ST. JOSEPH'S INSTITUTION INTERNATIONAL MALAYSIA

ITGS HANDBOOK 2017-18

Why study ITGS?

Unlike more familiar school subjects it is inherently interdisciplinary, ITGS emphasizes social/ethical issues, and yet requires enough technical knowledge to make judgements about the use of the technology. This multi-faceted focus on critical 21st century issues makes ITGS relevant and exciting for students.

ITGS is a subject that:

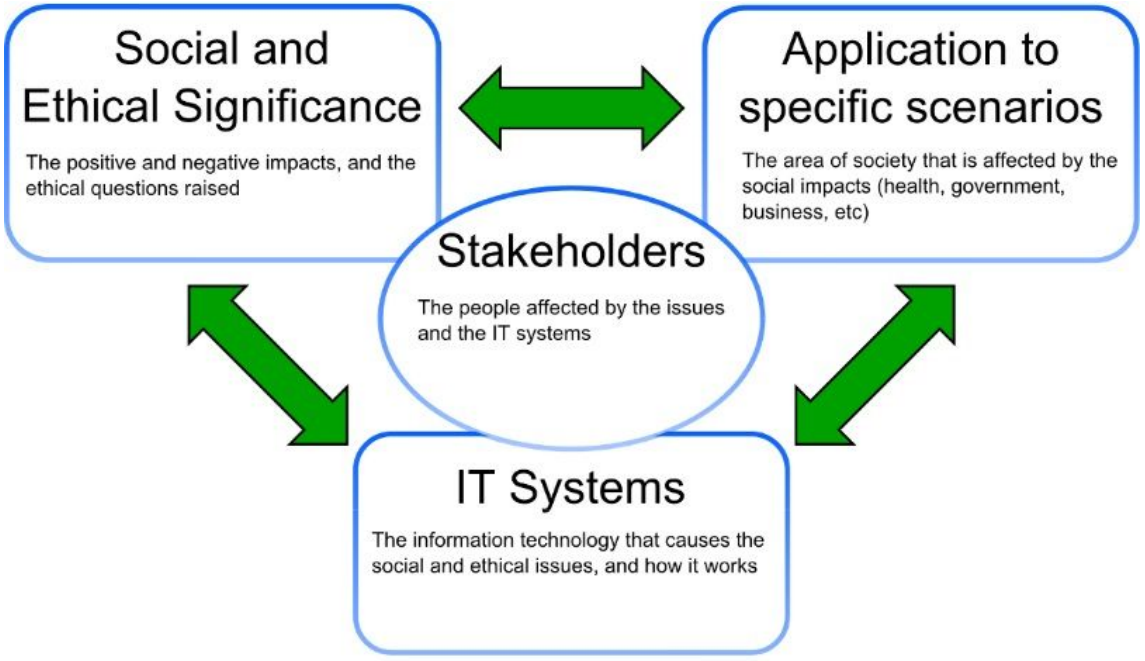
- focuses on the systematic and critical study of human experience and behaviour relating to the relationship between human beings and information and communication technologies (IT systems).
- Requires students to have sufficient technical knowledge of IT systems to be able to make informed decisions about their use (digital wisdom in contrast to digital literacy).
- Discusses the moral and ethical issues leading to informed decisions being made about the development, implementation, use and disposal of IT systems.
- Discusses the social impacts that may result from the development, implementation, use and disposal of IT systems.
- Requires students to be able to competently use a range of digital technologies (digital literacy).
- ITGS, which is focussed on the social impacts of IT systems, is significantly different to Computer Science which is a focused on the fundamental conc

As a subject, it would benefit many students as it provides a opportunities for students to apply knowledge and understanding from other subjects in a technology based context. Understanding the technology that underpins the work in other subjects. ITGS provides a multidisciplinary approach that emphasises critical analysis.

At SJII Malaysia, ITGS is offered at both higher level (HL) and standard level (SL).

Approaches to teaching and learning in ITGS

ITGS revolves around the 'ITGS triangle'.



The triangle acts as a 'lens' through which the course content is viewed and appreciated. Central to debates and discussions within ITGS is how technology affects people in societies. Themes such as automation, consumerization and the 'have/have not divide' underpin and influence many of the topics covered. Due to the nature of the subject, these discussions are typically generated by current news stories.

The ITGS course is designed and intended to be taught in **two years** in order to adequately investigate the topics in the guide and complete the ITGS project. The ITGS Project is the internal assessment component of the course.

What is taught in ITGS?

The topics covered will typically be related to a current theme or recent event. Generic topics include;

- Multimedia/digital media,
- Databases,
- Spreadsheets, modelling and simulations,
- Project management
- Security and Privacy
- IT Systems

Although IT skills are not practically assessed in the externally assessed components, they may be assessed theoretically. For example, if a student who attempts a question on spreadsheets has created a spreadsheet that uses the function being assessed, that student will probably do better than one who has not, as the practical exercises will reinforce the theory addressed in class. The practical activities carried out in these topics may also help the student in their choice of software

for the development of the project.

