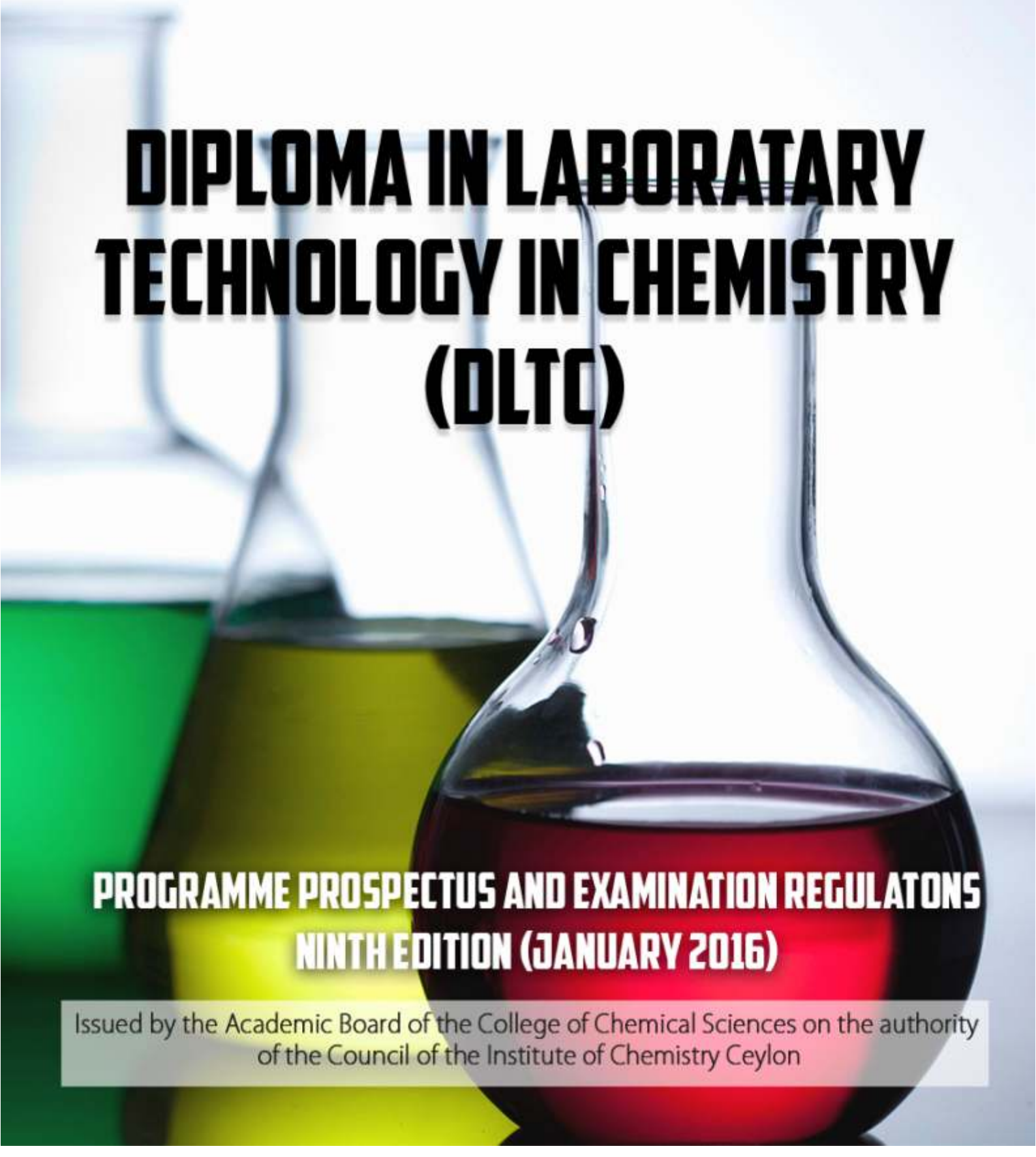
COLLEGE OF CHEMICAL SCIENCES
INSTITUTE OF CHEMISTRY CEYLON
(Incorperated by Act of Parliment No.15 of 1972)

