millennia institute

PROSPECTUS

A forward-looking community of Learners, Thinkers and Leaders.

PRINCIPAL'S MESSAGE

> *"We are also proud to be an Institute of excellence with a unique business focus. Our future-oriented curriculum and holistic teaching and learning framework will develop in students a spirit of innovation and enterprise, as well as the emerging 21st century competencies."*

A Place of Opportunity

At MI, we pride ourselves as a place of opportunity where students are provided with various platforms to engage, explore and experience learning and growth, so as to achieve their aspirations in a world that is growing increasingly more volatile, uncertain, complex and ambiguous. When the journey gets tough and turbulent, the Institute's core values of Integrity, Responsibility, Respect and Resilience will be their internal compass.

We are also proud to be an Institute of excellence with a unique business focus. Our future-oriented curriculum and holistic teaching and learning framework will develop in students a spirit of innovation and enterprise, as well as the emerging 21st century competencies. Our students are empowered to seize every opportunity to take risks, learn from failures and succeed in diverse ways beyond the academic in a globalised and digital world, while keeping a strong Singapore heartbeat and a positive growth mindset.

Yes, we have our own success stories. Many of our students enrol in the local autonomous universities, just like students in the junior colleges and integrated programme schools. Almost all are also eligible to join private universities locally and overseas. Some students have won scholarships and others have graduated from the NUS University Scholars Programme.

Check us out as you navigate your way around our website. Come visit us at our campus. Let us help you chart your journey towards your aspiration with greater autonomy, mastery and purpose!

Tan Wan Yu
Principal, Millennia Institute

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SUBJECT DESCRIPTIONS

OUR MISSION

Nurture Talents, Achieve Success

OUR VISION

A Forward-looking Community of Learners, Thinkers and Leaders.

OUR CORE VALUES

- Integrity
- Resilience
- Respect
- Responsibility

Our mission is to nurture talents in our students to achieve success. This is done by providing a variety of programmes and opportunities which are grounded on strong core values, in partnership with our stakeholders. We premise all we do on our core values of **INTEGRITY, RESILIENCE, RESPECT and RESPONSIBILITY.**

We strive to provide a broad-based learning experience and space for students to pursue their passion. A wide range of subject combinations and CCAs are offered to cater to their interests and needs. Ultimately, our vision is to develop a forward-looking community of **LEARNERS, THINKERS and LEADERS.**

STRATEGIC THRUSTS

Quality Student Outcomes

- ✓ Achieving Academic Excellence
- ✓ Developing Future-Ready Thinkers
- ✓ Developing Leaders of Character and Values
- ✓ Creating Quality School Experiences

Engaged Professionals

- ✓ Developing Professionals
- ✓ Enhancing Staff Engagement

Effective Partnerships

- ✓ Establishing Strategic Partnerships for Quality Education

ADMISSION CRITERIA

Local Students

All local students currently studying in secondary schools (Government, Government-Aided and Independent Schools) who are eligible for the JAE (Joint Admissions Exercise) will receive Form A from their secondary schools on the day of the release of the Singapore-Cambridge GCE O-Level Examination results. Form A will inform a student if he or she is eligible for courses available at Millennia Institute. Applications for courses under the JAE should be submitted online through the JAE Internet System (JAE-IS). Please refer to the Ministry of Education's website for details.

• LOCAL TRANSFERS

All Singapore Citizens or Singapore Permanent Residents (SC/SPR) with valid GCE O-Level Examination results will be eligible to participate in the JAE. However, any SC/SPR who was previously admitted to a JC, MI, Polytechnic, or ITE should not apply for an institution in the same category through the JAE.

• LOCAL APPEALS

Students who have not been posted to Millennia Institute after participating in the JAE in the current year may appeal to be considered for admission to Millennia Institute, subject to meeting the eligibility criteria, by submitting the Admission Appeal Form available at www.millenniainstitute.moe.edu.sg.

International Students

All international students must satisfy the following admission criteria:

• AGE

International students must not exceed the correct age for admission by more than two years. The minimum age of admission to Millennia Institute is 16 years. Exceptional cases below this age will be referred to the Pupil Placement Section (PPS) of the Ministry of Education for consideration.

The point of admission for international students is Pre-University Year 1. Direct admission to Pre-University Year 2 or Pre-University Year 3 is not encouraged as the student would not have sufficient time to prepare for the GCE A-Level Examinations held towards the end of the year for these levels.

• PLACEMENT TESTS

International students are required to sit for the Junior College-Principals Academy Certification Test (J-PACT) to certify their proficiency in English and Mathematics before the start of the new academic year in January/February. Details of the test can be found on the website of the Principals Academy (www.pact.sg). The J-PACT results are to be submitted together with the application for admission.

Shortlisted applicants will be required to attend an interview conducted in English with the school's Admissions Officer/Vice-Principal.

Applicants offering certain subjects will need to undergo placement tests in addition to the J-PACT admission tests. For instance, an applicant who intends to offer H2 Physics will be required to undergo a placement test for Physics. Applicants offering H2 Mathematics are required to undergo a placement test for Additional Mathematics. Applicants offering H2 Mother Tongue Language and Literature are required to undergo a proficiency test. The tests are of a comparable difficulty level to the GCE O-Level Examination. The Institute charges a fee of $44 for the first placement test and $22 for every additional test.

More details on the application procedure can be found at *www.millenniainstitute.moe.edu.sg*.

FINANCIAL MATTERS

Fees

Nationality	School Fees ($)	Standard Miscellaneous Fees ($)	2nd Tier Miscellaneous Fees ($)	Total ($) (per month)
Singapore Citizen	6	13.50	13.50	33
Permanent Resident	520	13.50	13.50	547
International Student (ASEAN)	1,070	13.50	13.50	1,097
International Student (non-ASEAN)	1,950	13.50	13.50	1,977

Financial Assistance

MOE Financial Assistance Scheme

Criteria:

- All applicants must be Singapore Citizens
- All applicants must be from households with a Gross Household Income of $2,750 or below per month OR Gross Per Capita Income of $690 or below per month

Successful applicants will be given:

- $1000 cash;
- a waiver of school fees ($6) and standard miscellaneous fees ($13.50); and
- $180 transport credit per annum for students taking public transport

Students who do not meet the above criteria will be considered for financial assistance schemes offered by other bodies such as the Buddhist Lodge, Management Development Institute of Singapore (MDIS), Institute Advisory Committee (IAC) etc.

NEU PC Plus Programme

The NEU PC Plus Programme is now under Infocomm Media Development Authority (IMDA). The NEU PC Plus Programme offers students and persons with disabilities from low income households the opportunity to own a brand new computer at an affordable price. Application forms are available at the Institute library and administrative office.

PHYSICAL FACILITIES

Millennia Institute, located on the western fringes of Bukit Batok Town, sits on a vast undulating terrain covering an area of 60,000 square metres. It has a total gross floor area of 27,000 square metres and a wide range of learning facilities which include a 470-seat Auditorium, six Science Laboratories, two Lecture Theatres, a 1000-seat Stadium equipped with an eight-lane running track and an AstroTurf field. The Institute is designed to provide a conducive environment for students' holistic learning and their all-rounded character development.

Block A - Administration Block

The Institute's main Administrative Block houses the Principal's and Vice-Principals' offices, General Office, Heads Of Departments and Staff Rooms, library, air-conditioned learning venues and classrooms equipped with Information and Communications Technology (ICT).

The Institute's Library has a collection of over 35,000 books and is able to comfortably accommodate about 120 students. Students can use any of the three discussion rooms located at the Library's upper level for small-group study, discussions or project work. The Library also has two instructional rooms that can accommodate 25 students each for teaching and learning. There is also a quiet room for students to do self study.

There are a total of four fully air-conditioned classrooms specifically designed for learning through ICT and one classroom for Audiovisual Projection.

Block B - Students' Activity Centre

The hub of visual and performing arts is located at the Block B Students' Activities Centre.

The Auditorium, Art Gallery, Drama, Music, Dance Rooms and Fitness Gym are brought together in the same building to synergise and foster an environment that promotes the arts and students' co-curricular activities.

The Fitness Gym is fully equipped with up-to-date fitness workout machines complemented by a full range of barbells and dumbbells.

PHYSICAL FACILITIES

Block C - Canteen Block

Block C houses the Multi-Purpose Hall, air-conditioned learning venues and the Canteen.

The Institute's Multi-Purpose Hall is the primary venue for the Institute's assembly programmes and examinations. It is fully air-conditioned and can also be converted into four indoor badminton courts.

The Student Council room is located next to the Hall.

Located below the Hall, the Canteen has five stalls offering a wide variety of reasonably-priced Asian fare. The Institute Bookshop is located next to the Canteen.

Block D - Tutorial Block

The Tutorial Block is the fulcrum where most learning activities take place. It houses a total of 40 conventional classrooms and two 170-seat Lecture Theatres.

Block E - Science Block

The Science Block houses two Physics, two Biology and two Chemistry Laboratories, all of which are fully equipped.

Block F – Multipurpose Block

The Multipurpose Block houses six new classrooms, each unique in their designs.

Sports Facilities

The centrepiece of the Institute's first class sports facilities is the purpose-built stadium equipped with a FIFA Two-Star AstroTurf field and an eight-lane running track. The stadium also has a mini hockey pitch and an outdoor fitness corner. Apart from the stadium, the Institute has two basketball courts, two full-sized tennis courts and one half-sized tennis court for self-practice.

Carpark Facilities

The entire institute is able to accommodate 130 cars.

CAMPUS LIFE

Millennia Institute seeks to be a place of opportunity for students to establish a connection between what is happening in the real world and learning within the classrooms. Our vision to establish a forward-looking community of Learners, Thinkers and Leaders underpins how we organise campus life at MI.

Learners

MI offers students a place to develop cognitive competencies necessary and relevant for future university studies and employment, moving beyond academic mastery. We want our learners to develop a passion for life and for learning, and to understand that learning does not stop at formal education. We aim to motivate the students and equip them with the necessary attitudes and strategies for lifelong learning, so they can direct their own learning after they have graduated from the Institute.

Thinkers

Beyond the classroom learning of academic subjects, the Institute believes that a student should be provided with experiences and opportunities that allow them to become future-ready thinkers who are prepared to succeed not just in the university, but also in the globalised workplace. To this end, MI seeks to develop students' 21st Century Competencies through the full curriculum, so that students become critical and inventive thinkers who can connect their ideas and learning to new contexts beyond the classroom. MI seeks to inculcate creativity and an innovative mindset in our students through programmes that foster the spirit of entrepreneurship. Our teachers also work closely with parents and the community to provide learning environments for students to grow holistically in order to fulfil their potential.

Leaders

Students at MI are moulded to be leaders of good character and strong values. Through infusing leadership development intentionally in all that we do, students learn self-leadership by embracing and exhibiting the Institute's core values and by developing positive Habits of Mind for good performance and development of character. When students put these values and habits into action in their academic pursuits and beyond, they achieve personal growth, self-mastery and personal effectiveness. We believe that every MI student can be developed as a leader who will contribute positively to society, and every MI student should be developed as a leader of the self, team and community.

Key Programmes

Some of the key programmes that provide the above experience and opportunities include:

- Character and Citizenship Education (CCE)
- Education and Career Guidance (ECG)
- SkillsFuture Programme
- MI.World Programme
- Innovation and Enterprise (I&E) Programme
- Leadership Development Programme

CHARACTER AND CITIZENSHIP EDUCATION

OVERVIEW

The character development of every child is critical in nurturing them to be responsible and concerned citizens of Singapore. It is with this emphasis on character and citizenship development that the Institute aims to instil sound values and build competencies in students, and promote activism for social and/or environmental causes in Singapore and beyond.

Programme Objectives

The Character and Citizenship Education Programme aims to inculcate values and build competencies in our students to:

- Make responsible decisions and choices amidst the complexity and ambiguity of the current global environment;
- Be purposeful in the pursuit of their education, career and life goals;
- Seek to understand and appreciate multiple perspectives;
- Be resilient, adaptable and optimistic in the face of adversity;
- Demonstrate social responsibility and make meaningful contributions to the community by leading through service; and
- Be proud Singaporeans who are committed to building the future of Singapore and who understand Singapore's role in the world.

Alignment to Strategic Thrusts and Institute Values

Strategic Thrust 1: Quality Student Outcomes
To develop Character, Sound Values, Civic Literacy, Global Awareness and Cross-Cultural Skills.

Institute Core Values:
To develop positive Habits of Mind for inculcation of performance character and active citizenry, the Institute provides a range of experiences and sets of skills and knowledge that aim to nurture students to be confident leaders and active citizens with integrity, respect, responsibility and resilience.

Key Components in Programme

- Character and Citizenship Education Lessons
- Values in Action (VIA) Programme
  - Structured Local VIA Programme
  - Student-initiated VIA Projects

- National Education (NE) Programme
  - Commemoration of NE events
  - Experiential Learning Journeys
  - Dialogues with ambassadors, senior civil servants and office holders

Character and Citizenship Education Lessons

One hour a week is set aside, during curriculum time, as the Home Tutor Period (HTP) to teach Values, Knowledge and Skills for Character and Citizenship. A progressive approach is adopted in planning the HTP schedule to meet the differing needs of our students over the three years. Lessons cover values, Socio-Emotional Learning skills, Sexuality Education, Education and Career Guidance, Cyber Wellness, National Education as well as planning and reflections for Values in Action activities and projects.

Values in Action Programme (VIA)

A structured local VIA Programme and student-initiated VIA projects are key platforms of the Institute's VIA programme that encourage the spirit of volunteerism among students, as well as help to foster civic responsibility and cross-cultural literacy skills. Through these learning experiences, students develop their self-management, social awareness and relationship management skills, and demonstrate the Institute's core values of Integrity, Respect, Responsibility and Resilience.

CHARACTER AND CITIZENSHIP EDUCATION

• Structured local VIA Programme

All students will participate in a class-based VIA project on a yearly basis. Based on the Service-Learning framework, students will acquire the knowledge and skills to propose and implement plans to meet the needs of the community through their VIA project. Guidance and support from Home Tutors and teachers in the VIA Committee are provided during this journey. Past projects include an outreach to pre-school children on the importance of environmental conservation, and student-initiated VIA projects to various social service agencies.

• Student-initiated VIA Projects

To provide ownership, engagement and empowerment, students are encouraged to champion and lead community involvement and environmental projects. This promotes student activism for social and environmental causes that improve the lives of others. Past projects included a buddy reading programme with Delta Senior School, monthly befriending visits to All Saints Home (Jurong), the HP Make IT Green Initiative E-Waste Donation Drive, and fund-raising for a cause as part of the annual Citi-YMCA Youth for Causes in 2017, 2018 and 2020.

National Education (NE) Programme

• Commemoration of NE events

The four core NE events (i.e. Total Defence Day, International Friendship Day, Racial Harmony Day and National Day) are linked to four defining moments in Singapore's history. Commemoration of these events promote multicultural and social awareness among students, and contribute to efforts to nurture them into responsible citizens with a sense of hope and belonging to Singapore, understanding of realities and the will to act.

• Experiential Learning Journeys, Dialogue Sessions and Discussion of Contemporary Issues

These experiences aim to deepen students' understanding of Singapore's policies and principles of governance. They help students to better understand and appreciate how Singapore has overcome her constraints to achieve First World standing, as well as her current achievements and challenges. In addition, discussion of contemporary issues during Home Tutor Period creates space for students to understand the facts in an issue and make sense of the different perspectives around it.

EDUCATION AND CAREER GUIDANCE

Another core component of Character and Citizenship Education in MI is Education and Career Guidance (ECG). A variety of experiences, such as My Roadmap to Success, Job Experience Programme, and interaction with professionals from different fields, are designed for our students to obtain a better understanding of self as well as more information about available pathways. These experiences also support students in strengthening their sense of purpose while making informed decisions for future education and career paths.

• My Roadmap to Success

In MI, Home Tutors guide students to reflect upon and develop a deeper understanding of their strengths, values and career interests through our My Roadmap to Success Programme.

During Orientation, students attend subject talks by HODs, sharing by seniors and classroom experience before they choose the subject combination that better cater to their strengths and interests.

Students also undergo Career Profiling, which begins with the identification of their interests, abilities, work preferences and work values after working out their RIASEC codes.

PU2 students get to explore problems, challenges and opportunities in various career options. Given today's context, there is a need to shift their focus from traditional job titles. Students are also encouraged to be open-minded when presented with different opportunities.

Throughout their 3 years in MI, students work out their career goals and learn more about the skills and competencies needed to address the challenges that they are interested in. Students find out about the academic and student development opportunities available and draw up a personalised roadmap for themselves to make the most of their stint in MI, so that they are better positioned to achieve their aspirations upon graduation.

• Job Experience Programme

MI strives to inculcate the correct workplace ethics and a strong drive for excellence among students to prepare them for the future. The school establishes partnerships with external organisations to offer job experience opportunities for students to get a better understanding of a sector they are interested to learn more about. Through this experience, students will see how the values and curricular concepts they encounter in school are applied in the working world. Students will also be guided in areas such as job application, interview skills as well as reflection of their learning from the experience.

SFP-ECG for PU3

See PU3 module in the chapter on MI SkillsFuture Programme for more details (p.14).

*Photo taken in 2019 with our JEP partner

THE YEAR HEAD SYSTEM

OVERVIEW

Introduced in 2015, the Year Head System serves to enhance the Institute's ability to deliver a student-centric and values-driven education and create a quality school experience.

The team, comprising the Year Heads and Assistant Year Heads, works with the staff to ensure that the needs of the students are addressed and to promote better student engagement and learning. The Year Head team supports Home Tutors in providing strong socio-emotional support for students. The team also engages students directly to address their needs and seek their feedback.

Each Year Head, assisted by at least one other Assistant Year Head, takes charge of a cohort.

The Year Heads also oversee all programmes and matters relating to the holistic development of the students across the three different levels.

Level focus

Pre University 1: Transitioning into MI
Pre University 2: Exploring and Experiencing Leadership
Pre University 3: Preparing for University/World of Work

Alignment To Strategic Thrust & Institute Values

Strategic Thrust 1: Quality Student Outcomes:

- To improve admission rate of the students to the local autonomous universities.
- To develop positive habits of mind for academic success.
- To embrace and exhibit the Institute's core values.
- To grow the students' leadership competencies.
- To strengthen school pride and affiliation.

