential to:

- **Reduce dependence** on written summative examinations and therefore provide for a **broader assessment system**; written examinations have an important role but can be seen as a 'snapshot' of learning and can lead to teaching and learning having an excessive focus on examination preparation; other forms of assessment can mitigate the potential for this narrowing of learning by assessing aspects of student learning better and/or more comprehensively than written examinations alone can do; or assess learning that is not readily assessable through written examinations.
- Support and enhance teachers' understanding and assessment of **key competencies** by contributing to a greater understanding of how students' knowledge, skills, values, and dispositions are assessed.
- Provide opportunities for students and teachers to **reflect on student learning,** boost students' motivation to learn and enhance opportunities for formative feedback practices.
- Extend the range and diversity of assessment opportunities; including **spreading the assessment load** over the course of the last two years of senior cycle and thus contribute to a reduction in or spreading of pressure on students.
- Build and develop **teachers' assessment skills and assessment literacy** as teachers support students in working through the assessment activities as detailed within assessment briefs or guidelines.
- Generate student assessment data which can help reduce the vulnerability of the system to future unprecedented or unexpected system shocks such as COVID.
- Allow for assessment opportunities that are more **authentic** than a system relying on terminal written examinations solely.

It is also important to note that a review of the assessment literature more generally also indicates that when introducing other assessment components, it is necessary to consider how to mitigate risks, for example, of:

- over-assessment of students
- over-rehearsal of assessments
- the assessments becoming overly structured, compartmentalised, repetitive, and routine.

As is already the case where other forms of assessment apply, the new assessment arrangements will be guided by the overarching principles of equity, fairness, and integrity.

In addition, at a programme wide level (i.e. taking account of all subjects and modules implemented across schools), it is necessary to have regard to the overall assessment load on students primarily as well as on schools more generally. Whilst it can be expected that SDGs might focus on the approach to assessment in their own subject initially, they are encouraged to be mindful of the overall assessment load across all subjects and modules. Such programme level considerations will also include the methods of assessment being undertaken. As stated above more than one AAC or written examination may be justified in exceptional circumstances and the following section outlines the process for such cases.

## 3. Process

This section sets out the process through which a variation to the parameters defined in this document will be considered and decided upon; for example, an additional AAC or a second final written examination.

1. Following extensive discussion by the SDG and after exploration of a range of options for a single suitable AAC/single written examination for the subject, the NCCA Executive generates a written note setting out the strong, clear case being made by the Development Group.
2. The written case is agreed and signed off by the Development Group.
3. The written case is discussed with the Board for Senior Cycle.
4. The written case is discussed with the Council. On foot of this discussion, the Council decides whether or not to send the case forward to the Department.

   a) Having considered the importance of managing and spreading the assessment load for students, if the Council decides that the case isn't sufficiently strong to merit consideration by the Department, the Council requests the Development Group to work on the basis of one AAC and one written examination.

   OR

   b) Having considered the importance of managing and spreading the assessment load for students, if the Council decides that the case is sufficiently strong to merit consideration by the Department, the Council agrees to send the case forward to the Department of Education.
5. In the case of 4b, the written case is sent to the Senior Cycle Redevelopment Programme Management Office (SCRPMO) in the Department of Education for consideration and response.
6. The Department may convene the Senior Cycle Redevelopment Implementation Group (SCRIG) to support its consideration of the request for a variation. The SCRIG is a Department-led structure established to provide oversight and support the co-ordination of work across the key agencies/organisations contributing to the redevelopment of senior cycle. Its members include senior officials from the Department (Curriculum and Assessment Policy Unit, Inspectorate, Teacher Professional Learning [TPL]), NCCA, SEC and Oide.
7. The Department decides to support or decline the request for the variation sought and communicates its decision in writing to the NCCA in a timely manner.
8. The Subject Development Group progresses its work in line with the Council's response (arising from 4a) or the Department's response (arising from 4b and 7).

