NTU-NUS/SMU PhD Student Exchange Programme
List of NTU Courses to be offered in Semester 1 AY2024-25

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
ADM	AP7046	Design: An Asian Perspective	3	Asia is the largest of the seven continents, extending from Turkey in the west to Japan in the east, consisting of 48 countries (49 if Taiwan is included), divided into six regions, with a total population of 5.2 billion people. This represents almost 60% of the world population. Design has been an art form in Asia from the Sumerian period til today, which means that every country has a rich socio-cultural and artistic heritage which can be reflected in the design of artifacts, environment and services. Engagement with the west has transformed these unique societies, resulting in the adaptaion of Western technology and style, so much so that design seems to have been 'democratised' as represented by products such as smartphones and automobiles. How can a designer engage with the cultural heritage of Asia in checking this erosion of traditional values while persuing a lifetime in design in the contemporary world? This course presents an opportunity to discover a personal perspective, which may be expressed through a student's work, that has been illuminated by an informed study of Asia within country in that continent. Through lectures, discussions, field trips and hands-on tutorial exercises, students will investigate design as seen from an Asian perspective. By the end of this course, graduate students will have an enhanced appreciation of the topic and understand how it is essential to their research and future career. The advanced knowledge they attain will further consolidate their ability to formulate effective research questions and will inform their subsequent research methodology and analysis.	Every Tuesdays, 9.30am to 12.20pm Start Date: 13-AUG-2024 End Date: 12-NOV-2024	NIL
ADM	AP7055	Art in the Age of Creative Machine	3	This course introduces students to the most recent research and critical machine learning theories in creative fields such as media art, music, performance, and literature. It examines how machine-based art methodologies developed may expand our understanding of the artist's role, the creative potential of AI, and the future of creativity. To identify the specificities of AI in art, cultural, historical, philosophical, aesthetic, and spiritual aspects will be introduced into the discussion. Students will submit weekly written reading responses on assigned readings during the semester and develop a final research project for a unique concept and prototype using AI tools as a creative medium. The project will be presented at the end of the term, highlighting the student's own exploration, discovery (concept and /or prototype), and perspective and approach to AI as a medium in creative practices. The course aims to bridge the gap between AI, machine learning and Arts by introducing knowledge, methods, and tools accessible for the artists to work with.	Every Tuesdays, 4.30pm to 7.20pm Start Date: 13-AUG-2024 End Date: 12-NOV-2024	NIL
ASE	ES7001	Natural Hazards and Society	3		Monday, 09:30 – 12:20	
ASE	ES7010	Geochemistry	4		Monday, 14:30 – 17:20	
ASE	ES7028	Experimental Design & Analysis for Ecology	4		Tuesday, 14.30 - 16.20 Thursday, 10.30 - 12.20	
ASE	ES7029	GIS and the Earth System	3		Monday, 09.30 - 12.20	
ASE	ES7030	Natural Infrastructure for Resilient Urban Systems	3		Tuesday, 14.30 - 17.20	
ASE	ES7031	Population Genetic Theory & Its Application	3		Friday, 09.30 - 12.20	
CCEB	CH7003	Advanced Reaction Engineering	3	https://www.ntu.edu.sg/cceb/admissions/graduate-students/course-information	Every Fri, 13:30 to 4:20PM	Grading
CCEB	CH7004	Advanced Chemical Engineering Thermodynamics	3	https://www.ntu.edu.sg/cceb/admissions/graduate-students/course-information	Every Wed, 13:30 to 4:20PM	Grading

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CCEB	CM7012	Advanced Chemical Instrumentation	2	https://www.ntu.edu.sg/cceb/admissions/graduate-students/course-information	Every Tue, 12:30 to 4:20PM	Grading
CCDS	CE6127	Artificial Intelligence in Game Design	3		Monday 9.30am-12.30pm-LT14	100% Coursework
CCDS	CE6190	Special Topic-Recent Advance on Image Segmentation and Its Applications	3		Friday 6.30pm-9.30pm-LT10	100% Coursework
CCDS	CE7490	Advanced Topics in Distributed Systems	3		Tuesday 2.30pm-5.30pm-LT14	100% Coursework
CCDS	CE7426	Advanced Topic in Convex Optimization	3		Tuesday 2.30pm-5.30pm-LT15	Formal Exam on 2 Dec 2024
CCDS	CE7429	Computational Intelligence: Methods & Applications	3		Tuesday 10.30am-11.30am-LT10 & Friday 10.30am-12.30am-LT16	Formal Exam on 26 Nov 2024
CEE	CV7001	Finite Element Methods	3		Tue, 6.30PM - 9.30PM	Letter grade
CEE	CV7502	Aquatic Chemistry	3		Mon, 6.30PM - 9.30PM	Letter grade
EEE	EE7204	Linear Systems	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-computer-control-automation#curriculum	Every Tuesday, 6.30 pm to 9.30 pm	Letter grade
EEE	EE7401	Probability and Random Processes	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-signal-processing#curriculum	Every Monday, 6.30 pm to 9.30 pm	Letter grade
EEE	EE7402	Statistical Signal Processing	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-signal-processing#curriculum	Every Wednesday, 6.30 pm to 9.30 pm	Letter grade
EEE	EE7608	Advanced Engineering of Optoelectronics	3	https://www.ntu.edu.sg/eee/admissions/programmes/graduate-programmes/detail/master-of-science-in-electronics#curriculum	Every Thursday, 6.30 pm to 9.30 pm	Letter grade
LKCMed	MD7001	The Ethics & Practice of Research	3	This course aims to introduce fundamental issues in the fields of history and philosophy of science and practical ethics. It enables students to critically evaluate key arguments in these fields. This module examines the fundamental issues of scientific research. Designed as a core course for PhD students with or without training in critical thinking. It aims to provide young researchers a general grasp of foundation of science from a range of theories and case studies. In addition, it offers an opportunity for students to reflect upon their own roles in a team work or a research project before they enter a laboratory. Students will discern the motivation and objectives of scientific research. Eventually, they will be able to distinguish good and bad scientific practices and the philosophical concerns in lieu of or against them. • Philosophy of Knowledge and Scientific Revolution • Science in Society • Sampling methods & sample size calculation • The loss of knowledge in the information age • Research Application and Commercialisation • Research Involving Animal Subjects • Research Involving Human Subjects I • Research Involving Human Subjects II • Responsible Conduct in Research • Writing Workshop of Research Proposal for IRB and IAACUC 12 • Ethics in Practice • Panel Discussion and Debate • Student-led Seminar presentations	Tuesdays, 9.30 - 12.20 pm 13 Aug - 12 Nov 2024	

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LKCMed	MD7103	Biological Imaging	3	This course will provide introduction to optical microscopy, as well as the wide variety of non-optical imaging modalities in use in modern laboratories. Developments in Physics, including the description of light in terms of its quantal properties led to new microscopy techniques based on fluorescence phenomena. Further progress led to new ways for studying matter and for imaging: Positron Emission Tomography and X-ray imaging. Developments in spectroscopy using X rays or Nuclear Magnetic Resonance also provide new high resolution techniques for imaging, such as Functional Magnetic Resonance Imaging (fMRI). Some scientific applications of the medical imaging techniques like fMRI, X-ray, CT-scans, PET and ultrasound, will be discussed. Students will be acquainted with the most prominent modern imaging techniques, such as confocal, fluorescence, NMR/MRI, PET and X rays. The students will have a chance to expose to various imaging techniques during the theoretical and practical sessions. The course might evoke a passion for imaging among students or prepare them for the laboratory by giving them a grounding in the principles, concepts, applications and language of Biological Imaging	Thursdays, 2.30 - 5.20 pm 15 Aug - 21 Nov 2024	
LKCMed	MD7106	Emerging Omics Technologies for Systems Biology & Personalised Medicine	3	All biological organisms, whether prokaryotes or the human body comprise a highly complex system of networks that are tightly regulated to maintain physiological and biochemical health. Factors contributing to this complexity are inter-individual differences of genetics and epigenetics, the microbiomes, as well as the external environment. Understanding how these complex networks are controlled is the goal of systems biology, and elucidation of individual variation and pathogenic perturbations could lead to personalised medicine. Advances in technologies that enable systems-scale analyses of biomolecules, from genes to proteins and metabolites (omics) as well as big-data biocomputational approaches and tools have allowed us to derive novel insights into biological networks, leading to identification of alternative therapeutic approaches or biomarkers for a wide range of human diseases	30 Sep 24 to 4 Oct 24: 8.30 am - 5.20 am	
LKCMed	MD7110	Advanced Genetics in Diseases, Ageing & Cancer	3	The main aim of this course is to explain the key principles of human genetics, ageing and cancer genetics to the graduate student, and to introduce the fundamental concepts underlying existing methods in the field of genetics and genomics. This module will make them better prepared to contribute to the research and development of this trend, as well as research in other basic science and biomedical applications in general. The course will consist of 3 main blocks: (i) Germline Genetic Variants in Human Diseases: Single-gene disorders, complex genetic disorders, population genetics, aneuploidies, GWAS, prenatal diagnostics 15 (ii) Somatic and Epigenetic changes in Ageing and Cancer: Somatic gene changes, epigenetics, DNA damage-repair, ageing genome, cancer genetics (iii) Genetic Modelling and Understanding Human Diseases: Disease modelling, genome editing, ethics	Mondays, 2.30 - 5.20 pm 12 Aug - 11 Nov 2024	
MAE	MA6503	Lasers and Optics in Smart Industry	3		Friday 7 PM - 9:50 PM	
MAE	MA6511	Advanced Manufacturing Processes	3		Wednesday 7 PM - 9:50 PM	
MAE	MA6513	Advanced Design for Manufacturing	3		Thursday 7 PM - 9:50 PM	
MAE	MA6704	Management of Logistics Functions	3		Friday 7 PM - 9:50 PM	
MAE	MA6811	Product Design & Development	3		Tuesday 7 PM - 9:50 PM	
MAE	MA6812	Advanced Materials Engineering	3		Monday 7 PM - 9:50 PM	

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MAE	MA7131	Finite Element Method	3		Monday 7 PM - 9:50 PM	
MSE	MS7130	Organic Materials	3	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7140	Properties of Materials	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7240	Modelling of Materials	1	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7310	Chemical Analysis of Materials	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7320	Physical Analysis of Materials	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7340	Crystal Chemistry of Materials	4	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7420	Biomaterials	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7440	Environmental & Thermal Degradation of Polymeric Materials	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7460	Polymer Recycling & Sustainable Polymeric Materials	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7470	Nanostructured Materials for Healthcare	2	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
MSE	MS7480	Polymer Properties, Design & Sustainability	1	Refer to MSE PG website.	Online course (asynchronous e-learning)	Letter graded
NBS	BR7327	Empirical Research II (Corporate)	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7333	Econometrics in Information Systems	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7342	Theory Construction and Experimental Methods in Behavioural Research	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7344	Advanced Topics in Organisational Behaviour	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7348	Foundational and Advanced Topics in Regression Analysis: Applications for the Behavioral Sciences	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7364	Contemporary Issues in Operations Management	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7372	Theoretical Foundations of Strategic Management	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7373	Organization Theory	3	course-outlines.pdf (ntu.edu.sg)	To be advised	
NBS	BR7511	Seminar in Accounting Research	1.5	course-outlines.pdf (ntu.edu.sg)	To be advised	
NCPA	PM6000	Applied Public Sector Economics	3		Timetable will be available in July 2024	
NCPA	PM6137	Behavioural Economics for Public Policy	3			
NCPA	PM6145	Contemporary Politics of Migration Governance	3			
NCPA	PM6148	AI for Public Governance	3			
NIE	MAE902	Language Acquisition Studies	4	This course examines theories of language acquisition (first, second, and bilingual) from psycholinguistic and sociolinguistic perspectives. A range of factors that affect the nature and route of language acquisition will be considered (e.g., age, cross-linguistic influence, linguistic environments, cognition, identity, power, etc.). A solid understanding of the nature of language acquisition is expected to provide good grounds for designing language teaching pedagogy.		LetterGrade
NIE	MAE903	Sociolinguistic Perspectives on the Classroom	4	This course examines language in its social context, including language use in multilingual communities, social reasons for language change, language planning, pidgin languages, linguistic variation based on geography, social class, and gender, and issues in cross-cultural communication. It also considers the impact these concepts have on Singapore classrooms		LetterGrade
