Master of Arts in Education Major in Mathematics
COURSE DESCRIPTION

BASIC COURSES

MARES - Methods of Research with Statistics   **3 units**

This course covers the fundamental concepts of research design and methodology that practitioners must understand in order to become critical research evaluators and prepare to conduct research in their practices. Understanding each stage of the research process, including qualitative and quantitative designs, program evaluation, measurement issues, and data analysis, is emphasized.

MAPHILO - Philosophical and Legal Foundations of Education   **3 units**

This course provides an overview of the philosophical and legal foundations of the education system. Students will review local, state, and national policy, legislation, and regulations pertaining to PreK-12 education. Students will also reflect upon how these concepts drive instructional practices in today's challenging classroom environment. Using the cases as a launching point, students will be given opportunities to engage in online discussions, journal reflections, and workbook assignments focusing on beliefs, best practices, challenges, current research, and classroom applications.

MAINS - Instructional Leadership   **3 units**

This course focuses on curriculum planning, implementation, and evaluation; and meeting the needs of a diverse learning community through content, social climate, instructional strategies, and the role of the learner. The course includes hands-on as well as theoretical/analytical sides of redefining curriculum; the role of staff, parents, students, and the community at large in curriculum development and planning are considered.

MAJOR COURSES

ME 200 - Geometry for Teachers   **3 units**

This course covers finite geometry, Euclidian geometry, and non-Euclidian geometries and topology. It also includes convexity, projectile geometry, geometric transformation, and topological transformation. A lot of geometric construction activities form part of the course.

ME 201 - Advanced Algebra and Trigonometry   **3 units**

This course provides a rigorous study of the fundamental concepts of functions leading to advanced concepts of Algebra. It focuses on equations, inequalities, problem-solving; relations, functions, and transformations; linear, quadratic, and polynomial functions; exponential and logarithmic functions; trigonometric or circular functions; trigonometric identities; inverse functions and equations, triangles; systems of equations and inequalities, conic sections; polynomial and rational functions.

ME 202 – Differential Equations   **3 units**

This course introduces ordinary differential equations by means of numerical, graphical, and algebraic analysis. Examines first-order differential equations, second, and higher-order linear equations, methods for non-homogeneous second-order equations, series solutions, systems of first-order equations, and Laplace transforms.

ME 203 - Number Theory Analysis   **3 units**

This course is about the structure of the set of integers that covers duplicity, Euclid's algorithm, and factorization, congruence, Pythagorean and Diophantine equations. The course is basically axiomatic in nature and will be focused on proving theorems and problem-solving.

ME 204– Advanced Calculus   **3 units**

The course provides the students with the basic mathematical skills necessary to understand central analytical methods in economic theory. The main part of the course covers mathematical analysis with multivariable functions, with applications for theories of consumption and production. In addition, the course consists of integration, differential equations, and linear algebra.

ELECTIVE COURSES

ME 205 - Principles and Methods in Teaching Mathematics   **3 units**

This course introduces the various strategies and techniques in the teaching of mathematics. Knowledge of the art of questioning and the sign posts for quality mathematics instruction, improved lesson planning, and group work in math is discussed.

ME 206 - Special Topics in Higher Mathematics   **3 units**

This course includes topics that are not commonly discussed in any other courses. Topics that are given in seminars and workshops will also be discussed to update students on the recent development in mathematics.

ME 207- Foundation of Mathematics   **3 units**

This course discusses the history of mathematics by chronological period from ancient civilization to modern times. Each topic begins with a description of an important mathematical event followed by a brief background of the mathematicians whose works are discussed. The course covers practically the whole of mathematics ranging from number theory, calculus, analysis, kinematics, topology, geography, and navigation and, including computer applications.

ME 208 - Technology in Mathematics   **3 units**
This course emphasizes the use of technology in the mathematics classroom. The rationale and principles behind incorporating the use of calculators and computers in the learning of mathematics will be discussed. Consequently, relevant issues in terms of innovation in teaching mathematics and other related problems would be addressed.

INSTITUTIONAL COURSE REQUIREMENT

MAJANSSEN - Janssen's Spirituality I **(3 units)**

The course is a CHED-approved institutional course provided particularly for students doing graduate courses at the Divine Word College of Calapan. The Janssen spirituality course for MA students which covers the first of two parts will explain the current mission profile of the members of the Society of the Divine Word (SVD) as it flows from an explanation of the development of the spiritual lives and practices of Sts. Arnold Janssen and Joseph Freinademetz. This singular history and spirituality will be further contextualized with other selected spiritualities so that the student can identify and develop a related topic of research relevant to current realities and challenges.

MARESCOLL- Research Colloquium and Seminar in Research Publication **(3 units)**

This course shall enable graduate students to make structured and periodic progress on their research papers and comply with program requirements. It enables them as well to complete and finish the research paper in time for formal research presentation and even in journal publication.

THESIS WRITING

METW1 - Thesis Writing Proposal - Mathematics **3 units**

This is a process-oriented writing course that is designed for advanced MAEd students who want to improve their research skills beyond what they learned in methods classes. This course's goal is to get them started on their thesis proposal writing and to become competent in basic research designs, which includes making decisions about matching research designs to specific research problems. Furthermore, students will gain a better understanding of the issues to consider when deciding on the overall evaluation of their research. Students will learn how to develop literature for their research topic as well as potential methodological approaches. The emphasis during this training will be on how to construct a research question that can be empirically addressed. While the primary focus of this course is on thesis proposal writing, it also refreshes them on basic research concepts such as conducting literature reviews, understanding theory, defining research problems and methods, collecting and analyzing data, communicating findings, and applying research to solve educational problems. Students should also be able to understand the goals, assumptions, and logic underlying research methodologies.

MAEDTW2 - Thesis Writing Oral Defense **3 units**

The final and most important requirement for receiving a Master of Arts in Education is the completion of a substantial and original independent research project. The creation of a master's thesis describing as the research project and its results, as well as the defense of the project against challenges posed by the student's faculty, Thesis Committee members, demonstrate successful completion of this requirement. The Thesis Committee assesses the quality of the thesis proposal and the thesis defense to determine whether the student has successfully completed this final requirement for the master's degree.