## 4. Timelines

The process outlined above will require time. Such time, if involving a number of weeks, could have significant implications for the timeline for specific stages of work on the subject specification and/or the overall completion of the specification ahead of sending it to the Department for consideration. This time factor may necessitate NCCA organising additional online meetings of the Board for Senior Cycle and the Council in order to ensure the development work remains within the overall timelines.

Table 1 below sets out the general parameters and processes to guide the work of the subject development groups (SDG) as they consider the most appropriate assessment for each subject. The specific parameters for each of the Tranche 3 subjects are set out in Table 2.

**Table 1: Assessment parameters and processes – general application to tranche 3 subjects**

| Considerations | Parameters to guide the work of the development group. |
|---|---|
| **Nature** | The purpose and nature of the assessment component will be clearly outlined in the subject specification and accompanying guidelines to support the completion of the assessment. Details will be provided on the nature of the component. Existing examples include:<br>• research project/extended essay<br>• oral assessment<br>• performance assessment<br>• portfolio assessment<br>• creation of an artefact<br>• field study<br>• experiment/ proof of concept/ practical investigation.<br><br>The subject specification and the accompanying guidelines will articulate clearly what the students are required to do, the form(s) in which it can be carried out and submitted, and the workload expectations associated with the assessment. The alignment of the assessment component to a particular set of learning outcomes from the subject specification will be provided, as well as details on which key competencies and associated learning outcomes will be assessed. This does not preclude the same LOs from being assessed in the final examination. |
| **Weighting** | The assessment component in each subject will be worth at least 40% of the total available marks. |
| **Timing** | The SDG will advise on the time required for the carrying out of the assessment component across the course of study. |
| **Completion and Submission** | While the SDG may suggest when this may occur (as referenced above having regard to the assessment load on students in particular), a final decision will be made by the SEC following consideration of the overall schedule of completion dates for all assessments across all subjects. This will be finalised by the SEC following engagement with the NCCA and DE.<br><br>The dates for final completion and\or submission of the assessment component by the student will be published by the SEC and this detail will not be included in the subject specification. (See table 1 below in relation to Mathematics also) |
| **Design** | The majority of assessment components will result in a completed item that is materially different to a traditional written examination and which tests different competencies being transmitted to the SEC and assessed by the SEC.<br><br>In some instances, the design of the assessment may require examiners to visit schools to conduct the assessment but manageability at school and system level will need to be considered. |

| | |
|---|---|
| **Guidance** | Guidelines to support the assessment components will be specific to each subject. These guidelines will be developed collaboratively by the NCCA and SEC. They will be informed by the deliberations of the SDG during the development of the specification and will detail:<br>• the purpose of the component concerned i.e., what it is intended to assess.<br>• the nature of the assessment component/activity.<br>• descriptors of quality in the form of a graduated rubric and details on assessment standards at higher and ordinary levels if deemed necessary by the assessment method.<br>• details on the timing of the assessment (its duration and when it could happen).<br>• guidance on the processes that may be used for the administration of the assessment. |

**Table 2: Parameters for assessment arrangements for each Tranche 3 subject**

| Subject | Current arrangements | Parameters for new assessment arrangements |
|---|---|---|
| **Agricultural Science** | Written examination is 2.5 hours duration for higher level and ordinary level students and is awarded 300 of the 400 marks available (75%).<br><br>Coursework is an Individual Investigative Study, which is done in response to a common brief from SEC and is worth 100 marks (25%). | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component would be based on one submission to SEC in response to a common brief. |
| **Computer Science** | The final examination is worth 70% and is 2.5 hours duration on one day towards the end of May. There is a paper-based element (1.5 hrs.; 130 marks) followed by a computer-based element (I hr.; 80 marks).<br><br>The coursework is worth 30% of the final marks. The common brief is released in December of 6th year and a report and summary video (90 marks) is typically submitted in March of 6th year. This is completed over a 10-week period.<br><br>Coursework and practical are set at a common level but are graded in line with the standards that apply to the level at which the candidate sits the written examination. | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component would be based on one submission to SEC in response to a common brief. |

