

# Course Catalog

## 2023 – 2024

### Master of Education Courses

*Last revised on June 20, 2023*



**European University of Luxembourg**  
Wiltz Campus | Online Campus

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## **INTRODUCTION**

This catalog provides course syllabi for all Master of Education (M.Ed.) graduate courses. Unless mentioned otherwise, course structure, as well as course evaluation are standardized for all graduate courses. Credits are expressed using the European Credit Transfer System. One European credit stands for 30 hours of workload. The EBU M.Ed. course load consists of 30-40 contact hours and 200-240 study hours. Contact hours include lectures, discussion forums, and examinations and study hours include independent study, practical work, and research forums, etc. One graduate semester consists of 10 weeks of class sessions.

## **COURSE PLANNING**

The total number of courses offered is dependent on the total credit study plan requirements of enrolled students. Students plan their courses according to course availability and prerequisites. Some of the courses have required prerequisites. A minimum of one course from each of the graduate specialization courses is offered. The total number of specialization courses offered per specialization is dependent on the total credit and course requirements of enrolled students. Students plan their courses according to course availability. None of the specialization courses have required prerequisites.

## **COURSE SCHEDULING**

Courses are scheduled over the full duration of the semester and all courses finish within one semester. Graduate courses consist of 35 contact hours, 1-2 midterm exam hours, and 2 final exam hours. Contact hours are usually scheduled as 15 hours (1.5) class sessions with one session per week for the duration of the semester and 2 hours of discussion forum per week for 10 weeks. Mid-term exams take place in week 5 and final exams take place in week 10 of each semester.

## **COURSE STRUCTURE**

Students are provided a strong theoretical foundation and are introduced to the various concepts to gain a thorough understanding of the subject matter. The practical application and implementation of these specific concepts are methodically discussed during the various class sessions through real-life examples and comprehensive case studies.

## **COURSE CONTENT AND LEARNING OUTCOMES**

All courses are graduate level and are taught according to a student-centered approach. Course content listed should be regarded as indicative course content. Learning outcomes listed are reference points and should be regarded as intended learning outcomes for what students are expected to be able to do at the end of the course.

Assessments done in the course should address these learning outcomes. The learning outcomes are established according to Benjamin Bloom's taxonomy for cognitive learning. Based on this framework, courses at Graduate-level address primarily the thinking processes: Knowledge, Comprehension, Application, and Analysis.

The overall learning of the courses at the graduate program corresponds to the level descriptors

proposed by European Quality (EQF), corresponding with the descriptors for second-cycle qualification. The overall learning of the graduate programs aims at students obtaining a level according to the indications below.

The descriptor for the second cycle is in the Framework for Qualifications of the European Higher Education Area agreed by the ministers responsible for higher education at their meeting in Bergen in May 2005. This is in the framework of the Bologna process corresponding to the learning outcomes for EQF level 7.

## **SETTING**

- Operational Context: The learner operates in complex and unpredictable contexts, requiring selection and application from a wide range of largely standard techniques and information sources.
- Autonomy and responsibility for actions: The learner acts with minimal supervision or direction, within agreed guidelines taking responsibility for accessing support and accepts accountability for determining and achieving personal and/or group outcomes.

## **CHARACTERISTIC 1: KNOWLEDGE AND UNDERSTANDING**

- Demonstrate and/or work with:
- Knowledge that covers and integrates most, if not all, of the main areas of the subject/discipline/sector – including their features, boundaries, terminology, and conventions.
- A critical understanding of the principal theories, concepts, and principles.
- A critical understanding of a range of specialized theories, concepts, and principles.
- Extensive, detailed, and critical knowledge and understanding in one or more specialisms, much of which is at, or informed by, developments at the forefront.
- A critical awareness of current issues in a subject/discipline/sector and one or more specialisms.

## **CHARACTERISTIC 2: PRACTICE: APPLIED KNOWLEDGE, SKILLS, AND UNDERSTANDING**

- Apply knowledge, skills, and understanding:
- In using a significant range of the principal professional skills, techniques, practices, and/or materials associated with the subject/discipline/sector.
- In using a range of specialized skills, techniques, practices, and/or materials that are at the forefront of, or informed by, forefront developments.
- In applying a range of standard and specialized research and/or equivalent instruments and techniques of enquiry.
- In planning and executing a significant project of research, investigation, or development.
- In demonstrating originality and/or creativity, including in practices.
- To practice in a wide and often unpredictable variety of professional-level contexts.

## **CHARACTERISTIC 3: GENERIC COGNITIVE SKILLS**

- Apply critical analysis, evaluation, and synthesis to forefront issues, or issues that are informed by forefront developments in the subject/discipline/sector.
- Identify, conceptualize and define new and abstract problems and issues.
- Develop original and creative responses to problems and issues.
- Critically review, consolidate and extend knowledge, skills, practices, and thinking in a subject/discipline/sector.
- Deal with complex issues and make informed judgements in situations in the absence of complete or consistent data/information.

## **CHARACTERISTIC 4: COMMUNICATION, ICT, AND NUMERACY SKILLS**

- Use a wide range of routine skills and a range of advanced and specialized skills as appropriate to a subject/discipline/sector, for example:
- Communicate, using appropriate methods, to a range of audiences with different levels of knowledge/expertise.

- Communicate with peers, more senior colleagues, and specialists.
- Use a wide range of ICT applications to support and enhance work at this level and adjust features to suit the purpose.
- Undertake critical evaluations of a wide range of numerical and graphical data.

**CHARACTERISTIC 5: AUTONOMY, ACCOUNTABILITY, AND WORKING WITH OTHERS**

- Exercise substantial autonomy and initiative in professional and equivalent activities.
- Take responsibility for your work and/or significant responsibility for the work of others.
- Take significant responsibility for a range of resources.
- Work in a peer relationship with specialist practitioners.
- Demonstrate leadership and/or initiative and make an identifiable contribution to change and development and/or new thinking.
- Practice in ways that draw on critical reflection on your own and others’ roles and responsibilities.
- Manage complex ethical and professional issues and make informed judgements on issues not addressed by current professional and/or ethical codes or practices.

**COURSE EVALUATION**

<b>Course evaluation: Study Load per 10 ECTS course</b>	<b>Total 245 hrs.</b>
- Lectures: one hour per week for (10 weeks)	15 hours
- Self-directed content learning & preparation: 9 hours per week (10 weeks)	90 hours
- Specific assignments: 3 x 3-hour assignments	9 hours
- Formative Assessments/Research assignments	4 hours
- Course Preparation and Discussion Forums: 2.5 hours per day for 10 Weeks	125 hours
- Written Summative Assessments	2 hours

Attendance to all class sessions and participation in all class discussions is mandatory and is part of the final grade for the course. Reading materials and discussion questions should be prepared by each student individually by the next class session. There should be graded weekly assignments. Formative assignments, where feedback is provided on the student’s performance but the grade not included in the final grade, are also given throughout the course. Credits are only awarded upon successful completion of the entire course. Partial credit for partial completion of a course is not awarded.

We reserve the right to change the content of this catalog and to make changes to the academic curriculum at any time and without prior notice.

## CORE COURSE

# CODE: MED100 - EDUCATION IN CONTEXT: HISTORY, PHILOSOPHY AND SOCIOLOGY

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course will examine the role of education across time and in different places in the world and the social and political influences that shaped the goals and structure of today's diverse educational systems. The contributions of classical and modern thinkers and their impact on contemporary education and the role and function of the teacher will be explored. Analysis of globalization and the nature of different educational systems and values will provide a context for reflecting on one's philosophy of education.

### Required Textbook and Materials:

The main required textbooks for this course are listed below and can be readily accessed. There may be additional required/recommended readings, supplemental materials, or other resources and websites necessary for lessons; these will be provided for you in the course's General Information and Forums area, and throughout the term via the weekly course Unit areas and the Learning Guides.

This course does not contain a main textbook; resources to all required reading will be provided in the course Learning Guide for each week.

## LEARNING CONTENT AND OBJECTIVES:

By the end of this course students will be able to:

- Examine the changing role of educational and instructional models (active learning, critical thinking), multiculturally, and/or overtime.
- Explore classical and modern philosophies and their impact on contemporary education.
- Explain the concept of education and its relationship with philosophy

- Analyze the globalization and the nature of different educational systems and values to reflect one's philosophy of education.
- Examine the global, social, and political influences that shaped the goals and structure of today's diverse educational systems.
- Understand the meaning and nature of educational sociology, sociology of education, and social organization
- Explain group dynamics, social interaction, social change, and the contribution of education to these aspects.

