

Subject-specific guidance

Overview

This section covers individual subjects' requirements for the extended essay (EE) in terms of:

- Choice of topic
- Treatment of topic
- Assessment:
 - Criterion A: focus and method
 - Criterion B: knowledge and understanding
 - Criterion C: critical thinking
 - Criterion D: presentation
 - Criterion E: engagement.

It assumes that teachers are already familiar with the EE generic guide and the EE teacher support material, in particular the process whereby students choose a subject area and topic, write their research question and select the research method(s) they will use to explore and answer it.

For a full summary, see the process diagram and the generic assessment criteria.

Or for a quick refresher, read [Extended essay: general requirements](#) .

General requirements

The EE is an in-depth study of a focused topic. It gives students the opportunity to:

- engage in independent research with intellectual initiative, creativity and rigour
- develop research, thinking, self-management and communication skills
- reflect on what they have learned throughout the research and writing process.

All students must:

- provide a logical and coherent rationale for their choice of topic
- review what has already been written about the topic
- formulate a clear research question
- offer a concrete description of the methods they use to investigate the question
- generate reasoned interpretations and conclusions based on their reading and independent research in order to answer the question.

Choice of topic

See also *Initial guidance on research and writing*

Students first need to identify the broad area of inquiry they are interested in.

Sources of ideas may include:

- work already undertaken as part of the course
- preliminary reading of academic journals and reputable scholarly e-resources, eg conference papers, essays, book chapters or journal articles. A school librarian can advise on this
- conversations with teachers, fellow students and librarians.

Literature review

Students should try to read as much as they can of what has already been written about their topic. Time spent on a literature review early on in the research process will guide and improve their work. It will help them to:

- contextualize their research question and subsequent findings
- meet criterion B: demonstrating knowledge and understanding .

While conducting their literature review, students may find it useful to compile an annotated bibliography and to record their responses to what they read in their researcher's reflection space (RRS).

If using the internet, students are encouraged to use specialized academic search engines that will find resources appropriate for citation in the EE.

Students must be aware of their responsibilities to cite properly the resources they use and to check their work for plagiarism. Their citations should adhere to [the requirements of the IB](#) and be consistently applied.

Research question

Students should identify a **working** research question early on but be prepared to change, eg if too little information is available to permit the intended investigation.

Students should be guided by the idea that what they are writing is important because:

- it seeks to fill a gap in understanding their chosen topic, or
- it offers a resolution to some controversial argument.

The research question should therefore be non-trivial and follow from the existing body of literature on the topic. It must be:

- specific, sharply focused and capable of being answered within a 4,000-word essay
- stated clearly in the introduction of the essay and on the title page
- related to the chosen topic.

Students need to avoid researching questions that are too narrow or too obvious as this will limit their ability to formulate reasoned arguments.

Their answer to the question must be analytical rather than descriptive.

Title

The title is a formal requirement on the title page of the essay. If the title is missing, it will be considered on balance with the other formal requirements against criterion D. While there is no explicit penalty in criterion A, the title will help address the requirements as it expands on the student's intended focus. Without a title, students lose an opportunity to clarify their focus.

Treatment of the topic

Once students have identified their topic and written their research question, they can decide how to research their answer. They may find it helpful to write a statement outlining their broad approach.

The definition of "research" and terms such as "primary data" and "secondary data" varies from subject to subject.

In some subjects, students must use both primary and secondary data. In others, students may, or even must, rely exclusively on secondary data.

However, all students must carry out secondary research in terms of a literature review for their topic.

Two important reminders

1. Undertaking an extended essay is a challenge. Planning is crucial. Students need to start writing their papers early and discuss any emerging difficulties with their supervisor. As well as their supervisors, librarians are a great source of information, advice and support for students.
2. Students risk their diploma if found guilty of academic misconduct:

Individuals and societies

Individuals and societies

An extended essay (EE) in individuals and societies is intended for students who are interested in undertaking research in an area of business management, economics, geography, global politics, history, ITGS, philosophy, psychology, social and cultural anthropology or world religions.

The individuals and societies EE is intended to encourage the systematic and critical study of:

- human experience and behaviour
- physical, economic and social environments
- the history and development of social and cultural institutions.

Students' choice of topic should enable them to recognize that the content and methodologies of the subjects are contestable and that their study requires critical thinking.

Students must have sufficient grounding in the subject under which they submit their essay: reading a textbook or consulting an encyclopedia while writing the EE will not compensate for a lack of proper background knowledge.

For a longer general introduction to the subject areas of individual societies see [Individuals and societies: An introduction](#)

Information technology in a global society (ITGS): Subject-specific guidance

See also: EE generic guide and EE teacher support material

Overview

Information technology in a global society (ITGS) focuses on the systematic and critical study of the relationship between information and communication technologies (IT systems) and individuals and society.