NIE	MAE904	Language Teaching Methodology	4	In this course, we explore the rationale and principles behind the paradigm shift in language teaching methodologies and evaluate their appropriacy for the local teaching context in Singapore. Participants will learn about the relationship between methodology and syllabus design in planning appropriate programmes for teaching the different language skills		LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MAE909	The Culture and Conventions of Academic Writing	4	In this course, we explore the linguistic and cultural conventions of academic writing, drawing on examples from postgraduate theses / dissertations, research papers, and published journal articles. Participants will learn about different traditions in the field of academic writing research, read and discuss research on the complex issues surrounding academic literacy, examine the socially-situated nature of academic discourse conventions, and be guided to critically analyse genuine academic texts to observe the discourse practices valued by the academic discourse community, for example, in terms of reviewing literature, organising arguments, supporting claims, citing sources, and projecting a credible authorial persona. In essence, the course provides a sound theoretical introduction to the field of academic writing research, offers insights into the kinds of writing that are valued at postgraduate level, and constructs a space in which participants can unpack, problematise, and question academic conventions.		LetterGrade
NIE	MAE916	Critical Literacy: Theory, Practice, and Research	4	This course offers an invigorating approach to the study of critical literacy. It presents examples of seminal historical and contemporary theory, research, and practice in local and global contexts. Participants are encouraged to adopt a reflexive standpoint on their reading in order to hone their critical, analytic, and reflective faculties and to dialogue with the course tutor and each other to deepen thinking. While there is a strong focus on the theoretical, there is also a balance derived from connecting theory to research and practice across diverse cultures, communities, families, and classrooms. Issues affecting the position of diverse individuals in these varied contexts will be examined. Participants will have opportunities to explore the subject from their own personal, professional, and academic passions and standpoints.		LetterGrade
NIE	MAE919	Second Language Phonology	4	The course will give students the ability to formulate informed opinions about the rules and features of L2 phonology, how they differ from L1 phonology, and whether or not there are universal patterns and processes regardless of the languages involved. Further they will be able to determine to what extent it is possible to alter ones phonology and whether this is a desirable or advisable path to follow for language learners. These outcomes will be achieved by a process of student analysis of their own speech via close phonetic transcription in IPA assisted by the use of phonetic analysis software, and further by students engaging in a process of attempting to alter their own speech habits in order to adopt a target L1 phonological feature.		LetterGrade
NIE	MAS914	Contemporary Politics of Southeast Asia	4	The revised course seeks to engage you in Southeast Asian history and studies by connecting contemporary political issues in Southeast Asia with key themes in the regions history and heritage. In order to achieve this, the course focuses on the dynamics of social, political and economic transformation in Southeast Asia, as well as the relationship between these changes and the wider patterns of globalisation. Although the focus is on contemporary events in Southeast Asia, you will develop an understanding of these issues through an awareness of historical developments since the Second World War, and the role these events played in shaping political institutions and crises.	13/08/2024	Tuesday	5:30 - 8:30pm	LetterGrade
NIE	MAS945	Travel and Tourism in Asia and Beyond	4	Tourism is arguably the largest and most important industry in Asia. New and emerging trends in the region such as increasing mobility of ordinary people, rise in ageing population, rapid urbanisation, and growing emphasis on health and wellness coupled with the rapidly evolving nature of travel call for a serious examination of the subject matter. Yet, it is important to recognise that Asian Tourism does not exist in a vacuum; it is part and parcel of a global tourism system and is in a symbiotic relationship with the rest of the globalised world. In this course, you will examine major trends in travel and tourism, focusing specifically on Southeast and East Asia, but also drawing on case studies worldwide. Further, you will learn about the political geographies of tourism spaces and landscapes, and the changing relationships between state, civil society, and market as well as their influence on power relations in tourism.	15/08/2024	Thursday	5:30 - 8:30pm	LetterGrade

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NIE	MAS948	Discourses in Sustainability	4	Sustainability as a topic is of utmost importance in the humanities. The environmental and social impacts of global climate change on our everyday lives have also been increasingly emphasised. Accordingly, there is a need to equip you with the history of sustainability studies, alongside current debates as well as possible future trajectories of this discipline. This knowledge will help you to better understand situations related to climate change while foregrounding opportunities for you to play a part in fostering environmental sustainability.	14/08/2024 | Wednesday | 5:30 - 8:30pm	LetterGrade
NIE	MCL907	Chinese Language Curriculum Design and Instructional Materials Development	4	Language curriculum design and the development of instructional materials should cater to the differing learning needs of individuals in different regions. The Chinese language curriculum in Singapore uses a uniform set of syllabus and instructional materials for all students. Hence, during the teaching process, many teachers find that they need to adapt these to suit the varying abilities of their students.	13/08/2024 | Tuesday | 6:00 - 9:00pm	LetterGrade
NIE	MCL909	Teaching of Reading and Writing of Chinese: From Theory to Practice	4	Reading and Writing forms part of the key components of Chinese language teaching in the 21st century globally. Chinese language learners are expected to be able to read and write in order to comprehend information presented in the Chinese language. As a result, Chinese language educators must keep abreast with recent developments and research in Chinese language reading and writing, and be equipped with the ability to teach reading and writing skills effectively.	12/08/2024 | Monday | 6:00 - 9:00pm	LetterGrade
NIE	MCL910	Chinese Language Testing and Assessment	4	Testing and assessment forms a critical component of language learning and Chinese language curriculum. It is not only closely related to the teachers pedagogy and students learning strategy, but also determines and impacts learning outcomes for both short and long terms.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MCT901	Curriculum: Theories and Issues	4	The field of curriculum is characterized by a vigorous debate and a plethora of compelling arguments. This introductory course invites participants to examine major issues and debates in the field of curriculum studies, and to bring these ideas to bear on curriculum developments in Singapore. The course is structured around the following fundamental questions: How do we understand curriculum and the work it does? What knowledge is of most worth and what should schools teach? How should this be taught and for what reasons? How does the curriculum reflect a societys understandings of its past as well as visions and aspirations? Participants will be introduced to historical development, socio-economic assumptions, challenges of globalization and the implications of these and other factors on curricular reforms. As participants consider various approaches to exploring these questions, these insights will also guide their study of key curriculum issues in Singapore. The latter include the purposes of education, selection and organization of knowledge, access to knowledge, and methods of delivery in an increasingly global context. These analyses will be done in relation to both theory and practice, and with references to implementation issues in schools and classrooms.	13/08/2024 | Tuesday | 6:00 - 9:00pm	LetterGrade

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NIE	MCT902	Crafting the Curriculum	4	The process of analysis will reveal that curricula are by necessity always incomplete and imperfecteverything that is included (topic, activity, question, component, material, assessment, etc.) means that something else has been excluded. This being the case, students will suggest refinements to the curriculum they have analysed, based on their understanding of the needsThis course is an introduction to curriculum development. The underlying framework for the course is that curriculum building is a process that requires ongoing study and reflection about curriculum and the practice of teaching. Central and perennial curriculum questions explored are: What knowledge is of most value and worth? How is the learner and learning viewed? What is the role of teachers in creating and enacting curriculum? The process of analysis will reveal that curricula are by necessity always incomplete and imperfect-everything that is included (topic, activity, question, component, material, assessment, etc.) means that something else has been excluded. Th is being the case, students will suggest refinements to the curriculum they have analysed, based on their understanding of the needs of learners, the socio-political milieu, and the moral and ethical dimensions of schooling.	15/08/2024 | Thursday | 6:00 - 9:00pm	LetterGrade
NIE	MCT903	Assessment in Education and Learning: Theories, Tensions and Issues	4	Understand the central and pivotal role of assessment practices in constructing and enacting educational outcomes and experiences. Critically examine how assessment design, judgments and feedback practices construct the process and outcomes of learning. Develop an awareness of assessment as the primary mechanism for determining merit, and an important discourse for addressing social justice issues.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MCT904	Understanding Teachers and Teaching: Theory and Practice	4	This course explores two intertwining themes: (1) Teacher as the curriculum maker, which explores from the interpretive perspective on how teachers acquire the knowledge, skills, and values in forming their identity in situated teaching practices and curriculum making. How do we understand the composition of teachers knowledge, practice, and skills in making curriculum alive? What counts as teacher quality in an era of accountability? How do teachers provide and practice leadership in curriculum making? How do teachers learn at different points in the teachers professional continuum and in different contexts? (2) Teaching as a practice, one that has been historically understood by scholars, practitioners, and policy makers from a range of theoretical perspectives. What does it mean to conceptualize teaching as a practice situated in relation to curriculum, assessment and learning? What are the many ways people have thought about teaching as a practice, and what are the consequences of those perspectives for how we understand teaching? Who can create, evaluate, and critique knowledge about teaching? The course will introduce some major frameworks that have been used to guide research, policy recommendations, and the work of teachers and teaching. We consider the issues of teaching and teachers in an international context, drawing on research from Singapore and other countries. Some of our texts and video materials we will use will give us repeated opportunities to consider education in China, France, Japan, and the U.S. While they dont constitute a central focus of the course, they will give us some chance for shared discussion that draws on multiple and sometimes conflicting descriptions and interpretations of teaching and teacher in a particular setting. Thus, we further pursue the context-related questions when we make the familiar strange in such an international perspective: In what ways is teaching an embedded practice that is shaped by the many contexts in which it is situated? How is learning to teach a process of entering a particular culture? What does it mean to work as a teacher in response to the discourses prevalent in globalization, and the local culture of the students and the community? As participants consider various perspectives to exploring these questions, they will be guided to reflect upon their own teaching practices and professional identity, with references to educational reforms in schools and classrooms.	12/08/2024｜Monday｜6:00 - 9:00pm	LetterGrade
NIE	MCT905	Theories and Perspectives of Learning	4	This is a reflection-intensive, peer-learning course that offers opportunities for students to interpret and discuss some of the established theories and perspectives on how people learn. It will cover ideas from behaviorism, cognitivism, constructivism, and social-constructivism through key topics such as meaning-making, verbal understanding, inquiry learning, representations of knowledge, the process of knowing, situated cognition, and learning in community.	13/08/2024｜Tuesday｜6:00 - 9:00pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MCT913	Differentiating Curriculum and Teaching for Diverse Learners	4	Contemporary deliberations about the school curriculum have tended to privilege other stakeholders and marginalize students. Unless teachers are able to take seriously what students already know and believe, any innovation in curriculum or pedagogy becomes futile. All students deserve rich learning experiences. This course is designed to encourage teachers and school leaders to examine their assumptions about curriculum, teaching and learning, and to develop a critical understanding of different student learning needs in the regular classroom. Participants will gain an understanding of the reasons and assumptions underlying differentiation. Through the readings and discussion, participants will develop an appreciation of the diverse characteristics of students who learn at different pace as well as study a variety of curriculum options such as those of content and implementation of differentiated units and lessons that optimize learning for students. This course will examine ways that classrooms can effectively differentiate curriculum and teaching to address the complex challenges of meeting the diverse learning needs of students. These will include notions of culturally responsive pedagogy, and the use of technology. Participants will learn to use research-based tools to uncover students experiences and challenges with the curriculum and use curriculum design models in planning appropriate and defensible differentiated curriculum units	13/08/2024|Tuesday|5:30 - 8:30pm	LetterGrade