**Course Schedule and Topics:**

This course will cover the following topics.

**Unit 1 – History and Purpose of Schooling in the European and International Context**

**Unit 2 – Historical Global Foundations of Education**

**Unit 3 – Philosophical Foundations of Education:**

- Relationship Between Education and Philosophy
- Areas, of Philosophy and their Educational Implication
- Metaphysics, Epistemology and Axiology.
- Western Schools of Philosophy and their Educational Implication: Idealism, Naturalism, Realism and Pragmatism-their contribution to present day education.
- Modern Concept of philosophy: Logical analysis, Logical Empiricism, positive Realism and their Educational Implication.

**Unit 4 – Global Philosophical Foundations in Education**

**Unit 5 – Sociological Foundations of Education**

- Meaning, Nature and Scope of Education sociology
- Relationship between Sociology and Education
- Meaning and Nature of Educational Sociology and Sociology of education
- Education-as a social sub-system-specific characteristic
- Education and community with special reference the International Community

**Unit 6 – Social & Political Issues**

**Unit 7 – Global Standings and Perspectives**

**Unit 8 – The Role of Educators in a Changing World**

- Introduction to Philosophy of Education Relationship Between Education and Philosophy Areas, of Philosophy and their Educational Implication- Metaphysics, Epistemology and Axiology. Western Schools of Philosophy and their Educational Implication: Idealism, Naturalism, Realism and Pragmatism-their contribution to present day education. Modern Concept of philosophy: Logical analysis, Logical Empiricism, positive Realism and their Educational Implication.

<b>Learning Outcomes:</b>		Assessed in module?	A	B	C	D
On successful completion of the course the candidate will be able to:						
L1	Examine the changing role of educational and instructional models (active learning, critical thinking), multiculturally, and/or overtime.	N	X			
L2	Explore classical and modern philosophies and their impact on contemporary education.	Y	X	X		

L3	Explain the concept of education and its relationship with philosophy	Y	X	X		
L4	Analyze the globalization and the nature of different educational systems and values to reflect one's philosophy of education.	N	X	X		
L5	Examine the global, social, and political influences that shaped the goals and structure of today's diverse educational systems.	N	X		X	X
L6	Understand the meaning and nature of educational sociology, sociology of education, and social organization	Y	X			
L7	Explain group dynamics, social interaction, social change, and the contribution of education to these aspects.	Y	X		X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

**BIBLIOGRAPHY: TBA**



## CORE COURSE

# CODE: ME101 TEACHING FOR DIVERSE AND INCLUSIVE CLASSROOMS

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course provides students an opportunity to explore how diversity is manifested among organizational leaders, staff, and stakeholders in today's education environment in the context of policies, systems, histories, structures, and legislation. Participants will examine organizational and professional access and equity in the contexts of culture, ethnicity, race, sexual orientation, ability, and gender. Students will then apply the knowledge they gain from these explorations to the framing, analysis, and generation of solutions to contemporary educational problems. Through the assignments and resources, this course will address the tools for engagement by addressing the use of language and defining terms (and why they matter), sharing perspectives, looking at evidence and theories, employing a variety of strategies meant to increase understanding and participation, and then critiquing them all.

## LEARNING CONTENT AND OBJECTIVES:

- Define broadly the constructs of diversity, equity, access and retention.
- Explain the historical basis for and evolution to present time of and diversity policy in education.
- Analyze some of the equity effects of expanding access to education.
- Be able to distinguish opinions about causes of the achievement gap from research findings.
- Understand basic theories of identity development and the ways in which these theories are in flux.
- Understand how one's sense of self can vary with context.
- Describe what is typically meant by the labels "gifted," "special education" and "learning disability," and discuss strategies and challenges involved in categorizing students in this way.
- Describe challenges facing staff and students who are the subject of these differences and their organizational responses.
- Distinguish between sex, gender identity and expression, and sexual orientation as constructs.
- Understanding similarities among different religions and how employees might experience the

workplace differently based on their spiritual and religious identity.

- Understanding civic belonging of immigrants.
- Understanding globalization of education, controversies regarding globalization and the relationships between globalization, education, technology, and migration.

By the end of this course students will be able to:

- Articulate key analytical constructs (such as race, ethnicity, gender, ability, sexual orientation, Socio-Economic Status) and how their individual and combined effects impact instruction, assessment, and leadership.
- Articulate the levels at which diversity and responses to diversity occur: individual, group, institutional, and structural.
- Analyze your own and others' experiences in various environments and how meaning-making can vary by the communities with which one affiliates and by personal and collective histories within the larger society.
- Analyze how perceptions of difference contribute to disparate educational opportunities and work environments.
- Analyze how you communicate values, intentionally and unintentionally, to communities through your choices of instructional practice, program and policy implementation, and resource distribution.
- Create a Statement of Problem paper that includes a synthesis of current practice and research about a topic related to diversity.
- Apply strategies and pedagogies for engaging groups in discussions that involve looking at the difference while tackling problems related to inequities in educational and professional outcomes and experiences.
- Evaluate institutional and structural policies and recommend strategies that could move institutions toward more equitable experiences and outcomes.
- Apply strategies to engage, verbally and in writing, your professional communities in considering access to and outcomes for your organization.

**Course Schedule and Topics:**

This course will cover the following topics.

**Unit 1: Introduction: diversity, equity, access and retention**

**Unit 2: Achievement Gap and equity effects of expanding access to education**

**Unit 3: Basic theories of identity development**

**Unit 4: Race and Ethnicity I**

**Unit 5: Race and Ethnicity II**

**Unit 6: Ability**

**Unit 7: Language challenges and strategies**

**Unit 8: Gender, Sexual Orientation, identity and expression as constructs**

**Unit 9: Spirituality and Religious Identity**

**Unit 10: Understanding Immigration and Globalization of education**

<p><b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:</p>	Assesse this mod	A	B	C	D
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L1	Articulate key analytical constructs (such as race, ethnicity, gender, ability, sexual orientation, Socio-Economic Status) and how their individual and combined effects impact instruction, assessment, and leadership.	N	X			
L2	Articulate the levels at which diversity and responses to diversity occur: individual, group, institutional, and structural.	N	X		X	X
L3	Analyze your own and others' experiences in various environments and how meaning-making can vary by the communities with which one affiliates and personal and collective histories within the larger society.	N		X	X	X
L4	Analyze how perceptions of difference contribute to disparate educational opportunities and work environments.	N			X	X
L5	Analyze how you communicate values, intentionally and unintentionally, to communities through your choices of instructional practice, program and pd implementation, and resource distribution.	N			X	X
L6	Create a Statement of Problem paper that includes a synthesis of current practice and research about a topic related to diversity.	Y			X	X
L7	Apply strategies and pedagogies for engaging groups in discussions that involve looking at the difference while tackling problems related to inequities educational and professional outcomes and experiences.	Y			X	X
L8	Evaluate institutional and structural policies and recommend strategies that could move institutions toward more equitable experiences and outcomes.	Y			X	X
L9	Apply strategies to engage, verbally and in writing, your professional communities in considering access to and outcomes for your organization.	Y			X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME200 CONTEMPORARY GLOBAL CHALLENGES IN EDUCATION POLICY AND LEADERSHIP PRACTICE

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

The course prepares future school leaders to effectively administer education programs and meet the challenges they will face in Primary and Secondary education. It provides the opportunity for students to have a clear understanding of how policy works in education, how to analyze and formulate educational policies, and who the key interest groups and players are in the making of policy. The course will equip students with the ability to generate ideas about how to evaluate policy implementation and provide useful feedback to policymakers. Using a systems approach to understanding leadership, the course combines coursework with real-world experiential learning.

## LEARNING CONTENT AND OBJECTIVES:

- Creating and Sustaining a Focus on Learning
- Creating and Sustaining a Culture of Continuous Improvement
- Creating and Sustaining Productive Relationships
- Creating and Sustaining Structures to Support an Effective School
- Managing Human Capital
- Self-Reflection and Professional Growth
- Professional Obligations
- Family and Community Engagement

## COURSE SCHEDULE AND TOPICS:

This course will cover the following topics.

### Unit 1: Sustaining a Focus on Learning:

- Planning for school improvement;
- Monitoring student performance;
- Providing opportunities for teacher reflection;
- Short and long-term planning to facilitate student achievement.

