School	
Major	Bachelor of Education in Teacher Education (Physics - Mathematics)

Major Requirements

Code	Title	Credits	Description
PHYS250	Thermodynamic and Waves	3	Temperature, heat, laws of thermodynamics, heat engines, waves, sound waves, geometrical optics, interference and diffraction. Prerequisite(s): PHYS 200
MATH270	Ordinary Differential Equations	3	First-order equations, linear and non-linear differential, linearization, numerical and qualitative analysis, second-order equations, existence-uniqueness theorem, series solutions, Bessel s and Legendre s functions, Laplace transforms, systems of differential equations, applications and modeling of real phenomena. Prerequisite: MATH 220.
MATH260	Discrete Mathematics	3	Sets, elementary logic, method of proofs, induction, relations, functions, recurrence relations, difference equations, modular arithmetic, arithmetic in different bases, Boolean algebra, counting, combinatorial methods, complexity analysis, graphs, trees, algorithms, finite-state machines. Prerequisite: MATH 170 or Math Placement Test

Core Requirements

Code	Title	Credits	Description
MATH210	Calculus II	3	The course material includes hyperbolic functions and their inverses and their derivatives integration techniques, improper integrals, sequences, infinite series, power series, Taylor and Maclaurin series and application of power series. The mathematical software Maple will be introduced and used in support of the comprehension of the material. Prerequisites: MATH160
CSCI250	Introduction to Programming	3	This course introduces the basic concepts and principles of structured programming in Java. It starts by an introduction to Java showing its syntax and the structure of a program in Java then teaches simple data types, control structures, methods, arrays, and strings.
MATH310	Probability & Statistics for Scientists & Engineers	3	The concept of probability and its properties, descriptive statistics, discrete and continuous random variables, expected value, distribution functions, the central limit theorem, random sampling and sampling distributions, Hypothesis testing. Prerequisite: MATH 170
MATH220	Calculus III	3	This text covers basic topics on infinite series, lines and planes in space, cylinders and quadric surfaces, functions of several variables, limits and continuity, Partial derivatives, chain rule, directional derivatives, Gradient vector, tangent planes, double and triple integrals, areas, moments, center of mass, volumes, double integrals in polar forms, triple integrals in cylindrical and spherical coordinates, line integrals, vector fields Green s theorem, surface integrals, Stokes theorem, and the divergence theorem. Students are required to solve extensive number of problems and computer assignment using the mathematical software package Maple.
EDIT250	Educational Technology for Teachers	3	Educational Technology for Teachers:This course provides an overview of old and new technologies and media devices that can be used for instructional purposes. Students will learn how to use these technologies as facilitators for learning, and the need for reform in educational systems.
EDUC221	Introduction to Educational Psychology	3	This course gives an overview of what teaching is all about. More specifically, helping students become more productive members of society. The course focuses on the variety roles of teachers, including subject matter experts, tutors, consultants, motivators, behavior managers, confidantes, evaluators. Students will get an opportunity to learn how to make appropriate decisions, and choosing among many possible strategies, for helping students learn, develop and achieve.

Code	Title	Credits	Description
CSCI250L	Introduction to Programming Lab	1	This course is a co-requisite for the Introduction to Programming course (CSCI250). The students apply in the lab the fundamentals of programming, explained in CSCI250, by solving lab exercises. The objective of the lab is to implement programming problems using basic data types, selection and repetition structures, methods and arrays.
MATH260L	Discrete Mathematics Lab	1	Set theory, Logic, Relations, Functions, Induction, Classification of infinite sets, Cardinal numbers, Boolean Algebra.
PHYS280	Electricity and Magnetism	3	Electricity, electric field and electric potential, Electric current, Gauss law, capacitors, resistance, Ohm's law, Kirchoff's laws, magnetism, Ampere's law, Biot-Savarat law, Faraday's law, and RLC circuits. Prerequisite(s): ENGL 150
EDUC281	Learning & Developmental Theories	3	This course introduces major developmental theories of learning, with emphasis on basic concepts in cognitive development. Relative influences of heredity and environment, and the impact of development on learning and school success are examined.
EDUC423	Teaching Mathematics and General Sciences for Elementary Teachers	3	Teaching Mathematics and General Sciences for Elementary Teachers
EDUC346	Introduction to Classroom Management	3	This course examines the role of teacher in a classroom situation: teacher – student interaction, and variation in classroom activities. The aim of the course is to pinpoint the crucial role of the teacher in establishing a proactive classroom environment where students stay on task.
MATH305	Programming Languages for Scientist	3	Programming Languages for Scientist
EDUC380	Statistical Research in Education	3	This course introduces basic sources and techniques of educational and linguistic research. It is designed to help students in writing research papers using electronic sources and equipments. Students will gain practical knowledge in identifying and researching topics relevant to their field of study, reviewing literature, collecting and analysing data, reporting results and discusing the findings. It also deals with the research designs and with solving educational problems
EDUC405	Methods of Teaching & Testing	3	This is an introductory course for future classroom teachers. The course will emphasize translation from theory into practice. Students will be exposed to various methods of teaching and testing. They will get the opportunity to design a lesson plan and construct tests.
EDUC440	Teaching Practicum I	3	Teaching Practicum I
PHYS340	Modern Physics	3	Special Theory of Relativity, experimental foundations of modern physics, dual nature of light and particles, Bohr model of the atom, Hydrogen atom spectrum, tunneling phenomena, Atomic Structure, Schrodinger equation, quantum numbers and spin of the electron. Prerequisite(s): PHYS 250
MATH345	Introduction to Real Analysis	3	Real numbers, Algebraic properties of the set of real numbers and the continuum property - Archimedean axiom, Sequences of real numbers, Inferior and superior limits Bounded sequences, Limits - Convergent sequences, Bolzano-Weierstrass Theorem, Cauchy sequences, Functions of a real variable, Limits of a function of a real variable, Continuous functions and Differentiable functions.