NIE	MCT914	Globalization & Curriculum Reform	4	Education systems around the world are in a continuous state of reform and change. The catalyst for curricular changes emanate from multiple and layered sources such as local socio-political tensions and global economic imperatives. International comparisons of student performance between countries and their education systems conducted by international organizations (e.g., IEA and OECD) have motivated countries to reconsider their own forms of educational and curriculum policy against those which do differently or better. Countries undertake curriculum reform to equip students with understanding, values, skills and dispositions needed for participating in an increasingly competitive economic environment. Governments attempt to gain greater control over education in order to enhance the quality of educational outcomes, equity of schooling, manage demographic diversity, and develop the ideal citizenry. In many countries, policymakers actively engage in policy borrowing. It is necessary that educators understand how systems and curricular of different countries are currently structured and how the integration of economies, industries, markets, cultures and policy-making and policy-borrowings around the world are converging and diverging curricular around the world. It will help them appreciate the thinking behind curricular reforms, the sustainability and integrity of reforms, its capacity to effect change, malleability of a system and the various institutional processes that countries put in place to effect change. Students in this course will benefit from understanding histories and practices of educational systems and curricular reforms in a sample of countries, and gain insights from internal relations of a countrys education system in a systemic change process.	13/08/2024|Tuesday|5:30 - 8:30pm	LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MCT921	Theory and Practice of Authentic Assessment	4	This course aims to provide participants with a sound grasp of the theoretical underpinnings of authentic assessments as well as practical skills needed for designing authentic assessments. More specifically, it aims to provide participants with 1) conceptual clarity on authenticity 2) principles for designing quality authentic assessments; 3) a critical perspective of the role of authentic assessment within Singapores educational system. The course will be conducted through discussions, group presentations, online forums, and hands-on activities. Participants are expected to critically appraise literature on authentic assessments and to develop an authentic assessment that will enhance the learning of their students.	12/08/2024|Monday|5:30 - 8:30pm	LetterGrade
NIE	MCT933	Affirming Diversity and Culture in Teaching and Learning	4	Singapores societal fabric has seen great changes within the past decade as the waves of globalization lap against our shores. In terms of demography, there has been evidence of increasing diversity over the past decade with rising non-resident population, trans-national marriages, and divorce rates. At the same time, home language patterns are also shifting. These demographic and social changes are consequently reflected within our school population. Over the past 10 years, the Ministry of Education has been acknowledging that students are coming from increasingly diverse backgrounds and emphasising the need to take into account student diversity in teaching and learning practices. Addressing student diversity is pertinent for several reasons. Firstly, it helps to narrow gaps in student achievement that may arise on the basis of student differences. Secondly, it can promote intergroup understanding that is critical to becoming engaged citizens in a democratic society. Thirdly, it enhances student psychological and emotional belonging as their identities are acknowledged and accepted. This course aims to help participants understand the different ways in which their learners are diverse, on top of learners different ways of cultural being. It engages participants in deep exploration of the complex meaning of culture and the influence of sociocultural theories on learning and teaching. Through critical reading of literature and reflection, participants are encouraged to explore reasons for how and why learner diversity and culture are acknowledged, ignored, or contested. In turn, the course compels participants to consider the implications of diversity and culture on teaching and learning as well as propose ways of incorporating learner resources into their teaching. Yet, prior to recognizing and engaging in work around learner diversity, participants will first be expected to confront their own assumptions, bias, and stereotypes so that paradigmatic shifts around groups and learners can happen. Through critical reflection and reading of social psychology theories, participants will gain understanding of group identity formation and inter-group behaviour as well as explore ways of mitigating the negative effects of inter-group behaviours.	12/08/2024|Monday|6:00 - 9:00pm	LetterGrade
NIE	MCT935	New Media and 21st Century Learning	4	This hands-on course aims to engage participants in examining the existing new media environment and provide an embodied new media experience for them. It addresses important, current issues in new media studies with in-depth discussion of popular perceptions/myths and implications to learning. Through the self-directed analysis of media content (critical media consumption) and production of media artefacts and participation in online communities (critical media prosumption), participants will gain a sense of new media culture and form their personal critique on the relationship between new media and 21st century learning for their refined practices.	14/08/2024|Wednesday|6:00 - 9:00pm	LetterGrade

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List of NTU Courses to be offered in Semester 1 AY2024-25

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MDP901	Social and Emotional Development and Assessment	4	This course is one of the two core (required specialization) modules in the Master of Education (Developmental Psychology) programme. The course contains major and classic social and emotional development theories that are fundamental to the participants before they take on other more specialized courses in the programme. It also introduces how to assess childrens social and emotional development.	13/08/2024｜Tuesday｜6:00 - 9:00pm	LetterGrade
NIE	MDP902	Children Cognitive Development and Assessment	4	Childrens cognitive development is the emergence of the ability to process information, think, and understand. Understanding childrens cognitive development is essential for curriculum development, effective teaching, and good policy making.	14/08/2024｜Wednesday｜1:30 - 4:30pm / 6.00 - 9.00pm	LetterGrade
NIE	MDP904	Motivation, Volition and Learning-in-Action	4	This course is designed to empower teachers, coaches, supervisors or parents to motivate their charges and to develop their volition to love, to will, to think and to make personal improvements	14/08/2024｜Wednesday｜6:00 - 9:00pm 12/08/2024｜Monday｜2:00 - 5:00pm	LetterGrade
NIE	MDP906	Personality and Attitude Assessment	4	This course covers the non-cognitive aspects of educational assessment. Non-cognitive attributes such as attitudes, interests, and personality are important to education for the 21st century. The course complements those of cognitive assessments, to provide the breadth of knowledge for a MEd (Educational Assessment) specialist.	13/08/2024｜Tuesday｜2:00 - 5:00pm	LetterGrade
NIE	MDP907	How to Nurture Creative and Happy Learners	4	It has been said that we live in the VUCA world Volatile, Uncertain, Complex, and Ambiguous. Creative individuals will cope well in the VUCA world, due to their capacity to think of original	13/08/2024｜Tuesday｜6:00 - 9:00pm 15/08/2024｜Thursday｜1:30 - 4:30pm	LetterGrade
NIE	MDP909	Assessment and Development of 21st Century Competencies	4	The 21st century is often described as a VUCA world one that is volatile, uncertain, complex, and ambiguous. With new demands coming from the 21st workplace, it is thus imperative for educators in various educational institutions to develop students capacities to match the needs of the students future workplace. This thus indicates an imperative need to change the way educators craft their lessons and learning tasks so as to provide students with ample opportunities to gain authentic learning experiences and enable the transfer of relevant knowledge and skills from their classrooms to solve real world problems.	12/08/2024｜Monday｜6:00 - 9:00pm	LetterGrade
NIE	MDP912	Gestures in learning and development: theory, research, practice	4	In recent decades, there has been a growing interest in the role of hand gestures (e.g., pointing, creating a shape with the hands) in learning and development. This course examines the research on hand gestures across a variety of educational contexts for children and adolescents, looking at when a teachers gestures can affect learning and what students gestures are telling us. This course introduces methods of classifying gestures and provides a broad overview of how gestures can help learning. This course will help you to make sense of students gestures from an intentional, theory-based perspective and provide you with knowledge on evidence-based practices. The course is for all students who are interested in non-verbal communication, body language and learning.	15/08/2024｜Thursday｜6:00 - 9:00pm	LetterGrade
NIE	MEA901	Research and Issues in Art Education	4	This course examines the history of the discipline and explores various methodologies, critical theory, and resource material for art educational research. This involves techniques of scholarly and critical writing and evaluation of bibliographic sources. The intention is to assist candidates locate their own approaches to art education within the context of ideas and to understand the orientation and significance of contemporary art education theory and practice.	12/08/2024｜Monday｜5:30 - 8:30pm	LetterGrade
NIE	MEA903	Arts Education and Technology	4	In todays connected world, teaching and learning in the Arts classroom has changed. Through both theoretical, practical and research informed work, participants will consider the different ways technology has shaped the classroom practices in the arts today. Participants will also learn to integrate theories, technologies, learning designs and assessment modes to achieve the intended outcomes for students. This course would appeal to graduate students interested in the arts, education and technology who want to further their knowledge and skills in these areas whilst potentially widening their future career opportunities.	15/08/2024｜Thursday｜6:00 - 9:00pm	LetterGrade
NIE	MEC901	Child Development (0-8 years)	4	The MEC901Course which is the first specialisation course in the MEd (EC) Program, provides the foundation for all the other specialisation courses. This course will help participants conceptualize childrens development across infancy, pre-school and primary school years (birth to 8 years) through the critical review of/reflection on various developmental theories, models, approaches and scholarly works.	12/08/2024｜Monday｜5:30 - 8:30pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MEC902	Issues and Trends in Early Childhood Education	4	This course aims is to empower participants to explore and reflect critically on key current and historical issues and trends underpinning the developments of early childhood education (ECE), and through this, to examine and discuss how ECE in the Singapore context can benefit from developments in the wider field, and yet stay relevant to its contextual demands.	13/08/2024|Tuesday|5:30 - 8:30pm	LetterGrade
NIE	MEC903	Research Investigations in Early Childhood Education	4	This course introduces students to the research design process in early childhood related topics. This course is essential in preparing students for their dissertation and MMM800 (Critical Inquiry) course which would require them to conduct a small research study within a single semester. This course provides the necessary preparation by allowing students to craft a coherent research design gathering literature, sifting through theories, identifying a focused topic and honing in on the studys purpose as well as selecting the specific research methodology for their study which is centered in the early years and commonly used in early childhood education.	15/08/2024|Thursday|5:30 - 8:30pm	LetterGrade
NIE	MEC906	Curriculum Design and Development in Early Childhood Education	4	The course explores the theoretical and practical nature of various early childhood curriculum approaches across time and context. The discussion will closely examine the wide array of paradigms with the underlying conceptions about children and education in light of a range of practical implications. In order to be able to prepare to be curriculum developer, theorizer, and advocator, the course enhances participants capacity to utilize multiple critical lens to rethinking and doing of educational complexity, equity, and diversity.	14/08/2024|Wednesday|5:30 - 8:30pm	LetterGrade
NIE	MEC909	Professionalism in Early Childhood Education	4	This course is designed to review and reflect on current understandings of professionalism in the EC field both globally and locally. It explores the twin concepts of leadership and professionalism with reference to early childhood education in the Singapore context. It also explores how leaders can create avenues for professionals to innovate, enriching optimal learning and meeting the needs of children and their families.	14/08/2024|Wednesday|5:30 - 8:30pm	LetterGrade
NIE	MEC910	Pedagogy in Early Childhood Education	4	This course is designed to equip early childhood educators who are in teaching and mentoring roles to effectively design the curriculum and content to instruct adult learners who are preparing to enter the early childhood workforce. It will introduce participants to adult learning theories and scaffold their skills in teaching and instructing adult learners. The course enables participants to understand what motivates adult learners and be equipped with the needed skills to create content and instructional design that is conducive for the adult learner who is teaching young children. Hence, the course leverages on the participants existing knowledge on how young children think and learn. Participants will draw information from the various courses that they have previously undertaken, (e.g. child development, curriculum, assessment, diversity, etc.) for this course on Pedagogy in ECE. This course also has a practical element, which seeks to improve the participants instructional design and delivery in the context of teaching an early childhood course to adult learners.	16/08/2024|Friday|5:30 - 8:30pm	LetterGrade