### Unit 2: Sustaining a Culture of Continuous Improvement:

- Setting expectations for teacher and student performance;
- Developing teachers through observation, feedback, and professional development;
- Gathering and analyzing data relative to student learning;
- Considering diversity of learners, e.g. ethnicity, abilities, and socioeconomic status.

### Unit 3: Sustaining Productive Relationships:

- Creating an environment that respects all stakeholders;
- Establishing opportunities for discourse among stakeholders for decision making;
- Creating communication processes for partnering with teachers and students.

### Unit 4: Sustaining Structures:

- Aligning curriculum, instruction, and standards;
- Allocating resources and developing structures to support school goals for student learning.

### Unit 5: Managing Human Capital:

- Collecting data related to teacher performance;
- Using teacher performance data to support effective instruction;
- Developing leadership capacity among teachers.

### Unit 6: Self-Reflection and Professional Growth:

- Using feedback from various sources to improve leadership practices;
- Seeking opportunities for continuous growth in leadership.

### Unit 7: Professional Obligations:

- Modeling and advocating fair and equitable treatment of all students and their families;
- Modeling integrity and honesty while respecting confidentiality.

### Unit 8: Family and Community Engagement:

- Involving parents, families, and community in policy implementation and program planning;
- Involving parents, families, and community in school improvement efforts.
- Connecting students and families to other social service and community agencies as needed.

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Creating and Sustaining a Focus on Learning	N	X	X		
L2	Creating and Sustaining a Culture of Continuous Improvement	Y	X	X		
L3	Creating and Sustaining Productive Relationships	N	X	X		

L4	Creating and Sustaining Structures to Support an Effective School	Y				
L5	Managing Human Capital	N			X	
L6	Self-Reflection and Professional Growth	Y		X		X
L7	Professional Obligations	Y			X	X
L8	Family and Community Engagement	N				X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME201 LEARNING THEORY AND IMPLICATIONS FOR INSTRUCTION

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course is a study of human learning and cognitive organization and process. The content will provide an overview of the development of learning theory and cognitive models since the beginning of the scientific study of human learning and mental processes. Major theories concerning the learning process and their implications for the instructional process are investigated. The focus of the course will be the linkage between theory and educational practice. Attention will be given to the cognitive, affective, and sensory/psychomotor domains and implications for learning through different modalities. Contributions of neuroscience to understanding adolescent research are explored, and structural barriers to learning such as stereotype threat are discussed. Students will gain insights into the interplay of learner characteristics, prior experiences, the medium of instruction, and cultural influences and understand that learning is contextual, with no single theory universally applying to every student in every situation.

## LEARNING CONTENT AND OBJECTIVES:

By the end of the course, the candidate will:

- Become conversant with basic assumptions, concepts, and principles of each theory.
- Grasp possible implications of each theory for different instructional settings.
- Compare and contrast a range of theories in a variety of settings and age groups.
- Create, revise, and begin to use your theory of learning.
- Reflect on how learning theories impact every aspect of your life.
- Explain the interactions of students, teachers, and materials in classrooms and the implications of these interactions for classroom environments.
- Describe contemporary learners along a continuum of characteristics, i.e., socio-economic status, ethnicity, gender, ability, among others, and discuss the implications of these characteristics for instruction

in the contemporary classroom and in the future.

- Compare and contrast major theoretical positions on learning.
- Recognize and articulate how their philosophies and preferences for learning influence their educational practices.
- Examine motivation and its implications for learning and classroom practices environments.
- Utilize self-assessment for self-improvement and self-enhancement as educational professionals.

## COURSE SCHEDULE AND TOPICS

This course will cover the following topics.

**UNIT 1: Introduction; Learning and Teaching in the Classroom; Course Overview & Perspectives on Learning, theories of learning and their instructional applications in educational settings.**

**UNIT 2: Behavioral Analysis; Behaviorism and the Information Processing Model in Classroom Practices; Theoretical Overview, Modeling, Self-Efficacy, & Self-Regulation; Pavlovian Conditioning, Watson, Guthrie, Skinner, Thorndike, and Bandura.**

**UNIT 3: Cognitive Analysis; Complex Cognitive Processes, Concept Learning & Conceptual Change, viewpoints, and applications regarding the teaching/learning process including Bruner and Ausubel.**

**UNIT 4: Social Analysis; Observational, Social Learning; Identify humanistic viewpoints and applications regarding the teaching/learning process including Rogers; Recognize the significance of social learning theory and its implication for teaching.**

**UNIT 5: Constructivist; Piaget’s, Bruner’s, & Vygotsky’s Theory.**

**UNIT 6: Who’s Who in Human Learning.**

**UNIT 7: The Adolescent Brain and Neuroscience; Identify concepts and procedures that enable students to process and store information.**

**UNIT 8: Understanding Learner Characteristics; Understand human growth and development issues and concepts for childhood and early adolescence.**

**UNIT 9: Multiple Approaches to Curriculum Design.**

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Become conversant with basic assumptions, concepts, and principles of each theory.	Y			X	X
L2	Grasp possible implications of each theory for different instructional settings	N			X	X
L3	Compare and contrast a range of theories in a variety of settings and age groups.	N	X	X		
L4	Create, revise, and begin to use your theory of learning.	N	X	X		
L5	Reflect on how learning theories impact every aspect of your life	N	X			



L6	Explain the interactions of students, teachers, and materials in classrooms and the implications of these interactions for classroom environments.	Y		X	X	
L7	Describe contemporary learners along a continuum of characteristics, i.e., socio-economic status, ethnicity, gender, ability, among others, and discuss the implications of these characteristics for instruction in the contemporary classroom and in the future.	Y		X		
L8	Compare and contrast major theoretical positions on learning.	Y	X			
L9	Recognize and articulate how their philosophies and preferences for learning influence their educational practices.	Y	X			X
L10	Examine motivation and its implications for learning and classroom practices environments.	N			X	X
L11	Utilize self-assessment for self-improvement and self-enhancement as educational professionals.	N			X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME300 GAMES AND VIRTUAL SIMULATIONS FOR LEARNING

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

Today computer gaming is one of the fastest-growing areas of the information technologies industry as gamification has found a niche in the education, healthcare, health education, and military genres. The student will learn what cognitive processes happen in game playing, how gaming approaches can be applied to formal learning environments by understanding why people play games, why they like some games to others, how the game players interact with each other in a gaming environment, and gender issues. This course will explore the ever-evolving media and tools that will support human use, augment human learning and enhance communication at the individual and the social levels by having a more psychological and social focus rather than a technical one. Gamification has found a niche in the education, healthcare, health education, and military genres.

## LEARNING CONTENT AND OBJECTIVES

By the end of the course, the candidate will:

- Develop a theoretical understanding of cognitive, social and cultural aspects of computer games and simulations.
- Provide an understanding of the social, psychological, cultural and ethical issues associated with game design and use.
- Understand the origins and philosophy of games and video games in human history.
- Explain potentials of games on human psychology and learning.
- Inquire good and bad effects of video games and simulations on players and learners.
- Discover the areas that computer games can be used.
- Understand basic design elements of video games and suggest some design issues by using

theoretical foundations.

- Evaluate the computer games with different perspectives.
- Understand the trends of video games and simulation research.
- Conduct a game research by considering the literature and analyze the data 1.
- Offer a set of first-hand experiences which augment conceptual understanding of course content.

## **COURSE SCHEDULE AND TOPICS**

This course will cover the following topics.

**UNIT 1: History of Computer Games: Theories and Concepts in Serious Game Design and Development**

**UNIT 2: Philosophy of the Games**

**UNIT 3: Philosophy of the Computer Games**

**UNIT 4: Psychology in the Games; Behavior and Motivation**

**UNIT 5: Player aggression, violence (emotional connections)**

**UNIT 6. Diversity in Game Culture**

**UNIT 7. Social Interaction and Online communities in Games and Virtual Environments**

**UNIT 8. Learning in Games and virtual environments (Commercial games, simulations, serious games and virtual environments)**

**UNIT 9. Design Issues of the Games**

**UNIT 10. Design Methods of the Games**

**UNIT 11. Assessment and Evaluation of the Games (Human Game Interaction, Usability, playability, heuristic evaluation of play, computer game criticism, game play analysis)**

**UNIT 12. Games and ethical issues.**

**UNIT 13. Trends & issues and future of educational game and simulations research (trends in conferences, journal papers, meta analyses)**

**Readings:**

### **Unit 1**

- Yilmaz, E., Cagiltay, K. (2005). History Of Digital Games in Turkey. Authors & Digital Games Research association DIGRA.
- The Video Game Revolution (video). <http://video.google.com/videoplay?docid=-4729348985218842392#>

### **Unit 2**

- Huizinga, J. (1955). Homo Ludens A Study of the Play-Element in Culture. Beacon Press. Boston, USA
- And, M. (2003). Oyun ve Bögü. İstanbul: Yapı Kredi Yayınları.
- Caillois, R. (1958). Les jeux et les hommes (Man, play, and games). Librairie Gallimard, Paris.

