

# SILLIMAN UNIVERSITY

Dumaguete City, Philippines

Curriculum for the Degree of **Bachelor of Science in Medical Technology**

(Approved: July 26, 2011 by Academic Council)

## FIRST YEAR

FIRST SEMESTER		UNITS	PREREQUISITES
___	BC 11 Basic Communications Skills I	3	
___	FIL 13 Sining ng Pakikipagtalastasan	3	
___	BIO 33(MT) Gen. Zoology for MT Students (with emphasis on cell biology)	5	
___	MT 13 Intro to Medical Technology w/ STS	3	
___	CHEM 15(MT) General & Inorganic Chemistry	5	
___	REL 11 Old Testament Message	3	
___	PE 11 Physical Education 1	2	
___	NSTP 1 National Service Training Program 1	3	
___	PEP 1 Personality Enhancement Program 1	—	
<b>TOTAL UNITS</b>		<b>27</b>	

## SECOND SEMESTER

___	BC 12 Basic Communications Skills 2	3	BC 11
___	FIL 24(N) Pagbasa at Pagsulat sa Iba't ibang Disiplina	3	Fil 13
___	MATH 11 College Algebra	3	—
___	BIO 36 Anatomy & Physiology	5	Bio 33
___	CHEM 16 Qualitative & Quantitative Chem.	5	Chem 15
___	PSYCH 11 General Psychology	3	—
___	PE 12 Physical Education 2	2	PE 11
___	NSTP 2 National Service Training Program 2	3	NSTP 1
___	PEP 2 Personal Enhancement Program 2	—	PEP 1
<b>TOTAL UNITS</b>		<b>27</b>	

## SUMMER

___	ECON 24 Health Economics with TLR	3	—
___	REL 22 New Testament Message	3	Rel 11
___	HIST 52 Philippine History	<u>3</u>	—
<b>TOTAL UNITS</b>		<b>9</b>	

## SECOND YEAR

### FIRST SEMESTER

___	MATH 21 Biostatistics	3	Math 11
___	<b>MT 23 MT Laws, Bioethics</b>	<b>3</b>	<b>MT 13</b>
___	BC 2 5 Research in the Discipline	3	BC 12
___	CHEM 47 Organic Chemistry	5	Chem 16
___	PHILO 31 Introduction to Logic	3	Math 11
___	REL 61 Christian Ethics & Social Reform	3	Rel 22
___	CFUND 1 Computer Fundamentals 1	3	—
___	ED 54 Prin. & Strat. of Teaching in Health Education	3	—
___	PE 21 Physical Education 3	<u>2</u>	PE 11
<b>TOTAL UNITS</b>		<b>28</b>	

### SECOND SEMESTER

___	PHYS 11 Basic Concepts of Physics	3	Math 11
___	LITT 21 Survey on Philippine Literature	3	BC 25
___	HIST 41 Rizal's Life, Works & Writings	3	—
___	CHEM 88 Biochemistry	5	Chem 47
___	FA 51 Understanding the Arts	3	—
___	ANTHRO/SOCIO 65 Culture, Society & Personality	3	—
___	PE 22 Physical Education 4	2	PE 11
___	<b>MT 24 Community &amp; Public Health</b>	<b><u>5</u></b>	<b>MT 13</b>

**TOTAL UNITS 27**

**THIRD YEAR****PREREQUISITES****FIRST SEMESTER**

__ __	MT 31	Clinical Chemistry I	4	Chem 88
__ __	<b>MT 35</b>	<b>Cytogenetics</b>	<b>2</b>	<b>Bio 36, MT 13</b>
__ __	MT 37	Bacteriology	5	Bio 36
__ __	MT 39	Parasitology	3	Bio 36
__ __	MT 41	Research I	3	BC 25
__ __	MT 33	Hematology I	4	Bio 36
__ __	<b>MT 45</b>	<b>Basic Histology &amp; Gen. Pathology &amp; Histotechniques</b>	<b><u>5</u></b>	<b>Bio 36</b>