| | | |
|---|---|---|
| | Written examination is examined at higher and ordinary levels. | |
| **Design and Communication Graphics** | Written examination has 1 paper worth 240 marks which is 60% of the marks available. This paper is 3 hours in duration.<br><br>Written examination is examined at higher and ordinary levels.<br><br>Student assignment is worth 160 marks which is 40% of the marks available.<br>The student assignment at higher level differs from the student assignment at ordinary level with a different brief set for HL and OL students. There are 9 outputs required in a portfolio for both levels with the HL page limit set at 14 pages and OL page limit 12 pages. | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component would be based on one submission to SEC in response to a common brief. |
| **History** | Written examination is worth 80% of the total marks available, and the exam is 2 hour 50 minutes in duration.<br><br>Coursework is a Research Study Report (RSR) and is allocated the remaining 20%. There is a different word count for HL and OL students, with the OL word count set at 800 words and the HL word count set at 1600. | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component would be based on one submission to SEC in response to a common brief. |
| **Home Economics** | Written examination is 2 hr 30 minutes duration and worth 280 or 320 marks (out of 400) depending on the elective chosen.<br><br>For students who choose the **Home Design and Management** or **Social Studies** electives, the written examination is worth 80% and the **Food Studies Coursework** is worth 20%.<br><br>For those who choose the **Textile Fashion and Design** elective, the written exam is worth 70%; the **Food Studies Coursework** is worth 20% and the **TFD Coursework** is allocated 10%.<br><br>**Food Studies Coursework** is based on 4 assignments completed by the | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component would be based on one submission to SEC in response to a common brief. |

| | | |
|---|---|---|
| | beginning of November of 6th year and submitted to the SEC. | |
| **Mathematics** | There are 2 written papers that are worth the full allocation of marks.<br><br>Paper 1: HL OL and FL is 2.5 hrs duration.<br><br>Paper 2: Hl and OL 2.5 hrs duration. | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher ordinary and foundation levels and it would be expected to take the form of a single paper<br><br>Assessment component would be based on one submission to SEC in response to a common brief. Assessment component to be completed in Year 1 of the two-year programme. |
| **Music** | There are 3 areas for assessment:<br><br>Composing element is worth 25% and assessed by a written paper of 1.5 hours duration.<br>Performing element is worth 25% and is assessed by a performance of 3 or 4 pieces depending on the selection of one performance format or 2.<br>Listening element is worth 25% and is assessed by an aural exam and written paper of 1.5 hours duration.<br><br>HL Elective: Higher level students select one of the 3 areas above and choose to increase mark allocation to 50% by including an additional assessment activity.<br><br>For ordinary level students, their best mark in one out of the three areas is doubled to reach 100%-mark allocation. | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component will be based on a brief issued by the SEC. |
| **Physics and Chemistry** | Written paper at HL and OL worth full mark allocation of 400 marks. 3-hour paper.<br>Section 1 Physics worth 200 marks.<br>Section 2 Chemistry worth 200 marks. | Written examination: typically, 60% weighting.<br><br>Assessment component: minimum 40% weighting.<br><br>Written examination will be set at higher and ordinary levels.<br><br>Assessment component would be based on one submission to SEC in response to a common brief. |

Whilst an AAC in each subject must have a minimum weighting of 40%; an SDG may propose a weighting of 50%. In these circumstances, the process outlined at Section 3 above will apply to determine if such a weighting receives further consideration as to whether it shall be applied or not. It would not be anticipated that an SDG would seek to apply a weighting to the AAC above this level.

NCCA

An Chomhairle Náisiúnta
Curaclaim agus Measúnachta
National Council for
Curriculum and Assessment