NIE	MEL901	Language and Literature Education	4	Historically, literature and language have not been dichotomous terms. Literature as a concept emerged in the fourteenth century and its latin root is littera denoting a letter of the alphabet. In this sense literature was tied to literacy or, more specifically, the ability to read. It was only later that literature became connected to the concept of taste involving the ability to read particular kinds of text and the discipline emerged in distinction from fields of language and linguistics. In this course, we seek to examine historically the disciplinary schism between English language and English literature and explore socio-cultural, linguistic and textual theories advocating an integrated approach to English language teaching. In the process, we aim to problematize the dichotomies between reading and writing, literacy and literariness, the functional and the aesthetic.		LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MEL902	Analyzing Literature and Language	4	This course introduces participants to the study and analysis of styles in canonical and non-canonical literary texts, as well as other similarly creative texts such as advertisements, using fundamental linguistic and literary tools. It is an interdisciplinary course spanning the borders of English language and English literature, which are presently framed in the school curriculum as two subjects even though they are mutually constitutive fields of inquiry. As education expands globally and exponentially, it is imperative that both language teachers and literature teachers promote learners who are able to systematically identify and critically evaluate or appreciate the qualities of language used for particular effects in a plethora of creative texts which exist around them. Participants in this course will have opportunities to examine and describe the forms of texts, interpret their communicative functions and offer evaluations of the textual effects created, supported by language-based evidence.		LetterGrade
NIE	MEL917	Teaching Grammar and Writing	4	This course introduces participants to contemporary approaches to teaching writing and contextualised functional models for teaching grammar. Participants will also develop principles and procedures for evaluating current practices in the teaching of grammar and writing.		LetterGrade
NIE	MEL920	Creative Writing in the Classroom	4	Creative writing, whether in fiction or non-fiction, is part and parcel of the English language curriculum in Singapore and around the world. The course will engage teachers of English language and literature in the very processes of creative writing that they would have their own students engage in. Practical experience in, along with theoretical and research knowledge of, the craft of writing, can help teachers reflect critically on their own pedagogical approaches in the composition classroom.		LetterGrade
NIE	MEL922	Teaching Shakespeare	4	This is a graduate course on acquiring knowledge and understanding of as well as how to teach the works attributed to the poet and dramatist William Shakespeare and a number of his contemporaries. Students will be introduced to a representative but also canon challenging range of Shakespeare texts complemented by a range of scholarly and pedagogical texts with the goals of making teachers more informed, better readers and teachers of Shakespeare texts. Each week each Shakespeare text will be taught through the lens of a particular literary theory. Upon completion of this course, students should be able to choose appropriate texts to teach their students, as well as choosing and planning appropriate strategies for introducing local students of any level to Shakespeare. Teaching involves teacher guided but active student lead seminars, each week by a different student, culminating in a symposium concerning new ideas for teaching Shakespeare in new and inspiring ways in the local context. Students will have a range of opportunities to think critically, share and debate ideas, and pedagogical strategies, through class discussion, group work, pair work and online activities.		LetterGrade
NIE	MEL923	Literary Theory and Teaching	4	Central to this course are questions of power and identity in relation to the aims and outcomes of education. How are different critical approaches to literary criticism implicated in the ethics and politics of schooling? What ideological orientations underpin different modern and postmodern approaches to literary criticism? What kinds of subjectivities are privileged and/or marginalized in each of these approaches? How might critical engagements with the theory and practice of literature education inform and even reform teachers pedagogical practices in the classroom? To what extent might an understanding of critical theory call for a redefinition of the desired outcomes of literature education in Singapore?		LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MEL924	World Literatures	4	This is a graduate course on World Literature. The module surveys world literature from Homer to Azar Nafisi with an emphasis on different writing traditions and literary culture. Students will be introduced to a range of literature with the goal of acquiring skills in close reading of narrative prose and poetry, to compare literature from different historical periods and social contexts, and to increase understanding of other literary cultures besides their own. The focus of the course is on texts rather than theory, giving students an opportunity to enhance their critical engagement with literature. Upon successful completion of the course, students should know something about the major authors and forms of Western and world literature from the beginnings until the twentieth century. Teaching involves a mixture of lectures on key authors and texts, and seminar that will include discussion, analysis of texts, student presentations and reading and writing exercises geared to developing practical understanding of literary techniques and issues relevant to literature in the period. Students are encouraged to think critically and to share their ideas with their peers in class, weekly short writings (online discussions), and group work.		LetterGrade
NIE	MEM901	Organizational Learning and Development	4	This course explores some of the basic concepts that explain how organizations and individuals develop and learn. It draws upon recent research to illustrate contemporary educational practices. The course aims to provide a map of the main concepts which explain the notions of learning and development; illustrate how concepts of learning and development are to be found in the every-day practice of educators and education institutions; draw upon examples of learning and development practices from the international educational arena; use the notions of learning and development to analyze contemporary educational practices known to participants and then to reflect upon the lessons that are inherent in those practices.	13/08/2024｜Tuesday｜5:30 - 8:30pm	LetterGrade
NIE	MEM909	Contemporary Issues in Strategic Educational Management	4	This course reviews the evolution of strategic management. The course will also be explored through the ten schools of strategic management. Planning and traditional strategic management assumes that detail plans and structure determines strategy, which leads to performance consequences.Issues with traditional strategic management will be explored through the changing educational landscape in Singapore. As the educational landscape in Singapore continues to change rapidly, a new type of strategic school leader is needed. The new strategic leader is one who can cope proactively with a dynamic, complex, increasingly competitive and sometimes uncertain context. Because defining success for schools will also change with the changing educational landscape, the strategic leader must review assumptions that lead to school practices and challenge these assumptions in view of the changing educational landscape. This view of educational success will require relevant strategies to develop staff, incorporate relevant learning programmes and structures and promote learning opportunities for students that will future-ready them in the changing landscape. The strategic choices for schools are to pursue goals beyond the school and include global, local and individual goals. Hence, strategy must be multi-dimensional and future oriented.	15/08/2024｜Thursday｜5:30 - 8:30pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MEM917	Policies and Leadership in Early Childhood Education	4	Globalisation, technological advancements and research developments in early childhood education have garnered the attention of governments around the world. This results in an increasing awareness and emphasis on the early years as a critical period that lays the foundation for childrens later learning trajectory and future outcomes. Research has shown that investments in the early years can yield greater returns and contribute to the overall welfare of societies. Quality early childhood education has also been proven to promote positive outcomes for children, thereby reducing socioeconomic inequalities. Over the years, governments around the world have prioritised early childhood education to create and ensure access to quality care and educational services for their people. Leadership, at both the political and educational levels, is a key driver for quality early childhood education. Leaders in preschool and primary school settings translate policies into practice and play a critical role in the delivery and provision of quality programs for children. Given the significant roles of policymakers and leaders in early childhood education, this course enables participants to understand, examine and analyse the dynamics and effects of an ever-changing early childhood landscape from the global to the local level. Based on a desktop review of Master programmes offering early childhood leadership at NIE, SUSS and AIC, there are no courses with this focus, which makes this course a valuable elective for NIE and NTU students who are interested in policies and leadership in early childhood education.	16/08/2024|Friday|5:30 - 8:30pm	LetterGrade
NIE	MEM918	Globalisation, Educational Change and Pedagogical Reform	4	This course is an introduction to the concept andsalient characteristics of globalisation, its impacts on educational policy and practice, and related issues of school change, curriculum reform and new pedagogy. It provides participants with a conceptual and analytic understanding of globalisation, an understanding and engagement with practical educational issues andproblems that face Singapore and other countries as a result of globalisation. The course discussescurriculum and policy reform strategies that are seek to respond to current and emergent conditions.	14/08/2024|Wednesday|5:30 - 8:30pm	LetterGrade
NIE	MGE900	Communication in the Digital Age	2	This course demonstrates and explains new approaches to language use and communication in the digital age. The central idea is to experience directly what it is like to compose and share with others a text that combines a range of ways of representing knowledge (e.g., images, sounds, gestures, movie clips) for different purposes (e.g., storytelling, comparison, documentary, entertainment or education). During the course, there will be frequent opportunities to discuss current ideas and practices in contemporary communication, consider various real-world examples (e.g., Whatsapp, Instagram, YouTube and Facebook), learn with and from others and see the things and events around us in new and exciting ways. This is a blended learning course delivered through face-to-face and online sessions (e.g., Zoom)	13/08/2024|Tuesday|6:00 - 9:00pm	LetterGrade
NIE	MHA904	Critical and Creative Thinking for High Ability Learners	4	The course aims to prepare teachers for the challenges of developing thinking dispositions in students and developing classes into thinking communities. It builds an understanding of creative and critical thinking processes in highly creative and intellectually gifted learners. It promotes pedagogy that is informed by whole brain research and functioning. Other than examining the 4Ps in creativitythe person, process, product and press, it will discuss the intricacies of the creative-problem solving process and what constitutes a creative product. The development of higher-order analytical thinking, logical thinking, perception, imagination and discovery will be included in discussions. Research on the effectiveness of the use of different models of instruction that promote critical and creative thinking is explored for possible applications.	14/08/2024|Wednesday|6:00 - 9:00pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MID922	e-Learning Tools for Training	4	In the new information age, many traditional classroom courses or training programmes need to be re-developed and conducted online to meet the needs of adult learners who often have to balance their work demands with their work demands with their social lives. In this course, the participants will learn how to use web-based tools, e-learning authoring tools and produce videos so that they can easily develop and conduct e-learning sessions for teaching and training in practice.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MID923	Perspectives on Adult Learning	4	This course will investigate the important and unique characteristics of adults as learners, as compared with school-age learners. Additionally, this course will explore the various cognitive frameworks which describe adult learning, a range of effective instructional strategies, and how assessment can be adapted for adult learners. This course will support a variety of training environments in the corporate and business world, including both traditional and e-learning delivery systems.	15/08/2024 | Thursday | 6:00 - 9:00pm	LetterGrade