Institute Core Values:
Respect, Resilience, Responsibility and Integrity

Areas of focus

In delivering a student-centric and values-driven education, the role of the Year Heads is focused on:

1) Academic Target Setting, Reviewing and Monitoring

Millennia Institute believes that all students should strive for academic excellence and prepare themselves for tertiary education. Using the MI Journal, students set their own targets for their subjects and formulate their action plan to achieve these targets for the internal tests/examinations that lead to the A-Levels. Students also do reflections on their examination performance and revisit the targets which they have set.

At the school level, the cohort academic performances are reviewed and shared with the students after each examination. Year Heads would then monitor and follow-up with different groups of students based on their overall performance for the examinations. This is complemented with mentoring by the Subject Tutors.

2) Mentoring and Facilitating Socio-Emotional (SE) Learning

Millennia Institute recognises the importance of developing the students' social-emotional competencies of Self-awareness, Self-Management, Social Awareness, Responsible Decision Making and Relationship Building.

As each student's SE learning is unique, Home Tutors mentor and facilitate SE learning through individual and small-group pastoral care and mentoring sessions. This is complemented by the Year Heads' dialogues and feedback sessions with the students about their needs/expectations. Students are also guided to reflect on their personal growth and write these reflections in their MI Journals. Year Heads also create opportunities for students to exercise their leadership and further develop their SE competencies. Year Heads continually engage the students to co-create memorable school experiences through their involvement in level and school programmes and activities.

3) Student Self-Management

Year Heads, together with the Home Tutors, work with the Student Management team to guide and educate students on the importance of self-management with regard to adherence to and respect for the Institute rules.

Millennia Institute's Core Values of Respect, Resilience, Responsibility and Integrity form the basis of the Institute's rules. These rules aim to set a standard of behaviour expected of all students to maintain a conducive environment for learning and live out the Institute's values.

SKILLSFUTURE PROGRAMME

The MI SkillsFuture Programme (SFP) is an integral part of the Institute's Total Curriculum that seeks to nurture future-ready individuals, who will become the learners, thinkers and leaders of tomorrow.

To prepare pre-university students to navigate the new world, the SFP develops their growth mindset, motivates agency for deep learning and builds other key competencies necessary for lifelong learning. Fundamentally, students are given the autonomy to chart their growth and mastery, while teachers facilitate their journeys in uncovering personal strengths and provide opportunities to transfer learning between the SFP and relevant academic as well as non-academic areas.

Programme Objectives

The SkillsFuture Programme aims to develop self-motivated students by:

- equipping students with the necessary mindsets and competencies for lifelong learning;
- providing opportunities for the deepening and transferring of relevant skills to academic and non-academic areas;
- enabling students to make informed decisions about their learning and future career pathways.

Overview of SFP Focus Areas

Discover: Adapting Mindsets, Growing Strengths

The SFP lays the foundation for PU1 students to identify personal areas of strengths and growth by emphasising Growth Mindset, multiple intelligences and the importance of applying effective effort through practicing the Habits of Mind. Through relevant programmes and other facilitated platforms, these positive mindsets and habits will be reinforced for students' learning.

Innovate: Broadening Perspectives, Developing Solutions

Another cornerstone of the SFP modules lies in developing info-literacy skills and utilizing the human-centred, iterative process of Design Thinking to sharpen students' critical thinking abilities and encouraging them to ideate solutions for real-world problems. Holistically, these skills and competencies are quintessential to lifelong learning and also highly applicable to Project Work at the PU2 level.

Pursue: Exploring Interests, Deepening Passions

The PU3 SFP's Education and Career Guidance focus guides students in making informed decisions in charting their next course of study and career pathways. Students are given the opportunities to attend talks by professionals and industry experts as well as take part in learning journeys to gain broader perspectives about prospective fields of study and career options. The SFP also supports and synergises with other key institute programmes to promote students' exploration of interests and pursuit of mastery, towards the goals of achieving deeper learning, complex thinking and advocacy for the good of society.

MI.WORLD PROGRAMME

OVERVIEW

The Internationalisation Programme, MI.World, was conceptualised in 2008 to equip MI students with a global perspective. These educational overseas trips allow students to experience authentic learning beyond geographical boundaries, network with their peers overseas and enable them to make connections between what they learnt in the classroom and the real world. To expose students to community work and service-learning, the Overseas Values In Action (OVIA) programme forms a complementary component in the Institute's Internationalisation Programme.

With globalisation, the need to possess multi-cultural literacy skills is important and the driving force behind MI.World is experiential learning. As such, the knowledge, skills and values imparted to our students are central in the planning of MI.World trips. This structured reflective learning is in tandem with our Institute's strategic thrust of developing Future-Ready Thinkers through developing global awareness and cross-cultural skills in all Millennians. It also allows our students to develop an awareness of Singapore's position and place in the global arena and be better equipped to be ambassadors of the Institute and of Singapore.

We envision our students to possess the relevant skills to interact and engage with a network of peers across geographical boundaries beyond their time in MI.

Programme Objectives

With globalisation, the need to possess multi-cultural literacy is important and MI.World was conceptualised to develop in students a greater awareness about the world around them through

- Educational and Immersion Programmes
- Learning Journeys

Alignment to Strategic Thrusts and Institute Values

Strategic Thrust 1: Quality Student Outcomes

- To develop Civic Literacy, Global Awareness and Cross-Cultural Skills.

Institute Core Values:

- Responsibility
- Respect

Key Components in Programme

- **Reflective learning**
  To formalise their learning, students are required to pen their reflections about their trip on a daily basis. They should highlight what they have learnt about the host country with regard to its culture, language, lifestyle and aspirations. Students should also include how the trip has influenced their perceptions about their own country and its place in a globalised world.

- **Cultural appreciation and understanding**
  The best way to learn is not just to read or listen but to experience and be immersed. Hence, students are given opportunities to interact with citizens of the countries they visit, and experience their ways of life. Such interactions will develop students' understanding and perceptions of another country, and also develop in them a desire to contribute to the well-being of the international community.

MI.WORLD PROGRAMME

We were extremely grateful to Shanghai Zhenhua Foreign Trade Professional School for arranging the wonderful MI.World Shanghai Programme for 26 students and teachers of MI.

MI students had an engaging session at one of the E-Commerce organisations in Shanghai. They witnessed how doctors conducted online prescription via video cams with their clients.

MI.World India Programme: Teachers and students at Vijawada Airport.

Vietnam Trip: Student discussion at Vietnam University in Hanoi, Faculty of Tourism Studies.

INNOVATION AND ENTERPRISE

Key Highlights

- **Design Thinking and its Applications**

A critical part of enhancing Millennians' future-ready competencies is the Design Thinking (DT) toolset that the SkillsFuture Programme offers to develop innovative and creative thinking amongst all PU1 students. The DT processes, such as: explore, discern, ideate, prototype and test, provide students with a framework to solution for real-world problems. Through the module, students will understand that an important aspect of designing is developing empathy for the product users. Collaborative learning is also another element of the module, which allows students to hone their team management skills to contribute ideas towards school improvement projects or projects with social causes, including green initiatives. Many past successful iterations of this module have reaped proposals in the areas of social innovation and social entrepreneurship.

PU2 students will apply Design Thinking skills in their Project Work. Students will be encouraged to use these tools whenever opportunities arise in their CCAs and class projects.

- **Student-Initiated Projects**

> Student Reflections
> *"All of us, as a group, learnt a lot about the cause that we are passionate about through this SIP Journey, as we had to take the first step to educate ourselves and correct prior misconceptions..."*
>
> *"The experience has been fun as we were able to plan with like-minded schoolmates. I think in the future, I might do more projects, as I have gained the courage to take the first step and carry out something on my own."*

The Student Initiated Projects (SIP) was launched in Jan 2020 to encourage Millennians to conceptualise, plan and execute projects in their area of interest as part of their leadership journey.

This platform provides students with opportunities to create meaningful experiences where they can "customise" their own journey of growth, by designing and implementing an initiative that positively impacts others, while also speaking of their values and beliefs. Through this, students also have the opportunity to apply, as well as hone their leadership knowledge and skills.

The SIP culminates in Term 3 where students can showcase their projects and advocate for their initiative via an exhibition.

INNOVATION AND ENTERPRISE

- **MI Social Bazaar**

  The MI Social Bazaar is a student-run bazaar organised by the Entrepreneurship Club that aims to raise funds for charity while promoting entrepreneurial spirit amongst the students through the clever use of Design Thinking in the process.

Key Achievements

- HDB Cool Ideas Students' Design Competitions: 2014 (2nd Prize), 2016 (3rd Prize)
- JRStartathon : 2016 (3rd Prize), 2017 (Most Socially Impactful Entrepreneur Award and Special Mention), 2019 (1st Prize, Best Business Pitch and People's Choice)
- SMU Youth Innovation Challenge: 2017 (Best Innovation Technology Award)
- MOE ExCEL Fest Buildathon: 2017 (2nd Prize and People's Choice Award)
- LTA Transport Ambassador Programme 2018 (2nd Prize)
- Prudential Young Trialblazers: 2019 (Finalist), 2020 (Overall Champion and Best Innovation)
- Young Technopreneurs For A Sustainable 2030: 2019 (Finalist and Most Innovative)
- SUSS SBIZ Business Plan Competition: 2020 (Finalist)

LEADERSHIP DEVELOPMENT

OVERVIEW

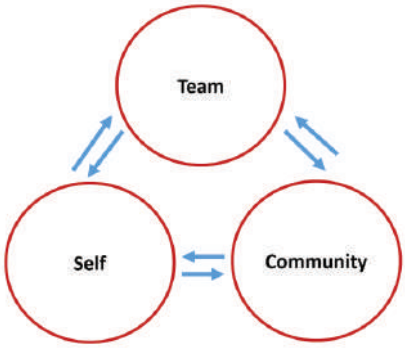
Inculcating values and guiding principles in students are the duties of each one of us. In MI, we believe that every student can be developed as leaders who contribute positively to the society. With that in mind, we adopt the Social Change Model (Astin, 1994) to facilitate positive social change in the Institute and the community. It grooms leaders who are able to lead positive change whether they hold traditional roles of leadership, or not. This is in alignment with the school's vision of developing Leaders of values and character and the Desired Outcomes of Education to develop students as an active contributor and a concerned citizen.

Students go through differentiated levels of training and mentoring to prepare them for different levels of leadership responsibilities. As part of the developmental process, students are given opportunities to exercise leadership through formal and ad-hoc leadership appointments. They are also given platforms to reflect on their experiences. In addition, teachers provide students with formative feedback through conversations to affirm their strengths and encourage them to work on their areas for growth.

Programme Objectives

The vision behind our work in developing students as leaders is to develop within them 21st Century Competencies. Students go through a self- reflective journey to understand what is involved in leadership, and to assess and develop their own abilities. They grow to be more confident and ready to be leaders of today and tomorrow.

Key Components in Programme



Alignment to Strategic Thrusts and Institute Values

Strategic Thrust 1: Quality Student Outcomes

- To develop Leaders of Character and Values.

Institute Core Values:

- Every Millennian can and will become the ideal MI student leader with integrity, respect, responsibility and resilience. He / She can make a positive change for the betterment of self and others.

The above diagram depicts the various foci over three years of a student's leadership development in becoming the ideal MI student leader.

Self-Leadership sets the foundation for developing leadership potential by focusing on self-mastery and personal effectiveness. It entails developing in students the desire, confidence and capacity to take ownership of one's own growth and learning based on a keen knowledge of self.

Team Leadership focusses on developing the students' social skill of influence such that they are able to lead others with competence and care. A successful team leader strikes a good balance between being people-oriented and task-oriented; he or she inspires productive team performance towards a common goal, by managing conflicts and enabling members to see how they can collaborate and contribute meaningfully to the task.

Community Leadership focuses on honing students' capacities to influence and create value through quality insight and innovation, particularly through making a positive change to society. Students are expected to be able to apply fresh perspectives to authentic tasks that are critical to achieving positive outcomes for the community.

LEADERSHIP DEVELOPMENT

Key Highlights

Student leaders in MI

- Every MI student
- Class Committee members
- House Leaders
- CCA leaders
- Student Councillors

• Student-Initiated School Activities

Platforms are provided for student leaders at the school level and beyond, to develop and hone their leadership skills through engagement in authentic projects. Student leaders are guided by teacher-mentors to conceptualise and organise school activities and events. Examples of such activities and events include Orientation, A-Division Cheering, Class Learning Day, Teachers' Day, and National Day. Other opportunities to develop students as community leaders include participation in the Keep Singapore Clean movement and the National Day Parade.

• Senate

The Senate comprises of student leaders from all CCAs, Student Councillors and House captains. The purpose of the Senate is to encourage the Institute's student leaders to be active Learners, Thinkers and Leaders, by working collectively with the student body to achieve a common goal of enhancing our school culture.

• MI House

The 4 Houses in MI are GARNET, ONYX, SAPPHIRE, ZIRCON. The House system promote healthy competition, school spirit and bonding among students. It also encourages positive interactions between seniors and juniors. House leaders are guided by House masters to conceptualise and organise House-based activities such as Transcendence, MI Play Fiesta, etc.

• Student Leadership Experience

This annual event is specially designed for potential CCA leaders and current class leaders. During this event, students participate in both indoor and outdoor team building activities to build and strengthen their collaboration, communication and management skills. After the event, students extend their learning when they apply these skills in planning and executing their CCA action plans. Some student leaders also step up and exercise their leadership skills in the planning and execution of PU1 bonding related activities in the following year.

A-LEVEL STRUCTURE

Students read the following subjects at H1 and H2 levels for the GCE A-Level curriculum:

3 H2 content-based subjects# 1 H1 content-based subject# H1 Mother Tongue Language (MTL) H1 General Paper (GP) H1 Project Work (PW)	Students are required to read 3 H2 + 1 H1 + MTL + GP + PW

 # At least one H1 or H2 subject from a contrasting discipline.

Project Work (PW) and General Paper (GP) are compulsory H1 subjects. All subject combinations must include one contrasting subject, taken either at the H1 or H2 Level.

A contrasting subject is a content-based subject taken outside a student's main area of specialisation. The contrasting subject helps to broaden learning in order to prepare a student to do multi-disciplinary courses in the university. Contrasting subjects can be offered at the H1 or H2 level. All subjects taught in the Institute, excluding General Paper, Mother Tongue and Project Work, are categorised into either the Arts or Science discipline according to the following table:

Discipline / Level	H1	H2
Arts	Economics Geography History Literature in English	Art Economics Management of Business Geography History Literature in English Chinese Language & Literature Malay Language & Literature Tamil Language & Literature
Science	Biology Chemistry Physics Mathematics	Biology Chemistry Physics Mathematics Principles of Accounting

Examples:
A Science student offering three H2 Science subjects, Chemistry, Physics and Mathematics, should offer a contrasting Arts subject such as H1 Economics.

Students are not allowed to offer subject combinations without a contrasting subject. For example, the following combination is not allowed:

H2 subjects: Accounting, Chemistry, Mathematics with H1 subject Biology => All Science subjects, no Arts discipline

At Millennia Institute, students sit for the A-Level Examination for the following subjects at different years:

PU2	PU3
PW, H1 Content and H1 MTL	3H2 and GP

SUBJECT COMBINATIONS

Millennia Institute offers the GCE A-Level curriculum to our students. All students are required to offer 10 to 12 Academic Units of study, including two compulsory Knowledge Skills subjects (General Paper and Project Work), four content-based subjects and Mother Tongue Language.

All A-Level subjects are classified at H1, H2 or H3 level. General Paper, Project Work and Mother Tongue Language are H1 subjects. Of the four content-based subjects, students offer three at H2 level and one at H1 level. The combinations of the four content-based subjects offered by the Institute are shown in the table below:

Subject CODE	H2 Subjects			H1 Contrasting
A01	ELIT	GEO	ART	MATH
A02	ELIT	GEO	ECONS	MATH
A03	ELIT	HIST	ART	MATH
A04	ELIT	HIST	ECONS	MATH
A05	ELIT	HIST	MOB	MATH
A06	ECONS	GEO	MTLL	MATH
A07	ECONS	HIST	MTLL	MATH
AC01*	ECONS	GEO	MOB	MATH
AC02*	ECONS	HIST	MOB	MATH
AC03*	ECONS	ELIT	MOB	MATH
C01	MOB	ECONS	MATH	GEO/HIST/ELIT/BIO/CHEM/PHY
C02	MOB	ECONS	PAA	MATH
C03	MOB	PAA	MATH	ECONS/GEO/HIST/ELIT/BIO/CHEM/PHY
C04	PAA	ECONS	ELIT	MATH
C05	PAA	ECONS	MTLL	MATH
CS01#	PAA	ECONS	MATH	GEO/HIST/ELIT/BIO/CHEM/PHY#
S01	MATH	BIO	ECONS	GEO/HIST/ELIT/CHEM/PHY
S02	MATH	CHEM	ECONS	GEO/HIST/ELIT/BIO/PHY
S03	MATH	CHEM	MTLL	ECONS/GEO/HIST/ELIT/BIO/CHEM/PHY
S04	MATH	CHEM	PAA	ECONS/GEO/HIST/ELIT
S05^	MATH	CHEM	BIO	ECONS/GEO/HIST/ELIT
S06^	MATH	CHEM	PHY	ECONS/GEO/HIST/ELIT
S07	MATH	PHY	ART	ECONS/GEO/HIST/ELIT/BIO/CHEM
S08	MATH	PHY	ECONS	GEO/HIST/ELIT/BIO/CHEM
S09	MATH	PHY	MTLL	ECONS/GEO/HIST/ELIT/BIO/CHEM
S10	MATH	PHY	PAA	ECONS/GEO/HIST/ELIT
S11	BIO	PAA	ECONS	MATH
S12	CHEM	PAA	ECONS	MATH

Note:
*AC01, AC02 and AC03 are offered to students in the Arts and Commerce streams.
#CS01 is offered to students in the Commerce and Science streams. Students in the Science stream who choose to offer CS01 must choose H1BIO, H1CHEM or H1PHY as the H1 content-based subject.
^Students who wish to offer S05 or S06 must have the following assumed knowledge at GCE O-Level:

- Achieved at least C6 in both relevant Pure Science subjects at GCE O-Level **OR**
- Achieved at least C6 in one relevant Pure Science subject **AND** at least B4 in one relevant Combined Science subject at GCE O-Level **OR**
- Achieved at least A2 in one relevant Combined Science subject **AND** at least C6 in Additional Mathematics at GCE O-Level.