### **Unit 3**

- Jarvinen, A. (2007): Games without Frontiers, Theories and Methods for Game Studies and Design. PhD Thesis, University of Tampere, Finland.
- Djaouti, D., Alvarez, J., Jessel, J.P., Methel, G. & Molinier, P. (2008). A Gameplay Definition through Videogame Classification, International Journal of Computer Games Technology, Vol. 2008, Article ID 470350, 7 pages, 2008. doi:10.1155/2008/470350

- Elverdam, C. & Aarseth, E. (2007). Game Classification and Game Design: Construction Through Critical Analysis, *Games and Culture*, 2(1), 3-22
- Juul, J. (2003). The Game, the Player, the World: Looking for a Heart of Gameness, Keynote presented at the Level Up conference in Utrecht, November 4th-6th 2003, received on September 2010, from <http://www.jesperjuul.net/text/gameplayerworld/>

#### Unit 4

- Chen, J. (2007). Flow in Games (and Everything Else). *Communications of the ACM*. 50(4), 31- 34.
- Csikszentmihalyi, M (1990). *Flow : The Psychology of Optimal Experience*. Harper Perennial, London.
- Falstein, N. (2005). Understanding fun-the theory of natural funativity. In Rabin, S. (Ed), *Introduction to Game Development*
- Malone & Lepper (1987). Making Learning Fun: A Taxonomy of Intrinsic Motivations for Learning. In Snow, R. & Farr, M. J. (Ed), *Aptitude, Learning, and Instruction Volume 3: Conative and Affective Process Analyses*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Snow, R., & Farr, M. Cognitive-conative-affective processes in aptitude, learning, and instruction: An introduction. In R. Snow & M. Farr (Eds.), *Conative and affective process analysis (Vol. 3, 1987, pp. 1-10)*. Hillsdale, NJ: Erlbaum Associates.

#### Unit 5

- Mandatory readings of Carnagey, N. L. & Anderson, C. A. (2004). Violent video game exposure and aggression. *Minerva Psychiatr.*(45), p. 1-18.
- Goldstein, J. (2000). Effects of electronic games on children. *Electronic Games*. p.1-16
- Griffiths, M. (1999). Violent video games and aggression: A review of literature. *Aggression and Violent Behavior*, Vol. 4, No. 2, pp 203-212.
- Grodal, T. (2000). Video Games and the Pleasure of Control. in: D. Zillmann & Peter Vorderer, (Eds.). *Media entertainment: The psychology of its appeal (pp 197-213)*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Weber, R., Ritterfield, U. & Kostgina, A. (2006) Aggression and Violence as Effects of Playing Violent Video Games? In P. Vorderer & J. Bryant (Eds.), *Playing Video Games: motives, responses and consequences (pp. 347-361)*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.

#### Unit 6

- Williams, D., Martins, N., Consalvo, M., Ivory, J., 2009. The virtual census: Representations of gender, race and age in video games. *New Media & Society* 11 (5), 815-834
- Weisman, S. (1983). Computer games for the frail elderly, *Gerontologist*, vol. 23 (4), pp. 361– 363, 1983
- Noble, R. , Ruiz, K., Destefano, M., and Mintz, J. (2003).“Conditions of Engagement in Game Simulation: Contexts of Gender, Culture and Age, Level Up: Digital Games Research Conference. Eds. Marinka C. & Joost R.DIGRA: Utrecht University, 2003.
- Subrahmanyam K. & Greenfield, P.M. 1998. Computer games for girls: What makes them play? In Cassell, J. & Jenkins, (Ed.), *From Barbie to Mortal Combat: Gender and Computer Games*. Cambridge, MA: MIT Press

#### Unit 7

- Axelsson, A.-S., & Regan, T. (2002). How Belonging to an Online Group Affects Social Behavior - a Case Study of Asheron's Call. Redmond, Washington: Microsoft Research
- Cole, H. & Griffiths, M. (2007) Social Interactions in Massively Multiplayer Online Role- Playing Gamers, *Cyberpsychology & Behavior*, Vol. 10, No. 4, pp. 575 – 583.
- Manninen T. (2000) Interaction in Networked Virtual Environments as Communicative Action - Social Theory and Multi-player Games. In proceedings of CRIWGW2000 Workshop, October 18-20, Madeira, Portugal, IEEE Computer Society Press
- Tamborini, R., & Skalski, P. (2006). The role of presence in the experience of electronic games. In P. Vorderer & J. Bryant (Eds.), *Playing video games: Motives, responses, and consequences (pp. 225–240)*. Mahwah, NJ: Lawrence Erlbaum Associates

## Unit 8

- Becker, K. (2006). Pedagogy in Commercial Video Games. In D. Gibson, C. Aldrich & M. Prensky (Eds.), *Games and Simulations in Online Learning: Research and Development Frameworks*: dea Group Inc
- Gee, J. P. (2005). Good video games and good learning. *Phi Kappa Phi Forum*. 2005;85(2), 33–7.
- Lieberman, D. A. (2006). What can we learn from playing interactive games? In P. Vorderer & J. Bryant (Eds.), *Playing video games—Motives, responses, and consequences* (pp. 379–397). Mahwah, NJ: Lawrence Erlbaum Associates, Inc
- Ritterfeld, U. & Weber, R. (2006). Video Games for Entertainment and Education. In P. Vorderer & J. Bryant (Eds.), *Playing Video Games-Motives, Responses, and Consequences* (pp. 399-413). Mahwah, NJ: Lawrence Erlbaum, Inc.

## Unit 9

- Barry, I. (2005). Game Design. In Rabin, S. (Eds). *Introduction to Game Development* (pp. 99-160). Hingham, MA: Charles Rive Media, Inc
- Adams, E. (2010). *Fundamentals of Game Design* (2nd Ed). New Riders: Berkeley, CA. Chapter 12 - General Principles of Level Design
- Gunder, A. (2003). As if by magic: On Harry Potter as a novel and a computer game. In M. Copier & J. Raessens (Eds): *Level up: Digital games research conference*. Utrecht: Utrecht University.
- Dondlinger, M. J. (2007). Educational video game design: A review of the literature [Electronic Version]. *Journal of Applied Educational Technology*, 4, 21-31

## Unit 10

- Pagulayan, R. J., Keeker, K., Wixon, D., Romero, R. L., & Fuller, T. (2003). User-centered design in games. In J. A. Jacko & A. Sears (Eds.), *The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications* (pp. 883-906). Mahwah, NJ: Lawrence Erlbaum Associates
- Kaplan Akilli, G. & Cagiltay, K. (2006). An Instructional Design/Development Model for the Creation of Game-like Learning Environments: The FIDGE Model, In M. Pivec (Ed.), *Affective and emotional aspects of human computer interaction: Game-based and innovative learning approaches* (pp. 93-112). Amsterdam, Netherlands: IOS Press.
- Scaife, M. and Rogers, Y. (1999). Kids as informants: Telling us what we didn't know or confirming what we knew already, in A. Druin (Ed.), *The design of children's technology* (pp.29-50).Morgan Kaufmann, San Francisco, CA

## Unit 11

- Federoff, M.A. (2002). *Heuristics and Usability Guidelines for the Creation and Evaluation of Fun in Video Games*. MS Thesis, Department of Telecommunications, Indiana University, Bloomington, Indiana, USA, 2002
- Laitinen, S. (2005, Jun 6). Better Games Through Usability Evaluation and Testing. retrieved from [http://www.gamasutra.com/features/20050623/laitinen\\_02.shtml](http://www.gamasutra.com/features/20050623/laitinen_02.shtml)
- Cornett S. (2004). The Usability of Massively Multiplayer Online Roleplaying games: Designing for New Users. *Proceedings of the SIGCHI conference on Human factors in computing systems*, 6(1), pp 703-710
- Jørgensen, A.H. (2004). Marrying HCI/Usability and Computer Games: A Preliminary Look. In *Proceedings of NordiCHI*. pp. 393-396.