NIE	MLS922	Chemistry of Biological Systems	4	The role of metals in biological systems is an area of great interest to chemists and biologists alike. Life in its present form would not be possible without the involvement of the metallic elements. This course deals with the key ways in which metals participate in biochemical processes, focusing on biomolecules that incorporate metal atoms in their molecular structures. The ways in which the chemical properties of selected metals define the biological function of the systems they are found in will be discussed. This course integrates chemical principles into lectures on the structure and functions of biological molecules as well as gives an introduction to the standard tools and techniques employed in Chemical Biology research. Topics covered will include the roles of proteins in metal management, oxygen carrier proteins, electron-transfer proteins and metalloenzymes as well as relevant topics recent literature. Quantitative analysis of biological samples based on classical techniques and modern instrumental methods will also be discussed.	13/08/2024 | Tuesday | 6:30 - 9:30pm	LetterGrade
NIE	MLS942	Global Energy Systems	4	This is an introductory course that is designed for students to understand the global energy sources available for mankind. It provides both theoretical and practical understanding of how energy and climate policies are distribute and connected across a multitude of cases drawn from global to local arenas. This is the first course in this Master programme and is intended for those engaged with or planning a career in professional contexts relating to energy management, education, RD and marketing.	12/08/2024 | Monday | 6:30 - 9:30pm	LetterGrade
NIE	MLS943	Photovoltaic Physics and Solar Cells	4	Today the traditional energy sources based on fossil fuels are depleting at an ever fast rate and will be exhausted in the next centuries. Photovoltaic solar energy becomes one of the most feasible alternative energy sources that will provides energy demand for mankind in the future. This course deals with the issues of an alternative sustainable energy source that relies on the direct conversion of sunlight into electrical energy in solar cells based on the photovoltaic effect.	13/08/2024 | Tuesday | 6:30 - 9:30pm	LetterGrade
NIE	MLS947	Energy Storage Systems	4	Energy storage systems allow the supply and demand of energy to be balanced. This is particularly important with current renewable energy resources such as solar energy where the energy produced during the day can be stored or use at night. Participants in this course will learn various types of energy storage systems and its related technologies. Some examples of energy storage systems are reservoirs and dams for storing gravitational potential energy to run hydroelectric power generators, chemical storage systems, batteries, thermal energy storage. Details of energy storage systems vary in their intended use, for example the energy storage system for a vehicle will have quite different requirements from an energy storage system for a home or grid energy storage system. In addition to the physics of novel energy storage systems, this course will also allow students to discuss the safety, cleanness and economic viability modern energy storage systems.	14/08/2024 | Wednesday | 6:30 - 9:30pm	LetterGrade
NIE	MLS951	Lasers and Photonics	4	This is an elective course that is designed for students to understand the science and technology of generating detecting and manipulating light/ photons. It provides both theoretical and practical understanding light. This course is intended to support the students by providing the advanced concepts of lasers and light to allow a better understanding of equipment and techniques which they encounter in their science, technology and engineering related Masters or PhD studies.	15/08/2024 | Thursday | 6:30 - 9:30pm	LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MLS973	Physiological and Molecular Responses of Plants and Animals to Environmental Stress I	4	Environmental stress can be caused by both abiotic (physical and chemical) and biotic (effects of other organisms) factors. How plants and animals sense and respond to environmental stress have fascinated scientists. Due to both anthropogenic-driven and nature-driven environmental changes like changing solar radiation (both visible and UV radiation), global warming or increasing temperatures, increasing periods of freezing temperatures and droughts, ocean acidification, and increasing pollutants, determining the ability of plants and animals to sense and respond to different environmental stress becomes increasingly important. Participants in this course will learn about the molecular and physiological mechanisms used by both plants and animals to cope with environmental stress in the different environments.	13/08/2024｜Tuesday｜6:30 - 9:30pm	LetterGrade
NIE	MLS985	Chemical Ecology	4	This course explores the role and function of chemistry in mediating interactions among a variety of organisms, including intraspecific and interspecific interactions. The course will cover the range of compound classes involved in chemical ecology. In addition, we will discuss the diversity of species interactions and chemical compounds in terrestrial and aquatic systems, and methods (e.g. analytical and molecular techniques) used to detect these compounds. We will cover defensive and offensive chemistry mediating antagonistic interactions; the evolution of defenses; chemicals mediating mutualisms, competition, and sociality; the physiology of chemical production and recognition; and how chemical ecology affects humans. The biotechnological applications of chemical ecology will also be discussed. This course will include paper discussions of relevant recent literature.	15/08/2024｜Thursday｜6:30 - 9:30pm	LetterGrade
NIE	MLT901	Foundations of the Learning Sciences	4	This course considers present day discourses on learning/learning sciences in the broader context of education and how people learn. Students will deepen their understanding of constructivist learning approaches and learn to be cognizant of the vital roles of language and inquiry in human learning. Specific learning sciences topics include: * Conceptual change * Knowledge building * Cognitive apprenticeship * Learning in activity * Computer-supported collaborative learning * Learning in virtual worlds * Teacher education from the perspective of learning sciences * Design-based research	13/08/2024｜Tuesday｜6:00 - 9:00pm	LetterGrade
NIE	MLT902	Computer Supported Collaborative Learning and Knowledge Building	4	Topics include: * Understanding CSCL and Knowledge building and initiate areas for inquiry * Organizing participants Inquiry themes and maintaining individual portfolio * Conception of learning with respect to CSCL and/or knowledge building * Technologies supporting CSCL and/or knowledge building * Designing CSCL and/or knowledge building environment * Facilitating learning in CSCL and/or knowledge building environment * Analysis of learning in CSCL and/or knowledge building environment * Analysing Dialog and Cognition in Computer-Supported Collaborative Learning	14/08/2024｜Wednesday｜6:00 - 9:00pm	LetterGrade
NIE	MME901	Theoretical Perspectives and Issues in Mathematics Education Research	4	This is a required specialisation course for the MEd (Mathematics) programme. It equips participants with foundational knowledge in mathematics education as preparation for specialisation elective courses in the programme. This course contributes to one of the programme objectives of providing the participants with a range of the big ideas in mathematics education theories and related research. This serves as an introductory course to induct participants into an inquiry disposition suitable to the disciplinary emphasis in mathematics education.	12/08/2024｜Monday｜6:00 - 9:00pm	LetterGrade
NIE	MME903	Using Technology in Mathematics Education	4	This is a specialisation elective course for the MEd (Mathematics) programme. The course contributes to the following programme objectives particularly in the area of using technology in mathematics education: (1) provide participants with the knowledge and skills related to specific ideas in mathematics education; (2) develop the participants ability to relate the theoretical ideas in mathematics education to the authentic problems of practice faced by teachers in the classroom.	15/08/2024｜Thursday｜6:00 - 9:00pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MME922	Numbers and the Teaching of Numbers	4	This is a specialisation elective course for the MEd (Mathematics) programme. This course contributes to the following programme objectives particularly in the area of numbers and its teaching: (1) build the participants knowledge of the mathematics subject matter; (2) develop the participants ability to relate the theoretical ideas in mathematics education to the authentic problems of practice faced by teachers in the classroom. In addition, the course also covers students misconceptions in the learning of numbers in support of another programme objective of providing participants with knowledge related to specific ideas in mathematics education.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MML902	Critical and Creative Thinking to Enhance Learning	4	Critical and creative thinking skills are important components of education. Singapore education places these skills as prerequisites which must be acquired by learners in order to prepare them to face the challenges of the 21st century and beyond. This course invites teachers/the participants to revisit and update themselves with the latest development in critical and creative thinking theories, to plan and apply creative teaching pedagogies that will enhance pupils learning.		LetterGrade
NIE	MPM901	Assessment Principles and Methods	4	A foundational knowledge of measurement and assessment in education is requisite to the MEd (Educational Assessment) specialization. This course introduces participants to the general process of educational assessment and the key concepts, principles, and techniques of assessment.	12/08/2024 | Monday | Individual Arrangements	LetterGrade
NIE	MPM902	Design of Assessment Systems	4	Designing an assessment system that is aligned with the curricular or programme goals is essential for the MEd (Educational Assessment) graduate. A comprehensive assessment system comprises both formative and summative aspects and this course introduces participants to the general principles of assessment system design. Participants also examine the relation between assessment and learning, and explore current relevant issues pertaining to assessment.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MPM903	Measurement Theories	4	The notion of measurement is crucial to the theories, principles and methods of educational assessment. Knowledge of the theories of measurement that underpin assessment, and the issues inherent in measurement, is fundamental to the research, development and use of educational assessment.	12/08/2024 | Monday | 6:00 - 9:00pm	LetterGrade
NIE	MPM904	Attitude Measurement and Personality Assessment	4	This course covers the non-cognitive aspects of educational assessment. Non-cognitive attributes such as attitudes, interests, and personality are important to education for the 21st century. The course complements those of cognitive assessments, to provide the breadth of knowledge for a MEd (Educational Assessment) graduate.	13/08/2024 | Tuesday | 2:00 - 5:00pm	LetterGrade
NIE	MPM907	Children Cognitive Development and Assessment	4	Childrens cognitive development is the emergence of the ability to process information, think, and understand. Understanding childrens cognitive development is essential for curriculum development, effective teaching, and good policy making.	14/08/2024 | Wednesday | 1:30 - 4:30pm 14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MPM908	Assessment and Development of 21st Century Competencies	4	The 21st century is often described as a VUCA world one that is volatile, uncertain, complex, and ambiguous. With new demands coming from the 21st workplace, it is thus imperative for educators in various educational institutions to develop students capacities to match the needs of the students future workplace. This thus indicates an imperative need to change the way educators craft their lessons and learning tasks so as to provide students with ample opportunities to gain authentic learning experiences and enable the transfer of relevant knowledge and skills from their classrooms to solve real world problems.	12/08/2024 | Monday | 6:00 - 9:00pm	LetterGrade
NIE	MPM909	Elementary Statistics for Education	4	This course provides the MEd (Educational Assessment) graduate student with the skills and understanding of elementary statistics and their applications in the social and behavioural sciences. Basic statistical literacy is required in a critical reading of research literature and in conducting sound research. It is essential knowledge for a MEd(Educational Assessment) graduate working in the field of educational measurement and evaluation	13/08/2024 | Tuesday | 6:00 - 9:00pm	LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MPM911	Applied Regression Analysis	4	This course is designed to equip higher degree students as well as teachers with the basic concepts and methods of regression analysis. The course will cover how regression analysis can be applied to answering research questions, in particular, in the educational context. The students will get hands-on experience in running relevant statistical software to run regression analyses to analyze data.	13/08/2024 | Tuesday | 6:00 - 9:00pm	LetterGrade
NIE	MPM912	Assessment of Children and Youth with Special Needs	4	The increased identification of children with special needs entails a more nuanced approach towards educational programming. The diverse profile that students with special needs requires a detailed assessment of their individual strengths and needs. This course offers an introduction to assessment and testing of children with special needs. It combines the introduction of the theories and concepts in assessment, with evidence-based practices when assessing children. Participants in this course will have direct experiences with screening, standardized, criterion-referenced, andbehavioral assessment. Through these experiences, they will link the theories and concepts in measurement and child development with the practical guidelines, procedures, and applications.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MPM913	Practices of Certification Examinations	4	This course focuses on the practices of developing certification or external examinations by testing agenciessuch as examination boards. The topics covered in the course involve test specialists roles, activities,deliverables, outcomes, and interests in the delivery of certification examinations. Across the topics, therewill be emphasis on technical skills, practice philosophy, thinking and decision-making processes, ethicalstandards, codes of conduct, and professional responsibility. While the primary aim is to equip studentswith the knowledge, skills, and values of a test specialist in delivering certification examinations, the coursemay also be useful to those who work with test specialists (e.g., curriculum planners and developers,examination regulators, contractors, trainers, and services suppliers) in an effective education system.Students whose professional roles are classroom teachers may be interested to know more about the workof test specialists in testagencies.	12/08/2024 | Monday | 2:00 - 5:00pm	LetterGrade
