

COURSE DESCRIPTION
MINOR PROGRAMME – SCIENCE EDUCATION

EDSE200 CHEMISTRY I

This course is designed for pre-service secondary school teachers who are taking science education minor. It takes on a problem-solving approach to provide students basic knowledge and principles of modern chemistry. The course mainly covers units and measurement; stoichiometry; gas laws and kinetic theory; the periodic table of elements; atomic structure; molecular bonding; intermolecular force; acid and base; redox reaction; thermochemistry and nuclear chemistry. Experiment sessions are designed to apply chemical principles and to develop skills in laboratory techniques and procedures.

Prerequisite: None

EDSE201 CHEMISTRY II

This course, a continuation of Chemistry I, is designed for pre-service secondary school teachers who are taking science education minor. It takes on a problem-solving approach to provide students basic knowledge and principles of modern chemistry. The course mainly covers nuclear chemistry; quantum theory; atomic and molecular structures; chemical kinetics; chemical equilibrium; thermodynamics; electrochemistry; qualitative and quantitative analysis; introduction to organic chemistry and biological chemistry. Experiment sessions are designed to apply chemical principles and to develop skills in laboratory techniques and procedures.

Prerequisite: EDSE200

EDSE202 BIOLOGY I

This course provides an introduction to the diversity of life, microbiology, plant and animal physiology and ecology. It also presents board application of bioscience on daily life such as conservation of biodiversity and environmental protection, and their significance. Laboratory course is provided to enable students to understand experimental design and basic techniques commonly used in the theory course.

Prerequisite: None

EDSE203 BIOLOGY II

This course provides an introduction to cell biology, biochemistry, genetics, molecular biology and biotechnology. It also presents board application of bioscience on daily life such as biotechnology industry and medical service, and their social impact and significance. Laboratory course is provided to enable students to understand experimental design and basic techniques commonly used in the theory course.

Prerequisite: EDSE202

EDSE300 SCIENCE EDUCATION IN SECONDARY SCHOOLS

The objective of this course is to enable students to understand the ideas, concepts, principles, and issues involved in science teaching in secondary schools, and to help them acquire relevant strategies and methods of science curriculum development, science teaching in classrooms, and assessment of science teaching. The course content includes the nature of science, science curriculum development, materials for science teaching, instructional strategies in science, and assessment in science teaching, and science teacher development. The feature of this course is to provide various chances for students to exercise, reflect, and evaluate these strategies and methods employed in practices by use of microteaching, personal reflections, and group discussions.

Prerequisite: None

EDSE301 SCIENTIFIC INQUIRY AND PRACTICAL WORK IN SECONDARY SCHOOLS

The objective of this course is to help students learn the ideas and practice of scientific inquiry in the environment of laboratory in secondary schools. The course content includes the concept of scientific inquiry, the roles and types of practical work, and instructional strategies of practical work. In this course, students are provided with various chances to enact the ideas of scientific inquiry in classrooms, and most of the hours of this course are spent in the laboratory. Specifically, the experimental contents relevant to physics, chemistry, and biology are involved respectively.

Prerequisite: None