**Master of Education (Learning Sciences and Technologies)**

| Course Code | Course Title | Course Synopses | AU |
|---|---|---|---|
| MED900 | Educational Inquiry | This course introduces participants to the fundamental processes involved in conducting research such as formulating research questions, writing a review of the literature by synthesizing empirical studies, understanding various methodological approaches, collecting and interpreting research data. Participants in this course will have opportunities to develop the skills, knowledge and strategies needed to read, interpret, and evaluate the quality of research reports. In addition, participants will gain a critical understanding of quantitative, qualitative, and combined research approaches. | 4 |
| MED902 | Integrative Project | This capstone course requires participants to identify an education issue which forms the focus of inquiry, locate and read the most relevant literature to generate suggested potential solution to address the problem. The solution should show evidence that they are able to take the available information and restructure it in an appropriate way to deal with the issue. | 2 |
| MLT901 | Foundations of the Learning Sciences | 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 | 4 |
| MLT902 | Computer Supported Collaborative Learning and Knowledge Building | 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 | 4 |

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| MLT903 | Technologies as Cognitive Tools | Topics include:  *  Definition of cognitive tool and reasons for using technology as cognitive tools  *  Classification of cognitive tools and research  *  Concept of affordances  *  Use of web 2.0 tools as cognitive tools  *  Theoretical underpinning of concept/mind mapping tools  *  Theoretical underpinning of computer supported collaborative learning (CSCL)  *  Affordances of CSCL tools for teaching and learning | 4 |
| MLT906 | Design of Technology-mediated Learning Environments | The pervasiveness of technology is taken for granted in the new information age. Technology-mediated learning, whether using the Internet, using social media, or via mobile devices, are increasingly adopted. However, uninformed and uncritical uses of emerging technologies are often observed. This course aims to equip students with solid theoretical bases for making compelling design decisions with respect to technology- mediated learning environments in order to increase students cognitive engagement, learning experiences, and learning outcomes. This course will first discuss the issues that underpin traditional approaches to learning. Second, it will broaden students exposure to new learning theories, models, and design principles that can guide them through the design, development, and evaluation of technology-mediated learning environments. Third, this course will elaborate on the key design components of a technology-mediated learning environment, which include pedagogical design, social design, and technical design. | 4 |
| MLT907 | Neuroscience, Technology and Learning | With advances in neuroscience and educational technology,teaching and learning accelerates into a new stratosphere.Accompanied by technological and social learning mobility,theres immense fluidity in the way content is delivered, howskills and dispositions are developed and how assessment isenacted. Learners have access to not only seamless digitallearning experiences but so too experiences that can beinformed by the latest neuroscientific research on how thebrain works. At the same time, uninformed and uncritical usesof emerging neuroscientific technologies can perpetuateneuromyths and pose as impediments to the overall learningprocesses. This course aims to equip students with solid theoreticalbases for making compelling pedagogical design decisionswith respect to the use of neuroscientific technologies forlearning and to optimize future-ready learning, as arising from evidence-informed scientific research. This course will covertenets of brain-based learning, learning as changes in neuralconnectivity, neuroscientific technology use, and applications for the use of neuroscientific technologies inpedagogy/andragogy practice. | 4 |

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| MLT908 | Design of Interactive Learning Environments | Topics include: * ILEs and Key findings from the Learning Sciences * Critical Perspectives on Educational Technologies * Design of Learning Environments  Orchestration * Design of Scaffolding for Learning * Design of Learning Experiences with New Media * Design of Learning with Collaborative Technologies * Design of Learning with Mobility * Educational Games * Design of Learning Spaces * Assessment of Collaborative Learning * Scaling educational innovations | 4 |
| MLT909 | Research Methodologies for the Learning Sciences | 1. Concept, purpose and process of conducting research 2. Research and ethics 3. Identifying research problem 4. Conducting critical literature review 5. Writing research questions 6. Designing surveys and interviews 7. Collecting quantitative data 8. Collecting qualitative data 9. Analysing quantitative data 10. Analysing qualitative data 11. Reporting research | 4 |
| MLT910 | Technological and Pedagogical Considerations for ICT Integration | The topics include:<br>Core issues of ICT integration<br>Relevance of TPACK framework<br>Key TPACK concepts<br>Measuring TPACK<br>Specific TPACK (seminar leading)<br>Contextual influences of TPACK<br>Students conception of TPACK | 4 |
| MLT911 | Instructional Leadership for Technology-mediated Learning | The course aims to provide conceptual as well as practicalunderstanding of Instructional Leadership for technology integration inschools. During the course, participants will use Activity Theory as aframework to analyse the various dynamic components that lead to effective technology integration in schools. | 4 |
| MLT912 | Design for Blended Learning | This course introduces thetheoretical foundations ofblended learning and different forms of blended learning -blended asynchronous learning (e.g., using discussion forums), blended synchronous learning (e.g., using video conferencing), and flipped classroom (e.g., using recorded videos) -and providing practical guidelines on designing the blended learning environment in the school context. The focus of the course is ondesigning the blended learning environment and facilitatingstudent learning in the environment. | 4 |

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| MLT913 | Technology Supported Assessment | Topics include:  *  theories and approaches in assessment, with more focus on assessment for learning/formative assessment  *  pedagogies and approaches in designing assessment with technology  *  principles for the appropriate use of technology supported assessment  *  benefits and challenges, barrier and enablers in technology supported assessment | 4 |
| MLT914 | Educational Design Research | Topics include:  *  research designs and design research  *  two-fold yield of educational design research  *  quality criteria for evaluating interventions  *  educational design research models  *  formative evaluation in educational design research  *  challenges in educational design research | 4 |
| MLT915 | Digital Game-Based Learning | The course will deal with digital games and theories of play that can support digital game-based learning. Students will be exposed to different approaches to the use of digital games to support teaching and learning together with their underlying theoretical bases. They will also learn through a substantial game-based learning group project.<br><br>The specific topics include:<br>Digital games for education<br>Theories of play for conceptualising digital games<br>Theories of learning for conceptualising game-based learning<br>Game-Based learning and Gamification<br>Design for learning with digital games<br><br>Students are required to spend at least 3 hours in course readings and class preparation each week. | 4 |