## Unit 12

- Sicart, M. (2009). *the Ethics of Computer Games*, MIT Press:Cambridge, MA (Chapter 2)
- Sicart, M. (2009). *the Ethics of Computer Games*, MIT Press:Cambridge, MA (Chapter 4)
- Zagal, J. P. (2009). Ethically Notable Video Games: Moral Dilemmas and Gameplay, *Proceedings of Digital Games Research Association (DiGRA)*, retrieved on April, 20 2010 from <http://www.digra.org/dl/db/09287.13336.pdf>

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Develop a theoretical understanding of cognitive, social and cultural aspects of computer games and simulations.	N	X	X		
L2	Provide an understanding of the social, psychological, cultural and ethical issues associated with game design and use.	N	X	X		
L3	Understand the origins and philosophy of games and video games in human history.	N	X	X		
L4	Explain potentials of games on human psychology and learning.	N			X	X
L5	Inquire good and bad effects of video games and simulations on players and learners.	N			X	X
L6	Discover the areas that computer games can be used.	N			X	X
L7	Understand basic design elements of video games and suggest some design issues by using theoretical foundations.		X		X	X
L8	Evaluate the computer games with different perspectives.	Y		X	X	
L9	Understand the trends of video games and simulation research.	N	X	X		
L10	Conduct a game research by considering the literature and analyze the data 1.	Y	X	X		
L11	Offer a set of first-hand experiences which augment conceptual understanding of course content.	Y	X	X	X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME301 CURRICULUM DESIGN AND INSTRUCTIONAL DECISION MAKING

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

In this course, students will learn to develop a curriculum and to evaluate it knowledgeably by engaging in curriculum design. The course will consider current issues in curriculum design and curriculum leadership. The major design frameworks for the development of curricula will be explored, including how decisions should be made about curriculums. Students will conduct mapping, at the primary and secondary levels of education for International school systems.

## LEARNING CONTENT AND OBJECTIVES

By the end of the course, the candidate will:

- To develop a significant piece of curriculum for one grade and subject.
- To understand and use curriculum design and evaluation frameworks.
- To critically examine issues in curriculum development and evaluation, including the roles of various stakeholders in decision-making about curriculum, the pros and cons of a national curriculum, and the characteristics of quality learning experiences.
- To understand and how to structure curriculum and create learning experiences that are broadly impactful for students.

## COURSE SCHEDULE AND TOPICS

This course will cover the following topics.

### UNIT 1: What is curriculum: Introductions;

- Syllabus and course requirements;

- What is curriculum?
- Curriculum and the goals of education

**UNIT 2: Considering the goals of Primary and Secondary education in the development of curriculum;**

- Graduation goals and learning progressions;
- Subjects and strands for Primary and Secondary education

**UNIT 3: Backward design and the politics of curriculum decision-making;**

- Intro to standards and using standards to develop goals;

**UNIT 4: Standards, standardized tests, and curriculum;**

- Identifying priority standards and supporting standards

**UNIT 5: Organizing curricula around thinking and conceptual understanding;**

- The thinking curriculum;
- Using Bloom’s Taxonomy to identify levels of thinking skills

**UNIT 6: Essential questions and unit themes;**

- standards infrastructure, including anchor standards,
- priority goals,
- supporting standards

**UNIT 7: Assessment and acceptable evidence;**

- Determining acceptable evidence of attainment;
- Summative and formative assessment;
- Intro to rubrics and scoring guides;;
- Outcome, evidence, criteria, task, rubric, use of results

**UNIT 8: Planning learning experiences;**

- the role of experience in education

**UNIT 9: Designing experiences for all learners, and planning lessons**

**UNIT 10: Curriculum Evaluation**

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	To develop a significant piece of curriculum for one grade and subject.	Y			X	X
L2	To understand and use curriculum design and evaluation frameworks.	Y	X		X	X
L3	To critically examine issues in curriculum development and evaluation, including the roles of various stakeholders in decision-making about curriculum, the pros and cons of a national curriculum, and the characteristics of quality learning experiences.	N		X		
L4	To understand and how to structure curriculum and create learning experiences that are broadly impactful for students.	Y	X		X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills



## **Assessments**

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

**BIBLIOGRAPHY: TBA**

## CORE COURSE

# CODE: ME102 ASSESSMENT AND EVALUATION

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

The concepts of measurement and evaluation as applied to behavioral sciences. How to measure the outcome of the teaching-learning process in Education. Cognitive, affective and psychomotor measurements. Teacher-made and standardized tests for Education. Interpretation and treatment of the outcomes of the measurements. Formative and summative evaluation. Alternative evaluation strategies. Using measuring tools to find desired properties (reliability, validity, usefulness). The measurement approaches are based on traditional tools (written exams, short response examinations, multiple-choice tests, oral poll and homework). Measurement on multi-dimensional tools (observations, interviews, research papers, research projects, self-assessment, attitudes scales). Assessment of learning outcomes.

## LEARNING CONTENT AND OBJECTIVES:

By the end of the course, the candidate will:

- Mention the purposes of measurement and evaluation.
- Describe the historical development of testing and evaluation.
- Enumerate the importance and functions of tests in education.
- Explain the concept of educational objectives
- Discuss the taxonomy of educational objectives.
- Describe the domains of educational objectives.
- List the uses of classroom tests.
- List the types of tests used in the classroom.
- Enumerate the advantages and disadvantages of subjective and objective testing. 1
- Explain test administration and scoring
- Estimate and interpret the reliability of a test.
- Explain the validity of a test as an instrument

- Describe the problems of grading tests.
- Explain quality control in the grading system.
- Develop a variety of item formats including multiple-choice and constructed response items
- Develop answer keys and scoring rubrics for different item formats

Upon successful completion of the course, students should be able to:

- Know how to develop relevant educational assessment
- Describe fundamental aspects on the quality of assessment procedures
- Evaluate tests and items using statistical and qualitative methods
- Incorporate meaning into test score scales using both norm-referenced and criterion-referenced procedures
- Use standard setting techniques to set “passing scores” and other performance standards on tests
- Develop appropriate documentation to properly communicate the quality of an assessment
- Understand the utility of educational assessments within the broader context of educational policy and decision making
- Use the results of standardized tests to help make decisions about students and educational systems
- Identify flaws in educational assessments
- Develop a sense for the ethical issues in educational measurement and evaluation
- Become successful decision makers, lifelong learners and adaptive
- Be culturally sensitive and empathetic
- Communicate effectively through written and electronic means
- Locate relevant information from a variety of sources and assimilate, interpret and apply knowledge

## **COURSE SCHEDULE AND TOPICS**

This course will cover the following topics.

**Week 1: Overview Of Testing, Measurement, Assessment And Evaluation**

**Week 2: Meaning Of Testing, Types Of Tests, Uses Of Tests, Function And Purpose Of Testing, Characteristics Of Effective Tests, Steps Involved In A Test Construction**

**Week 3: The Concept Of Measurement, Measurement Scales (Nominal, Ordinal, Ratio And Interval Scales)**

**Week 4: Types Of Items, Table Of Specifications Matching Objectives With Item Types**

**Week 5: Bloom’s Revised Taxonomy Of Objectives Educational Objectives, Basic Concepts In Assessment, Types Of Assessment, Teacher Made, Standardized, Authentic Assessments**

**Week 6: 8 Item Analysis Methods Item Discrimination, Item Difficulty, Distracter Analysis**

**Week 7: Types Of Validity Content, Construct, Criterion Related**

**Week 8: Representation Of Scores (Normal Distribution, Measures Of Central Tendency And Variation) Mean, Median, Mode, Range, Standard Deviation, Range**

**Week 9: Understanding Test Results Test Evaluation Grading System**

**Week 10: Computer Based Testing (Cbt), Historical Details Of Adaptive Testing**

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Mention the purposes of measurement and evaluation.	N		X		
L2	Describe the historical development of testing and evaluation.	N	X	X		
L3	Enumerate the importance and functions of tests in education.	N	X	X		
L4	Explain the concept of educational objectives	N	X	X		
L5	Discuss the taxonomy of educational objectives.	N	X	X		
L6	Describe the domains of educational objectives.	N	X	X		
L7	List the uses of classroom tests.	N	X	X	X	X
L8	List the types of tests used in the classroom.	N	X	X	X	X
L9	Enumerate the advantages and disadvantages of subjective and objective testing. 1	N	X	X	X	X
L10	Explain test administration and scoring	N		X		
L11	Estimate and interpret the reliability of a test.	N		X		
L12	Explain the validity of a test as an instrument	N		X		
L13	Describe the problems of grading tests.	N		X		
L14	Explain quality control in the grading system.	N		X		
L15	Develop a variety of item formats including multiple-choice and constructed response items	Y			X	X
L16	Develop answer keys and scoring rubrics for different item formats	Y			X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME103 CREATING POSITIVE CLASSROOM ENVIRONMENTS

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course will draw on a variety of theoretical and practical perspectives, principles and research to provide students with a depth and breadth of knowledge that will enable professional decision-making and practice in establishing classroom management through positive behavioral support and ensuring student engagement in learning in Primary and Secondary classrooms through a variety of tools, including the use of digital literacies. The impact of the physical environment, transitions, procedures, norms and expectations on managing behavior will also be explored.