DIPLOMA IN LABORATARY TECHNOLOGY IN CHEMISTRY (DLTC)



PROGRAMME PROSPECTUS AND EXAMINATION REGULATONS
NINTH EDITION (JANUARY 2016)

Issued by the Academic Board of the College of Chemical Sciences on the authority of the Council of the Institute of Chemistry Ceylon

Contents

Information about Diploma in Laboratory Technology in Chemistry Programme Course & Examinations could be obtained from

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DLTC COURSE PROSPECTUS

1. PREAMBLE

Formal Educational Programmes of the Institute of Chemistry Ceylon commenced in 1973 with the Laboratory Technicians' Certificate Course in Chemistry (LTCC). This course was organized to meet a pressing need to provide middle level technical expertise in support of programmes involving "Chemical Analysis and Research". This is still the only such course available in any field of basic science in Sri Lanka.

The Laboratory Technicians' Certificate Course was upgraded to a Diploma Programme in 1998 and the programme was renamed as "Diploma in Laboratory Technology in Chemistry" (DLTC). Course Content was suitably expanded and revised. The first DLTC programme which commenced in August 1998 was completed in February 2000. The DLTC programme now commences in January each year. The programme runs for seven terms and lasts approximately 2 years with students acquiring knowledge and analytical skills in Basic Chemistry, Clinical Chemistry, Analytical Chemistry, Industrial Chemistry, Biological Chemistry, Electronics, Statistics and Laboratory Practice. During the 2nd year students are specialized in Industrial Food Chemistry (IFC) OR Clinical Laboratory Technology (CLT)

The LTCC/DLTC Programmes were conducted at the premises of Aquinas College, Colombo until November 2006. (1st to 32nd batch)

The 33rd batch however commenced its programme at Adamantane House in Rajagiriya in November 2005 with all the administration also conducted by the College of Chemical Sciences. The 34th batch was admitted in November 2006 to the same venue. Since moving on to Admantane House Number enrolling have increased considerably.

The Diploma programme is designed to provide school leavers to follow a technical job oriented programme. It would also serve to improve the knowledge and skills of those already employed as technicians in laboratories. Those who complete this programme successfully are entitled to follow the Graduateship Programme in Chemistry conducted by College of Chemical Sciences, Institute of Chemistry even without A/L qualifications.

2. MINIMUM ELIGIBILITY REQUIREMENTS

The following categories of personnel are eligible to follow the Diploma in Laboratory Technology in Chemistry: -

(i) Those having six passes at GCE (Ordinary Level) including Mathematics with at least Credit passes in Science and Proficiency in English.

(ii) Those having Proficiency in English and GCE (Advanced Level) pass in Chemistry.

(iii) Laboratory Assistants / Technicians in an Institution recognised by the Institute.
(iv) Lab Attendants with 10 years experience

3. REGISTRATION OF STUDENTS

Students are selected by the College of Chemical Sciences after an interview of applicants.

4. RECOGNITION OF THE COURSE

The Diploma in Laboratory Technology in Chemistry qualification carries much weight as a certificate issued by an incorporated professional body. Further, recognition is given to the Diploma in Laboratory Technology in Chemistry Certificate by some public sector and private sector organizations who pay the fees of their employees and also give increments and other credit for those employees who successfully complete the course.

The Institute of Chemistry, Ceylon gives credit for the Diploma in Laboratory Technology in Chemistry Certificate by incorporating into their regulations the following benefits.

These include admission to the Graduateship Programme in Chemistry to all those persons possessing a pass at the DLTC Programme in lieu of the normal requirement of three GCE (A/L) Passes

Furthermore, those students who have Honours passes at the overall DLTC Examination are entitled to a scholarship to follow the Graduateship Programme in Chemistry. The Scholarship incorporates a waving of the tuition fees of the first two years (Levels 1 & 2) of the Graduateship Programme in Chemistry.

Those who complete the DLTC programme are required to become TECHNICIAN members of the Institute for life. They are entitled to use the designation Tech.I.Chem.C. after their names.

Those having a pass at the Graduateship (Levels 1 & 2) Examination and an Honours/Merit pass at the DLTC Examination are also entitled to Licentiate Membership of the Institute after sufficient experience in the Chemical Sciences.