SUBJECT COMBINATIONS

Considerations to Note

Merit-Based Allocation
Students are allocated to their choice of subject combination based on academic merit, including their L1R4 aggregate score or equivalent, and performance in the relevant subject(s). The allocation also depends on the number of places that are available for each subject. In the event that a subject is oversubscribed, allocation is done based on academic merit.

Subjects with Assumed Knowledge
Students who choose to offer Science and Mathematics subjects must note the assumed knowledge1 of the corresponding subject at GCE O-Level.

Subject	Subject Level	Assumed Knowledge
Mathematics	H2[2]	Knowledge of the content of the **O-Level Mathematics** syllabus and of some of the content of the **O-Level Additional Mathematics** syllabus is assumed.
Biology	H1[2]	Knowledge and understanding of **O-Level Biology**, either as a single subject or as part of a balanced science course is assumed.
	H2[2]	
Chemistry	H1[2]	Knowledge and understanding of **O-Level Chemistry**, either as a single subject or as part of a balanced science course is assumed.
	H2[2]	
Physics	H1[2]	Knowledge and understanding of **O-Level Physics**, either as a single subject or as part of a balanced science course is assumed.
	H2[2]	

Note:
[1] Assumed knowledge refers to the set of content knowledge that students are expected to have learnt in advance, usually as part of a corresponding subject at GCE O-Level, which will not be taught but is needed in the course of learning the GCE A-Level syllabus. Students without the assumed knowledge may offer the subject but will be required to bridge the knowledge gap during the course of study on their own.

[2] Students can find out more about the subject syllabuses at
https://www.moe.gov.sg/post-secondary/a-level-curriculum-and-subject-syllabuses.

Other Considerations
In the event that a critical mass of students is not met for a particular subject or a particular subject combination, the Institute reserves the right not to offer the subject or subject combination.

University Course Prerequisite
Your choice of higher education or career in the future may require you to pursue certain undergraduate courses at a university. Some university courses may have subject prerequisites that you need to fulfill before you can apply. You are advised to check the minimum requirements and indicative grade profile from the university websites before you make a decision on the subject combination to offer.

COURSE OF STUDY IN AUTONOMOUS UNIVERSITIES

Course of Study in Autonomous Universities (AU)
Please visit the website of the autonomous universities (AU) for the latest list of courses offered and the admission pre-requisites.

Nanyang Technological University (NTU)	https://www.ntu.edu.sg/admissions/undergraduate/admission-guide/singapore-cambridge-gce-a-level
NTU Indicative Grade Profile (IGP)	https://www.ntu.edu.sg/admissions/undergraduate/indicative-grade-profile
National University of Singapore (NUS)	http://www.nus.edu.sg/oam/apply-to-nus/singapore-cambridge-gce-a-level/admissions-requirements
NUS Indicative Grade Profile (IGP)	http://www.nus.edu.sg/oam/undergraduate-programmes/indicative-grade-profile-(igp)

COURSE OF STUDY IN AUTONOMOUS UNIVERSITIES

Singapore Management University (SMU)	https://admissions.smu.edu.sg/admissions/singapore-cambridge-gce-a-level
SMU Indicative Grade Profile (IGP)	https://admissions.smu.edu.sg/admissions/indicative-grade-profiles-igp
Singapore Institute of Technology (SIT)	https://www.singaporetech.edu.sg/admissions/undergraduate/requirements/a-levels
Singapore University of Social Sciences (SUSS)	https://www.suss.edu.sg/full-time-undergraduate/admissions/eligibility
Singapore University of Design and Technology (SUTD)	https://www.sutd.edu.sg/Admissions/Undergraduate/Application/Admissions-Requirements/Singapore-Cambridge-GCE-A-Level

SUBJECT DESCRIPTIONS

Subjects

All courses offered at Millennia Institute will meet most prerequisites for admission into the local autonomous universities.

Here is a list of subjects offered at Millennia Institute:

- H2 Art
- H1 Biology
- H2 Biology
- H1 Chemistry
- H2 Chemistry
- H2 Chinese Language and Literature
- H1 Economics
- H2 Economics
- H1 General Paper
- H1 Geography
- H2 Geography
- H1 History
- H2 History
- H1 Literature in English
- H2 Literature in English
- H2 Malay Language and Literature
- H2 Management of Business
- H1 Mathematics
- H2 Mathematics
- H1 Mother Tongue
- H1 Non-Tamil Indian Language and Foreign Languages (at language centres)
- Physical Education*
- H1 Physics
- H2 Physics
- H2 Principles of Accounting
- H1 Project Work
- H2 Tamil Language and Literature
- Mother Tongue (B Syllabus)

**Unless there is medical exemption, Physical Education is compulsory for all students from Pre-University Year 1 to Pre-University Year 3.*

The syllabus for the A-Level subjects can be downloaded from the SEAB website:
https://www.seab.gov.sg/home/examinations/gce-a-level/a-level-syllabuses-examined-for-school-candidates-2022

H2 ART (9750)

The H2 Level Art syllabus is designed to provide opportunities for students at the pre-university level to broaden their engagement in the visual arts. The syllabus aims to cultivate in students a greater understanding of and sensitivity towards artworks, so as to develop a citizenry that is more able to enjoy, appreciate and foster a lifelong interest in the visual arts. Students offering the H2 Level Art syllabus will investigate artistic conventions and concepts through the study of artists and artworks. Visual literacy skills such as the perception of and response to visual images as well as the critical analysis of visual information are also developed.

Prerequisite for University Admission

H2 Art is not a mandatory prerequisite for any university course

Instructional Objectives

On successful completion of this subject, students should be able to:

- Develop an art portfolio that consists of a wide range of artistic media;
- Create works that are able to express themselves and comment on a larger social or cultural context;
- Make connections between visual expressions of differing genres, traditions and contexts;
- Make inferences and draw relationships between issues/problems encountered by artists and one's own culture and experience;
- Generate, conceptualise and articulate independent interpretations of artworks;
- Critically appraise artists/artworks and their ideas/concepts;
- Communicate with precise working vocabulary on the processes of art making and one's responses to artworks;
- Employ imaginative and innovative ideas to create works of art; and
- Create and value local artworks as part of a country's history and cultural heritage.

Lesson Delivery and Expectations

The H2 Art curriculum in MI offers a comprehensive education in both the theory and practice of art. The programme offers exploration of traditional mediums such as drawing and painting, as well as experimental genres of photographic imaging, videos and installation art. The curriculum includes modules such as painting, photography, installation art and video making. The programme encourages innovation and experimentation in various art forms combined with a solid education in the craft. Designed to provide students with fundamentals in both the theory and practice of art, the philosophy of the programme emphasises creativity, imagination and critical thinking with the aim of giving students the conceptual and creative tools necessary for their development as artists, creative thinkers and change makers.

Lessons for H2 Art will usually take the form of studio and tutorials in a classroom setting. An overview in the form of a concept map will be provided at the start of each new topic. Mini projects, class discussions and presentations are some regular activities that take place during lessons. H2 Art students are expected to keep an Art Journal to document their creative art-making process and personal reflections. There will also be practical art-making activities for students to help concretise their learning, as well as compulsory onsite lessons conducted at art exhibition venues (such as museums and galleries) for experiential learning. Students will be required to read the necessary class notes before the lesson and participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutor.

H2 ART (9750)

Enrichment Opportunities

H2 Art students can look forward to the following enrichment opportunities:

- Pre-University Year 1 - UOB painting competition, Art Stage, Affordable Art Fair, Singapore Biennale
- Pre-University Year 2 - Objectifs Junior Photography Competition, Creative Video Awards, UOB Painting Competition, Art Stage, Singapore Biennale
- Pre-University Year 3 - Art Stage

Reference and Learning Materials

There are no textbooks for H2 Art, but students will be issued relevant resources.

- Pre-University Year 1 - SOVA Resource Package and Workbook 1 (Art History, Realistic, Abstract and New Media Representation)
- Pre-University Year 2 - SOVA Resource Package and Workbook 2 (About People, Society and Culture)
- Pre-University Year 3 - Condensed A-Level Preparation Package

Mode of Assessment

Students' learning will be assessed based on their level of preparedness for class, quality of submission for class studio projects and ability to apply the knowledge learnt in class writing assignments.

A-Level Examination

H2 Art students will sit for two papers - Paper 1 (Study of Visual Art) and Paper 2 (Coursework).

Paper 1 (Study of Visual Arts) is a compulsory 3 hour paper that is divided into three sections according to the following structure:

Section A: Two structured questions, each accompanied by a visual stimulus.
Section B: Two structured comparison question, each accompanied by a pair of visual stimuli.
Section C: Two essay questions.

Students must answer one question from each section.

Paper 2 (Coursework) is a project unit comprising the finished artwork and not more than eight A2 sheets of preparatory studies.

H2 Art Student Portfolio

Each student will be required to maintain their own art portfolio which will consist of the following:

- An art blog
- A visual art diary
- A visual art portfolio

Subject Coverage

Pre-University Year 1 (SOVA):

- History of Art
- Realistic Representation
- Abstract Representation
- Introduction to New Media Representation

Pre-University Year 2 (SOVA):

- New Media Representation
- About People
- About Society
- A-Level Preparations

Pre-University Year 3 (SOVA):

- About Culture
- Review of all SOVA topics (Terms 2 - 3)
- A-Level Preparations (Students are required to attend all compulsory extra lessons and consultations)
- GCE A-Level H2 Art Paper (Late November)

Pre-University Year 1 (STUDIO):

- Learning to 'See' exercises
- UOB painting project
- Book making project
- Alternative mediums

Pre-University Year 2 (STUDIO):

- Installation/Video collaborative project
- Independent self-directed project

Pre-University Year 3 (STUDIO):

- A-Level Coursework

H1 BIOLOGY (8876)

H1 Biology aims to provide students with an experience that develops their interest in biology and which builds the knowledge, skills and attitudes necessary for further studies in related fields. It seeks to develop students into scientifically-literate citizens who are well-prepared for the challenges of the 21st century. Students will be equipped with the understanding, skills, ethics and attitudes relevant to the Practices of Science, and to address the broader questions of what life is and how life is sustained. H1 Biology is designed as a subset of H2 Biology. It will incorporate the products, processes and nature of science, which have been articulated in the revised H2 Biology curriculum. It is designed as a contrasting subject. The content in the H1 syllabus comprises four core ideas of biology and one extension topic that is based on the impact of important emerging biological issues in both the local and global contexts. The four core ideas are: 1) The Cell and Biomolecules of Life, 2) Genetics and Inheritance, 3) Energy and Equilibrium and 4) Biological Evolution. The extension topic is: Impact of Climate Change on Animals and Plants. Students are not required to sit for the Practical Exam.

Prerequisite for University Admission

H1 Biology is not a mandatory prerequisite for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate knowledge and understanding in relation to:
  - Biological phenomena, facts, laws, definitions, concepts, theories;
  - Biological vocabulary, terminology, conventions (including symbols, quantities and units);
  - Scientific instruments and apparatus used in biology, including techniques of operation and aspects of safety;
  - Scientific quantities and their determination; and
  - Biological and technological applications with their social, economic and environmental implications.
- Use written, symbolic, graphical and numerical material to:
- Locate, select, organise and present information from a variety of sources;
- Handle information, distinguishing the relevant from the extraneous;
- Manipulate numbers and other forms of data, and translate information from one form to another;
- Present reasoned explanation for phenomena, patterns and relationships;
- Make comparisons that may include the identification of similarities and differences;
- Analyse and evaluate information to identify patterns, report trends, draw inferences, report conclusions and construct argument;
- Justify decisions, make predictions and propose hypotheses;
- Apply knowledge, including principles, to novel situations;
- Use skills, knowledge and understanding from different areas of biology to solve problems; and
- Organise and present information, ideas and arguments clearly and coherently, using appropriate language.

H1 BIOLOGY (8876)

Lesson Delivery and Expectations

The teaching and learning programme in MI aims to improve the scientific literacy of Biology students. The key areas of focus include mastery of content and the language of science, as well as deepening students' practices of science. Lessons for H1 Biology will usually take the form of tutorials/lectures in a classroom setting. Classroom demonstrations, mini projects, class discussions and oral presentations feature regularly in lessons. Practical lessons are also conducted to enrich students' learning experiences. Wherever possible, students are required to work collaboratively in teams and engage in higher order thinking. Students are expected to use ICT during lessons. Students also have access to virtual laboratory simulations to deepen their understanding of experimental techniques and scientific research design. Students are expected to read the lecture notes, complete their tutorials and workbook before lessons, and participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutor. The quality of the assignments is also considered in Continual Assessment.

Enrichment Opportunities

- Pre-University Year 1 - DNA Forensic Analysis Workshop
- Pre-University Year 2 - Scientific Inquiry Workshop

Reference and Learning Materials

- Reece, J B, Urry, L A, Cain, M L, Wasserman, S A, Minorsky, P V and Jackson, R B (2011) Campbell Biology (Ninth Edition) (Pearson Higher Education) ISBN 0321739752
- Resource Packages compiled by tutors

Mode of Assessment

Internal assessments include quizzes, assignments, project, tests, weighted assessment, block test, and Mid-Year/End-of-Year Examinations.

A-Level Examination

H1 Biology students will sit for two written papers.

Paper 1 is of one hour duration and consists of 30 compulsory multiple-choice questions. All questions will feature four direct choice options as possible answers.

Paper 2 is of two hour duration and will include questions that assess the higher-order skills of analysing, making conclusions, evaluating information and require candidates to integrate knowledge and understanding from different areas of the syllabus. Paper 2 comprises two sections. Section A consists of a variable number of structured questions including at least one data-based or comprehension-type question, all of which are compulsory to complete. These include questions, which require students to integrate knowledge and understanding from different areas of the syllabus. Section B consists of two free-response questions, of which the student will choose one. The questions require students to integrate knowledge and understanding from different parts of the syllabus.

Subject Coverage

Pre-University Year 1:

- Organelles and Cellular structures
- Biomolecules of Life and Cellular Transport
- Proteins
- Stem Cells
- The Structure of Nucleic Acids and Gene Expression
- DNA Mutations

Pre-University Year 2:

- The Cell Cycle
- Inheritance
- Transformation of Energy between the Environment and Organisms
- Natural Selection and Adaptation
- Impact of Climate Change

H2 BIOLOGY (9744)

H2 Biology aims to provide students with an experience that develops their interest in biology and which builds the knowledge, skills and attitudes necessary for further studies in related fields. It seeks to develop students into scientifically-literate citizens who are well-prepared for the challenges of the 21st century. Students will be equipped with the understanding, skills, ethics and attitudes relevant to the Practices of Science, and to address the broader questions of what life is and how life is sustained. The content in the H2 Biology syllabus comprises of four core ideas of Biology and two extension topics. The four core ideas are: 1) The Cell and Biomolecules of Life, 2) Genetics and Inheritance, 3) Energy and Equilibrium and 4) Biological Evolution. The two extension topics are: A) Infectious Diseases and B) Impact of Climate Change on Animals and Plants. Students are also required to sit for the Practical Exam.

Prerequisite for University Admission

H2 Biology is not a mandatory prerequisite for any university course.

Students with Combined Science background or obtained C6 grade in Pure Science subject(s) at O-Level for the H2 Science must complete a compulsory structured bridging programme.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate knowledge and understanding in relation to:
  - Biological phenomena, facts, laws, definitions, concepts, theories;
  - Biological vocabulary, terminology, conventions (including symbols, quantities and units);
  - Scientific instruments and apparatus used in Biology, including techniques of operation and aspects of safety;
  - Scientific quantities and their determination; and
  - Biological and technological applications with their social, economic and environmental implications.
- Use written, symbolic, graphical and numerical material to:
  - Locate, select, organise and present information from a variety of sources;
  - Handle information, distinguishing the relevant from the extraneous;
  - Manipulate numbers and other forms of data, and translate information from one form to another;
  - Present reasoned explanation for phenomena, patterns and relationships;
  - Make comparisons that may include the identification of similarities and differences;
  - Analyse and evaluate information to identify patterns, report trends, draw inferences, report conclusions and construct arguments;
  - Justify decisions, make predictions and propose hypotheses;
  - Apply knowledge, including principles, to novel situations;
  - Use skills, knowledge and understanding from different areas of Biology to solve problems; and
  - Organise and present information, ideas and arguments clearly and coherently, using appropriate language.

Students should also be able to:

- Follow a detailed sequence of instructions or apply standard techniques;
- Devise and plan investigations which may include constructing and/or testing a hypothesis and select techniques, apparatus and materials;
- Use techniques, apparatus and materials safely and effectively;
- Make and record observations and experimental data;
- Interpret and evaluate observations and experimental data; and
- Evaluate methods and techniques, and suggest possible improvements.

H2 BIOLOGY (9744)

Lesson Delivery and Expectations

The teaching and learning programme in MI aims to improve the scientific literacy of Biology students. The key areas of focus include mastery of content and the language of science, as well as deepening students' practices of science. Lessons for H2 Biology will usually take the form of tutorials/ lectures in a classroom setting. Laboratory experiments, classroom demonstrations, mini projects, class discussions and oral presentations are some regular activities in lessons. Wherever possible, students are required to carry out appropriate practical work to investigate the scientific principles, work collaboratively in teams and engage in higher order thinking. Students are expected to use ICT during lessons. Students also have access to virtual laboratory simulations to deepen their understanding of experimental techniques and scientific research design. Students are expected to read the lecture notes, complete their tutorials and workbook before lessons, and participate actively in all class discussions. Submission of take- home assignments must be punctual, as required by the subject tutor. The quality of the assignments is also considered in Continual Assessment.