ITGS requires:

- sufficient technical knowledge of IT systems in the context in which they are being considered
- an understanding of their impacts on stakeholders.

The issues are often ethical—eg arising from the development, implementation, use or disposal of IT systems—and require informed decision-making.

An ITGS EE offers students an opportunity to:

- undertake research in a ITGS-related topic of personal interest
- develop research skills
- expand their technical understanding of IT
- study an IT system in a real-world scenario
- analyse its impact on individuals, organizations or society in general.

Choice of topic

IT's rapid development, global reach and emerging social and ethical considerations offer ITGS students huge scope in their choice of topic. Students have the opportunity to be innovative in their research in ways that few other subject areas can match.

The choice of topic may emerge from many sources including:

- a news article
- current use of IT system(s)
- issues discussed in class
- personal interest.

The topic must focus on the impact of an IT system or a specific issue that has ITGS at its core. A topic with only an incidental mention of an IT system or that focuses on another technology is not suitable for an ITGS EE.

Students must demonstrate in-depth knowledge of some aspect of IT and its impacts. Their level of expertise must go well beyond general knowledge. They should be able to use IT terminology and concepts competently. Students' explanation of the particular IT system must be supported with appropriate research, including visual evidence.

Sources of information

Students' essays will include evidence obtained from:

- the internet
- books
- newspapers and magazines
- media broadcasts
- publications from expert sources.

The essay will also include primary evidence collected by the student.

Students' sources should be reliable. The essay will, therefore, include some critical analysis of the evidence.

Research question

In choosing their topic, students are strongly advised to concentrate on developing a research question, carrying out relevant primary research, in which the students collect their own data, and secondary research, and applying ITGS theory, tools and techniques.

It is important that the research question is sufficiently focused to allow adequate treatment within the word limit.

Students should avoid topics that depend entirely on summarizing general secondary data, as they are likely to lead to an essay that is essentially narrative or descriptive in nature.

However, students who make effective use of relevant secondary data and primary data in answering the research question will achieve the highest marks.

Students can collect primary data using a wide range of research methods, including:

- investigations
- experiments
- interviews
- other formal research methods.

Students are encouraged to research a current issue. A successful essay will concentrate on one issue, but the issue should be significant enough to require a wide variety of suitable evidence.

Examples of topics

These examples are just for guidance. Students must ensure their choice of topic is focused (left-hand column) rather than broad (right-hand column).

✓	✗
Focused topics	Broad topics
An examination of the extent to which government surveillance cameras in Britain invade privacy and prevent crime	Surveillance cameras and the threat to privacy
Exploring the impact of gamification in the teaching and learning of MYP history at XXX School	Improvements in teaching and learning with gamification
An evaluation of the effectiveness of measures taken to protect online customers of the XXX Bank	Prevention of hacking for online bank accounts
An investigation into the impacts of video gaming on the South Korean culture	The impacts of video games
The extent to which IT monitoring devices have provided a safe environment for mineworkers in Antamina, Peru	IT monitoring devices for mineworkers
An investigation into the use of individual digital footprints by employers in the UK	Digital footprints in the UK

It is essential that the ITGS research topic is based on an issue or impact relating to an IT system or IT systems. This means that the IT system(s) must involve some form of data processing.

EEs that only focus on a technology or on a science topic or are speculative in nature are not suitable for ITGS essays. Similarly, an essay that has a social problem as its focus with only tenuous relevance to an IT system is unlikely to have sufficient depth.

Treatment of the topic

Level of understanding of IT

The ITGS EE is not an exercise in demonstrating IT skills, but students must clearly show in-depth understanding of the IT system in the chosen topic. Students who do not have well-developed IT practical skills or who are not taking ITGS as one of their Diploma Programme subjects are unlikely to show the level of insight that is required for the highest levels of attainment.

However, students should only include program code, mark-up codes (eg HTML) or detailed electronics to support their argument. They should not make such technical expertise the focus of their essay.

Examples of topics, research questions and suggested approaches

Once students have identified their topic and written their research question, they can decide how to research their answer. They may find it helpful to write a statement outlining their broad approach. These examples are for guidance only.

Topic	Impacts of specific IT systems in a school environment
Research question	How have IT systems been used to improve the performance of the XXX School cycling team?
Approach	<p>Secondary research and primary research includes:</p> <ul style="list-style-type: none"> • Research into the specific IT systems that are used by the XXX School cycling team to improve performance during training and competitions, including diagrams, images, terminology and explanations that go beyond common knowledge. • Evidence collected from manufacturers, professional persons and teams involved in cycling and situations similar to the XXX School cycling team about how these specific IT systems have been used to improve performance in cycling. • Analysis of the extent to which the IT systems have improved performance on the XXX School cycling team based on the data collected from interviews with the cycling team coaches and quantitative data collected from the cycling team. Specific performance tests for the purpose of the EE conducted with cycling team members.