ITGS provides a framework for the student to make informed judgments and decisions about the use of IT within social contexts. Although ITGS shares methods of critical investigation and analysis with other social sciences, it also considers social and ethical considerations that are common to other subjects in group 3. Students come into contact with IT on a daily basis because it is so pervasive in the world in which we live. This increasingly widespread use of IT inevitably raises important questions with regard to the social and ethical considerations that shape our society today. ITGS offers an opportunity for a systematic study of these considerations, whose range is such that they fall outside the scope of any other single discipline.

In addition to the aims of all subjects in group 3, individuals and societies, the aims of the information technology in a global society (ITGS) course at SL and HL are to:

• enable the student to evaluate social and ethical considerations arising from the widespread use of IT by individuals, families, communities, organizations and societies at the local and global level

• develop the student's understanding of the capabilities of current and emerging IT systems and to evaluate their impact on a range of stakeholders

• enable students to apply their knowledge of existing IT systems to various scenarios and to make informed judgments about the effects of IT developments on them

• encourage students to use their knowledge of IT systems and practical IT skills to justify IT solutions for a specified client or end-user

Students will acquire understanding through a wide range of opportunities including;

Inquiry – research of current news articles, such as recent cyber attacks provides students with a meaningful, current and relevant context in which to understand the impact of technology on people's lives.

Emphasising concepts – themes such as automation are multi-faceted and need to be examined in a wide variety of context and understanding how technology evolves and who directs this evolvement.

Real life situations - students will visit and conference with local and regional industry experts and inquiry into the daily challenges that present in careers in the technology sector.

Development of independence – your teacher will set challenging tasks to do on your own, and have high expectations of you, so they will help you to develop their self-management skills

Assessment – your teacher will use a variety of assessment methods and give feedback in different ways; he or she will also expect you to be able to assess your own and your classmates' work in a useful way. The aim is that you will not simply be looking to see what marks you have got – but what you *need to do next in order to improve.*

ITGS and the IB learner profile

While you progress through your diploma programme studies and activities, you will develop a number of attributes. The IB calls this the IB "learner profile". This table shows you what the

learner profile attributes are and some examples of how ITGS can help you develop these, taken from the AI topic.

We hope you will become …	**Example in ITGS**
Inquirers	Students should wish to **research** how AI (Artificial Intelligence) was developed. When did science fiction become *real*?
Knowledgeable	Students will **build up knowledge** from investigating the technology and devices used to create AI. Recent advances and the rationale behind them would be considered.
Thinkers	Students will need to **understand** how computers work in general so that they are more able to identify the constraints to solving a problem with a technology solution and to see the opportunities and potentials.
Communicators	Students will **verbally communicate** ideas, research findings, opinions and judgements. They will **write** discussion articles that will be shared and help contribute to a classroom discussion. Many topics in ITGS are not black or white (so to speak), they are 'grey', and as such listening to ideas and sharing ideas provides a more thorough consideration of the argument or proposal.
Open-minded	Students need to consider the influence to **all** members of a society and not just the produces or direct consumers of technology.
Risk-takers	Students will need to uphold the principles they have developed **even though this may generate disagreement** with their peers.
Balanced	The topic contributes to the students' **whole IB education**.
Reflective	In particular, students will be able to **evaluate** whether recent developments benefit society.

Topics studied

The generic topics and the practical aspects of course all full under one or more of the three strands that make up the ITGS triangle. These are;

Strand One: Social and Ethical Issues	Strand Two: Application of IT	Strand Three: IT Systems
1.1 Reliability and integrity	2.1 Business and Employment	3.1 Hardware
1.2 Security	2.2 Education and Training	3.2 Software

1.3 Privacy and anonymity	2.3 Environment	3.3 Networks
1.4 Intellectual property	2.4 Health	3.4 Internet
1.5 Authenticity	2.5 Home and Leisure	3.5 Personal and Public Communications
1.6 The digital divide and equality of access	2.6 Government and Politics	3.6 Multimedia/Digital Media
1.7 Surveillance		3.7 Databases
1.8 Globalization and cultural diversity		3.8 Spreadsheets, Modelling and Simulations
1.9 Policies		3.9 Introduction to Project Management
1.10 Standards and protocols		HL Extension 3.10 IT Systems in Organizations
1.11 People and machines		HL Extension 3.11 Robotics, Artificial Intelligence and Expert Systems
1.12 Digital citizenship		HL Extension 3.12 Information systems specific to the annually issued case study

ITGS in the timetable at SJIIM

The IB requires 240 hours of teaching for HL and 150 hours of teaching for SL. At SJIIM, HL ITGS is allocated three double lessons per week and SL ITGS is allocated two double lessons per week.

It sometimes happens that HL and SL ITGS are taught in the same class. In this case, the teacher will let the SL students know when they do not need to come to lessons. Sometimes students will find they need to go to all three lessons in a week; sometimes they will only attend one or two of the lessons in a week and sometimes there will be periods of time when they will not be required to attend at all.

The IB ITGS course

ITGS, like all IB DP subjects, consists of two “components”.