**TOTAL UNITS**            **26**

**SECOND SEMESTER**

__ __	MT 32	Clin. Chemistry 2 & Endocrinology	4	MT 31
__ __	<b>MT 34</b>	<b>Pharmacology &amp; Toxicology w/ TDM</b>	<b>3</b>	<b>Bio 36 with Chem 88</b>
__ __	MT 36	Hematology II	3	MT 33
__ __	MT 38	Immunology & Serology	4	MT 37
__ __	MT 40	Clinical Microscopy	3	Bio 36
__ __	MT 42	Research II	2	MT 41
__ __	MT 44	Immunohematology	3	MT 37
__ __	MT 46	Mycology & Virology	3	MT 37
__ __	<b>MT 48</b>	<b>Laboratory Management</b>	<b><u>2</u></b>	

**TOTAL UNITS**            **27**

**FOURTH YEAR****FIRST SEMESTER**

__ __	MT INTERNSHIP		18	completed all Level I to
__ __	MT 49	Med. Tech. Seminar I	<u>3</u>	Level III BSMT course
		<b>TOTAL UNITS</b>	<b>21</b>	

**SECOND SEMESTER**

__ __	MT INTERNSHIP		18	completed all Level I to
__ __	MT 50	Med. Tech Seminar II	<u>3</u>	Level III BSMT course
		<b>TOTAL UNITS</b>	<b>21</b>	

## COURSE DESCRIPTION OF MEDICAL TECHNOLOGY SUBJECTS

- BC 11** **3 units**  
**Basic Communication Skills I**  
This is a course on basic oral and writing patterns and it involves the reading and interpreting various forms of writing
- BC 12** **3 units**  
**Basic Communication Skills II**  
This course corresponds to CHED's prescribed first English course and it aims primarily to develop students' communication and thinking skills for academic study. It includes the analysis of the structure and content of paragraphs, essays and other compositions through readings and writing exercises.
- BC 25** **3 units**  
**Research in the Discipline**  
This is a course for students who attained their respective college's or department's grade requirement in BC 12. This is designed to develop students' basic research and writing skills in their specific discipline.
- Bio 33** **5 units**  
**General Zoology (for MT Students with more emphasis on cell biology)**  
It deals with understanding cellular structures, functions and interaction in prokaryotic and eukaryotic cells. It also includes cell theory, gene theory, theory of natural selection and concept of homeostasis.
- Bio 36** **5 units**  
**Human Anatomy and Physiology**  
General principles underlying the structure and functions of the human body.
- Chem 15** **5 units**  
**General and Inorganic Chemistry**  
This course deals with the fundamental laws and theories of chemistry, structure of the atom, and chemical bonding nomenclature, chemical reactions, heat of reactions, solutions and solubility, stoichiometry, chemical kinetics, chemical equilibrium, acids and base equilibria, oxidation-reduction, radioactivity and radioisotopes.
- Chem 16** **5 units**  
**Qualitative and Quantitative Chemistry**  
This course deals with basic inorganic chemistry including chemical bonding, stoichiometry, formula writing, solution preparation, oxidation and reduction, acid-base theory, titration calculations and buffer solutions. Also included are types of equilibria pertaining to acid-base, complexometric, potentiometric titrations and an introduction to spectrophotometric processes. Laboratory applications of titrimetric, gravimetric and spectrophotometric techniques are emphasized.
- Chem 47** **5 units**  
**Organic Chemistry**  
Properties, structure, reactivity and stereochemistry of organic compounds including reaction mechanisms, physical and chemical methods, techniques of separation and purification. Physical and functional group tests of organic species.
- Chem 88** **5 units**  
**Biochemistry (for MT students)**  
The macromolecular description of biological material and the chemical transformations attending life processes, with methods employed in biochemical studies
- ED 54** **3 units**  
**Principles and Strategies of Teaching in Health Education**  
This course deals with the principles and teaching/learning strategies in health education including adult learning, the roles of a teacher/ medical technologist in different settings. It also includes strategies that enhance critical thinking, clinical laboratory teaching, assessing and evaluating learning
- Fil 13** **3 units**  
**Sining ng Pakikipagtalastasan**  
Basic elements in patterns. Reading various forms of written expression as the basis for different kinds of oral expressions. A study of Filipino proverbs.
- Fil 24(N)** **3 units**  
**Pagbasa at Pagsulat sa Iba't ibang Disiplina**  
Ang kursong ito ay magbibigay pokus sa pagbasa at pagsulat bilang kasangkapan sa pagkatuto. Ituturo sa kursong ito ang mga stratehiya sa pagbasa ng iba't ibang genri ng mga tekstong nakasulat. Lilinangin din ang mga kasanayan sa pag-unawa lalo na ang kritikal na pag-unawa, gayun din and kasanayan sa pagsulat ng iba't ibang sulating akademiko. Magiging batayang paksa and ukol sa humanidadis at agham panlipunan at agham teknolohiy.