## LEARNING CONTENT AND OBJECTIVES

By the end of the course, the candidate will:

- Demonstrate an ability to engage students effectively in the learning process.
- Develop and maintain a positive learning environment in the classroom
- Plan, manage and deliver productive lessons.
- Use both high-tech and low-tech evidence-based strategies and tools to address the diverse learning needs of students and maintain learning engagement
- Manage difficult behaviors and create a safe and productive learning environment

## COURSE SCHEDULE AND TOPICS

This course will cover the following topics.

**UNIT 1: Elements of Classroom Management & The Positive Classroom;**

- A discussion of broad educational theories and philosophies.
- Why they are important to practitioners.
- How to build an educational and classroom management philosophy grounded in theory and evidence.

#### **UNIT 2: Creating & Implementing Rules & Procedures;**

- Creating and sustaining an effective school-wide behavior system.
- Emphasis of a behavior system on preventing problems and providing a comprehensive, consistent structure.
- How these systems differ across primary and secondary schools.
- An example of one model and how it can be used to form a philosophy as well as an evidence-based system.
- Positive Learning Framework.

#### **UNIT 3: Diversity Issues in the Classroom;**

- Culturally responsive behavior management.
- How to include students who identify as ethnically diverse, migrant, refugee, indigenous, LGBTI, as well as those involved in out of home care.

#### **UNIT 4: Communication, Collaboration, & Rapport;**

- Quality of teacher-student relationships and school home communication.
- Underpinning values –ethics of care (care for learners/care about learning).
- Establishing a positive classroom climate/ethos.
- Role of teacher communication/discourse in expressing/constituting cooperative student relations.
- Building positive relationships, understanding childhood and adolescence, knowing your students.

#### **UNIT 5: Curriculum, assessment, and pedagogy.**

- Best practices (Bloom's Taxonomy),
- Understanding that meeting key student academic needs significantly increases student motivation, learning, and on-task behavior.
- Developing methods for ensuring these needs are met within your classroom.
- Bullying.
- Professional Reflexivity.

#### **UNIT 6: Trauma informed practice.**

- The neurosequential model. Social and pedagogical implications of ICT on personalized and group learning.
- Ethical use of and access to reputable material, and curation.
- Staying safe online, cyberbullying and plagiarism.

#### **UNIT 7: Supporting students with intellectual disability and emotional and behavioral disabilities in the inclusive Primary and Secondary classroom settings.**

#### **UNIT 8: Discipline Challenges;**

- Responding to students in regard to the escalation cycle.
- Tier 3 behavioral interventions.

#### **UNIT 9: Understanding the place and significance of classroom organization in the development of best practice classroom management plans.**

- Analyzing classroom organization strategies to identify their theoretical underpinnings.
- Recognizing and appreciating a diversity of classroom organization strategies.

#### **UNIT 10: Professional Reflexivity Components of Classroom Management Plans.**

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Demonstrate an ability to engage students effectively in the learning process.	N		X	X	
L2	Develop and maintain a positive learning environment in the classroom.	N			X	
L3	Plan, manage and deliver productive lessons.	Y			X	X
L4	Use both high-tech and low-tech evidence-based strategies and tools to address the diverse learning needs of students and maintain learning engagement.	Y			X	X
L5	Manage difficult behaviors and create a safe and productive learning environment.	N			X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME202 INSTRUCTIONAL TECHNIQUES FOR THE PRIMARY AND MIDDLE SCHOOL CLASSROOM

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	ME301 Curriculum Design and Instructional Decision Making
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

In this course, the primary focus is on development of a specific set of planning skills Primary and Secondary school teachers need to appropriately design, implement, manage, and assess student learning. Students in this course will study cognitive, physical, and intellectual development of the school child; factors influencing instructional decisions; motivational techniques; content selection and organization; the breakdown of academic content into facts, concepts, generalizations, principles, and rules; performance objectives and their importance in the instructional planning process; long- and short-term planning processes; roles of content area and professional teaching standards in professional teacher behaviors; accommodations for diverse student backgrounds, situations, and needs; basic classroom management and discipline techniques; use of media and technology in the instructional process; elements of effective instructional practice; measurement and evaluation of students and programs; legal issues affecting the teacher's decision-making process; and the role of reflectivity in continuous instructional improvement.

## LEARNING CONTENT AND OBJECTIVES

By the end of the course, the candidate will:

- Understand and appropriately apply teaching, learning, and adolescent development theories to lesson, unit, and course design and implementation;
- Understand and appropriately apply assessment/measurement theories in the creation, interpretation, selection, and effective use of assessment tools for the school classroom (including standardized testing instruments);
- Understand and appropriately apply and evaluate effective classroom management strategies for the primary and secondary school level;
- Understand, apply, and evaluate delivery skills and delivery systems appropriate in implementing



instruction and assessment at the primary and secondary school level;

- Select, understand, and effectively apply and assess a variety of basic teaching models and strategies that are appropriate for the primary and secondary level classroom;
- Demonstrate through performance and effectively explain in their own words the importance of cognitive and student development theories in the application of teaching, learning, and assessment processes;
- Understand, analyze, evaluate, and apply national and state content area learning standards for teaching, learning, planning, and assessment purposes;
- Understand and apply task analysis procedures in lesson, unit, and course curriculum design; and
- Effectively employ reflective teacher practices in the design, delivery, assessment, and re-design of teaching, learning, curriculum design, evaluation, and assessment strategies.

## **COURSE SCHEDULE AND TOPICS**

This course will cover the following topics.

### **UNIT 1: Overview of the philosophical foundations of teaching and learning;**

- Evaluate the Vygotskian foundations of optimal questioning and learning strategies;
- Compare contemporary models of teaching with constructivist ideals.

### **UNIT 2: Inquiry based learning;**

- Apply cognitive principles to lesson planning;
- Describe the value of making learning experience authentic.

### **UNIT 3: Learning together;**

- the social family of models,
- roles for all learners in cooperative settings.
- Assess the value of social learning versus individual learning.
- Explain potential role modifications to accommodate diversity and special needs learners in cooperative learning activities.

### **UNIT 4: Critical analysis of the applications of behaviorist instructional techniques.**

- Evaluate the utility of directed instruction in the context of constructivist ideals.
- Critically assess the impact of high stakes testing on higher order learning.

### **UNIT 5: Guided instruction strategy, integration and holistic perspectives on learning;**

- Describe strategies for integrating learning models for optimal learning.
- Evaluate problems in cognition that require hard scaffolding.

### **UNIT 6: Planning for diversity special needs students;**

- Equality as a guiding paradigm.
- Analyze issues that may hinder or promote diversity in learning organizations.
- Describe methods for including the theme of equity as a cornerstone for planning effective instruction.

### **UNIT 7: Model programs, constructivism and real world classrooms;**

- Evaluate constructivist examples with personal concepts of contemporary practice.
- Critique institutional paradigms that discourage constructivism in classroom practice.

### **UNIT 8: Thematic Planning. – Final Project**

- Application and evaluation of all course goals and objectives in a final project activity that assess the candidates understanding through the development of a thematic curricular unit, developed in a group planning context.

**Final Project:**

The major project for this course is the design of a series of lesson plans utilizing a combination of different teaching strategies.