Enrichment Opportunities

Pre-University Year 1 - Science Communication programme, DNA Forensic Analysis Workshop, Biology Olympiad (for selected students), Science Research Attachment at Institute of Higher Learning (for selected students)

Pre-University Year 2 - Alumni talks on University Science courses, Scientific Inquiry Workshop, Biodiversity workshop at NUS Lee Kong Chian Natural History Museum and Science Research Attachment at Institute of Higher Learning (for selected students)

- Pre-University Year 3 -STEM talks by Institute of Higher Learning

Reference and Learning Materials

- Reece, J B, Urry, L A, Cain, M L, Wasserman, S A, Minorsky, P V and Jackson, R B (2011) Campbell Biology (Ninth Edition) (Pearson Higher Education) ISBN 0321739752
- Resource Packages compiled by tutors

Mode of Assessment

Internal assessments include, quizzes, assignments, project, tests, weighted assessment, block test and Mid-Year/End-of-Year/Preliminary Examinations.

A-Level Examination

H2 Biology students will sit for three written papers and one practical exam.

Paper 1 is of one hour duration and consists of 30 compulsory multiple choice questions. All questions will feature four direct choice options as possible answers.

Paper 2 is of two hour duration and consists of a variable number of structured questions, all of which are compulsory, including data-based or comprehension-type questions. These include questions which require candidates to integrate knowledge and understanding from different areas of the syllabus.

H2 BIOLOGY (9744)

Paper 3 is of two hour duration and consists of a variable number of long structured questions, all of which are compulsory, including data-based or comprehension-type questions and one free-response question. Paper 3 will include items to assess the higher-order skills of analysing, making conclusions and evaluating information. Section A consists of two or more compulsory long structured questions. There will be one or more stimulus material which may be taken or adapted from a source such as a scientific journal or book, and may not relate directly to the content of the syllabus. Section B consists of two free-response questions, of which the student will choose one. A certain percentage of the marks also go towards the quality of scientific argumentation and written communication.

Paper 4 (Practical Paper) will assess different aspects of experimental skills and the ability to carry out investigations, through assessments of the following skills: planning (P), manipulation, measurement and observation (MMO), presentation of data and observations (PDO) and analysis, conclusions and evaluation (ACE).

Subject Coverage

Pre-University Year 1:
- Organelles and Cellular structures
- Biomolecules of Life and Cellular Transport
- Proteins
- Stem Cells
- Structure of Nucleic Acid and Gene Expression
- DNA Mutations
- Cell Cycle

Pre-University Year 2:
- Organisation of Prokaryotic and Eukaryotic Genome
- Genetics of Bacteria
- Genetics of Viruses
- Control of Prokaryotic and Eukaryotic Gene Expression
- Principles and Procedures of Molecular Techniques
- Inheritance
- Respiration
- Photosynthesis
- Diversity and Evolution

Pre-University Year 3:
- Cell Signalling
- Infectious diseases
- Impact of climate change on animals and plants

H1 CHEMISTRY (8873)

H1 Chemistry aims to develop scientific literacy in students through the acquisition of core Chemistry knowledge and scientific thinking. It provides students with an experience that develops interest in Chemistry and builds the knowledge, skills and attitudes necessary for them to become scientifically literate citizens who are well-prepared for the challenges of the 21st century. Students will be equipped with the understanding, skills, ethics and attitudes relevant to the Practices of Science, and the appropriate way of thinking to explain phenomena, approach and solve problems. The content in the H1 Chemistry syllabus comprises of three core ideas of Chemistry and one extension topic that is based on application of the core ideas in real-world contexts. The three core ideas are: 1) Matter, 2) Structure and Properties, and 3) Transformation. The extension topic is: Materials. Students are not required to sit for the Practical Exam.

Prerequisite for University Admission

H1 Chemistry is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate knowledge with understanding in relation to:
  - Scientific phenomena, facts, laws, definitions, concepts, theories;
  - Scientific vocabulary, terminology, conventions (including symbols, quantities and units);
  - Scientific instruments and apparatus used, including techniques of operation and aspects of safety;
  - Scientific quantities and their determination; and
  - Scientific and technological applications with their social, economic and environmental implications.
- Use words, symbols, graphical and numerical materials to:
  - Locate, select, organise and present information from a variety of sources;
  - Handle information, distinguishing the relevant from the extraneous;
  - Manipulate numerical and other forms of data and translate them from one form to another;
  - Analyse and evaluate information so as to identify patterns, report trends and conclusions, and draw inferences;
  - Present reasoned explanations for phenomena, patterns and relationships;
  - Apply knowledge, including principles, to novel situations;
  - Bring together knowledge, principles, concepts and skills from different areas of chemistry, and apply them in a particular context;
  - Evaluate information and hypotheses;
  - Construct arguments to support hypotheses or to justify course of action; and
  - Demonstrate an awareness of the limitations of Chemistry theories and models.

H1 CHEMISTRY (8873)

Lesson Delivery and Expectations

The key areas of focus of the teaching and learning of H1 Chemistry include content mastery, understanding the nature of Science and the practices of Science. Lessons will usually take the form of tutorials or lectures in a classroom setting. Classroom demonstrations, mini projects, class discussions and oral presentations feature regularly in lessons. Wherever possible, students are required to work collaboratively in teams and engage in higher order thinking. Students will be provided with opportunities to use ICT during lessons. Students will be required to read the necessary notes before lessons, and participate actively in class discussions. Submission of any take-home assignments must be punctual, as required by the subject tutor. The quality of the assignments is also considered as part of Continual Assessment.

Enrichment Opportunities

- Laboratory work

Reference and Learning Materials

- http://www/chemguide.co.uk/
- Cambridge International AS and A Level Chemistry by Peter Cann and Peter Hughes, published by Hodder Education
- Cambridge International AS and A Level Chemistry Coursebook with CD-ROM (2nd edition) by Lawrie Ryan and Roger Norris, published by Cambridge University Press
- A Level Chemistry (4th Edition) by E.N. Ramsden, published by Oxford University Press
- Resource Packages compiled by tutors

Mode of Assessment

Internal assessments include, quizzes, assignments, project, tests, weighted assessment, block test and Mid-Year/End-of-Year Examinations.

A-Level Examination

H1 Chemistry students will sit for two papers, Paper 1 and Paper 2.

Paper 1 is of one hour duration and consists of 30 compulsory multiple choice questions. Five to six items will be of multiple completion type. All questions will include 4 options.

Paper 2 is of two hour duration and comprises of two sections. Section A consists of a variable number of structured questions including data-based questions, all of which are compulsory. The data-based questions test higher order thinking skills such as handling, applying and evaluating information. Section B requires students to answer one out of two questions. The questions will require students to integrate knowledge and understanding from different areas and topics of the Chemistry syllabus.

Subject Coverage

Pre-University Year 1:

- The Mole Concept and Stoichiometry
- Atomic Structure
- Chemical Bonding
- Chemical Energetics: Thermochemistry
- Reaction Kinetics
- Chemical Equilibria
- Theories of Acids and Bases

Pre-University Year 2:

- The Periodic Table
- Polymers
- Nanomaterials

H2 CHEMISTRY (9729)

The H2 Chemistry course aims to provide students with an experience that develops interest in Chemistry and builds the knowledge, skills and attitudes necessary for further studies in related fields. It seeks to develop students into scientifically-literate citizens who are well-prepared for the challenges of the 21st century. Students will be equipped with the understanding, skills, ethics and attitudes relevant to the Practices of Science, and the appropriate way of thinking to explain phenomena, approach and solve problems. The content in the H2 Chemistry syllabus is divided into two parts: Core Ideas Syllabus and Extension Topics Syllabus. The Core Ideas Syllabus comprises ten topics on the structure, properties and transformation of matter at the atomic/molecular level. The Extension Topics Syllabus comprises of four topics that apply the concepts in the Core Ideas Syllabus to the study of different chemical systems. Students are also required to sit for the Practical Exam.

Prerequisite for University Admission

H2 Chemistry is a mandatory prerequisite for the following university courses in NUS and NTU:

- NUS – Medicine, Chemical Engineering, Dentistry, Environmental Engineering, Pharmacy, Food Science and Technology, Pharmaceutical Science, NUS Science (Chemistry)
- NTU – Medicine, Chemistry and Biological Chemistry, Biological Sciences with Second Major in Medicinal Chemistry and Pharmacology

Students with Combined Science background or obtained C6 grade in Pure Science subject(s) at O-Level for the H2 Science must complete a compulsory structured bridging programme.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate knowledge with understanding in relation to:
  - Scientific phenomena, facts, laws, definitions, concepts, theories;
  - Scientific vocabulary, terminology, conventions (including symbols, quantities and units);
  - Scientific instruments and apparatus used, including techniques of operation and aspects of safety;
  - Scientific quantities and their determination; and
  - Scientific and technological applications with their social, economic and environmental implications.

Use words, symbols and numerical materials to:

- Locate, select, organise and present information from a variety of sources;

H2 CHEMISTRY (9729)

- Handle information, distinguishing the relevant from the extraneous;
- Manipulate numerical and other forms of data and translate them from one form to another;
- Analyse and evaluate information so as to identify patterns, report trends and conclusions, and draw inferences;
- Present reasoned explanations for phenomena, patterns and relationships;
- Apply knowledge, including principles, to novel situations;
- Bring together knowledge, principles, concepts and skills from different areas of chemistry, and apply them in a particular context;
- Evaluate information and hypotheses;
- Construct arguments to support hypotheses or justify a course of action; and
- Demonstrate an awareness of the limitation of Chemistry theories and models.
- Demonstrate experimental skills and carry out investigations to:
- Follow a detailed set or sequence of instructions and use techniques, apparatus and materials safety and effectively;
- Make, record and present observations and measurements with due regard for precision and accuracy;
- Interpret and evaluate observations and experimental data;
- Identify a problem, devise and plan investigations, select techniques, apparatus and materials; and
- Evaluate methods and techniques, and suggest possible improvements.

Lesson Delivery and Expectations

The key areas of focus of the teaching and learning of H2 Chemistry include content mastery, understanding the nature of Science and the practices of Science. Lessons will usually take the form of tutorials or lectures in a classroom setting. Laboratory experiments, mini project works, class discussions and presentations are some regular activities in lessons. Wherever possible, students are required to carry out appropriate practical work to investigate the scientific principles, work collaboratively in teams and engage in higher order. Students are also expected to use ICT during lessons. Students are required to read the necessary notes before lessons, and participate actively in class discussions. Submission of any take-home assignments must be punctual, as required by the subject tutor. The quality of the assignments is also considered in Continual Assessment.

Enrichment Opportunities

Pre-University Year 1

- Amazing Chemistry workshop by Science Centre, Science Communication Programme, Chemistry Olympiad (for selected students), Science Research Attachment at Institute of Higher Learning (for selected students)

Pre-University Year 2

- Alumni talks on University Science courses, Chemistry Olympiad (for selected students), and Science Research Attachment at Institute of Higher Learning (for selected students)

Pre-University Year 3

- Chemistry of Perfume Making by Science Centre and STEM talks by Institute of Higher Learning

Reference and Learning Materials

- http://www.chemguide.co.uk/
- Cambridge International AS and A Level Chemistry by Peter Cann and Peter Hughes, published by Hodder Education
- A Level Chemistry (4th Edition)by E.N. Ramsden, published by Oxford University Press
- Cambridge International AS and A Level Chemistry Coursebook with CD-ROM (2nd Edition) by Lawrie Ryan and Roger Norris, published by Cambridge University Press
- Resource Packages compiled by tutors

H2 CHEMISTRY (9729)

Mode of Assessment

Internal assessments include, quizzes, assignments, project, tests, weighted assessment, block test and Mid-Year/End-of-Year/Preliminary Examinations.

A-Level Examination

H2 Chemistry students will sit for three written papers and one practical exam.

Paper 1 consists of 30 compulsory multiple choice questions. Five to eight items will require completion of sentences. All questions will include four options as answers.

Paper 2 consists of a variable number of structured questions including one or two data-based questions, all of which are compulsory. The data-based questions constitute 20-25 marks and provide a good opportunity to test higher order thinking skills such as handling, applying, and evaluating information. Some questions require students to integrate knowledge and understanding from different areas and topics of the Chemistry syllabus.

Paper 3 consists of two sections. Section A comprises of three to four compulsory free response questions. Each question constitutes 15 to 25 marks. Section B consists of two questions, each worth 20 marks, of which students choose to answer one. These questions require students to integrate knowledge and understanding from different areas and topics of the Chemistry syllabus.

Paper 4 (Practical Paper) is designed to assess students' competency in practical skills which can be realistically be assessed within the context of a formal practical assessment. Students will be assessed in the following skill areas: planning (P), manipulation, measurement and observation (MMO), presentation of data and observations (PDO) and analysis, conclusions and evaluation (ACE).

Subject Coverage

Pre-University Year 1:

- The Mole Concept and Stoichiometry/ Redox
- Theories of Acids and Bases
- Atomic Structure
- Chemical Bonding
- The Gaseous State
- Chemical Energetics:
- Thermochemistry and Thermodynamics
- Introduction to Organic Chemistry
- Hydrocarbons (Alkanes and Alkenes)

Pre-University Year 2:

- Reaction Kinetics
- Chemical Equilibria
- Chemistry of Aqueous Solution
- Hydrocarbons (Arenes)
- Halogen Derivatives
- Hydroxyl Compounds
- Carbonyl Compounds
- Carboxylic Acids and Derivatives

Pre-University Year 3:

- Nitrogen Compounds
- The Periodic Table
- Electrochemistry
- An Introduction to the Chemistry of Transition Elements

H2 CHINESE LANGUAGE AND LITERATURE (9572)

H2 Chinese Language and Literature aims to develop students with a flair for and interest in the Chinese Language through greater exposure to the language, its literature and its attendant culture. This subject consists of two components: Language and Literature. There is emphasis on the appreciation and understanding of texts and literary works, as well as on developing students' analytical skills in various literary genres, which include the novel, short story, poetry and drama.

Prerequisite for University Admission

A H2 pass in Chinese Language and Literature or at least a C grade in H1 Chinese or at least a B4 for Higher Chinese at GCE O-Levels is a prerequisite for Bachelor of Arts (Chinese Studies / Chinese Language) at NUS. Students who have done well in this subject are eligible for MTL Bonus Points (two points for at least an E grade) if they choose to pursue the following Mother Tongue related subject concentrations in local Universities:

- Chinese Studies
- South Asian Studies
- Communication Studies
- Linguistics and Multilingual Studies
- Arts (Education) with specialisation in Chinese Language and Literature

Instructional Objectives

On successful completion of this subject, students should be able to:

- Understand linguistic and literary concepts;
- Critically analyse texts using key concepts;
- Present ideas coherently in written form; and
- Understand and appreciate the Chinese culture.

Lesson Delivery and Expectations

Lessons for H2 Chinese Language and Literature will usually take the form of tutorials in a classroom setting. Mini projects, class discussions and oral presentations are some regular activities in lessons to engage students and provide them with an authentic learning experience. Students will be required to participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Students will be given a wide range of enrichment opportunities, such as the annual Pre-University Seminar, MTL Fortnight, inter and intra-school activities and competitions, workshops and learning journeys.

H2 CHINESE LANGUAGE AND LITERATURE (9572)

Reference and Learning Materials

Resource Packages will be provided by the respective subject tutors during the course of study.

Mode of Assessment

Written assignments, tests, and mini projects, tests and mini projects.

A-Level Examination

H2 Chinese Language and Literature consists of three papers:

Paper 1 (Language) comprises two parts. Part 1 assesses Essay Writing, and requires students to write either a narrative or argumentative essay to demonstrate their competency in writing. Students are allowed to use dictionaries approved by the Ministry of Education. Part 2 assesses Comprehension and Language Use in Contemporary Chinese, and tests understanding and application through a comprehension passage and cloze passage. Students are not allowed to use dictionaries for Part 2.

Paper 2 is the e-Examination for Comprehension and Commentary. Students will key in their responses on a laptop. Students are not allowed to use dictionaries for Paper 2.

Paper 3 (Literature) is an open-book examination. This paper requires students to answer four questions based on the four genres that they will be exploring in their course of study: classic texts, short stories, poetry and drama. The duration for Paper 3 is three hours.

Subject Coverage

Pre-University Year 1:

语文：

- 主范畴：青春岁月（成长/亲情/友情）现代文教学
  中华文化历史概述阅读理解能力训练长文缩短技巧训练

写作训练—— 记叙文、议论文电脑打字技巧训练

- 专题作业文学：
- 唐诗《行路难》
- 宋词《雨霖铃》、《念奴娇》
- 新诗《心跳》、《错误》
- 小说《药》《白香祖与孔雀图》
- 古文《邹忌讽齐王纳谏》、《岳飞》、
  《岳阳楼记》《柳敬亭说书》、

Pre-University Year 2:

语文：

- 主范畴：

1. 社区与国家（社区关怀/国家认同/多元文化）
2. 环球趋势（文化发展与挑战/社会、经济发展与挑/政治发展与挑战）

- 现代文教学
  阅读理解能力训练
  长文缩短技巧训练
  写作训练—记叙文、抒情文、
  议论文、说明文文学
- 唐诗《燕歌行》、《旅夜书怀》
- 宋词《声声慢》
- 新诗《惠安女子》《来生你若再为芙蕖》
- 小说《一把青》
- 戏剧《喘呸店》、《傻姑娘与怪老树》
- 古文《前出师表》、《柳敬亭说书》、

Pre-University Year 3:

语文：复习

文学：武侠小说《天龙八部》节选
（第41 回至第43 回）

H1 ECONOMICS (8843)

Economics is a social science that studies how economic agents – consumers, producers and governments – allocate limited resources in order to satisfy unlimited wants. It provides students with a specific Economics lens to examine economic and socio-economic issues.

The H1 Economics syllabus provides the basis for a broad understanding of basic economic concepts and tools of analysis so that students are able to appreciate economics from the perspectives of different economic agents. The syllabus is organised around three major themes. Students will examine economic phenomena, beginning with the individual and societal levels (microeconomic analysis), followed by the national level (macroeconomic analysis). The three themes examined are (i) The Central Economic Problem, (ii) Markets, and (iii) The National Economy. All three themes have a focus on the Singapore economy.

Prerequisite for University Admission

H1 Economics is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate knowledge and understanding of economic concepts, theories and principles;
- Interpret economic information presented in textual, numerical or graphical form;
- Make valid inferences from information presented and evaluate the reliability of information given;
- Apply relevant economic concepts, theories and principles to analyse contemporary issues, perspectives and policy choices;
- Construct coherent economic arguments;
- Evaluate critically contemporary issues, perspectives and policy choices;
- Recognise unstated assumptions and evaluate their relevance; and
- Synthesise economic arguments to arrive at well-reasoned judgements and decisions.