NIE	MSC906	Representations & New Media in Science Education	4	Learning science involves students making sense of and generating multiple modes of representations (e.g., written text, images and mathematical symbols) that characterise science. Classroom teachers also make use multiple media and forms of representations to present the subject matter and shape their students conceptual understanding. This course will offer participants an overview of the theories and analytical tools so that participants are able to examine representations and media that are used in research and in classroom practice. In addition, participants will apply the theories learned to analyse representational artifacts commonly used in the teaching of science (e.g., diagram, textbook), including the use of new media such as simulation and video to determine their efficacy in supporting student learning.	14/08/2024 | Wednesday | 5:30 - 8:30pm	LetterGrade
NIE	MSC909	STEM Curriculum and Instruction	4	This course interconnects the teaching, learning, and assessment aspects of an integrated STEM curriculum. Various models of integration (e.g., disciplinary, multidisciplinary, interdisciplinary, or transdisciplinary) will be discussed. The S-T-E-M Quartet developed by members of the meriSTEM@NIE will be introduced to facilitate students design and evaluation of STEM activities and curricula. Various modes of assessments targeting conceptual, epistemic, and social goals of STEM education will be highlighted to facilitate design of assessing learning in STEM activities.	15/08/2024 | Thursday | 5:30 - 8:30pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MSE902	Human Development	4	This course examines the major dimensions of typical and atypical physical, cognitive, moral, emotional and social developments in relation to the patterns of growth, stability and change, which occur across the lifespan. The impact of biological, psychological, and social challenges on human development will be explored. An ecological perspective will be utilized to understand the individual, family, community, and society issues related to these challenges. A range of developmental learning theories will be introduced to help explain different outcomes in terms of learning, personality, behaviour, mental capacities and processes, and the influences of culture and language. Alongside the general theories of human development, disability will be introduced through a life course approach to offer an alternative framework for thinking about disability as it affects people of all generations and at all points of life course transition. This perspective is important, because it highlights how disabling societies and practices affect the population under consideration i.e. children, young people and adults, helping us to understand life course transitions in a collective way, and how this shapes our understanding of disability in the social world. Participants will be encouraged to link theoretical perspectives and empirical studies with their roles as educators in order to help them develop the necessary understanding and skills to assist others in navigating lifes present and future challenges.	13/08/2024	Tuesday	6:00 - 9:00pm	LetterGrade
NIE	MSE913	Curriculum Design and Development	4	This course introduces curriculum design and development models and practices pertinent to the field of special education. Students will demonstrate the why, what and how of curriculum design and development. Effective teaching and learning requires a renewed focus on the unique needs of individual learners and an understanding of differentiated curricula and pedagogies to meet the needs of these learners. This course aims to offer the knowledge and skills to develop appropriate curricula and instructional approaches to accommodate learners with diverse needs ranging from those with high support needs to those who are gifted and talented.	12/08/2024	Monday	6:00 - 9:00pm	LetterGrade
NIE	MSE914	Evidence-based Practices in Special Education	4	This course provides an in-depthview of evidence-based practices in the field ofspecial education.Participants will review theevidence-based practices acrossvarious domains (e.g., academic, behavioural, social emotional) in special education. Participants will also be introduced to the single-case research designs that are commonly used to evaluate the effectiveness ofinterventionswithindividuals with disabilities.Participants will be equipped to understand journal articles thatexamined intervention effectiveness in special education, and learn totranslate this knowledge to impact their support of individuals withdisabilities.	13/08/2024	Tuesday	6:00 - 9:00pm	LetterGrade
NIE	MSE915	Assessment of Children and Youth with Special Needs	4	The increased identification of children with special needs entails a more nuanced approach towards educational programming. The diverse profile that students with special needs requires a detailed assessment of their individual strengths and needs. This course offers an introduction to assessment and testing of children with special needs. It combines the introduction of the theories and concepts in assessment, with evidence-based practices when assessing children. Participants in this course will have direct experiences with screening, standardized, criterion-referenced, andbehavioral assessment. Through these experiences, they will link the theories and concepts in measurement and child development with the practical guidelines, procedures, and applications.	14/08/2024	Wednesday	6:00 - 9:00pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MSL906	Education at the Intersection of Artificial Intelligence and Neuroscience	4	The human brain is the best example of intelligence known, with unsurpassed ability for complex, real-time interaction with a dynamic world. At the same time, developments in AI are yielding benefits for neuroscientific research. Patterns identified from neural networks can illuminate computations enacted by the biological brain, functioning both as a model for developing and testing ideas about how the brain performs computations. Conversely, brain-activity recordings can be fed to an artificial neural network and tasked with learning how to reproduce the data, functioning as a tool for processing complex data sets that the Science of Learning research field is generating. This course will explore cycles of mutual reinforcement between neuroscientific data and artificial neural networks to obtain further insights into how computation works in the brain, and how machines that can take on more human-like intelligence to advance understanding for how a learner develops. Specifically, the course will focus on unexplored spaces at the intersections of neural AI, symbolic AI, brain science and cognitive science. Takeaways include implications for education and how cutting edge teaching and learning methodologies harnessed from AI and SoL fields may be developed.	13/08/2024｜Tuesday｜6:00 - 9:00pm	LetterGrade
NIE	MSM904	Analysis	4	This course in real analysis aims to introduce you to the order-theoretic, algebraic and geometricalstructures of the real line, and the relationships between them. In particular, you will be introduced tothe concepts of sequences and convergence first, for real number sequences, and next, for sequences ofreal-valued functions. This course is intended for educators, especially secondary and post-secondary school teachers, to help them gain an in-depth understanding of some topics in school mathematics suchas limits of sequences, continuous functions such as polynomials, exponential function, trigonometricfunctions, the link between differential and integral calculi, through the lens of real analysis. This course will provide the foundation for students who reads analysis at the postgraduate level.	14/08/2024｜Wednesday｜6:00 - 9:00pm	LetterGrade
NIE	MSM907	Geometry	4	Geometry is one of the foundational topics in mathematics. This course presents a complete axiomaticsystem for Euclidean geometry and related geometry topics. By completing this course, you will gain aclear picture of the whole hierarchical structure of geometry. You will learn the rigorous definitions ofthe fundamental geometry concepts, such as angles, triangles, rays, congruent/similar triangles. You willalso learn the formal proofs of the fundamental results in geometry, such as the equivalence of variousdifferent triangle congruency (similarity) tests, Angle Sum Theorem and Exterior Angle Theorem as wellas the Midpoint theorem. The course will also cover some advanced topics in geometry such as the non-Euclidean geometries, projective geometry or differential geometry. These advanced topics will widenand deepen students knowledge in geometry and help those who want to pursue higher degree study.	13/08/2024｜Tuesday｜6:00 - 9:00pm	LetterGrade
NIE	MSM908	Number Theory	4	This course in number theory aims to introduce you to fundamental concepts in elementary numbertheory, including divisibility and primes, unique factorization, congruences and quadratic reciprocity. Thiscourse is intended for educators, especially secondary and post-secondary school teachers, to help themdevelop in-depth conceptual understanding of some topics in school mathematics such as numbersystems, greatest common divisor, and the Fundamental Theorem of Arithmetic. Real world applicationsof number theory will also be discussed. Examples include the use of check digits for error detection inour National Registration Identity Card (NRIC) numbers and the RSA encryption system for secure onlinetransactions. This course will also lay a foundation for students who plan to learn more advancedmathematics in areas related to algebra and number theory.	16/08/2024｜Friday｜6:00 - 9:00pm	LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MSM921	Real Analysis	4	The rationale of this real analysis course is solely for deepening the understanding of the concepts of continuity and integrability of functions and their connections via measure theory. Extending from a typical foundational course on Calculus calls for an in-depth study of the property of continuity of functions in relation to the sets inhabiting in the real-line. The technicalities of continuity, uniform continuity, Lipchitz continuity all center around the Euclidean topology on the real line, i.e., roughly speaking, the structure of the open intervals of the real line. More precisely, a function is continuous if the inverse image of an Euclidean open is still Euclidean open. Another important area of in-depth study is that of the Riemann integral. The technicalities of this Riemann integrability center around the concept of measure. Like in the case of the Euclidean topology on the real line, the salient subsets in measure theory are exactly the measurable sets. The parallel notion of continuous functions in measure theory is that of measurable functions, i.e., a function is measurable if the inverse image of a measurable set is still measurable. This course aims to give an in-depth treatment of functions, touching on the basic Euclidean topology of the real line, its connection with the concept of continuity, uniform continuity, and different variants of continuity. It also introduces measure theory is a fundamental study of the aspects of integration of real-valued functions. The most basic concept of integrability, i.e., Riemann integrability, will be studied thoroughly, and its connection with sets of measure zero will be made explicit. Parallel to the concept of continuous functions is that of measurable functions. The course brings the students deeper to the core of integration theory via the measure-theoretic approach. The ultimate learning objective will be that the student is able to look at calculus concepts learnt and taught in schools at a higher vantage point.	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade
NIE	MSM924	Euclidean and non-Euclidean Geometry	4	Geometry is one of the most fundamental and important topics in mathematics. The modern Euclidean geometry was built as an axiomatic system. Most learners of geometry do not have the opportunity to learn geometry from the axiomatic approach and as a result, they do not have a clear view of the hierarchical structure of geometry. Because of this, they do not know the correct definitions of many of the basic geometric concepts (they may take an equivalent condition as the definition) and are not clear which results/theorems are dependent on which other results/theorems which sometimes lead to circular reasoning. This course will present a complete rigorous axiomatic system of Euclidean plane geometry and present the rigorous definitions of all the fundamental geometric concepts. The proofs of the fundamental theorems, equivalence of triangle congruency/similarity tests will be given. Non-Euclidean geometries will also be briefly introduced. This course presents a complete axiomatic system for Euclidean geometry. By taking this course, students will gain a clear picture of the whole hierarchical structure of geometry. They will learn the rigorous definitions of the fundamental geometry concepts, such as angles, triangles, rays, congruent/similar triangles. They will also learn the formal proofs of the fundamental results in geometry, such as the equivalence of various different triangle congruency (similarity) tests, Angle Sum Theorem and Exterior Angle Theorem as well as the Midpoint theorem. The course will also cover briefly the non-Euclidean geometries so that students can see the major difference among the different types of geometries	13/08/2024 | Tuesday | 6:00 - 9:00pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MSM931	Number Theory	4	The integers are the most fundamental mathematical objects encountered in school mathematics. Students are taught to assume important properties like the Fundamental Theorem of Arithmetic or the infinitude of primes. It is important that their teachers know why such results are true and understand these fundamental concepts from a higher standpoint. Number theory also has many applications that impact our everyday lives. For example, check digits are implemented in our National Registration Identity Card (NRIC) numbers as well as credit card numbers; cryptography is used to secure our online transactions. Teachers who are aware of such applications can better bring across the importance of mathematics to their students. This course aims to expose mathematics educators to a rigorous development of elementary number theory. Many concepts and properties of integers that are currently taught in schools will be revisited from a higher standpoint. For example, a complete proof of the Fundamental Theorem of Arithmetic will be discussed. More advanced topics like representations as sums of squares, or partitions of integers will also be included to provide educators a broad view of number theory.	16/08/2024|Friday|6:00 - 9:00pm	LetterGrade