The first of these is the theory and practical work taught during lessons, and which may be examined in the examination papers at the end of the course. Completed examination papers are sent to IB and marked by IB examiners.
The second of these is the ‘coursework’. In ITGS, this in an year long project in which students produce an ‘IT solution’ based on the needs of a ‘client’. The client maybe a staff member in the school. The student should work through the ‘Project Management Cycle’. The project submitted for internal assessment is different from the extended essay. The project is the development of an original product with supporting documentation, whereas the extended essay is about presenting a logical and coherent argument that is supported by secondary and primary research and the analysis of valid data.

Assessment information for the ITGS project

Summary of the internal assessment task
30 hours of class time
Individual collaboration with specified client
Individual documentation
2,000 words (maximum)
Marked by the teacher
Externally moderated
30% of total marks for SL; 20% of total marks for HL

Assessment in ITGS

An overview of how you will be assessed on the final set of skills and knowledge that you have acquired is as follows.

Standard level

Assessment objective	Paper 1	Paper 2	Internal assessment	Overall
1. Knowledge and understanding of specified content	20	10	8	38
2. Application and analysis	14	10	5	29
3. Synthesis and evaluation	6	10	4	20
4. Use of ITGS skills	n/a	n/a	13	13
Component weighting	**40%**	**30%**	**30%**	**100%**

Higher level

Assessment objective	Paper 1	Paper 2	Paper 3	Internal assessment	Overall
1. Knowledge and understanding of specified content	18	7	10	5	40
2. Application and analysis	12	7	8	3	30
3. Synthesis and evaluation	5	6	7	3	21
4. Use of ITGS skills	n/a	n/a	n/a	9	9
Component weighting	**35%**	**20%**	**25%**	**20%**	**100%**

ITGS course outline

This table reflects the topics covered but not necessarily the order in which they will be taught.

Year 1	Outline	Comments
Term 1	**Introduction to course** **Strand 1 (Social and ethical significance)** **Introduction to social and ethical issues through scenarios.** **Introduction to collaborative tools: use of Web 2.0 tools (for example, set up bookmarks in Delicious, Google Docs, use a wiki to collaborate).** **Strand 3 (IT systems)** **Personal and public communications (assumed knowledge of the internet).** **Strand 3** **Hardware, software and networks.** **Strand 1 and strand 2 (Application to specific scenarios)** **Use of specific scenarios developing social and ethical issues further. Business and employment.** **Approaches to paper 2** **Introducing the nature of the paper and discussing relevant articles.** **Strand 3** **Spreadsheets and databases.**	**Provides a general introduction to the course and uses a known situation to show links between the three strands of the subject.** **Introduces the ITGS triangle and provides the students with a basic understanding of information technologies.** **Throughout the course students are encouraged to discuss news articles focusing on ITGS terminology.** **Introduction to familiar applications.** **Study of necessary communication technologies, leading into business and employment.**

Term 2 & 3	**Strands 1 and 2** **Use of specific scenarios developing social and ethical issues further. Health.** **Strand 3** **Internet and multimedia/digital media.** **Strands 1 and 2** **Use of specific scenarios developing social and ethical issues further. Home and leisure.** **Approaches to paper 2** **Introduction to news items for common paper 2.** **Strands 1 and 2** **Use of specific scenarios developing social and ethical issues further. Environment.** **Practical linked to above: Databases, spreadsheets.** **Strand 3 and internal assessment** **Introduction to project management to enable the completion of the project.** **Complete proposal for project and ensure criteria A and B are met.**	**Starts to develop ideas and skills for students to use in their project.** **Paper 2 exercises will show how the three strands of the subject tie together.** **Addresses three more themes in strand 2, relating them to the other strands.** **Students should have technical skills (strand 3) to be able to complete the project.**
Year 2	**Outline**	**Comments**
Term 1	**Internal assessment Complete product and develop the documentation. First draft.** **Strands 1 and 2** **Use of specific scenarios developing social and ethical issues further. Education and training.** **Strand 3** **Modelling and simulation. Approaches to paper 2** **Further use of news items for common paper 2.** **Strands 1 and 2 - Use of specific scenarios developing social and ethical issues further. Politics and government.** **Internal assessment Complete project.**	**Completion of first draft of project.** **Completion of other two themes from strand 2.** **Appropriate coverage of social and ethical issues and a suitable range of specific situations are addressed.**

Term 2	**Mock examinations** **Internal assessment** **Final submission of project by students.** **Marking and submitting the project.** **Approaches to paper 2** **Further use of articles for common paper 2.** **Examination practice.** **Final preparation for external examinations.**	**Technical content is now complete.** **Focus switches to completion of final version of project and preparation of students for external examinations.**

ITGS resources

Textbooks

Information Technology in a Global Society for the IB Diploma - Stuart Gray

Books of interest in the school library

Who Controls the Internet; Illusions of a Borderless World - Jack Goldsmith and Tim Wu
A Gift of Fire; Social, legal and ethical issues for computing technology - Sara Base

Websites and apps

There are many websites and apps – not all of them reputable, so beware. Reputable and useful ones include:

BBC Click http://www.bbc.co.uk/programmes/b006m9ry
Online Textbook http://www.itgstextbook.com/
The Atlantic www.theatlantic.com/technology
New Scientist www.newscientist.com/topics