- FA 51** **3 units**  
**Understanding the Arts**  
 The basic course introducing the student to painting, sculpture and architecture of Asia and Europe. A lecture course taught with slides, films, prints and text.
- Hist 52** **3 units**  
**Philippine History**  
 A survey of Philippine history and government from the earliest times with emphasis in the American occupation, the struggle for independence and development of national life and institutions. It includes Philippine government under the Republic and emphasizes the new constitution.
- Hist 41** **3 units**  
**Rizal's Life, Works and Writings**  
 An intensive study of the life, works and writings of Jose Rizal. As a background, the course includes the pre-colonial and Spanish period, emphasizing the rise of Filipino nationalism.
- Litt 21** **3 units**  
**Survey on Philippine Literature**  
 The study of literary forms or genres as exemplified by selected literary texts written in different Philippine and colonial languages by writers from various regions of the Philippines at different periods in the Philippine literary history. It includes discussions and practice of the different interpretative strategies and new literary theories.
- Math 11** **3 units**  
**College Algebra**  
 Fundamental operations, basic theorems and principles, axioms, factoring, equations and their graphs, exponents and radicals, ratio and proportion, variation, progression and the binomial theorem application through problem-solving.
- Math 21** **3 units**  
**Biostatistics**  
 An introduction to the basic principles and methods of biostatistics designed for science students who wish to learn modern research methods for analyzing and extracting scientific data.
- MT 13** **3 units**  
**Introduction to Medical Technology with STS**  
 This course deals with the basic concepts of Medical Laboratory Science with emphasis on the basic principle of clinical laboratory work, point-of-care and patient laboratory science provider loop. Laboratory session includes on basic principles/concepts of phlebotomy and point-of-care. Also included in the course the holistic view of how science, technology and society interact and affect each other specially on the implications to the health status of the Filipinos and to the health care profession in the country.
- MT 23** **3 units**  
**Medical Technology Laws, Bioethics**  
 Medical Technology Laws & Bioethics deal with the study of the history of the medical technology profession, both local and abroad such as the history of PAMET, Inc., and Philippine Association of Schools of Medical Technology and Public Health, Inc. (PASMETH). It also includes the study of all the laws that govern Medical Technology profession such as Philippine Laws, Presidential Decrees, Administrative Orders and Executive Orders as well as Professional Code of Ethics. Concepts and principles of Bioethics in the practice of the Medical Technology profession is incorporated in understanding these laws.
- MT 24** **5 units**  
**Community and Public Health**  
 An introduction to the fundamental principles of basic community and health services. The course deals with the basic concept of epidemiology, pattern of disease, transmission of disease, measurements of disease and health such as morbidity, mortality, rates and ratios as well as principles of prevention and control. This also includes community health assessment as the practicum.
- MT 31** **4 units**  
**Routine Clinical Chemistry**  
 The course deals with physiological active soluble substances found in the body fluids particularly blood. These involve the knowledge and understanding of the basic concepts and principles of their metabolism, laboratory analyses and their diagnostic utility. The course also deals with instrumentation and evaluation of the accuracy and precision of the procedures using analytical techniques.
- MT 32** **4 units**  
**Clinical Chemistry 2 with Endocrinology**  
 This is a continuation of Routine Clinical Chemistry. It also deals with the principle of drug disposition, specific drug groups and their classification, actions, therapeutic drug monitoring and laboratory analyses of toxic substance of abuse. Endocrinology is the study of hormones, endocrine glands with emphasis on action of hormones, control of secretion, thyroid function tests and other hormonal assays applicable to Philippine setting.