Lesson Delivery and Expectations

Lessons for H1 Economics will usually take the form of seminar-style lectures and tutorials in a classroom setting. Class discussions are regular activities in lessons. Students will be required to read the necessary class notes before lessons, and participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutors.

Enrichment Opportunities

- Economics seminars such as the NTU-MOE Seminar on Economics and Public Policy and the Economic Society of Singapore Annual Economics Seminar
- Inter-school competitions such as the Budget Quiz/Challenge and the Economic Development Board National Economics Short Film Competition

Reference and Learning Materials

- Lecture notes and tutorials on a topical basis
- Mankiw, N. Gregory (2013). Principles of Economics, an Asian Edition. (2nd ed.). Cengage Learning
- Sloman, John (2018). Economics (10th ed.). Pearson Education

H1 ECONOMICS (8843)

Mode of Assessment

Internal assessments include Weighted Assessments, the Mid-Year Examinations, and the Promotional / Preliminary Examinations.

A-Level Examination

Students offering the subject will sit for one three-hour paper. The paper will include two case studies. Each of these will consist of two to three pages of data presented in textual, numerical or graphical form. Each will present contemporary multi-faceted economic issues or policies which may be from one or more themes in the syllabus.

The data for each case study will be followed by seven to eight part-questions, including sub-parts. These questions will require students to apply relevant economic concepts, theories and principles in analysing, synthesising and evaluating economic issues, perspectives or policies, with reference to the data provided. Each case study carries 40 marks and constitutes 50% of the total marks. About 16 marks of each set of case study questions will be for data response questions, and about 24 marks will be for higher-order questions.

Subject Coverage

Pre-University Year 1:

- Scarcity as the Central Economic Problem
- Price Mechanism and its Applications
- Microeconomics Objectives and Policies (Market Failure)

Pre-University Year 2:

- Introduction to Macroeconomic Analysis
- Macroeconomics Objectives and Policies (Standard of Living)

H2 ECONOMICS (9570)

Economics is a social science that studies how economic agents – consumers, producers and governments – allocate limited resources in order to satisfy unlimited wants. It provides students with a specific Economics lens to examine economic and socio-economic issues.

The H2 Economics syllabus provides the basis for a broad understanding of basic economic concepts and tools of analysis so that students are able to appreciate economics from the perspectives of different economic agents. The syllabus is organised around three major themes. Students will examine economic phenomena, beginning with the individual and societal levels (microeconomic analysis), followed by the national and global levels (macroeconomic analysis). The three themes examined are (i) Scarcity as the Central Economic Problem, (ii) Markets, and (iii) The National and International Economy.

Prerequisite for University Admission

It is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate knowledge and understanding of economic concepts, theories and principles;
- Interpret economic information presented in textual, numerical or graphical form;
- Make valid inferences from information presented and evaluate the reliability of information given;
- Apply relevant economic concepts, theories and principles to analyse contemporary issues, perspectives and policy choices;
- Construct coherent economic arguments;
- Evaluate critically alternative theoretical explanations, contemporary issues, perspectives and policy choices;
- Recognise unstated assumptions and evaluate their relevance; and
- Synthesise economic arguments to arrive at well-reasoned judgements and decisions.

Lesson Delivery and Expectations

Lessons for H2 Economics will usually take the form of seminar-style lectures and tutorials in a classroom setting. Class discussions are regular activities in lessons. Students will be required to read the necessary notes before lessons, and participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutors.

Enrichment Opportunities

- Learning Journeys
- Economics seminars such as the NTU-MOE Seminar on Economics and Public Policy and the Economic Society of Singapore Annual Economics Seminar
- Inter-school competitions such as the Budget Quiz/Challenge and the Economics Development Board National Economics Short Film Competition

Reference and Learning Materials

- Lecture notes and tutorials on a topical basis
- Mankiw, N. Gregory (2013). Principles of Economics, an Asian Edition. (2nd ed.). Cengage Learning
- Sloman, John et al. (2018). Economics (10th ed). Prentice Hall

H2 ECONOMICS (9570)

Mode of Assessment

Internal assessments include Weighted Assessments, the Mid-Year Examinations, and the Promotional / Preliminary Examinations.

A-Level Examination

Students offering the subject will sit for two papers, each of two hours and 30 minutes' duration.

Paper 1 has a weighting of 40% of the total marks and comprises two compulsory case studies. Students are required to answer all questions for each case study. Each of these will consist of two to three pages of data presented in textual, numerical or graphical form. Each will concern contemporary multifaceted economic issues or policies, which may be from one or more themes in the syllabus. The data for each case study will be followed by six or seven part-questions. These questions will require students to apply relevant economic concepts, theories and principles in analysing, synthesising and evaluating economic issues, perspectives or policies, with reference to the data provided. Each case study carries 30 marks.

Paper 2 has a weighting of 60% and comprises six essay questions. Students are required to answer a total of three essay questions, of which one must be from Section A, one from Section B and one from either Section A or B. Questions in Section A will focus mainly on microeconomics and questions in Section B will focus mainly on macroeconomics. Each essay question will be divided into part (a) and part (b). Questions may be put in real-world contexts. Students are expected to apply relevant economic concepts, theories and principles to analyse issues and to evaluate perspectives or policies. They should synthesise and construct coherent arguments to arrive at well-reasoned judgements and decisions. Each essay question carries 25 marks- part (a) carries 10 marks, while part (b) carries 15 marks.

Subject Coverage

Pre-University Year 1:

- Scarcity as the Central Economic Problem
- Price Mechanism and its Applications
- Microeconomics Objectives and Policies (Market Failure)

Pre-University Year 2:

- Introduction to Macroeconomics
- Macroeconomic Aims and Policies
- Globalisation and the International Economy

Pre-University Year 3:

- Firms and Decisions

H1 GENERAL PAPER (8807)

General Paper aims to develop in students the ability to think critically, construct cogent arguments and communicate their ideas using clear and accurate language. It encourages students to explore issues of global and local significance, and provides them with a good set of knowledge to help them do well in a fast-changing world.

Prerequisite for University Admission

- At least a B grade to be considered for NUS Law, NTU Communications, SMU Law.
- A good grade for NTU Economics, Psychology, English, History, Linguistics and Multilingual Studies.
- A good pass for NTU Sociology.
- A pass for NIE Arts (Education) and Science (Education).
- NUS students without a C grade or better will need to sit for a Qualifying English Test.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Demonstrate a broad and mature understanding of a range of issues and current affairs;
- Analyse and evaluate issues across disciplines, showing awareness of their significance and implications; and
- Present informed personal responses in a cogent manner.

They should be able to comprehend texts in detail and as a whole, demonstrating the ability to apply the following skills:

- Identify claims
- Infer relevant meaning
- Summarise information
- Evaluate viewpoints
- Respond critically to a text

Lesson Delivery and Expectations

Lessons for H1 General Paper take the form of lectures and tutorials in a classroom setting. Skills are taught using materials from a variety of sources, such as newspapers, online articles and videos. Process writing, group discussions, student presentations and peer assessment are part and parcel of the General Paper learning experience. Students will be expected to participate actively in all discussions and activities.

H1 GENERAL PAPER (8807)

Enrichment Opportunities
- Pre-University Seminar
- Talks and seminars led by specialists and researchers
- Writing competitions

Reference and Learning Materials
- Paper 1 and Paper 2 Skills Package
- Content Package

Mode of Assessment
Modes of assessment entail both formative and summative assessments, and can include student research, presentations, and timed assignments.

A-Level Examination
Students will sit for two written papers (Paper 1 and Paper 2) of one hour and 30 minutes each. They are required to answer one essay question in Paper 1. For Paper 2, they are required to answer questions based on one or two passages.

Subject Coverage

Pre-University Year 1 Skills:
- Paper 1 - Evaluative and Organisational Skills for essay writing
- Paper 2 - Summary, Paraphrasing and Post-reading skills

Pre-University Year 2 skills:
- Paper 1 - Use of Rhetoric and Argumentation Skills for Essay Writing
- Paper 2 - Inference and Comparison Skills

Pre-University Year 3 skills:
- Skills Revision for Paper 1 and 2

Topics for Pre-University Year 1-3:
- Crime and Punishment
- Prejudice and Discrimination
- Education
- The Family, Youth, and Elderly
- Sports and Leisure
- The Arts and Culture
- Science and Technology
- The Environment
- Politics and Governance
- International Cooperation and Competition
- Singapore Issues

H1 GEOGRAPHY (8813)

Geography at the H1 level comprises learning about climate change and flooding, urban change, and geographical inquiry and investigation. Students reading this subject will understand the workings of atmospheric and hydrologic processes in the tropics through a systems approach that examines the environmental impact of cities and the unevenness of socio-economic development, and have a range of opportunities to carry out fieldwork in order to deepen their understanding of what they have learned.

Prerequisite for University Admission

H1 Geography is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Use feedback loops to analyse the effect of human activities on the natural environment and how humans are in turn affected by environmental hazards related to climate change such as floods;
- Deliberate on the contradictions between achieving intergenerational equity and building liveable urban environments to meet present needs; and
- Craft research questions, plan investigations, collect, present and analyse data, evaluate and communicate their findings to different audiences.

Lesson Delivery and Expectations

Lessons usually take the form of interactive seminars in a classroom setting. Experiential learning activities and small group discussions allow students to engage in deliberate practice at 'thinking geographically' in the form of making and testing arguments and hypotheses about specific topics, solving problems and critiquing their own reasoning and that of others. Students are required to read and source for relevant examples and case studies from both print and non-print resources such as newspapers, news magazines, online journals and websites. Submission of take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Geography students have opportunities to participate in different enrichment programmes and activities such as fieldwork and mini projects. Learning Journeys to relevant organisations may be carried out to enhance the learning experience of Geography students. Students who perform well can be identified by tutors to participate in various geography-centred competitions such as URA Challenge for the Urban and Built Environment (CUBE) to understand and gain first-hand experience on the complex issues surrounding urban planning and apply the intricacies of planning and urban design for Singapore.

H1 GEOGRAPHY (8813)

Reference and Learning Materials

While the Geography unit does not prescribe any textbook, recommended reference materials are indicated in the resource package and are available for loan from the Institute Library.

Potential Geography students may refer to the suggested booklist contained in the syllabus document, available on the SEAB website.

Mode of Assessment

Weighted Assessment is graded based on a selection of topical tests and class assignments (i.e. timed assignments and/ or project tasks).

A-Level Examination

A-Level Examination for H1 Geography is a 3 hour paper consisting of Sections A, B and C. Allocation of marks, question type and format is as presented in the table below.

	Section A	SectionV B	Section C
Marks	25 marks	25 marks	50 marks
Question Type	Data Response Question	Data Response Question	Structured Essay Question
Format	Students answer <u>one</u> question based on **Theme 3** *Additional notes:* **The question will carry 25 marks and consist of no more than five parts.**	Students answer <u>one</u> question based on **Theme 1** or **Theme 2** *Additional notes:* **The question will carry 25 marks and consist of no more than five parts**	Students answer <u>two</u> structured essay questions based on the following: **Theme 1 - Either Qn 3 or Qn 4** **Theme 2 - Either Qn 5 or Qn 6** *Additional notes:* **Each question will carry two parts,** **part a) - 9 marks** **part b) - 16 marks**
	Sections A and B together will contain a maximum of 7 sources.		

Source: Geography Teaching and Learning Syllabus for Syllabus 8813, 2015

Subject Coverage

Pre-University Year 1:

Theme 1: Climate Change and Flooding
- Tropical Climates and Atmospheric Processes
- Effects of Climate Change
- Catchment Hydrology
- Flooding in the Tropics

Theme 3: Geographical Investigation
- Factors influencing flood risk and ways to mitigate it
- Influence of land use on infiltration rates

Pre-University Year 2:

Theme 2: Urban Change
- Sustainable Development
- Issues in Sustainable Urban Development
- Urbanisation and Liveability
- Improving Liveability in Cities

Theme 3: Geographical Investigation
- Liveability of urban neighbourhoods
- Needs analysis of the elderly living in an urban neighbourhood.

H2 GEOGRAPHY (9751)

Geography at H2 level comprises of learning about tropical environments, development, economy and the environment, sustainable development and the use of geographical investigation to inquire into various important geographical topics and concepts. Students reading this subject will be able to understand the world using various geographical concepts, such as system, space and time, place and scale.

Prerequisite for University Admission

H2 Geography is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to develop an understanding of:

- The uniqueness of different types of natural environments and places;
- The interactions and interdependence between natural environments, societies and cultures at various scales;
- The evolution of landscapes and development of issues over time;
- The processes that shape natural environments, societies and cultures at various scales;
- The connections, trends and patterns in different parts of Asia and the rest of the world;
- A range of contemporary issues in different parts of Asia and the rest of the world through geographical perspectives;
- Different approaches to solve real-world problems and achieve sustainable development; and
- The connections between different sub-fields of Geography.

Lesson Delivery and Expectations

Lessons usually take the form of interactive seminars in a classroom setting. Experiential learning activities and small group discussions allow students to engage in deliberate practice at 'thinking geographically' in the form of making and testing arguments and hypotheses about specific topics, solving problems and critiquing their own reasons and that of others.

Students are required to read and source for relevant examples and case studies from both printed and non-print resources such as newspapers, news magazines, online journals and websites. Submission of take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Geography students have opportunities to participate in different enrichment programmes and activities such as fieldwork and mini projects. Learning Journeys to relevant organisations may be carried out to enhance the learning experience of Geography students. Students who perform well can be identified by tutors to participate in various Geography-centred competitions such as the URA Challenge for the Urban and Built Environment (CUBE) to understand and gain first-hand experience on the complex issues surrounding urban planning and apply the intricacies of planning and urban design for Singapore.

H2 GEOGRAPHY (9751)

Reference and Learning Materials

While the Geography unit does not prescribe any textbook, recommended reference materials are indicated in the resource package and are available for loan from the Institute Library. Potential Geography students may refer to the suggested booklist contained in the syllabus document, available from the SEAB website.

Mode of Assessment

Weighted Assessment is graded based on a selection of topical tests and class assignments (i.e. timed assignments and/ or project tasks).

A-Level Examination

The H2 national examination consists of two papers taken in two separate sittings. Students are given three hours to complete each paper.

Paper 1 will feature six structured essay questions (SEQs) that assess students' mastery of subject knowledge and skills featured in Themes 1, 2 and 3 in the syllabus. Students are required to answer three SEQs in total, one from each theme. Each SEQ will carry two subparts worth 12 and 20 marks respectively.

Paper 2 will feature four data-response questions (DRQs) that assess students' mastery of subject knowledge and skills featured in Themes 1, 2, 3 and 4 in the syllabus. Students are required to answer all four DRQs. Each DRQ will carry no more than five sub-parts. Two nine-marks open-ended evaluative sub- parts may be set in this paper.

Subject Coverage

Pre-University Year 1:

Theme 1: Tropical Environment

- Physical Processes in the Tropics: Tropical Climates, Catchment Hydrology, Geomorphic Processes in the Tropics.
- Landscapes and Issues in the Tropics: Flooding and Deforestation.

Theme 4: Geographical Investigation: Living with Rivers

Pre-University Year 2:

Theme 2: Development, Economy and Environment (Part 1)

- Development and the Global Economy: Understanding Development, Geography of the Global Economy, Governing the Global Economy.

Theme 4: Geographical Investigation: People and the Economy

Theme 2: Development, Economy and Environment (Part 2)

- Environment and Resources: Valuing Environment and Natural Resources, Managing Resource Base and Water Resource Management.

Pre-University Year 3:

Theme 3: Sustainable Development (Part 1)

- Climate Change and Energy: Sustainable development as our common future, Climate Change and Sustainable Development, The Use of Alternative Energy Sources to Mitigate Climate Change

Theme 3: Sustainable Development (Part 2)

- Sustainable Urban Development: Sustainable Urban Development and Liveability, Issues in Sustainable Urban Development, Improving Liveability in Cities.

Theme 4: Geographical Investigation: Urban Living Today

H1 HISTORY (8821)

H1 History is a contemporary study of international and regional developments in the 20th century. The study of H1 History enables students to cultivate an awareness of Historical Understanding while exposing them to critical global and regional developments. Through this study, students will acquire an understanding of the impact of the Cold War across different contexts and time periods.

Prerequisite for University Admission

H1 History is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Develop and interest and curiosity about the past
- Deepen Historical Understanding through
  - Acquiring a sound knowledge of selected periods and issues
  - Examining historical issues and events through exploring a variety of historical sources
  - applying Historical Concepts of Cause & Effect and Change & Continuity
  - using historical methods and processes
- Think independently and make informed judgments about historical issues and events
- Communicate substantiated arguments on historical issues and events in a clear and well-structured manner
- Develop empathy with people living in diverse places and at different times
- Enhance their sense of identity

Lesson Delivery and Expectations

H1 History involves studying the Cold War and its impact on international, regional and local forces. Hence, students will not just learn about the Cold War in Europe, but also in Asia and in the context of ASEAN's development. The United Nations will also be studied in this course.

Students are expected to engage actively in learning through participation in class discussions and by raising pertinent questions. Students are also expected to be independent learners by conducting additional academic research, setting their own learning goals and designing their own learning plan to achieve their goals. Active listening and effective note-taking are also required, especially during lessons. Students are expected to take responsibility for their own learning by observing punctuality in the submission of assignments and in attending lessons.

The history curriculum focuses on developing students' curiosity of the past and their critical thinking skills. Apart from classroom assessment, students are expected to engage in the craft of the historian by 'doing' History through the process of curating historical sources and to demonstrate their ability to transfer their learning through an authentic assessment task.

H1 HISTORY (8821)

Enrichment Opportunities

To support authentic learning, Pre-University Year 1 and Pre-University Year 2 H1 History students can look forward to opportunities to attend external academic lectures and Singapore Parliament Sittings.

Reference and Learning Materials:

There are no prescribed textbooks for H1 History, but students can use the following books as references:

- Westad, Odd Arne. (2000). Reviewing the Cold War: Approaches, Interpretation, Theory. Frank Cass.
- Weiss, Thomas G., Forsythe, David P., Coate, Roger A. (2013). The United Nations and Changing World Politics. Westview Press.
- Garver, John W. (1999). The Sino-American Alliance: Nationalist China and American Cold War Strategy in Asia. M.E. Sharpe.