Those having a DLTC pass and has been a technician member of the Institute of Chemistry Ceylon for not less than 8 years and have adequate experience in the Chemical Sciences are eligible to obtain Licentiate Membership (L.I.Chem.C.) of the Institute which is normally open to those having a B.Sc. (3 years) degree including Chemistry as a subject.

5. THE COURSE CONSISTS OF 24 MODULES AS GIVEN BELOW

Course Content – 14 General Modules

G 1 – Basic General Inorganic Chemistry
G 2 – Basic Physical Chemistry
G 3 – Basic Organic Chemistry
G 4 – Analytical Chemistry I
G 5 – Analytical Chemistry II
G 6 – Analytical Chemistry III
G 7 – Laboratory Practice
G 8 – Basic Biological Chemistry I
G 9 – Basic Biological Chemistry II
G 10 – Basic Electronics
G 11 – Basic Mathematics
G 12 – Basic Statistics
G 13 – Introduction to Information Technology
G 14 – Introduction to Management

Industrial and Food Chemistry (IFC)-10 Special Modules

IFC 1 – Fundamental of Chemical Engineering
IFC 2 – Food chemistry & Food Additives & Food Contaminants Food Preservations
IFC 3 – Food Processing (Plant Origin)
IFC 4 – Food Processing (Animal Origin)
I F C 5 – Food Microbiology
IFC 6 – Food Analysis
IFC 7 – Laboratory Practice: Food Analysis
IFC 8 – Polymer Science, Petroleum and Mineral Based Industries
IFC 9 – Chemical Industries & Industrial Health, Safety and Pollution
IFC 10 – Environmental Chemistry and Waste Management

Clinical Laboratory Technology (CLT)-10 Special Modules

CLT 1 – Introduction to Medical laboratory procedures

CLT 2 – Urine Analysis and Examination of Stool

CLT 3 – Practical Session: Clinical Laboratory

CLT 4 – Diagnostic Microbiology and Parasitology

CLT 5 – Clinical Haemotology I

CLT 6 – Clinical Haemotology II

CLT 7 – Laboratory Investigations of Miscellaneous Body Fluids and Some Other Specialized Investigations

CLT 8 – Investigations of Gastrointestinal Endocrine Disorders

CLT 9 – Basic Concept in Acid Base balance, Blood gases and Electrolytes

CLT 10 – Therapeutic drug monitoring and toxicology and molecular diagnostics

14 GENERAL MODULES – COMMON TO ALL STUDIES

*** In addition to the direct learning hours of 25, each general module include 6 hours of assignments + 2 hours of examination + 20 hours of study period + 10 hours of library period.**

G1 – Basic General and Inorganic Chemistry (25 hrs)*

Physical quantities; their interrelationships and SI units
Description of matter
Atomic structure and electronic configuration
Periodic table of elements
Chemical formulae
Bonding chemistry, electronegativity and dipole moments
Resonance
VSPER theory and molecular shapes
Inter molecular and intra molecular forces
Chemical equations and Redox reactions
Coordination complexes

G 2 – Basic Physical Chemistry (25 hrs)*

States of matter
Gaseous State: Ideal and real gasses; gas laws; kinetic molecular theory of gasses; Maxwell- Boltzmann distribution
Liquid state: Viscosity; surface tension
Heat transfer
Chemical equilibrium
Phase equilibrium
Chemical kinetics
Electrochemistry: Electrochemical cells, thermodynamics of cells, electrolytic cells, conductance

G 3 – Basic Organic Chemistry (25 hrs)*

Introduction to Organic Chemistry
Nomenclature of Organic compounds
Hydrocarbons- classifications:
Aliphatic hydrocarbons
- Alkanes
- Alkenes
- Alkynes

Aromatic hydrocarbons
Alkyl halides
Alcohols and
Phenols

Ethers
Esters
Aldehydes and ketones
Carboxylic acids and their derivatives
Amines and amides
Nitro compounds