NIE	MTC903	Assessment for Learning: Theory and Practice	4	Assessment for Learning (AfL) is referred to ubiquitously in Singaporean classrooms, but its meanings, implications and applications in schools and wider workplace learning contexts are less clear. This course first examines the discourse of AfL and formative assessment, against its varied and different theoretical constructions from Anglophone countries (e.g. USA and UK), before examining regional case studies from more recent times. This course also aims to equip participants with an understanding of the effects of assessment design and practice on participants learning in a curriculum, and how choice of assessment methods, assessment task design, classroom formative assessment and feedback practice may be situated for reiterative (constructive) alignment of assessment, curriculum and pedagogy. Participants will learn and apply assessment for learning pedagogies to revise/develop an assessment design in a complete unit lesson plan in ways that ultimately enhance their students construction of learning.	12/08/2024|Monday|5:30 - 9:00pm	LetterGrade
NIE	MTC904	Facilitating Learning in the Digital Age	4	With the advent of the digital age, the profile of the learners in the education system has changed dramatically. It is, therefore, imperative that educators evaluate their instructional strategies for designing learning and adapt existing practices to better meet the learning needs and preferences of the digital generation. This is to empower them to handle the complex challenges of a highly globalised and digitised world. Rethinking pedagogy for the 21st century is as crucial as identifying the new competencies that todays learners need to develop in this digital age. This course explores the pedagogies, learning environments, theories, perspectives and considerations on the use of various digital media technologies to develop 21st century competencies and skills in the learners.	14/08/2024|Wednesday|5:30 - 9:00pm	LetterGrade
NIE	MTCL901	Language Code: Theory and Practice	4	As Chinese characters are ideographic in nature, the phonetic functions are weak. Furthermore, the structure of Chinese characters are complex and difficult to recognize, to read as well as to write. Therefore, phonetic system, Hanyu Pinyin was developed to aid in learning Chinese. Chinese characters and Chinese phonics operates with two different set of rules. Chinese characters represent single syllables while Hanyu Pinyin operates with a set of standard basic rules in relation to different forms of Chinese words. As instructors of TCIL, it is important to understand the characteristics of these two codes in order to effectively teach Chinese as an international language.		LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MTCL902	Vocabulary and Grammar: Theory and Practice	4	The fundamental purpose of learning any language is for communication purpose. Be it in spoken or written communication, vocabulary and grammar are two of the most important components in any language learning, as they play a vital role in building up language proficiency. In teaching Chinese as an international language, instructors must understand the grammatical rules and its effect on vocabulary on the target language to bring about effective teaching. Hence, this course will lay a good foundation in Chinese vocabulary and grammar basics, so as to effectively teach Chinese as an international language.		LetterGrade
NIE	MTCL903	Chinese-English Contrastive Analysis & Its Application	4	The use of translation in learning a foreign language is widely used as a teaching and learning strategy to help students remember, comprehend and acquire the use of the target language. The influence of the learners first language, however, will have substantial impact in the language acquisition process. Hence understanding the major difference between Chinese-English through contrastive analysis in theories and practice of translation and its application in TCIL is necessary to equip TCIL instructor with the fundamental understanding to implement the bilingual model in TCIL.		LetterGrade
NIE	MTCL904	Teaching of Listening & Speaking Skills in TCIL	4	Listening and speaking are two important skills required in any language learning. They are complex skills that need to be developed consciously. In any interaction, comprehending the language used is necessary for effective communication. Hence, as instructors for TCIL, it is important to acquire the various communicative language teaching pedagogical approaches in order to teach effective communication skills. Besides acquiring pedagogical approaches in teaching non-native learners, keeping abreast with recent developments and research on the teaching of Chinese language listening and speaking content and skills are also essential to build the competencies to effectively TCIL to the 21st century learners.		LetterGrade
NIE	MTCL905	Teaching of Reading And Writing Skills In TCIL	4	Reading and writing are two important literacy skills one requires to function effectively in everyday life. These two skills are interconnected and can be developed together. With global economies and emerging new technologies, new literacies are already becoming part of the educational landscape. Hence, as instructors for TCIL, it is important to understand the various teaching pedagogical approaches to engage learners of this new age. Besides acquiring pedagogical approaches in teaching non-native learners, keeping abreast with recent developments and research on the teaching of Chinese language reading and writing content and skills are also essential to build the competencies to effectively TCIL to the 21st century learners.		LetterGrade
NIE	MTCL906	Application of Information Technology in TCIL	4	In todays 21st century education, the use of ICT for teaching and learning had infiltrated schools at a rapid pace. To ensure that todays digital learners are future-ready for the workforce of tomorrow, educators must understand and embrace the need to employ the use of ICT to create a 21st century learning environment. A 21st century educator must be competent to use technology with ease in teaching and learning, be it in the classroom or out of classroom where learning takes place anytime, anywhere. Hence, as TCIL instructors, it is important to understand the application of technological tools with content and pedagogical approaches, and appreciate how ICT can create an effective learning environment for TCIL.		LetterGrade
NIE	MTCL907	Language Testing & Assessment in TCIL	4	Testing and assessment is an integral part of the learning process, and must be closely aligned with curricular objectives, content and pedagogy. It serves as the central function of getting the best possible evidence on what the students have learned. Teachers and students can then use this information to decide what to do next in the teaching and learning process. It is important that TCIL instructors be equipped with the necessary assessment competencies, so that quality teaching and learning can be achieved in all TCIL classrooms, bearing in mind the varied language backgrounds and proficiency levels of TCIL learners.		LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MTCL908	Analysis & Development of Instructional Materials for TCIL	4	Over the last three decades, there are many TCIL curriculums and instructional materials developed for non-native learners globally. However, TCIL instructors find it challenging to identify proper instructional materials for learners of differing abilities. This course aims to enhance the knowledge and skills of TCIL instructors in analysing the instructional materials developed by different editors and publishers. In addition, through better understanding of principles of the curriculum design and instructional materials development for TCIL, instructors will be well equipped in developing instructional materials for different learners.		LetterGrade
NIE	MTCL909	Global Chinese and Contemporary China	4	The rapid rise of China as a global economy has driven an increase to the educational and pragmatic value of learning Chinese language globally. Understanding the history and development of Chinas rise and economic globalization is essential to TCIL instructors as they thread beyond the grounds of China in TCIL to non-native learners.		LetterGrade
NIE	MTCL911	Professional English for TCIL Instructors	4	All teachers need to possess skills that enable them to communicate effectively with a range of stakeholders in the educational settings. Being able to apply these skills in a second language is all the more critical for Chinese language teachers who will need to fulfill school related tasks and communicate with other members of staff, students and their parents in the English medium. This course helps to prepare participants who will be working in international settings as they move through their careers.		LetterGrade
NIE	MTCL912	Early Childhood Education in TCIL: Theory and Practice	4	Early childhood education is crucial as it has direct impact on the development of learning skills, social and emotional abilities of a child. It is during the early childhood years that we should accentuate the development of language, speech and literacy, as it will significantly enhance the childs learning in the later years. Educators should leverage on the varied learning styles and characteristics of early childhood learners, from infancy to the age of eight, apply corresponding learning theories into practice, to bring about effective teaching and learning of Chinese as an international language.		LetterGrade
NIE	MTCL913	Chinese Language Education for International Schools	4	According to the study by International School Consultancy Research (2017), there is a rapid surge in the growth of international schools globally. With a growth in expatriate families and an increase in enrolment within the schools host country, the increasing trend is expected to continue in the next ten years. This growing demand corresponds to the need to develop professionally-trained Chinese language educators for International schools. Language offerings in international schools are unique and vary over different school programme. However, each aims to provide students with an edge in this competitive and ever-changing world. Hence, this course will broaden participants knowledge of teaching Chinese language in international school settings and provides constructive career development opportunities to participants.		LetterGrade
NIE	MTD909	E-learning tools for Training	4	In the new information age, many traditional classroom courses or training programs need to be re-developed and conducted online to meet the needs of adult learners who often have to balance their work demands with their social lives. In this course, the participants will learn how to use web-based tools, e-learning authoring tools and produce videos so that they can easily develop and conduct e-learning sessions for teaching and training in practice. Through readings, online learning, discussions, and hands-on activities, participants will be able to: * Compare the pros and cons of various web-based tools for training * Compare the pros and cons of various e-learning authoring tools; * Design and develop e-learning lessons by using appropriate tools. * Identify key features of a learning management system and to use a web-based LMS * Apply techniques in digital video production from pre-production, production to post-production to produce an interview video and a training video	14/08/2024 | Wednesday | 6:00 - 9:00pm	LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MTD911	Facilitating Adult Learning	4	This course explores issues related to the process of learning in adulthood. Students will learn about the theories and concepts related to adult learning. This course is ideal for those who are currently working or planning to work in an adult teaching or training capacity in an organization/educational institution. Instructional designers and trainers who needs to design, develop, or implement training programmes to adult learners will find the course useful.	15/08/2024|Thursday|6:00 - 9:00pm	LetterGrade
NIE	MTD913	Teaching and Learning in Higher Education	4	The Teaching and Learning in Higher Education (TLHE) course aims to provide a structured environment for early career faculty, within which they can develop their practical skills and understanding of teaching in higher education. This course begins by exploring learning theories, course design, evidence-based teaching approaches, assessment, and communication with students within the context of their own teaching. Then, learners are provided with opportunities to sharpen their understanding by putting theory into practice. Through this course, they will have opportunities to develop their confidence in the teaching practice through reflection and participation in a community of practice, and as a result, develop a critical mindset that will continue to challenge the way they teach. Content Topics: Teaching in specific higher education contexts, e.g. NTU, Poly, etc. Learning theories Teaching in your discipline Course design Constructive alignment Assessment Designing learning activities Planning a lesson Facilitating Learning Evaluating your teaching Increasing your impact in teaching Showcasing your teaching Blended learning	16/08/2024|Friday|2:00 - 5:00pm	LetterGrade