Mode of Assessment

Internal assessments include assignments, tests, block tests and the Promotional/ Preliminary examinations. Students' answers will be assessed based on the quality of their arguments in answering the question and in substantiating their arguments with concrete and relevant evidences.

A-Level Examination

H1 History students will sit for one written paper, with a duration of three hours. The paper is divided into two sections, in which students are required to answer the compulsory source-based study in Section A (40 marks) and two essay questions in Section B (60 marks).

Subject Coverage

Pre-University Year 1:

- Understanding the Cold War
- The Cold War and Asia

Pre-University Year 2:

- Understanding the Cold War
- The Cold War and the United Nations

	Section A	Section B
Marks	40 marks	60 marks
Question Type	Source Based Case Study	Essays
Format	Students will answer the compulsory source-based case study set comprising two sub-questions. a) Compare 2 sources (10 marks) b) Test assertion using all sources (30 marks) The Source-Based Study will be based on Theme 1: Understanding the Cold War	Students will answer: **- 1 out of 2 essay questions set on Theme 2: The Cold War and Asia (30 marks)** **- 1 out of 2 essay questions set on Theme 3: The Cold War and United Nations (30 marks)**

H2 HISTORY (9752)

H2 History is a contemporary study of regional and international developments in the 20th century. The study of H2 History enables students to cultivate an awareness of Historical Understanding while exposing them to critical global and regional developments. Students will examine key developments in the Cold War, the Global Economy and the United Nations for Paper 1, as well as the political, economic and social developments of Southeast Asia for Paper 2.

Prerequisite for University Admission

H2 History is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Develop and interest and curiosity about the past
- Deepen Historical Understanding through
    - Acquiring a sound knowledge of selected periods and issues
    - Examining the diverse approaches to and interpretations of historical issues and events
    - Strengthening Knowledge and Application of historical concepts
    - using historical methods and processes
    - Appreciating the nature and variety of historical sources
- Think independently and make informed judgments about historical issues and events
- Communicate substantiated arguments on historical issues and events in a clear and well-structured manner
- Develop empathy with people living in diverse places and at different times
- Enhance their sense of identity

Lesson Delivery and Expectations

H2 History consists of two components: Shaping the International Order, 1945 to 2000 (Paper 1) and The Making of Independent Southeast Asia, Independence to 2000 (Paper 2).

Students are expected to engage actively in learning, through participation in class discussions and by raising pertinent questions. Students are also expected to be independent learners, by conducting additional academic research, setting their own learning goals and designing their own learning plan to achieve their goals. Active listening and effective note-taking are also required, especially during lessons. Students are expected to take responsibility for their own learning by observing punctuality in the submission of assignments and in attending lessons.

The history curriculum focuses on developing students' critical thinking skills through the process of historical inquiry. Apart from classroom assessment, students are expected to engage in the craft of the historian by 'doing' History through the process of curating historical sources and to demonstrate their ability to transfer their learning through an authentic assessment task.

H2 HISTORY (9752)

Enrichment Opportunities

To support authentic learning, Pre-University Year 1 and Pre-University Year 2 H1 History students can look forward to opportunities to attend external academic lectures and Singapore Parliament Sittings.

Reference and Learning Materials:

There are no prescribed textbooks for H1 History, but students can use the following books as references:

- Westad, Odd Arne. (2000). Reviewing the Cold War: Approaches, Interpretation, Theory. Frank Cass.
- Weiss, Thomas G., Forsythe, David P., Coate, Roger A. (2013). The United Nations and Changing World Politics. Westview Press.
- Garver, John W. (1999). The Sino-American Alliance: Nationalist China and American Cold War Strategy in Asia. M.E. Sharpe.

Mode of Assessment

Internal assessments include assignments, tests, block tests and the Promotional/ Preliminary examinations. Students' answers will be assessed based on the quality of their arguments in answering the question and in substantiating their arguments with concrete and relevant evidences.

A-Level Examination

H2 History students will sit for two written papers, with a duration of three hours for each paper. Each paper is divided into two sections, in which students are required to answer the compulsory source- based study in Section A (40 marks) and two essay questions in Section B (60 marks).

Subject Coverage

Pre-University Year 1:

- Paper 1: Understanding the Cold War
- Paper 1: Safeguarding International Peace and Security (United Nations)
- Paper 2: Search for Political Stability
- Paper 2: Regional Conflicts and Cooperation

Pre-University Year 2:

- Paper 1: Understanding the Cold War
- Paper 1: Safeguarding International Peace and Security (United Nations)
- Paper 2: Economic Development after Independence
- Paper 2: Regional Conflicts and Cooperation

Pre-University Year 3:

- Paper 1: Understanding the Global Economy
- Paper 2: Regional Conflicts and Cooperation

	Section A	Section B
Marks	40 marks	60 marks
Question Type	Source Based Case Study	Essays
Format	Students will answer the compulsory source-based case study set comprising two sub- questions. a) Compare 2 sources (10 marks) b) Test assertion using all sources (30 marks) The Source-Based Study will be based on Theme 1: Understanding the Cold War for Paper 1, and Theme 3: Regional Conflicts and Cooperation for Paper 2.	Students will answer: - **1 out of 2 essay questions set on Theme 2 (30 marks)** - **1 out of 2 essay questions set on Theme 3 (for Paper 1) and Theme 1 (for Paper 2) (30 marks)**

H1 LITERATURE IN ENGLISH (8832)

The study of Literature in English at the H1 level should be seen as a process of critically examining texts. In addition to the study of stylistic features, students will also examine the contexts that led to the production of these texts, as well as how these texts are relevant to their own experiences. Students will engage with texts at various cognitive and affective levels, and explore their connections with different social issues. Students will be encouraged to read, reflect, discuss and respond to texts using appropriate tools for literary analysis, as well as present their thoughts in coherent writing. Students offering H1 Literature in English will read only Paper 1.

Prerequisite for University Admission

H1 Literature in English is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, a student should have:

- An appreciation of, and an informed personal response to, Literature in English;
- A love for reading through exposure to a wide range of texts;
- The ability to read texts independently; and
- An understanding of the historical and cultural contexts for literary production;
- An understanding of the nature and methods of literary study;
- The skills of critical literary analysis; and
- The ability to communicate ideas effectively and persuasively.

Lesson Delivery and Expectations

Lessons for H1 Literature in English will primarily be carried out in a tutorial setting. The tutor will focus on the analysis of poetry as well as the two texts required of the paper. Lectures, group discussions, and class presentations are part and parcel of a Literature lesson.

Enrichment Opportunities

- Drama performances

Reference and Learning Materials

- Skills Package for Paper 1
- *Frankenstein* by Mary Shelley
- *Playing for Time* by Arthur Miller

H1 LITERATURE IN ENGLISH (8832)

Mode of Assessment

Modes of assessment entail both formative and summative assessments, and can include student research, presentations, and timed assignments.

A-Level Examination

Students will complete a three-hour paper comprising three sections: Section A, Section B, and Section C. Section A requires the analysis of unseen poetry, Section B the analysis of a set text (prose), and Section C the analysis of a set text (drama).

Subject Coverage

Pre-University Year 1:

- Analysis of poetry
- Text 1 – *Frankenstein* by Mary Shelley

Pre-University Year 2:

- Analysis of poetry
- Text 2 – *Playing for Time* by Arthur Miller

H2 LITERATURE IN ENGLISH (9509)

The study of Literature in English at the H2 level should be seen as a process of critically examining texts. In addition to the study of stylistic features, students will also examine the contexts that led to the production of these texts, as well as how these texts are relevant to their own experiences. Students will engage with texts at various cognitive and affective levels, and explore their connections with different social issues. Students will be encouraged to read, reflect, discuss and respond to texts using appropriate tools for literary analysis, as well as present their thoughts in coherent writing. At the H2 level, students will also be encouraged to understand the concept of the "literary" and what it constitutes. The course will seek to develop a critical and analytical bent, as well as maturity of thought in students. For H2 Literature in English, students will offer both Paper 1 and Paper 3.

Prerequisite for University Admission

H2 Literature in English is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, a student should have:

- An appreciation of, and informed personal response to, Literature in English;
- A love for reading through exposure to a wide range of texts;
- The ability to read texts independently;
- An understanding of the historical and cultural contexts for literary production;
- An understanding of the nature and methods of literary study;
- The skills of critical literary analysis; and
- The ability to communicate ideas effectively and persuasively.

Lesson Delivery and Expectations

Lessons for H2 Literature in English will primarily be carried out in a tutorial setting. The subject tutor will focus on the analysis of poetry, prose, and drama as well as the five texts required of the subject. Lectures, group discussions and presentations are part and parcel of a Literature lesson.

Students will be required to read the texts as well as the assigned notes before lessons and participate actively in all class discussions and activities.

Enrichment Opportunities

- Drama performances

H2 LITERATURE IN ENGLISH (9509)

Reference and Learning Materials

- Skills Packages for Paper 1 and Paper 3
- Paper 1 Reading Literature texts:
  - *Frankenstein* by Mary Shelley
  - *Playing for Time* by Arthur Miller
- Paper 3 *The Mind and Self in Literature* texts:
  - *Regeneration* by Pat Barker
  - *Hamlet* by William Shakespeare
  - *Who's Afraid of Virginia Woolf?* by Edward Albee

Mode of Assessment

Modes of assessment entail both formative and summative assessments, and can include student research, presentations, and timed assignments.

A-Level Examination

Students will take two three-hour papers (Paper 1 and Paper 3). Each paper comprises three sections, Section A, Section B and Section C. Paper 1 consists of a comparison of poems, one set text (prose) and one set text (drama). Paper 3 consists of an unseen section (poetry, prose or drama), a comparison of texts and a section focusing on the analysis of a single text.

Subject Coverage

Pre-University Year 1:

- Paper 1
  - Analysis and comparison of poetry
  - Text 1 – *Frankenstein* by Mary Shelley
- Paper 3
  - Analysis of prose (Term 1 and Term 2) and poetry (Term 3 and Term 4)
  - Text 1 – *Regeneration* by Pat Barker

Pre-University Year 2:

- Paper 1
  - Analysis and comparison of poetry
  - Text 2 – *Playing for Time* by Arthur Miller
- Paper 3
  - Analysis of drama
  - Text 2 – *Hamlet* by William Shakespeare
  - Comparison of texts

Pre-University Year 3:

- Paper 1
  - Revision
- Paper 3
  - Text 3 – *Who's Afraid of Virginia Woolf?* by Edward Albee (Semester 1)
  - Comparison of texts (Semester 1)
- Revision (Semester 2)

H2 MALAY LANGUAGE AND LITERATURE (9573)

H2 Malay Language and Literature (9573) aims to develop students with a flair and interest in the Malay Language through greater exposure to the language, literature and culture. This subject consists of two components: language and literature. An emphasis is placed on the appreciation and understanding of texts and literary works through developing students' analytical skills of various literary genres including the novel, short stories, poetry and drama.

Prerequisite for University Admission

A pass in H2 Malay Language and Literature is a prerequisite for Bachelor of Arts (Malay Studies) (NUS).

Students who have done well in this subject are eligible for MTL Bonus Points (2 points for at least an E grade) if they choose to pursue the following Mother Tongue-related subject concentrations in local universities:

- Malay Studies
- South Asian Studies
- Communication Studies
- Linguistics and Multilingual Studies
- Arts (Education) with specialisation in Malay Language and Literature

Students who obtained A2 in Malay Language at the GCE O-Level examination will have to pass a diagnostic test that will be assessed holistically.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Understand linguistic and literary concepts;
- Critically analyse texts using key concepts;
- Present ideas coherently in written form; and
- Understand and appreciate the Malay culture.

Lesson Delivery and Expectations

Lessons for H2 Malay Language and Literature will usually take the form of tutorials in a classroom setting. Mini projects, class discussions and oral presentations are some regular activities in lessons to engage students through an authentic learning experience. Students will be required to participate actively in all class discussions. Submission of any take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Students will be given a wide range of enrichment opportunities including the annual Pre-University Seminar, the Mother Tongue Languages Fortnight, inter- and intra-school activities and competitions, workshops and Learning Journeys.

Reference and Learning Materials

Resource Packages will be provided by the respective subject tutors during the course of study. Compulsory texts for Paper 3: Jendela Menghadap Jalan (Edisi Murid) by Ruhaini Matdarin (Utusan Publications and Distributors Sdn Bhd, Kuala Lumpur) and Begitulah Kata-Kata edited by Sae'da Buang (Marshall Cavendish Education, Singapore).

H2 MALAY LANGUAGE AND LITERATURE (9573)

Mode of Assessment

Internal assessments include assignments, test, block tests, Promotional/Preliminary examinations, and mini projects.

A-Level Examination

H2 Malay Language and Literature consists of three papers. Paper 1 (Language) comprises two parts. In Part 1, students are required to write either a narrative, descriptive, argumentative, or graphic stimulus essay to demonstrate their competency in writing. Students are allowed to use dictionaries approved by the Ministry of Education. In Part 2, students are assessed based on their understanding and application of the language inn comprehension, cloze passage, and vocabulary tests. Students are not allowed to use dictionaries in Part 2. The duration of Paper 1 is two hours and 15 minutes.

Paper 2 is an e-examination. Students are tested on their language skills through comprehension and commentary writing based on given texts. The duration of Paper 2 is one hour.

Paper 3 (Literature) is an open-book examination. This paper requires students to answer four questions based on the four genres that they will be exploring in their course of study: novel, short stories, poetry and drama. The duration of Paper 3 is three hours.

Course Requirements at MI

Pre-University Year 1:

- Kertas 1 & 2
  - Karangan (Bentuk naratif, deskriptif, argumentatif, dan rangsangan grafik)
  - Melengkapkan Teks dan Komentari
  - Kefahaman dan Kosa kata
- Kertas 3
  - Konsep dan Pendekatan Kesusasteraan Melayu
  - Cerpen dan Sajak

Pre-University Year 2:

- Kertas 1 &2
  - Karangan (Bentuk naratif, deskriptif, argumentatif, dan rangsangan grafik)
  - Melengkapkan Teks dan Komentari
  - Kefahaman dan Kosa kata
- Kertas 3
  - Novel dan Drama
  - Cerpen dan Sajak

Pre-University Year 3:

- Kertas 1 &2
  - Karangan (Bentuk naratif, deskriptif, argumentatif, dan rangsangan grafik)
  - Melengkapkan Teks dan Komentari
  - Kefahaman dan Kosa kata
  - Ulangkaji
- Kertas 3
  - Novel, Cerpen, Sajak dan Drama
  - Ulangkaji

H2 MANAGEMENT OF BUSINESS (9587)

Management of Business is offered as a subject only at the H2 level. This syllabus is designed as an introductory business management subject and seeks to help students understand the principles of business management which they can apply to any field of studies or work in the future.

Students offering this subject will understand the role of business and its main activities in creating value for stakeholders. In order to make well-reasoned business decisions, students will learn business concepts and theories, as well as consider the perspectives of stakeholders, ethical concerns and external environmental factors. As they learn to make well-reasoned business decisions, students will develop analytical, evaluative and communication skills, as well as critical and innovative thinking.

Prerequisite for University Admission

H2 Management of Business is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Develop an understanding of:
  - (a) the role of business in creating value for stakeholders;
  - (b) the decision-making process, taking into consideration perspectives of stakeholders and external environmental factor;
  - (c) the tools to analyse the internal and external business environment;
  - (d) the interrelationships among the four business functions; and
  - (e) strategic management to gain and sustain long-term competitive advantage.

- Develop skills in:
  - (a) interpreting, analysing and synthesising qualitative and quantitative business information for decision-making;
  - (b) thinking critically and innovatively when evaluating business issues and situations;
  - (c) making decisions to achieve business objectives; and
  - (d) recommending and communicating strategies and decisions.

Lesson Delivery and Expectations

The course draws on business practices in local and global contexts. It is taught through a combination of theory, practical examples and application of case studies. Students offering the subject have the opportunity to apply business and management concepts to solve problems encountered by business, often in an imaginative and innovative manner.

Lessons will take the form of interactive lessons and class discussions, with projects and presentations to develop collaborative and communication skills. Students will be required to prepare for reading and tutorial assignments prior to lessons and participate actively in all class discussions. Assignments have to be duly submitted to meet subject requirements.

Students offering the subject are expected to embrace self-directed learning and expected to read widely both in the content area as well as in current affairs to better understand and be aware of issues that affect business practices. Students will find the knowledge, skills and qualities taught through Management of Business to be relevant, regardless of their interests and future endeavours.

Enrichment Opportunities

- Learning Journeys
- Business-related competitions such as the IE Global Business Challenge

H2 MANAGEMENT OF BUSINESS (9587)

Reference and Learning Materials

- P Stimpson and A Farquharson (2015). Business Coursebook with CD-ROM (3rd ed.). Cambridge University Press.
- Published articles from newspapers, journals, and magazines
- In-house Resource Packages

Mode of Assessment

Internal assessments include Weighted Assessments, Mid-Year and End-of-Year examinations.

A-Level Examination

Students offering the subject will sit for two papers, each of which lasts for three hours. Each paper comprises two sections. Paper 1 consists of two data response questions in Section A and three essay questions in Section B, of which students are required to attempt only two questions. Paper 2 contains one compulsory case study based on an adapted business situation. Structured and essay questions will be set based on the case study; five compulsory structured questions in Section A and two compulsory essay questions in Section B which focus on strategic decision-making.

Subject Coverage

Pre-University Year 1:

- Business and the Environment
- Managing People

Pre-University Year 2:

- Marketing
- Operations Management

Pre-University Year 3:

- Finance
- Strategic Management

H1 MATHEMATICS (8865)

The H1 Mathematics syllabus provides students with a foundation in mathematics and statistics for further studies in university. It is particularly appropriate for students without a background in GCE O-Level Additional Mathematics, because it offers an opportunity for them to learn important mathematical concepts and skills in algebra and calculus that are covered in Additional Mathematics. Students will also learn basic statistical methods, which are necessary for university courses in business and the social sciences.