The project must meet the following criteria:

- There must be a minimum of five lesson plans in the series.
- Each lesson plan should be designed to cover a 1 ½ hour block.
- All lesson plans must be related to a central topic or theme, which is to be clearly identified at the beginning of your plan. The topic or theme is a matter for your group to decide upon.
- Objectives, methods, materials, information about your target audience and assessment strategy are to be included for each lesson plan. A unified assessment strategy for the entire series is perfectly acceptable. You are also encouraged to explore alternative assessment vehicles though it is not required.
- A minimum of three teaching strategies are to be used in the lesson plan series.
- Each lesson plan must include a discussion of the strategy used and why you believe it is the most appropriate for the topic or theme being addressed.
- In your lesson plan must include web-based material
- The Backward Design Model must be used to format all lesson plans.
- Pedagogical applications of technology must be used at least twice.
- The plan must include provisions for diversity and special needs learners.

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in this module	A	B	C	D
L1	Understand and appropriately apply teaching, learning, and adolescent development theories to lesson, unit, and course design and implementation;	N	X	X	X	
L2	Understand and appropriately apply assessment/measurement theories in the creation, interpretation, selection, and effective use of assessment tools for the school classroom (including standardized testing instruments)	N	X	X	X	
L3	Understand and appropriately apply and evaluate effective classroom management strategies for the primary and secondary school level;	N	X	X	X	
L4	Understand, apply, and evaluate delivery skills and delivery systems appropriate implementing instruction and assessment at the primary and secondary school level	Y	X	X	X	
L5	Select, understand, and effectively apply and assess a variety of basic teaching models and strategies that are appropriate for the primary and secondary level classroom;	Y	X	X	X	
L6	Demonstrate through performance and effectively explain in their own words the importance of cognitive and student development theories in the application of teaching, learning, and assessment processes;	N			X	
L7	Understand, analyze, evaluate, and apply national and state content area learning standards for teaching, learning, planning, and assessment purposes;	Y	X	X	X	

L8	Understand and apply task analysis procedures in lesson, unit, and course curriculum design; and	Y	X		X	X
L9	Effectively employ reflective teacher practices in the design, delivery, assessment and re-design of teaching, learning, curriculum design, evaluation, and assessment strategies	Y			X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME203 SPECIAL EDUCATIONAL NEEDS: INCLUSIVE APPROACHES

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course presents an overview of current special education issues as they relate to inclusive practices. Candidates will gain an understanding of the challenges faced by exceptional students and analyze the responsibilities of educational professionals in addressing these challenges. The philosophy of inclusion will be emphasized through identifying collaborative strategies, tools and approaches that will assist in making the general education classroom more inclusive for all students. Students will therefore learn how to identify and provide appropriate learning opportunities for children with diverse needs and become sensitive to social, emotional, behavioral, cognitive, and cultural differences; the need to work with families, and the importance of early intervention to prevent or ameliorate disability.

## LEARNING CONTENT AND OBJECTIVES

By the end of the course, the candidate will:

- Demonstrate an understanding of laws, regulation, and policies that pertain to the development of educational programs for students with special needs, including major categories of disabilities.
- Discuss the concept of least restrictive alternatives and examine the research and rationale(s) for inclusive education.
- Demonstrate an understanding of the role and responsibilities of the general educator in the design of Individual Education Programs (IEP), including identification, referral, IEP development, and implementation.
- Discuss principles of educational assessment for special populations, including testing bias, sensitivity to cultural and language factors, and the importance of adaptations for English Language Learners (ELL).

- Demonstrate an understanding of the characteristics and effective applications of collaboration, including working with families and paraprofessionals in the design and implementation of assessment and instructional programs for students with disabilities.
- Analyze classroom and student needs in organizing and planning instruction for special populations, including the design of accommodations and the use of assistive technologies.
- Demonstrate an understanding of appropriate instructional materials and methods for students with low incidence disabilities and the accommodations that can be made for them in general education classrooms.
- Demonstrate an understanding of appropriate instructional materials and methods for students with high incidence disabilities and the accommodations that can be made for them in general education classrooms.
- Describe effective curricular and instructional approaches and accommodations that ensure access to the content areas, including literacy, mathematics, science, and social studies.
- Demonstrate an understanding of strategies for increasing students' positive behaviors and promoting the social integration of students with special needs in general education classrooms.

## **COURSE SCHEDULE AND TOPICS**

This course will cover the following topics.

### **UNIT 1: Foundations of Special Education:**

- Inclusion as a philosophy for educating exceptional students in general education settings;
- Legal & Ethical Premise for teaching all students

### **UNIT 2: Special Education Referral & Assessment**

- Special education identification process

### **UNIT 3: Collaboration Models; Creating Collaborative Relationships**

- Comprehensive planning team through effective collaboration and communication strategies

### **UNIT 4: The Classroom Environment:**

- Strategies for Classroom Organization and Management

### **UNIT 5: Low Incidence Disabilities**

- Working with advanced students
- Learning disabilities
- ADHD
- emotional & behavior challenges

### **UNIT 6: High Incidence Disabilities**

- Autism & ASD Spectrum Disorders,
- Intellectual Disabilities - FASD/FASE

### **UNIT 7: Other Students with Special Needs**

- Communication Disorders
- Hearing loss
- Vision & Blindness
- Physical Disabilities

### **UNIT 8: Instructional Adaptations; Differentiating Instruction**

- Strategies to enhance learning, motivation, and social development

### **UNIT 9: Evaluating Student Learning**

- Strategies for evaluating student progress in general, modifying the evaluation methods used to assess student progress, developing differentiated assessment practices, and using alternative grading practices.

**UNIT 10 Strategies for Independent Living**

- Working with Families of Students with Exceptionalities

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Demonstrate an understanding of laws, regulation, and policies that pertain to the development of educational programs for students with special needs, including major categories of disabilities.	N		X		
L2	Discuss the concept of least restrictive alternatives and examine research and rationale(s) for inclusive education.	N		X		
L3	Demonstrate an understanding of the role and responsibilities of general educator in the design of Individual Education Programs (IEP), including identification, referral, IEP development, and implementation.	N	X	X		
L4	Discuss principles of educational assessment for special populations, including testing bias, sensitivity to cultural and language factors, and the importance of adaptations for English Language Learners (ELL).	N	X	X		
L5	Demonstrate an understanding of the characteristics and effective applications of collaboration, including working with families and paraprofessionals in the design and implementation of assessment and instructional programs for students with disabilities.	N	X	X		
L4	Analyze classroom and student needs in organizing and planning instruction for special populations, including the design of accommodations and the use of assistive technologies.	Y		X	X	
L5	Demonstrate an understanding of appropriate instructional materials and methods for students with low incidence disabilities and the accommodations that can be made for them in general education classrooms.	Y	X	X	X	
L6	Demonstrate an understanding of appropriate instructional materials and methods for students with high incidence disabilities and the accommodations that can be made for them in general education classrooms.	Y	X	X	X	
L7	Describe effective curricular and instructional approaches and accommodations that ensure access to the content areas, including literacy, mathematics, science, and social studies.	Y		X	X	X
L8	Demonstrate an understanding of strategies for increasing student positive behaviors and promoting the social integration of students with special needs in general education classrooms.	Y	X	X	X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## **Assessments**

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

**BIBLIOGRAPHY: TBA**

## CORE COURSE

# CODE: ME302 INTEGRATION OF LEARNING TECHNOLOGY

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	ME201 Learning Theory and Implications for Instruction
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course is designed to provide students with knowledge, skills and experience in implementing educational technology into a pedagogically sound learning environment. This course also emphasizes the critical evaluation and pedagogical design aspects of integrating technology in instruction. Students will develop and use digital and nondigital teaching- learning resources using technology tools appropriate in various subject areas in the Primary and Secondary level. Further, the course will provide opportunities for students to use technology tools to develop project-based collaborative activities and share resources among communities of practice.

## LEARNING CONTENT AND OBJECTIVES

By the end of the course, the candidate will:

- Use technology to facilitate and inspire student learning
- Achieving and maintaining expertise in the use of educational technology
- Develop project/problem-based/inquiry-based collaborative plans and activities using technology tools
- Use open-ended tools to support the development of the project-based collaborative activities in subject specific application.
- Produce learning resources using technology tools in various subject areas.
- Evaluate the relevance and appropriateness of ICT tools and resources based on the learning context.
- Use technology tools to collaborate and share resources among communities of practice.
- Model digital-age work and learning
- Promote and model digital citizenship and responsibility



- Recognize the importance of continued professional growth and leadership in

## COURSE SCHEDULE AND TOPICS

This course will cover the following topics.