NIE	MTL902	Tamil Literature in Education	4	The course aims to provide a comprehensive coverage to develop various theories and theoretical approaches through the study of Tamil literature. Introduction and history and components of new poems and drama in Tamil Language. An in-depth study of selected topics on Tamil history and culture in Sangam poems, medieval and modern literature will be taught. By studying Singapore Tamil literature, teachers would be able to comprehend the educational, historical and social changes in Tamil culture and its relevance in todays society. For example, teachers would be able to perform a critical analysis on the readings of curriculum literary texts.	12/08/2024|Monday|6:30 - 9:30pm	LetterGrade
NIE	MTL904	Functional Tamil Syntax	4	This module aims to widen students knowledge on the theories of Functional Tamil syntax. The module will mainly focus on Tamil syntax and its various components. In- depth, students will study Tamil phonology and morphology. Students will analyse the formation and division of words, phrases and its structure, sentence structures and types of sentences, immediate constituent (IC), phonetics and phonemics in Tamil Language. The module will also cover the relationship between words, phrases and sentences using the insight gained. Ultimately, the knowledge gained should be applied in daily life and made relevance to authentic examples such as Short stories, conversational Tamil, radio conversations etc.	15/08/2024|Thursday|6:30 - 9:30pm	LetterGrade

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	MUE902	Philosophy of Music Education	4	This course centres on the philosophical foundations of music education. In particular, it seeks to address the big questions that confront contemporary music education. Course readings range from ancient to living scholars and philosophers, and cut across cultural borders in its inclusion of Asian and comparative philosophical writings. (a) Philosophy of music education in the ancient world (b) Utilitarian philosophy of music education (c) Aesthetic philosophy of music education (d) Praxial philosophy of music education (e) Music education through postmodern lenses (f) Asian philosophies of music education and comparative approaches	13/08/2024 | Tuesday | 5:30 - 8:30pm	LetterGrade
NIE	MUE904	Studies in Musical Behaviours	4	This course involves a study of musical practices around the world with special emphasis on interdisciplinary perspectives such as philosophy, music education, analysis and sociology. An important corollary will be the ramifications for the teaching and learning of the various musical traditions. i) Deconstruction of Music/al and Behaviour ii) Music as human-constituted activity; aspects of disciplinarity iii) Music and discourses of behaviour iv) Means, methods, media/tion/Systemic and Systematic practices v) Cap/abilities in Music-making vi) Consequences involving music and behaviour vii) What does musical behaviour mean? viii) Musical practices - exemplars ix) Seminar Presentations	15/08/2024 | Thursday | 5:30 - 8:30pm	LetterGrade
NIE	SA830	Writing and Communication Skills for PhD Students	3	This course aims to improve the academic writing and oral communication skills of PhD students. Participants will learn about the concept of an academic discourse community, learn to negotiate the expectations of this community, consider the discourse practices and linguistic conventions of academic writing and academic presentations in their own disciplines, and come to understand the thinking processes underlying those practices and conventions. A range of topics will be explored in the course, including writing different sections of a thesis/research paper (introduction, literature review, methodology, findings and discussion, conclusion, and abstract); conceptualising research writing as argument; avoiding plagiarism; using language and visual resources for effective communication; preparing for PhDconfirmation seminars and oral examinations; presenting research at academic conferences; and understanding the Three-Minute Thesis (3MT) genre. In order for students to benefit most from this course, it is recommended that they enrol after having completed at least the first semester of their PhD candidature.	15/08/2024 | Thursday | 6:30 - 9:30pm 20/08/2024 | Tuesday | 5:30 - 8:30pm	PassFailGrade
NIE	SA864	War and Society	3	This course covers how war and military events are tied up with the whole of society. The coursecovers the broad area of military history but focuses on the new perspectives that have beenbrought to military history since the Vietnam War, which has sometimes been called the newmilitary history, or more often referred to as the study of war and society. The study of war hasin the later part of the twentieth century moved beyond the learning of strategies and tacticsfrom the history of battles and campaigns. The field now covers areas such as the history ofviolence, the cultural history of remembering conflict, the study of the psychological impact oftrauma, war and battles relationship to sport and masculinity. Since the Vietnam War, newinsights brought to military history have come from disciplines as diverse as anthropology,sociology, psychology, economics, gender studies, and cultural and social history. The course canprovide insights for students working in these disciplines as well as the study of history. War ismajor topic of study in a variety of disciplines and this course adds value to the study of specificcase studies in these fields.	15/08/2024 | Thursday | 4:00 - 7:00pm	LetterGrade

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
NIE	SR809	Structural Equation Modeling for Education Research	3	This is an introductory course to SEM that is focused on the application and interpretation of statistical models that are designed for the analysis of multivariate data. The SEM is a general framework that allows for the empirical testing of research hypotheses in ways not otherwise possible. It addresses aspects such as longitudinal research, causality, measurement, and mediation. Among others, these aspects are essential in studies looking at how differently students perform over time, which are the predictors of growth, and how such predictors are interrelated.	13/08/2024|Tuesday|1:00 - 4:00pm	LetterGrade
RSIS	AS6035	Dialogue: Interreligious Encounters & Peacebuilding	3	This course provides a critical understanding of the nature of Interreligious Dialogue (IRD) and its place within wider Dialogue Studies debates. Students will be introduced to the history and development of IRD in a global context, with a particular focus on the recent past, and changes and developments within its practice, especially in the post 9/11 period. The course will address the global literature on IRD but emphasise Asian contexts and examples to elucidate issues where this is useful and informative. The course will include study of a number of key theorists from both secular dialogue theory, such as David Bohm, Jürgen Habermas, and Hans-Georg Gadamer, as well as (particularly Asian) religious theorists such as Fettullah Gülen and Daisaku Ikeda. It will also combine theoretical rigor with practice, with students both witnessing dialogue as well as being asked to participate in dialogue sessions in class to experience it in action. This will help elucidate the way that theory and praxis in Dialogue Studies are seen as intimately linked and the fact that theorists mostly tend to stress forms of practice rather than simply abstract reasoning as key to understanding dialogue. The course is divided into three parts: the first (praxis) addressing theoretical and practical approaches to understanding IRD and the way it is understood and practiced. This will include issues such as theories, ethics, and facilitation. The second (piety) will use the well known fourfold typology of dialogue (theological-spiritual-action-life) to look at a range of forms and encounters in interreligious contexts, including Scriptural Reasoning and interfaith marriage, and will examine the place of women in IRD. The third (peace) will turn specifically to the issue of interreligious dialogue and its employment in areas such as social cohesion and peace building. The nexus of the multifaith peace movement and IRD will be explored, with studies looking at the way dialogue can play a role in promoting social peace and harmony, as well as the implications of governmental involvement and how this may shape dialogue and its aims and ends. The Interfaith Youth Movement will also be explored with its focus on action.	Trimester 1 7 Aug - 3 Nov Every Wednesday 6:30pm - 9:30pm	graded
RSIS	IR6025	Global Governance	3	Global governance is a form of government on a planetary scale that is either very old or very new. Across time, it might retrospectively refer to the federation of sovereign nation-states under a centralized, world government, or a federation of kingdoms under a common supranational religion. Since the late 1990s, the term has referred to a process of cooperative leadership that brings together national governments, intergovernmental organizations, and civil society to achieve commonly accepted goals. It provides strategic direction and then marshals collective energies to address global challenges. This is the International Monetary Fund's definition biased in favour of attributing a consultative process. In reality, global governance is a series of political contestations between states, non-state actors and intergovernmental organizations over the nature of democracy, development, the environment, communications, culture, and above all the meaning of sustainable humane society on a planet faced with permeable geographical and social borders.	Trimester 2 13 Nov - 22 Dec 8 Jan - 23 Feb Every Tuesday 2:00am - 5:00pm	graded

School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
RSIS	IP6026	Introduction to the Political Economy of Southeast Asia	3	This course is an introduction to the political economy of Southeast Asia. Southeast Asia is defined to include all current members of the Association of Southeast Asian Nations (ASEAN). Through the lens of political economy, this course gives an overview of Southeast Asian countries' economic performance, examines the variations among their strategies and policy responses and how regional economies are governed. The class begins by introducing alternative theoretical frameworks useful for the understanding of Southeast Asian political economy and discussing the history of Southeast Asian economies since the colonial era. This course then scrutinizes specific issue areas (e.g. trade, finance, development) to examine the interactions between economics and politics accounting for countries' policies and economic governance. The future prospects of the Southeast Asian economies such as ASEAN Economic Community and how regional economic governance could unfold are also discussed.	Trimester 2 13 Nov - 22 Dec 8 Jan - 23 Feb Every Tuesday 9:30am - 12:30pm	graded
SBS	BS7002	Foundation Course in Information Biology	3	https://www.ntu.edu.sg/sbs/admissions/programmes/graduate/graduate-programmes/detail/sbs-ph.d.-programme#curriculum	To be advised	No formal Exam
SoH	HC7014	A Study of Chinese-Language Film Culture	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/chinese#Content_C002_Col02	Monday, 2.30pm-5.20pm	Proficiency in listening, speaking, and writing in the Chinese language is required at an intermediate level and above. Subject to course instructor's approval.
SoH	HC7101	Graduate Seminar	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/chinese#Content_C002_Col02	Tuesday, 2.30pm-5.20pm	Class is conducted in Chinese. Subject to course instructor's approval.
SoH	HL7113	Graduate Seminar in Postcolonial Literature & Theory	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/english-(creative-writing)#Content_C003_Col02	Tuesday, 2.30pm-5.20pm	Background in English and Literature. Subject to course instructor's approval.
SoH	HL7114	Graduate Seminar in Cultural Studies	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/english-(creative-writing)#Content_C003_Col02	Wednesday, 2.30pm-5.20pm	Some academic background in the study of literature, music, visual and performing arts, media studies. Subject to course instructor's approval.
SoH	HR7001	Graduate Proseminar in History, Theory, and Criticism of Art	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/art-history#Content_C003_Col02	Tuesday, 1.30pm-4.20pm	Background in Art History, English or History, or closely related humanities field. Subject to course instructor's approval.
SoH	HR7002	Directed Readings in Art History	3	https://www.ntu.edu.sg/soh/admissions/graduate/graduate-course-descriptions/art-history#Content_C003_Col02	Wednesday, 2.30pm-5.20pm	Background in Art History, English or History. Subject to course instructor's approval.
SPMS	MH7002	Discrete Methods	4		Tuesday 1:30pm – 3:20pm Wednesday 9:30am – 11:20am	
SPMS	MH7005	Algorithms and Theory of Computing	4		Tuesday 10:30am – 12:20pm Friday 10:30am – 12:20pm	
SPMS	MH7013	Topics in Probability and Statistics II	4		Monday 2:30pm – 4:20pm Wednesday 2:30pm – 4:20pm	
SPMS	MH7018	Graduate Seminar – Pure Mathematics I	4		Monday 10:30am – 12:20pm	
SPMS	PH7003	Graduate Solid State Physics	4		Monday 10:30am – 12:20pm Tuesday 10:30am – 12:20pm	
SPMS	PH7007	Experimental Techniques in Condensed Matter Physics	4		Monday 1:30pm – 3:20pm Tuesday 1:30pm – 3:20pm	
SPMS	PH7014	Optical Spectroscopic Techniques	4		Monday 3:30pm – 5:20pm Wednesday 10:30am – 12:20pm	

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School	Course Code	Course Title	Course AU	Course Description (if not available on website)	Class Timetable	Others (e.g. Pass/Fail grading)
SPMS	PH7027	Plasma Physics & Fusion Energy	4		Wednesday 1:30pm – 3:20pm Friday 10:30am – 12:20pm	
SSS	HE7002	Econometrics I	3	https://www.ntu.edu.sg/sss/graduate-education/graduate-research/economics#Content_C047_Col00	Course Instructor: Assoc Prof Feng Qu and Asst Prof Seok Young Hong Date: Monday Time: 9.30am to 12.20pm Venue: To be confirmed	Student is to contact the Course Instructors via email, if interested at: qfeng@ntu.edu.sg and seokyoung.hong@ntu.edu.sg
SSS	HE7101	Seminar in Microeconomics	3	https://www.ntu.edu.sg/sss/graduate-education/graduate-research/economics#Content_C047_Col00	Course Instructor: Asst Prof Teh Tat-How Date: Tuesday Time: 1.30 to 4.30pm Venue: To be confirmed	Student is to contact the Course Instructor via email, if interested at: tathow.teh@ntu.edu.sg