Prerequisite for University Admission

A pass in H1 Mathematics is a mandatory prerequisite for the following university courses:

- NUS Environmental Studies
- NTU Economics, Psychology, Biological Sciences and Environmental Earth Systems Science

A pass in H1 Mathematics or GCE O-Level Additional Mathematics is a mandatory prerequisite for the following university courses:

- All NUS and NTU courses related to Business and Accounting
- NTU Maritime Studies and Sport Science & Management
- All SMU courses in Accountancy and Economics

Instructional Objectives

On successful completion of this subject, students should:

- Acquire mathematical concepts and skills to support their tertiary studies in business and the social sciences;
- Develop thinking, reasoning, communication and modelling skills through a mathematical approach to problem-solving;
- Connect ideas within mathematics and apply mathematics in the context of business and the social sciences; and
- Experience and appreciate the value of mathematics in life and in other disciplines.

Lesson Delivery and Expectations

Lessons for H1 Mathematics take the form of tutorials in a classroom setting. Lesson delivery consists of concept building and learning through extensive worked examples and practice questions, and is followed up with regular homework. Students are expected to complete all assignments diligently.

The main learning materials used throughout the two-year course are available for purchase at the Institute bookshop. The course also requires students to be familiar with the use of a graphing calculator, and students are expected to have access to one for all lessons.

Enrichment Opportunities

Students who possess a strong track record or have a keen interest in the subject are eligible to participate in enrichment programmes targeted at further developing problem-solving skills in students.

H1 MATHEMATICS (8865)

Reference and Learning Materials

- Lecture notes and tutorials on a topical basis
- Revision workbooks

Mode of Assessment

Students are assessed in these main areas:

- Weighted Assessment (Pre-University Year 1 only)
- Tests (Pre-University Year 2 only)
- Internal block test (Pre-University Year 2) examinations

A-Level Examination

Students will sit for one written three-hour paper, marked out of 100, as follows:

- Section A (Pure Mathematics: 40 marks) will consist of about five compulsory questions of different lengths and marks based on the Pure Mathematics section of the syllabus.
- Section B (Probability and Statistics: 60 marks) will consist of six to eight compulsory questions of different lengths and marks based on the Statistics section of the syllabus.

There will be at least two questions, with at least one in each section based on on the applications of Mathematics in real-world contexts connected to business and the social sciences. Each question will carry at least 12 marks and may require concepts and skills from more than one topic.

Subject Coverage

Pre-University Year 1:

- Permutations and Combinations
- Probability
- Binomial Distribution
- Normal Distribution
- Sampling
- Hypothesis Testing
- Graphing Techniques
- Simultaneous Equations

Pre-University Year 2:

- Exponential and Logarithmic Functions
- Equations and Inequalities
- Differentiation Techniques
- Differentiation Applications
- Integration Techniques
- Integration Applications
- Correlation and Regression

H2 MATHEMATICS (9758)

The H2 Mathematics syllabus prepares students for a range of university courses, including Mathematics, Sciences and related courses, where a good foundation in mathematics is required. It develops mathematical thinking and reasoning skills that are essential for the further learning of mathematics. Through the application of mathematics, students also develop an appreciation of mathematics and its connections to other disciplines and to the real world.

Prerequisite for University Admission

A pass in H2 Mathematics is a mandatory prerequisite for the following university courses:

- All NUS and NTU Engineering courses
- NUS Business Analytics
- NTU Mathematical Sciences, Physics
- NUS Economics and Law Double Degree

Instructional Objectives

On successful completion of this subject, students should:

- Acquire mathematical concepts and skills to prepare for their tertiary studies in mathematics, sciences, engineering and other related disciplines;
- Develop thinking, reasoning, communication and modelling skills through a mathematical approach to problem-solving;
- Connect ideas within mathematics and apply mathematics in the contexts of sciences, engineering and other related disciplines; and
- Experience and appreciate the nature and beauty of mathematics and its value in life and other disciplines.

Lesson Delivery and Expectations

Lessons for H2 Mathematics take the form of tutorials in a classroom setting. Lesson delivery consists of concept building and learning through extensive worked examples and practice questions, and is followed up by homework. Students are expected to complete all assignments diligently.

H2 Mathematics is significantly more abstract and demanding than H1 Mathematics, and students offering the subject are expected not only to understand concepts more deeply, but also to be able to apply them appropriately in a wider variety of contexts.

The main learning materials used throughout the three-year course are available for purchase at the Institute bookshop. The course also requires students to be familiar with the use of a graphing calculator, and students are expected to have access to one for all lessons.

Enrichment Opportunities

All students without a C6 or better in Additional Mathematics are required to complete a bridging programme in Pre-University Year 1 to facilitate their learning of H2 Mathematics.

Students who possess a strong track record or have a keen interest in the subject are eligible to participate in enrichment programmes targeted at further developing problem-solving skills in students.

H2 MATHEMATICS (9758)

Reference and Learning Materials

- Topical lecture notes and tutorials
- Revision workbooks

Mode of Assessment

Students are assessed in these main areas:

- Weighted Assessment (Pre-University Year 1 and 2 only)
- Tests (Pre-University Year 3 only)
- Internal block test (Pre-University Year 3) examinations

A-Level Examination

Students will sit for two written three-hour papers, each carrying 50% of the total marks, and each marked out of 100, as follows:

- Paper 1 (three hours) - consists of ten to 12 compulsory questions of different lengths and marks based on the Pure Mathematics section of the syllabus.

  There will be at least two questions on the applications of Mathematics in real-world contexts, including those from the sciences and engineering. Each question will carry at least 12 marks and may require concepts and skills from more than one topic.

- Paper 2 (three hours) - consists of two sections, Section A and B, of which:
  - Section A (Pure Mathematics: 40 marks) will consist of four to five compulsory questions of different lengths and marks based on the Pure Mathematics section of the syllabus.
  - Section B (Probability and Statistics: 60 marks) will consist of six to eight compulsory questions of different lengths and marks based on the Statistics section of the syllabus.

  There will be at least two questions in Section B on applications of Mathematics in real-world contexts connected to the sciences and engineering. Each question will carry at least 12 marks and may require concepts and skills from more than one topic.

Subject Coverage

Pre-University Year 1:

- Graphs and Transformation
- Equations and Inequalities
- Functions
- Sequences and Series
- Differentiation Techniques
- Differentiation Applications
- Maclaurin Series

Pre-University Year 2:

- Integration Techniques
- Integration Applications
- Differential Equations
- Vectors – Basic Properties, Scalar Product and Vector Product
- Vectors – Lines and Planes
- Complex Numbers

Pre-University Year 3:

- Permutations and Combinations
- Probability
- Discrete Random Variables
- Binomial Distribution
- Normal Distribution
- Sampling
- Hypothesis Testing
- Correlation and Regression

H1 MOTHER TONGUE LANGUAGES (8655/8656/8657)

H1 Mother Tongue Languages (Chinese Language/Malay Language/Tamil Language) aim to develop proficient language users who can communicate effectively using their Mother Tongue in real-world contexts. There is an emphasis on interpersonal communication, listening and reading for comprehension, and being able to present in spoken and written forms. Students will continue to be exposed to cultures and values through language application.

Prerequisite for University Admission

A minimum 'S' grade for H1 Mother Tongue Languages is required for entry into any of the local universities. Those who have attained a D7 or better in Higher Mother Tongue language will be deemed to have met the Mother Tongue Language requirement and need not read H1 Mother Tongue at the GCE A-Level examination.

A good H1 pass in Chinese Language/Malay Language is a prerequisite for the Bachelor of Arts (Chinese Studies/Malay Studies) course at NUS if the student has not secured a GCE O-Level Higher Chinese/Higher Malay pass.

Students who have done well in this subject are eligible for Mother Tongue Languages Bonus Points (1 point for an A grade) if they choose to pursue the following Mother Tongue-related subject concentrations in local Universities:

- Chinese Studies
- Malay Studies
- South Asian Studies
- Communication Studies
- Linguistics and Multilingual Studies
- Arts (Education) with specialisation in Chinese Language and Literature
- Arts (Education) with specialisation in Malay Language and Literature

H1 Mother Tongue Languages (MTL) may be included in the computation of the University Admission Score. The better of the two scores (i.e. with and without MTL) will be the University Admission Score of the student.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Communicate ideas and opinions about general issues effectively;
- Read and understand functional texts from any printed and electronic media;
- Present ideas coherently in writing; and
- Understand and appreciate the culture related to the Mother Tongue.

H1 MOTHER TONGUE LANGUAGES (8655/8656/8657)

Lesson Delivery and Expectations

Lessons for H1 Mother Tongue Languages will usually take the form of tutorials in a classroom setting.

Mini projects, class discussions and oral presentations feature regularly in lessons, much material of which is extracted from authentic contexts. Students will be required to participate actively in all class discussions. Submission of any take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Students will be given a wide range of enrichment opportunities including the MTL Fortnight, inter- and intra-school activities and competitions, Learning Journeys as well as the Conversational Chinese/Malay (CCM) Programme.

Reference and Learning Materials

Resource Packages will be provided by the subject tutors during the course of study.

Mode of Assessment

Internal assessments include written assignments, tests and mini projects.

A-Level Examination

Students will sit for two papers. Paper 1 comprises two parts, of which Part 1 is Essay Writing and Part 2 is Comprehension and Language usage, including Cloze Passage, Grammar, Idioms, and Summary. Students are allowed to use dictionaries approved by the Ministry of Education for Part 1 only. The duration of the examination is one hour and 30 minutes for each of Part 1 and Part 2.

Paper 2 consists of Oral and Listening Comprehension examinations. The Oral examination takes ten to 15 minutes long, and includes a two-minute Oral Presentation followed by a Video-Based Conversation. The Listening Comprehension takes about 30 minutes, and consists of ten multiple choice questions.

Subject Coverage

- Core Modules
- Environment/Growing Up/Nation and Society/Culture and Recreation
- Elective Modules
- Music and Film Appreciation/Media and Internet

H1 NON-TAMIL INDIAN LANGUAGES (NTIL) AND FOREIGN LANGUAGES

Students who offer a Non-Tamil Indian Language (Bengali/Gujarati/Hindi/Panjabi/Urdu) or a Foreign Language (Japanese/German/French) in lieu of Mother Tongue Language at GCE O-Level Examination will continue to offer a H1 Non-Tamil Indian Language (Bengali 8827/Gujarati 8828/Hindi 8829/Panjabi 8836/Urdu 8837) or Foreign Language (Japanese 8835/German 8833/French 8831) at the GCE A-Level examination.

Prerequisite for University Admission

Students are expected to achieve a minimum `S' grade for H1 Non-Tamil Indian Language (Bengali/Gujarati/Hindi/Panjabi/Urdu) or Foreign Language (Japanese/German/French) for admission into any of the local Universities.

Exemption from Mother Tongue Languages

The Mother Tongue Language policy requires all students (including foreign students) to offer a Mother Tongue Language in addition to English. Students exempted from the Mother Tongue

Language at the GCE O-Level Examination will be exempted from the Mother Tongue Language at the GCE A-Level Examination.

Returning Singaporeans and foreigners are required to apply to the Ministry of Education if they wish to offer H1 Non-Tamil Indian Languages (Bengali/Gujarati/Hindi/Panjabi/Urdu) or Foreign Languages (Japanese/ German/French) or be granted exemption.

Students who offer Thai (Syllabus 3260) or Burmese (Syllabus 3249) in lieu of Mother Tongue Language at the GCE O-Level Examination are also required to apply for exemption as these subjects are not offered at the GCE A-Level Examination.

Students who have been officially exempted from reading a Mother Tongue Language are deemed to have met the MTL requirement for university admission.

PHYSICAL EDUCATION

Physical Education (PE) plays an important role in the physical growth and development of students. Through PE, students acquire the knowledge, skills, right attitudes and values towards the pursuit of a lifelong, physically active and healthy lifestyle. It also provides an avenue for students to express themselves through movement and physical activity for leisure and competition. In addition, PE provides a natural platform and valuable opportunities for character building and the development of self-management skills, social and collaboration skills.

Prerequisite for University Admission

PE is not a prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, students should be able to:

- Acquire a range of movement skills to participate in a variety of physical activities;
- Understand and apply movement concepts, principles and strategies in a range of physical activities;
- Demonstrate safe practices during physical and daily activities with respect to themselves, others and the environment;
- Display positive personal and social behavior across different experiences;
- Acquire and maintain health-enhancing fitness through regular participation in physical activities; and
- Enjoy and value the benefits of living a physically active and healthy life.

Principles of Physical Education

- Students to participate in two sports and games at basic level and one at extension level.
- Students to participate in one activity that is individual/dual in nature and a team activity.
- Students to play in recreational competition, and to participate in organising it. This is done through mass participation events such as Sports Fiesta, Mass Walk/Run and Inter-House and Class Games.
- Students are given the opportunity to select from a range of activities provided by the school. This is done through the selection of their sports and game at extension level and Sports Elective Programme (SEP)

Lesson Delivery and Expectations

The PE Programme focuses on the acquiring of knowledge and skills required for lifelong pursuits. The programme equips students with the knowledge skills and values to participate in healthy lifestyle programme, as well as developing ruggedness and resilience.

Lessons will be conducted at the various sports facilities, both indoor and outdoor, available in the Institute. Class size will range from 25 to 35 students for the various activities conducted. Students are grouped according to differing abilities and fitness levels for fitness lessons.

Subject coverage

- Selected sports skills (badminton, basketball, football, volleyball, touch rugby, frisbee, rounders, floorball, netball, handball and tchoukball)
- Traditional Games
- Physical Health and Fitness (including Physical Fitness Assessments and Health talks)
- Inter-class competitions
- Sports Elective Programme (SEP)

H1 PHYSICS (8867)

The H1 Physics course has been designed to build on and extend the content learned at the O-Levels. The course aims to firstly, provide students with an experience that develops their interest in physics and build the knowledge, skills and attitudes necessary for students to become scientifically literate citizens who are well-prepared for the challenges of the 21st century. Secondly, to develop in students the understanding, skills, ethics and attitudes relevant to the practices of science, including understanding the nature of scientific knowledge, demonstrating scientific inquiry skills and relating science and society. Thirdly, to develop in students an understanding that a small number of basic principles and core ideas can be applied to explain, analyse and solve problems in a variety of systems in the physical world. Key features for the teaching and learning of H1 Physics are the understanding of the nature of science and practices of science; the former helps students develop understanding of what science is and how it is practised and applied in society, and the latter places emphasis on enabling students to become scientifically literate consumers and citizens.

The ten topics in H1 Physics are built on three core ideas of Systems and Interactions, Models and Representations, Conservation Laws, and organised into four main sections: Measurement, Newtonian Mechanics, Electricity and Magnetism, and Nuclear Physics. Students are not required to sit for the Practical Exam.

Prerequisite for University Admission

H1 Physics is not a mandatory prerequisite subject for any university course.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Demonstrate knowledge and understanding in relation to:
  - scientific phenomena, facts, laws, definitions, concepts, theories;
  - scientific vocabulary, terminology, conventions (including symbols, quantities and units);
  - scientific instruments and apparatus, including techniques of operation and aspects of safety;
  - scientific quantities and their determination; and
  - scientific and technological applications with their social, economic and environmental implications.
- Use words or symbolic, graphical and numerical forms of presentation to:
- locate, select, organise and present information from a variety of sources;
- handle information, distinguishing the relevant from the extraneous;
- manipulate numerical and other data and translate information from one form to another;
- use information to identify patterns, report trends, draw inferences and report conclusions;
- present reasoned explanations for phenomena, patterns and relationships;
- make predictions and propose hypotheses;
- apply knowledge, including principles, to novel situations;
- bring together knowledge, principles and concepts from different areas of physics, and apply them to a particular context;
- evaluate information and hypotheses;
- demonstrate an awareness of the limitations of physical theories and models.

H1 PHYSICS (8867)

Lesson Delivery and Expectations

Lessons for H1 Physics will usually take the form of tutorials/lectures in a classroom setting. Laboratory demonstrations, mini projects, class discussions and presentations are activities that would be featured in lessons. While students are not required to sit for the Practical Exam, and there would be less emphasis on developing proficiency in handling equipment, the focus of science practical experiences within this course will be on developing students' scientific knowledge and providing opportunities for students to understand the evidence-based nature of scientific knowledge. Students will also be provided with opportunities to use ICT to work collaboratively and be engaged in active learning.

Students will be required to read the necessary notes before lessons, and participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutor. The quality of assignments submitted is also graded in Continual Assessment.

Enrichment Opportunities

Pre-University Year 1:

- Scientific Inquiry Workshops

Pre-University Year 2:

- NUS Demo Lab
- Scientific Inquiry Workshops

Reference and Learning Materials

- Walker, J., Resnick, R., & Halliday, D. (2014). *Fundamentals of physics* (10th ed.) Hoboken, NJ: Wiley (111823071X)
- Giancoli, D. C. (2013). *Physics: Principles with applications* (7th ed.). Boston, MA: Addison-Wesley. (ISBN: 0321625927)
- Resource Packages compiled by tutors

Mode of Assessment

Internal assessments include, quizzes, assignments, project, tests, weighted assessment, block test and Mid-Year/End-of-Year Examinations.

A-Level Examination

H1 Physics students will sit for two papers. The duration of Paper 1 is one hour and the duration of Paper 2 is two hours.

Paper 1 consists of 30 compulsory multiple choice questions. All questions will provide four direct choice options as possible answers. Paper 2 comprises two sections. Section A will consist of a variable number of structured questions including one or two data-based questions, all compulsory. The data-based question(s) will constitute 15-20 marks. All questions must be answered. Section B will require students to answer one out of two 20-mark questions. The questions will require students to integrate knowledge and understanding from different areas of the syllabus.

Subject Coverage

Pre-University Year 1:

- Measurement
- Kinematics
- Dynamics
- Forces
- Work, Energy and Power
- Motion in a Circle and Orbits

Pre-University Year 2:

- Current of Electricity
- DC Circuits
- Electromagnetism
- Nuclear Physics

H2 PHYSICS (9749)

The H2 Physics syllabus has been designed to develop and extend the content coverage provided by the GCE O-Level. Students will be expected to have knowledge and understanding of physics at the O-Level, either as a single subject or as part of a balanced science course. Students may not concurrently offer physics at both the H1 and H2 levels.