G 4 – Analytical Chemistry 1 (25 hrs)*

The evaluation of analytical data
An introduction to titrimetric methods of analysis
Acid-base titrations in aqueous medium
Acid-base titrations in non-aqueous media
Complex formation titrations
Oxidation – reduction titrations

G 5 – Analytical Chemistry 11 (25 hrs)*

Solubility of precipitates
Gravimetric analysis
Precipitation titrations
Kinetic methods of analysis
Oxidation – reduction titrations
Potentiometric methods
Electrogravimetric and coulometric methods
Polarography and amperometry

G 6 – Analytical Chemistry 111 (25 hrs)*

Analytical separations: Basics in Chromatography; TLC, GC, HPLC; sample preparation for GC, HPLC; GC/ MS, LC/MS

Analytical spectroscopy: Molecular spectroscopy: IR spectrometry, UV-visible spectroscopy, Fluorescence spectroscopy. Atomic spectroscopy: AAS, AES, AFS, flame photometry

Demonstration of advanced analytical instruments **(8 hrs)**

G7 – Laboratory Practices (52 hrs)

Functions of a laboratory technician
Glassware Identification
Use of analytical balance
Preparation of bench reagents
Preparation of standard solutions and standardization eg. NaOH/Phthalic
Maintenance of equipment
Storage of apparatus
Titrimetry: acid-base (eg. $NaOH/H_2SO_4$); Redox titration (eg. $KMnO_4$ / Oxalic

acid); Iodometric titrations (eg. $I_2/Na_2S_2O_3$);
Complexometric titration (eg. EDTA with Ca^{2+}/Mg^{2+})
Simple analysis–inorganic salts
Laboratory management and laboratory safety
Special equipment and techniques:
Distillation (simple, fractional, steam, reduced pressure)
Solvent extraction: Separating funnel, Soxhlet extraction
Determine the nitrogen and potassium contents of a fertilizer sample using Kjeldhal apparatus
Paper chromatography - food colour identification
Melting point determination of known samples
Synthesis of asprin, recrystallization and characterization using TLC and IR
Determine the concentration of iron (III) in a sample of portable ground water using colorimetry
Determination of hardness in water using atomic absorption spectroscopy
Separation of hydrocarbons using temperature programmed gas chromatography

Assessment I (4 hrs)
Assessment II (4 hrs)

G 8 – Basic Biological Chemistry 1 (25 hrs)*

Organization of the cell: Organelles (structure & function), prokaryotes versus eukaryotes, plant cell versus animal cell, Cell membrane, transport across membranes
Proteins: Introduction, amino acids, peptides, structure & function, properties
Enzymes: Introduction, types, mechanism of action, factors which determine reaction rate, Michaelis Menten kinetics, types of inhibitors
Nucleic acids: Introduction, properties, structure, function, replication, transcription, translation
Recombinant DNA technology: Restriction enzyme digestion, blotting,
PCR, gel electrophoresis, Recombinant DNA Technology (construction, selection, applications)

G 9 – Basic Biological Chemistry 11(25 hrs)*

Vitamins: Water soluble vitamins, lipid soluble vitamins, associated biochemical functions, vitamin deficiency diseases
Carbohydrates: Introduction, types of carbohydrates, properties, structure and function
Lipids: Introduction, types of lipids, properties, structure and function, Lipoproteins (HDL, LDL, VLDL, Chylomicrons)
Primary energy yielding pathways: Glycolysis, TCA cycle, electron transport chain, fatty acid synthesis, beta oxidation of fatty acids, HMP pathway

Photosynthesis: Light dependent reactions, light-independent reactions, photo-respiration, C3 & C4 cycles
An introduction to secondary metabolites: Introduction, Polyphenols, flavonoids, alkaloids, terpenoids, steroids, biochemical importance

G 10 – Basic Electronics (25 hrs)*

Basic concepts in electricity
Basic electronic devices
Transistor
Measuring instruments
Testing of components
Basic AC theory Amplifiers
Oscillators and waveform generators
Power supplies
Fault detection and maintenance of simple electronic equipment