**MT 33****4 units****Clinical Hematology I**

This course deals with the study of blood as a tissue and the pathophysiology of the cellular elements of the blood. Emphasis is on the laboratory diagnostic procedures and shall cover basic hematology methods of examination and quality assurance program in blood specimen collection, microscopic examination of prepared blood smears, routine blood examinations, cell counting and blood cell indices. Focus on blood cell morphology and hemoglobinopathies is also enhanced.

**MT 34****3 units****Basic Pharmacology and Toxicology with Therapeutic Drug Monitoring**

Pharmacology deals with the study of drugs: history and sources, physical and chemical properties, biochemical and physiological effects, mechanism of action, distribution, metabolism, excretions, pharmacokinetics, indications, side effects and adverse reactions and drug interactions. Toxicology is the study of poisons with emphasis on classification, action, regulations on dispensing and use, isolation and quantitative estimation in biological specimens. It also covers the importance, principles and application of therapeutic drug monitoring. Emphasis is on therapeutics and drugs of abuse.

**MT 35****2 units****Cytogenetics**

This course deals with the study of the concepts related to the study of heredity and inheritance: genetic phenomena, sex determinations, defects in relation to human inheritance. Nucleic acids (DNA and RNA) and their application to medical science are given emphasis.

**MT 36****3 units****Clinical Hematology 2**

The first part of the course deals with the pathophysiology and the mechanisms of coagulation and hemostasis as the underlying basis for understanding coagulation defects with emphasis on laboratory diagnostic procedures. Part two shall focus on erythrocyte, leukocyte and platelet disorders and their diagnostic laboratory examinations.

**MT 37****5 units****Bacteriology**

The course deals with the study of the anatomy, energy metabolism, physiology of growth, genetics and microbial control, sterilization and disinfection of bacteria, rickettsia and other significant organisms and their role in infection and immunity. Principles and action of antimicrobial agents will also be discussed to understand the mechanisms behind the emergence and dissemination of antibiotic resistance. Emphasis is made on their isolation, identification, prevention and control as an aid in laboratory diagnosis. An introduction to the general characteristics of the four groups of infectious agents studied in microbiology: bacteria, viruses, fungi and prions will also be discussed. The course will also include the taxonomy of prokaryotic organisms

**MT 38 (former MT 49)****4 units****Immunology and Serology**

The course deals with the study of the specific cellular and humoral responses of the body to microorganisms and certain other extrinsic agents. It also includes the study and utilization of different serological procedures as tools for disease diagnosis.

**MT 39****3 units****Medical Parasitology**

This course deals with the study of human parasites that are of medical importance especially those commonly found in the Philippines. It includes the morphology, epidemiology, pathogenicity, laboratory diagnosis of their specific diseases, distribution and life cycle of parasites as well as the preventive measures against infection.

**MT 40****3 units****Clinical Microscopy**

The course deals with the study of human fluids other than blood. It includes the gross or macroscopic, chemical and microscopic examination of urine, cerebrospinal fluid, seminal, sputum, gastric and duodenal contents, synovial fluid, peritoneal fluid, pericardial fluid, amniotic fluid, sweat and feces. Emphasis is on the importance of these fluids to body processes, the principles of the analytical procedures, interpretation of results and clinical significance of the physiologically important substances found in these body fluids.

**MT 41****3 units****Introduction to Research Methods**

The course deals with the general concepts of a research process. It also includes the study of the rudiments in the preparation of a scientific research paper including problem identification, literature search, limitations and scope of the study, sampling and statistical analysis. Students shall be required to write and defend a workable research proposal.

**MT 42****2 units****Thesis Writing**

This course deals with completion of the research process started in Introduction to Research Methods. Emphasis is on data collection, presentation, analysis and interpretation of data and summary of findings and recommendation. The students must defend their research paper.

**MT 44 (former MT 51)****3 units****Immunohematology**

The course deals with the study of blood-related antigens and antibodies encountered in the blood bank or transfusion service testing. It encompasses immunologic and genetic principles of blood typing important in pre-transfusion, prenatal, pre-surgical and paternity testing; preparation and testing of blood components for transfusion; and screening of serum of typical antibodies; screening of blood donors; and testing for clinical conditions such as disease of the newborn and hemolytic anemia.