Topic	Impacts of using the da Vinci Surgical System in a hospital
Research question	To what extent is the <i>da Vinci</i> Surgical System reliable and effective in the XXX Hospital?
Approach	<p>Secondary research and primary research includes:</p> <ul style="list-style-type: none"> • Presentation of the <i>da Vinci</i> Surgical System including annotated images and photographs, terminology and description and explanation of how the system has been implemented and is used during medical operations at XXX Hospital. • Evidence from professional medical journals, manufacturers, online video demonstrations and articles written by doctors who use the <i>da Vinci</i> Surgical System. • The researcher has permission to photograph the specific <i>da Vinci</i> Surgical System used in XXX Hospital and observe an actual demonstration of how the IT system is used. • Interviews conducted with the XXX Hospital doctors and professional staff who use the system. • Questionnaires are emailed to doctors who use the <i>da Vinci</i> Surgical System in the region in order for comparisons to be made with the information collected from doctors in XXX Hospital and the evidence collected from professional sources.

Topic	Impacts of Google Street View on individuals
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Research question	To what extent does Google Street View invade the privacy and anonymity of individuals?
Approach	<p>Secondary research and primary research:</p> <ul style="list-style-type: none"> • Explanation of the IT systems that Google Street View uses for capturing street view images in both cities and rural areas worldwide. The edited images are made accessible through Google Maps and Google Earth. The background of the research question is supported by pictures of the Google equipment taking street view images, maps of locations, examples of images taken and details of the specific IT systems used. • Evidence collected from reliable sources to show how Google has to some extent invaded some individual's privacy and anonymity with an explanation of how and where this has occurred and the issues involved. • Google policy statements considered with respect to the methods Google uses, the images that are made publicly available and the legal cases that have emerged. • Evidence of actions taken by Google, governments and individuals to protect privacy and anonymity and their effectiveness are supported by research.

An important note on “double-dipping”

Students must ensure that their EE does not duplicate other work they are submitting for the Diploma Programme. The essay may not in any way be related to assessed material in any of their other IB subjects or TOK or to CAS activities.

The EE and IA

An EE in ITGS is not an extension of the internal assessment (IA) task. Students must ensure that they understand the differences between the two.

- The ITGS project is focused on developing an actual IT product for a client to address the client's specific need or problem. However, the ITGS EE is based upon the research of an impact or issue relating to IT system(s) that has ITGS at its core.
- In an ITGS EE hands-on investigations may be used to explain the IT system(s), how the impacts or issue evolved or possible solutions for the issue. IT tools are not used in the EE to develop a product.
- The ITGS project involves investigating what IT products have been implemented in similar scenarios and how specific IT tools can be used to develop the product. However, research for the ITGS EE involves research and investigation relating to the specific IT system, the related impacts or issues.

Supervisors play an important role here in guiding students on these distinctions. Students risk their diploma if academic misconduct is found.

Interpreting the EE assessment criteria

Criterion A: Focus and method

(Strands: Topic, Research question, Methodology)

The ITGS topic and research question should focus on how an IT system affects particular stakeholders in a specific situation. The question will contain aspects of the “ITGS triangle”:

- particular scenario
- IT system
- specific social and ethical considerations.

A research question that is focused on only an IT system or a new computer-based technology is unlikely to be successful. It also needs to be noted that not all “technologies” are computer-based technologies and may not be relevant to the ITGS EE.

The research question should be concisely stated as a question and must be able to be effectively addressed within the 4,000-word limit. The research question must be placed in an academic context stating the significance of the topic and why it is worthy of investigation.

Research questions that are focused on a particular situation and context (eg school, organization or business) must be thoroughly researched using both secondary and primary resources. For example, school-based topics limit the scope of the investigation to the particular school setting.

Students must first consult sufficient secondary research. This should include a range of relevant sources, including the internet, books, newspapers and magazines.

Students can use primary research methods and investigations to further develop the research question with a view to explaining the related IT systems and for comparisons with findings from secondary research.

Primary research may include:

- first-hand investigations
- interviews
- surveys
- other data collection methods.

Students must clearly explain within the body of the essay the methodologies they use for primary research.

Students must also be aware of the correct processes to use for collecting, analysing, presenting and citing the type of data they have collected. They must make appropriate evidence from their primary research available in the appendices using accepted techniques.

The secondary research and primary research must provide sufficient evidence for students to develop an argument and support their conclusion to the research question.