The course aims to firstly, provide students with an experience that develops their interest in physics and build the knowledge, skills and attitudes necessary for further studies in related fields. Secondly, to enable students to become scientifically literate citizens who are well-prepared for the challenges of the 21st century. Thirdly, to develop in students the understanding, skills, ethics and attitudes relevant to the practices of science, including understanding the nature of scientific knowledge, demonstrating scientific inquiry skills and relating science and society. Fourthly, to develop in students an understanding that a small number of basic principles and core ideas can be applied to explain, analyse and solve problems in a variety of systems in the physical world. Key features for the teaching and learning of H2 Physics are the understanding of the nature of science and practices of science; the former helps students develop understanding of what science is and how it is practised and applied in society, and the latter places emphasis on enabling students to become scientifically literate consumers and citizens.

H2 Physics covers 20 topics, built on three core ideas of Systems and Interactions, Models and Representations, Conservation Laws, and organised into four main sections under six sections (Measurement, Newtonian Mechanics, Thermal Physics, Oscillations and Waves, Electricity and Magnetism, and Modern Physics). In addition to the theory papers, students are also required to take a practical paper.

Prerequisite for University Admission

H2 Physics is a mandatory prerequisite for admission to the following courses in NUS and NTU:

- NUS Science (Physics), Chemical Engineering, Engineering Science, Environmental Engineering
- NTU Physics/Applied Physics, Physics with Mathematical Science Major.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Demonstrate knowledge and understanding in relation to:
  - scientific phenomena, facts, laws, definitions, concepts, theories;
  - scientific vocabulary, terminology, conventions (including symbols, quantities and units);
  - scientific instruments and apparatus, including techniques of operation and aspects of safety;
  - scientific quantities and their determination; and
  - scientific and technological applications with their social, economic and environmental implications.

H2 PHYSICS (9749)

- Use words, symbolic, graphical and numerical forms of presentation to:
  - locate, select, organise and present information from a variety of sources;
  - handle information, distinguishing the relevant from the extraneous;
  - manipulate numerical and other data and translate information from one form to another;
  - use information to identify patterns, report trends, draw inferences and report conclusions;
  - present reasoned explanations for phenomena, patterns and relationships;
  - make predictions and propose hypotheses;
  - apply knowledge, including principles, to novel situations;
  - bring together knowledge, principles and concepts from different areas of physics, and apply them to a particular context;
  - evaluate information and hypotheses; and
  - demonstrate an awareness of the limitations of physical theories and models.

Lesson Delivery and Expectations

Work collaboratively in teams and engage in inquiry-based learning. They will also use ICT to add value to learning activities, promote active participation and explore alternative platforms to share ideas and findings.

Lessons for H2 Physics will usually take the form of tutorials/lectures in a classroom setting. Laboratory demonstrations, mini projects, class discussions and presentations are activities that would be featured in lessons. Students are required to carry out appropriate practical work to investigate scientific principles. Students will also be provided with opportunities to use ICT to work collaboratively and be engaged in active learning.

Submission of take-home assignments must be punctual, as required by the subject tutor. The quality of assignments submitted is also considered in Continual Assessment.

Enrichment Opportunities

Pre-University Year 1:

- Science Communication Programme, Physics Olympiad (for selected students), Science Research Attachment at Institute of Higher Learning (for selected students), Institute of Bioengineering and Nanotechnology Youth Research Programme (for selected students)

Pre-University Year 2:

- NUS Demo Lab, Alumni talks on University Science courses, Physics Olympiad (for selected students), and Science Research Attachment at Institute of Higher Learning (for selected students)

Pre-University Year 3:

- STEM talks by Institute of Higher Learning

Reference and Learning Materials

- Resource packages compiled by tutors
- Walker, J., Resnick, R., & Halliday, D. (2014) Fundamentals of physics (10th ed.). Hoboken, NJ: Wiley. (ISBN: 111823071X)
- Giancoli, D. C. (2013). Physics: Principles with applications (7th ed.). Boston, MA: Addison-Wesley. (ISBN: 0321625927)
- Sang, D., Jones, G., Chadha, G., Woodside, R., Stark, W., & Gill, A. (2014). Cambridge Iinternational AS and A-level physics coursebook (2nd ed.). Cambridge, United Kingdom: Cambridge University Press. (ISBN: 9781107697690)

H2 PHYSICS (9749)

Mode of Assessment

Internal assessments include, quizzes, assignments, project, tests, weighted assessment, block test and Mid-Year/End-of-Year/Preliminary Examinations.

A-Level Examination

H2 Physics students will sit for three theory papers and a Science Practical paper.

Paper 1 consists of 30 compulsory multiple choice questions. The duration of the paper is one hour. All questions will provide four direct choice options as possible answers.

Paper 2, of a duration of two hours, consists of a variable number of structured questions plus one or two data-based questions and will include questions which require candidates to integrate knowledge and understanding from different areas of the syllabus. All questions are compulsory and answers are to be written in spaces provided on the question paper. The data-based question(s) will constitute 20–25 marks.

Paper 3, of a duration of two hours, consists of two sections, and will include questions, which require candidates to integrate knowledge and understanding from different areas of the syllabus. All answers will be written in spaces provided on the question paper. In Section A, there are a variable number of structured questions, all compulsory. Section B consists of a choice of one from two 20-mark questions.

Paper 4, of a duration of two hours and 30 minutes, is a practical paper that will assess skill areas such as planning, manipulation, measurement and observation, presentation of data and observations, analysis, conclusions and evaluation. The assessment may also include questions on data-analysis which do not require practical equipment and apparatus. Candidates will be allocated a specified time for access to apparatus and materials of specific questions. Candidates will not be permitted to refer to books and laboratory notebooks during the assessment.

Subject Coverage

Pre-University Year 1:

- Measurement
- Kinematics
- Dynamics
- Forces
- Work, Energy and Power
- Electric Fields
- Current of Electricity
- DC Circuits

Pre-University Year 2:

- Motion in a Circle
- Gravitational Field
- Oscillations
- Wave Motion
- Superposition
- Electromagnetic Induction
- Electromagnetism
- Alternating Currents

Pre-University Year 3:

- Temperature and Ideal gases
- First law of thermodynamics
- Quantum Physics
- Nuclear Physics.

H2 PRINCIPLES OF ACCOUNTING (9593)

H2 Principles of Accounting (PAA) 9593 is offered as one of the subjects in the Mathematics/Science group.

The syllabus places emphasis on developing students to become users of accounting information, knowledge and skills that will be valuable in any field of work or life. It is also recognised that the knowledge and skills in preparing and presenting accounting information are valuable and worth acquiring. Being able to prepare and present accounting information will help students to better appreciate how the information should be used. The knowledge and skills of a preparer will provide students who aspire to specialise in accounting after the A-Level with the necessary foundations.

Thus, the H2 Principles of Accounting syllabus is designed as an introductory accounting course offered as a three-year A-Level programme, and no prior knowledge in accounting is required. It is not the subject's intent to induct students into the accounting profession. Instead, it seeks to help students understand the principles of how financial numbers are used to represent and measure business economic activities.

Principles of Accounting seeks to nurture in students the approaches to and qualities of thinking, and values that an accounting professional would adopt.

This subject is not a pre-requisite for any business-related courses.

In using and applying financial analysis methods and tools, students will develop sound reasoning and decision-making skills which are relevant for the 21stt century.

The syllabus will also highlight the importance of business ethics, particularly integrity, objectivity and responsibility, from an understanding that the accounting information one prepares and presents are relied upon to support and facilitate decision-making.

Prerequisite for University Admission

H2 Principles of Accounting is not a mandatory prerequisite subject for any university course.

Instructional Objectives

The syllabus intends for students to develop the following skills:

- numeracy skill in detecting underlying patterns and relationships between financial numbers, and interpreting the patterns

and relationships in relation to business economic activities;

- synthesis and presentation skills in the preparation of accounting information in a suitable form;
- analytical skill in breaking down business economic activities for their financial effects, in assessing financial impact for implications on the business, and in using financial information for decision-making; and
- evaluative skill in using financial information for decision-making.
- having integrity and being objective;
- being accountable and responsible for one's actions;
- having a sense of social responsibility to act with due care; and
- being logical, methodical, consistent and accurate.

Lesson Delivery and Expectations

Lessons are conducted in classroom setting, using case-based pedagogy. Students will develop mastery of key skills and knowledge through ongoing formative assessments

H2 PRINCIPLES OF ACCOUNTING (9593)

Schemes of Assessment

Format:

The examination consists of two papers, Paper 1 and Paper 2, taken at separate sittings.

	Description	Duration	Weightage
Paper 1	This paper will test Financial Accounting. Section A (60 marks, 30%) 3 compulsory structured questions (20 marks each) Section B (40 marks, 20%) 1 compulsory scenario-based structured question (40 marks)	3h	50%
Paper 2	This paper will test Managerial Accounting. Section A (60 marks, 30%) 3 compulsory structured questions (20 marks each) Section B (40 marks, 20%) 1 compulsory mini-case study (40 marks)	3h	50%

Internal mode of assessment

Internal assessments include topical tests, assignments and Mid-Year and End-of-Year Examinations.

Subject coverage

Pre-University 1:

- Accounting Information System and Accounting Cycle
- Accounting Principles
  Accounting Equation and Double Entry
- Measuring Economic Activities
- Elements of Financial Statements
- Financial Statements and Elements of Financial Statements
- Property, Plant and Equipment
- Income and Expenses
- Inventories
- Trade Receivables and Other Receivables
- Trade Payables and Other Payables
- Property, Plant and Equipment
- Cash in Hand and Cash at Bank
- Correcting Accounting Errors
- Incomplete Records
- Financial Statements Analysis

Pre-University 2:

- Qualitative Characteristics of Useful Financial Information
- Relevant Information for Decision-making
- Measuring Costs of Products, Services and Other Cost Objects
- Cost Flow in a Manufacturing Business
- Normal Job-costing System
- Cost-volume-profit Analysis
- Variance Analysis

Pre-University 3:

- Stakeholders and Decision-making
- Cash Flow Statements
- Business Ethics
- Capital Investment Analysis
- Budgeting

H1 PROJECT WORK (8808)

Project Work is a learning experience that aims to provide students with the opportunity to synthesise knowledge from different disciplines, and critically and creatively apply it to authentic situations. Through this learning process, students acquire skills such as collaboration, communication and independent learning to prepare them for the dynamic challenges of the 21st century.

Prerequisite for University Admission

H1 Project Work is a requisite subject for admission into the local universities for school-based students.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Make links across different areas of knowledge and to generate, develop and evaluate ideas and information so as to apply these skills in a research area;
- Communicate effectively and to present ideas clearly and coherently to a specific audience in both the written and oral forms;
- Collaborate with others to achieve common goals; and
- Learn on his/her own, reflect on his/her learning and take appropriate actions for improvement.

Lesson Delivery and Expectations

Students will be grouped into groups of four or five, to research on one of two research tasks beginning in February. A Supervising Tutor will be assigned to each group to guide the students.

Ongoing feedback, for individuals and the group, will be given throughout the project. Students need to ensure that their work is submitted promptly and feedback from their Supervising Tutors is acted upon in a timely manner.

Reference and Learning Materials

Learning materials will be given to students during lessons and lectures.

Mode of Assessment

Students will be assessed on their performance both individually and as members of a group. The assessment is based on a written report (including a personal reflection) and an oral presentation.

Subject Coverage

Students in Millennia Institute will only read Project Work in Pre-University Year 2. The GCE A-Level assessment for Project Work will also be carried out in Pre-University Year 2. Students will be taught how to:

- Analyse and evaluate ideas
- Generate ideas
- Organise ideas
- Substantiate ideas
- Communicate and present ideas

H2 TAMIL LANGUAGE AND LITERATURE (9574)

H2 Tamil Language and Literature (9567) aims to develop students with a flair for and interest in the Tamil Language through greater exposure to the language, literature and culture. This subject consists of two components: language and literature. An emphasis is placed on the appreciation and understanding of texts and literary works through developing students' analytical skills of various literary genres including the novel, short stories, poetry and drama.

Prerequisite for University Admission

Students who have done well in this subject are eligible for the MTL Bonus Points (2 points for at least an E grade) if they choose to pursue the following Mother Tongue related subject concentrations in local Universities:

- South Asian Studies
- Communication Studies
- Linguistics and Multilingual Studies

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Understand linguistic and literary concepts;
- Critically analyse texts using key concepts;
- Present ideas coherently in written form; and
- Understand and appreciate the Tamil culture.

Lesson Delivery and Expectations

Lessons for H2 Tamil Language and Literature will usually take the form of tutorials in a classroom setting. Mini projects, class discussions and oral presentations are some regular activities in lessons to engage students through an authentic learning experience. Students will be required to participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Students will be given a wide range of enrichment opportunities including the annual Pre-University Seminar, the Mother Tongue Language Fortnight, inter- and intra-school activities and competitions, workshops and Learning Journeys.

Reference and Learning Materials

Resource Packages will be provided by the respective subject tutors during the course of study. The prescribed texts are Karithundu, a novel by Dr. Mu Varadarajan, and Light Over Water, a collection of short stories, poetries and plays by local and international writers, as well as classical works from the Tamil Sangam period published by the National Arts Council.

H2 TAMIL LANGUAGE AND LITERATURE (9574)

Mode of Assessment

Assessment includes written assignments, tests and mini projects.

A-Level Examination

H2 Tamil Language and Literature consists of three papers. Paper 1 (Language) comprises two parts. Part 1 is focused on Essay Writing, which requires students to write a narrative, descriptive, argumentative, or graphic stimulus essay to demonstrate their competency in writing skills. Students are allowed to use dictionaries approved by the Ministry of Education. Part 2 (Comprehension and Language usage) consists of questions that assess understanding and application of the language using a comprehension and a cloze passage. Students are not allowed to use dictionaries for Part 2 and Paper 2.

Paper 2 is an e-examination comprising comprehension, grammar and commentary writing, and students are required to type their responses into a computer.

Paper 3 (Literature) is an open-book examination. This paper requires students to answer four questions based on the four genres that they will be exploring in their course of study: the novel, short stories, poetry and drama. The duration for Paper 3 is three hours.

Subject Coverage and Calendar

	பாடக் கருப்பொருள் (Themes)	பாடத் துணைக்கருப்பொருள் (Sub-themes)			ஆண்டு (Year)
1	இளமைப்பருவம்	சுய முன்னேற்றம்	குடும்பம்	நண்பர்கள்	முதலாம் ஆண்டு
2	சமூகமும் நாடும்	பல்லினக் கலாசாரம்	சமூக ஈடுபாடு	தேசிய அடையாளம்	இரண்டாம் ஆண்டு
3	உலகளாவிய போக்கு	அரசியல் நடப்புகளும் சவால்களும்	சமூகப் பொருளியல் வளர்ச்சி நிலையும் சவால்களும்	பண்பாட்டு விழிப்புணர்வும் சவால்களும்	மூன்றாம் ஆண்டு

தாள் 3

1. இலக்கியச் சாரல்
2. நாவல் – கரித்துண்டு

MOTHER TONGUE SYLLABUS B (CLB8611/MLB8613/TLB8614)

Mother Tongue Syllabus B (Chinese B 8611/Malay B 8613/Tamil B 8614) aims to equip students with skills that will help them to communicate confidently in their Mother Tongue. The use of ICT multimedia aids as well as the bilingual teaching approach will create an environment that is conducive to the development of basic skills of communication in students.

Prerequisite for University Admission

Mother Tongue Syllabus B is not a H1 or H2 level subject. Performance in the Chinese B/Malay B/ Tamil B examination is indicated as Merit, Pass or Ungraded. Students who pass the Mother Tongue B will be deemed to have met the Mother Tongue Language requirement for admission to University. However, no consideration will be given in the computation of university admission score to any of the local universities.

Instructional Objectives

On successful completion of this subject, a student should be able to:

- Communicate ideas and opinions about issues around them;
- Read and understand functional texts from any printed and electronic media;
- Write simple functional texts with clarity; and
- Understand the culture of the Mother Tongue.

Lesson Delivery and Expectations

Lessons for Mother Tongue Syllabus B will usually take the form of tutorials in a classroom setting. Class discussions, role-play and oral presentations are some regular activities that are used to engage students through authentic learning experiences during lessons. Students will be required to participate actively in all class discussions. Submission of take-home assignments must be punctual, as required by the subject tutor.

Enrichment Opportunities

Students are given a wide range of enrichment opportunities including the Mother Tongue Language Fortnight and Learning Journeys.

Reference and Learning Materials

Resource Packages will be provided by the subject tutor during the course of study.

MOTHER TONGUE SYLLABUS B (CLB8611/MLB8613/TLB8614)

Mode of Assessment

Internal assessments include written assignments, oral presentations and class tests.

A-Level Examination

Students will sit for three papers. Paper 1 tests Functional Writing, and requires students to write an email or blog entry. Students are allowed to use dictionaries approved by the Ministry of Education. The duration for Paper 1 is 50 minutes.

Paper 2 tests Comprehension and Language Usage, and consists of multiple choice questions on Cloze Passages, Grammar, Idioms and Vocabulary. Students are not allowed to use dictionaries. The duration for Paper 2 is one hour.

Paper 3 consists of Oral and Listening Comprehension tests. The Oral examination is about 15 minutes long, and includes a two-minute Oral Presentation followed by a Video-based Conversation. The Listening Comprehension examination is about 30 minutes long, and consists of 10 multiple choice questions.

Subject Coverage

- Core Modules
  - Environment/Growing Up/Nation and Society/Culture and Recreation
- Elective Modules
  - Music and Film Appreciation/Media and Internet

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Getting Here
Bus Services:
Bukit Batok West Avenue 3 [157, 174, 174e, 178, 506, 991]. Bus stop code: 43341 & 43349.
Bukit Batok West Avenue 8 [941, 991]. Bus stop code: 40329 & 40321.

By vehicle
From Changi via PIE, exit Jurong Town Hall Road (Exit 31), turn right into Bukit Batok Road, turn right to Bukit Batok West Avenue 3, and turn left to Bukit Batok West Avenue 8.

From Tuas via PIE, exit Jurong Town Hall Road (Exit 31), turn left into Bukit Batok Road, turn right to Bukit Batok West Avenue 3, and turn left to Bukit Batok West Avenue 8.

NOTES

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