**MT 45****5 units****Basic Histology, General Pathology and Histotechniques**

This course deals with the study of the fundamentals of cells, tissues and organs with emphasis on the microscopic structure, morphologic characteristics and functions. This also includes a concise but comprehensive exposition of the basic facts and interpretation of the morphologic and functional features of cells, tissues and organs with the use of laboratory demonstrations, diagrams, charts or models. It also includes the study of tissue/cellular changes characteristics of a disease and the process by which tissue slides are prepared for microscopic examination. Special processing techniques, special staining procedures and introduction to exfoliative cytology are also incorporated in the course.

**MT 46****3 units****Mycology and Virology**

The course deals with the study of morphologic and biologic characteristics of fungal and viral agents of diseases. It also includes the study of laboratory diagnosis methods, modes of transmission, epidemiology, pathology, prevention and control of disease caused by viruses and fungi.

**MT 48 Laboratory Management****2 units**

Laboratory Management deals with the basic concepts of management planning, organizing, staffing, controlling as applied to a clinical laboratory set-up like quality assurance/quality control, policy and procedure manuals, infection controls, and others.

**MT 49****3 units****MEDICAL TECHNOLOGY SEMINAR 1**

This course is designed to enhance the knowledge, skills and attitude on the following major courses of the BSMT curriculum in order to prepare the graduate for the Philippine Medical Technology Board Examination. The course shall constitute additional lecture review/updates and case analysis on the following areas: Bacteriology, Parasitology, Clinical Chemistry 1 and Clinical Microscopy.

**MT 50****3 units****MEDICAL TECHNOLOGY SEMINAR 2**

This course is designed to enhance the knowledge, skills and attitude on the following major courses of the BSMT curriculum in order to prepare the graduate for the Philippine Medical Technology Board Examination. The course shall constitute additional lecture review/updates and case analysis on the following areas: Hematology 1 and 2, Mycology/Virology, Clinical Chemistry 2 with Endocrinology/Toxicology and Histotechniques.

**MT INTERNSHIP****18 units**

This course is an intensive practical and theoretical training in the different sections in the laboratory namely: Clinical Chemistry, Medical Microbiology, Clinical Hematology, Clinical Microscopy, Parasitology, Serology and Blood Banking, Phlebotomy and Histopathology. It also emphasizes the development of managerial skills and proper value system.

**PE 11****2 units****Physical education 1**

Orientation in physical education. Fundamental gymnastic positions, line formations and marching, fundamental physical skill test, health education, fundamental skills in swimming—breathing, floating, leg and arm movements.

**PE 12****2 units****Physical Education 2**

Warming-up exercises, physical fitness tests, group games and contests, sport education and swimming.

**PE 21****2 units****Physical Education 3**

Conditioning exercises, fundamental and basic skills in sports, co-educational and correctional activities, safety education and swimming.

**PE 22****2 units****Physical Education 4**

Conditioning exercises, athletic activities, pentathlon, decathlon, outdoor education and recreation.

**Philo 31****3 units****Introduction to Logic**

The ideals of valid argument and critical thinking. Includes the nature and functions of language, traditional logic, an introduction to symbolic logic, induction and the logic of scientific method.

**Physics 11** **3 units**  
**Basic Concepts of Physics**  
Newtonian mechanics down to the modern physics with selected experiments.

**Psychology 11** **3 units**  
**General Psychology**  
An introductory course on human behavior, maturation, motivation, perception, learning, emotion, conflict, thinking, intelligence, personality and psychopathology. Also deals with moral generation and drug abuse education.

**Rel 11** **3 units**  
**Old Testament**  
A survey of the Hebrew people's religion as reflected in the Old Testament. Viewed from a Christian perspective of the biblical message being the proclamation of God's redemptive activity in human history.

**Rel 22** **3 units**  
**New Testament**  
The synoptic gospels as a basis for understanding the life of Jesus and his teachings and their meaning for contemporary Christian faith.

**Rel 61** **3 units**  
**Christian Ethics and Social Reform**  
The meaning of morality, particularly from judeo-christian perspective and the application of this perspective to contemporary problems on national identity, value system, family and sex relations, ecology, education, medicine, government, church and international relations.

**ANTHRO/SOCIO 65** **3 units**  
**Culture, Society and Personality**  
Sociological and anthropological contributions to understanding the role of culture in personality development. Comparative studies in relation to child training, family life and community living.