Code	Title	Credits	Description
EDUC490	Teaching Practicum II	3	This course is designed to provide pre-service student-teachers with the opportunity to acquire skills for effective planning, implementing, and evaluating instruction in a field-based setting. More specifically, students get opportunities of guided practice to teach under the supervision of an expert teacher. This practice teaching experience will develop the student□s self-confidence, security and commitment to teaching.
MATH492	Mathematical Seminar	1	Mathematical Seminar
MATH225	Linear Algebra with Applications	3	Introduction to the systems of linear equations and matrices, Gaussian eliminations, matrix operations, inverses, types of matrices, determinants and their applications, vector spaces, subspaces, linear independence, basis and dimension, rank and nullity, inner product spaces and orthogonal bases, eigenvalues and eigenvectors, applications from other disciplines such as physics, computer science, and economics.
PHYS210	Mechanics	3	Vectors, motion in one and two dimensions, Circular motion, Conservation of Energy and momentum, Gravitational Laws, Kepler□s Laws, Fluids. Prerequisite(s): ENGL 150
EDUC411	Introduction to the Philosophy of Education	3	This course introduces philosophical issues and the implications in relations to educational perspectives and ideologies. What is philosophy__ What is the primary goal of education__ What are the concepts of education__ How can we achieve an educational system based on logical means and ethical values__ What are the differences between □learning□ and □teaching□ theories__ What is knowledge__ Can moral education be fairly implemented__ These and other questions will examine and attempt to answer social, political, philosophical, democratic, progressive, traditional and moral theories then and now.
EDUC328	Introduction to Math and General Sciences Curriculum	3	Introduction to Math and General Sciences Curriculum

General Education Requirements			
Code	**Title**	**Credits**	**Description**
ENGL251	Communication Skills	3	The objectives of this course are to improve students□ writing skills for academic purposes by developing effective use of grammatical structures; analytical and critical reading skills; a sensitivity to rhetorical situation, style, and level of diction in academic reading and writing; and competence in using various methods of organization used in formal writing.
ENGL201	Composition and Research Skills	3	This course focuses on the development of writing skills appropriate to specific academic and professional purposes; the analysis and practice of various methods of organization and rhetorical patterns used in formal expository and persuasive writing; the refinement of critical reading strategies and library research techniques; and the completion of an academically acceptable library research paper. Prerequisites: ENGL150, ENGL151.
CULT200	Introduction to Arab - Islamic Civilization	3	The purpose of this course is to acquaint students with the history and achievements of the Islamic civilization. Themes will include patterns of the political and spiritual leadership; cultural, artistic, and intellectual accomplishments Prerequisites: ENGL051, ENGL101, ENGL151.

CSCI200	Introduction to Computers	3	The course aims at making students competent in computer-related skills. It is supposed to develop basic computer knowledge by providing an overview of the computer hardware and basic components as well as hands-on practice on common software applications such as Word, Excel, Power Point, Internet and Email. The student will learn how to use the new features of Microsoft Office 2010 mainly Word documents, Excel spreadsheets and PowerPoint presentations. On the surface, MS Office 2010 looks a lot different than previous versions (no more menus_toolbars!), but by learning to understand the dramatically changed, Ribbon-based interface, you'll quickly get back on the road to productivity.
ARAB200	Arabic Language and Literature	3	This course is a comprehensive review of Arabic Grammar, Syntax, major literature and poetry styles, formal and business letters.