### UNIT 1: Overview of course;

- History of Educational Technology, Standards
- Connecting Curriculum and Technology;

### UNIT 2: Theory and Practice:

- Foundations for Effective Technology Integration
- Promoting Digital Citizenship,
- Copyright and Plagiarism;
- Planning & Implementation for Technology Integration

### UNIT 3: Technology Integration Planning (TIP) Model;

- Learning Theory Instructional Software;
- Learning Theories (Background to Question Model)

### UNIT 4: Educational Games continued Instructional Software for 21st Century Teaching

### UNIT 5: Technology Tools for 21st Century

- Emerging Technologies;
- Technology Integration for Diverse Learners

### UNIT 6: Teaching: The Basic Suite

- Characteristics of ICT resources and their relevance and appropriateness

### UNIT 7: Introduction to Distance Education: Online & Blended Environments

### UNIT 8: Ethics, Copyright and Professional Responsibilities

### UNIT 9: Online Tools, Uses & Web-based Development, Virtual Reality/QR Codes

- Human and non-human learning resources

### UNIT 10: Assistive Learning Tools Differentiated Instruction Digital Storytelling

- Video,
- Webcams,
- Virtual Field Trips

Learning Outcomes: On successful completion of the course the candidate will be able to:		Assessed in module?	A	B	C	D
L1	Use technology to facilitate and inspire student learning	N			X	X
L2	Achieving and maintaining expertise in the use of educational technology	N			X	X
L3	Develop project/problem-based/inquiry-based collaborative plans activities using technology tools	Y			X	X
L4	Use open-ended tools to support the development of the project-based collaborative activities in subject specific application	N			X	X

L5	Produce learning resources using technology tools in various subject areas.	Y			X	X
L6	Evaluate the relevance and appropriateness of ICT tools and resources based on the learning context.	Y		X	X	X
L7	Use technology tools to collaborate and share resources among communities of practice.	N			X	X
L8	Model digital-age work and learning	N			X	X
L9	Promote and model digital citizenship and responsibility	N			X	X
L10	Recognize the importance of continued professional growth and leadership in	N		X	X	X

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA

## CORE COURSE

# CODE: ME303 ADVANCED PRACTICES FOR TEACHING THE STEM FIELDS

## COURSE DETAILS

Course level: Graduate

Course category: Core Course

Course credits: 10

Course duration: 10 weeks

Total contact hours: 40 (15hrs Lectures + 25hrs Discussion Forum)

Total exam hours: 2

Total study hours: 203 (90 hrs self-directed + 9hrs Specific assignments + 4hrs Research + 100 Preparation)

Language of instruction: English

Pre-requisites	N/A
Co-requisites	N/A
Prohibited Combinations	N/A

## COURSE OVERVIEW

This course will help students facilitate learning in the science, technology, engineering and math (STEM) fields. Students will discuss and explore principles of teaching and learning, and use constructive alignment to plan, deliver and evaluate teaching and learning activities. This course will also explore how to plan learning outcomes and goals, evaluate forms of assessment, and select appropriate student-centered learning activities and methods to support student development in a cohesive way. Students will learn to use assessment for learning, use writing and discussions to support deep learning and critical thinking skills for students, and reflect on the role of the learning environment and how to include diverse students in your teaching. The course also includes an intense overview of the history, science, methods, and theories of integrated STEM education.

## LEARNING CONTENT AND OBJECTIVES:

By the end of the course, the candidate will:

- Develop (by integrating class readings, class discussions, personal use of technology and personal educational philosophy) a theoretically sound argument for embedding mathematical and scientific thinking strategies in the curricula
- Teaching basic knowledge of national standards in the fields of science, mathematics and technology teaching
- Demonstrate the ability to synthesize relevant information about the use of STEM thinking in primary or secondary education
- Use the vocabulary, key concepts, definitions and models that apply to STEM education

- Demonstrate the ability to collect, evaluate, synthesize and share real world data relevant to primary or secondary curricula
- Demonstrate problem-solving skills, evaluate the effectiveness of possible solutions, and discuss strategies and processes required for effective problem-solving
- Demonstrate the ability to work in collaborative design teams to meet specified criteria and solve design problems
- Development of innovative and alternative teaching methods and learning activities to promote STEM education
- Apply cognitive STEM tools (i.e. scientific model, design loop, etc.) and resources to solve human and environmental problems
- Demonstrate the ability to use different pedagogical strategies to improve STEM thinking in elementary or secondary school students
- Analyze characteristics, strengths, and weaknesses of current STEM education programs and initiatives
- Show proof of knowledge of the historical background and the development of the natural sciences, mathematics, technical education and engineering

## **COURSE SCHEDULE AND TOPICS**

This course will cover the following topics.

- Background and history of the STEM movement
  - What is the role of science, mathematics, technology, and engineering?
  - What is the difference between science and technology?
  - Why is STEM important?
    - The demand for skills
    - National rankings and current trends
    - The elementary gap
  - How is STEM different than traditional science and math
  - The role of problem solving and design
  - Barriers to STEM education
  - Strategies for effective STEM education
  - Problem-based learning
  - Performance based teaching and learning
- The power and promise of STEM education
  - Active learning and engagement
  - The role of the standards
  - Understanding by design--backwards design
  - STEM and 5E teaching
  - The relationship between the standards and engineering
  - Delivering the standards through engineering and design
  - Using standards to develop curriculum
- Science as a way of knowing
  - Inquiry-based teaching and learning
  - How does science work
  - Position of science in the modern world
  - History and nature of science
  - Unifying concepts
  - Science, technology, and engineering
- Mathematics as a way of knowing
  - Position of mathematics in the modern world
  - Mathematics as a way of knowing

- Mathematical focal points
  - Mathematical thinking
  - Mathematical importance
  - Mathematical fit
  - Mathematical Connections
- Technology and engineering
  - Foundational concepts
  - The engineering design loop
  - Adhering to design parameters and constraints
  - Technological assessment
- Integrative STEM
  - Disciplinary, interdisciplinary, and trans-disciplinary strategies
  - Questioning/clarifying the problem
  - Identifying constraints/limitations
  - Gathering research
  - Quantifying/mental modeling
  - Visioning and graphic representation
  - Drawing and modeling (including software usage)
  - Prototyping and assessment
  - Artifact development
  - Communicating the results of engineering/design
- Teaching integrative STEM
  - Teaching with the end in mind
  - The role of design and engineering in the classroom
  - Curricular assessment procedures, tools, and techniques
  - Developing curriculum and activities
  - Instructional methods for teaching STEM
  - Collaboration strategies and resources

<b>Learning Outcomes:</b> On successful completion of the course the candidate will be able to:		Assess in this module	A	B	C	D
L1	Develop (by integrating class readings, class discussions, personal use of technology and personal educational philosophy) a theoretically sound argument for embedding mathematical and scientific thinking strategies in the curricula	N		X	X	X
L2	Teaching basic knowledge of national standards in the fields of science, mathematics and technology teaching	N			X	
L3	Demonstrate the ability to synthesize relevant information about the use of STEM thinking in primary or secondary education	Y			X	
L4	Use the vocabulary, key concepts, definitions and models that apply to STEM education	N		X	X	X
L5	Demonstrate the ability to collect, evaluate, synthesize and share real world data relevant to primary or secondary curricula	N		X	X	

L6	Demonstrate problem-solving skills, evaluate the effectiveness of possible solutions, and discuss strategies and processes required for effective problem-solving	N		X	X	X
L7	Demonstrate the ability to work in collaborative design teams to meet specified criteria and solve design problems	N			X	
L8	Development of innovative and alternative teaching methods and learning activities to promote STEM education	Y			X	
L9	Apply cognitive STEM tools (i.e. scientific model, design loop, etc.) and resources to solve human and environmental problems	Y			X	X
L10	Demonstrate the ability to use different pedagogical strategies to improve STEM thinking in elementary or secondary school students	Y			X	X
L11	Analyze characteristics, strengths, and weaknesses of current STEM education programs and initiatives	Y			X	X
L12	Show proof of knowledge of the historical background and the development of the natural sciences, mathematics, technical education and engineering	Y		X	X	

A – Knowledge and Understanding B – Intellectual Skills C – Practical Skills D – Transferable Skills

## Assessments

**Forum** 5% Mandatory

**Midterm Exam:** > 40% (Recommendation 30%)

**Final Exam:** 30-40%. (Recommendation 40%)

**Quizzes Multiple Choice:** 25 % (adjustable)

## BIBLIOGRAPHY: TBA