G 11 – Basic Mathematics (25 hrs)*

Numbers, integers, rational numbers
Irrational numbers
Logarithms Trigonometric functions
Linear equations and inequalities in one variable, quadratic equations,
Cartesian coordinates, lines in the plane
Functions, graphs and limits
Functions, graph of a function, straight line graphs, intersection of graphs,
Curved graphs
The principle of differentiation
Differentiation of a product and differentiation of a function of a function
Partial differentiation
Maxima and minima
Integration as the converse of differentiation
Integration by parts

G 12 – Basic Statistics (25 hrs)*

Collection of data
Organization of data
Classification of data
Histogram - frequency polygon, frequency curve, classified mean and standard deviation
Measures of central tendency and dispersion
Mean, median, mode
Mean deviation, standard deviation, relative standard deviation, coefficient of variation

Normal and the standard distribution
Probability
Probability distributions
Sample and population
Normal distribution curve
Confidence limits
Use of Z-table and t – table

G 13 – Introduction to Information Technology (25 hrs)*

Including theory and practical
Introduction to computer hardware & software
Word processing and report writing
Making presentations using PowerPoint
Spread sheet applications
Drawing graphs
Statistics applications
Chemdraw and molecular visualization

G 14 – Introduction to Management (25 hrs)*

Basic business management through strategic planning
Work place management
Managing business information systems & marketing research
Analyzing the business environment
Analyzing consumer markets and buyer behavior
Analyzing competitors in the business
Identifying market segments and selecting target markets
Developing, testing and launching new products; Managing new products
Global market place
Managing product lines, brands, packaging and labeling
Managing service businesses
Communications and promotions
Organizing and implementing business programs
Evaluating and controlling business performance
Entrepreneurship

10 SPECIAL MODULES - INDUSTRIAL AND FOOD CHEMISTRY

*** In addition to the direct learning hours of 25, each general module include 6 hours of assignments + 2 hours of examination+ 20 hours of study period + 10 hours of library period.**

IFC 1 – Fundamental of Chemical Engineering (25 hrs)*

Unit operations in chemical engineering
Drying
Distillation Filtration
Evaporation Grinding
and sieving
Crystallization
Extraction
Fluid mechanics Heat
transfer
Refrigeration
Mass and energy balance

IFC 2 – Food chemistry, Food Additives, Food Contaminants & Food Preservations (25 hrs)*

The main constituents of food (moisture, ash, proteins, carbohydrate, oil & fats and vitamins) and their food values
Food spoilage
Methods of food preservation
Food additives and their applications in industry
Food contaminants
Food adulterants and detection

IFC 3 – Food Processing – (25 hrs)* Plant Origin

Fruits and vegetables and related products
Non alcoholic beverages: tea, cocoa, coffee
Cereals: rice, wheat and related products
Legumes: oil seeds, nuts and related products
Sugar, starch and related products
Alcoholic beverages

IFC 4 – Food Processing (25 hrs)*

Animal Origin

Milk and milk products
Meat and meat products
Fish and fish products
Poultry and eggs

IFC 5 – Food Microbiology (25 hrs)*

Apparatus and instruments
Microbiological procedures
Media
Sampling, sample storage and processing
Isolation, enrichment, cultivation and maintenance of strains
Use of microscope and staining procedures
Morphological characterization
Biochemical characterization
Isolation of micro organisms in food sample
Yeast and mould count; aerobic plate count (APC)
Pathogenic microorganisms
Food poisoning

IFC 6 – Food Analysis (25 hrs)*

Determination of (i) Moisture (ii) Fat
(iii) Protein (iv) Carbohydrate
(v) Crude fiber (vi)Ash
Calculation of energy value
Characterization of oils & fats
Determination of food additives
Analysis of potable water

IFC 7 – Laboratory Practice : Food Analysis (30 hrs)

Sampling and sample preparation
Determination of moisture: gravimetry and distillation methods
Determination of water insoluble and acid insoluble ash
Determination of protein content
Determination of oils/fat
Isolation and quantification of benzoic acid by GC
Determination of sulphur dioxide
Determination of phosphorous content using UV-visible spectrometry
Determination of sugar by Lane & Eynon method

Assessment (4 hrs)

IFC 8 – Polymer Science, Petroleum and Mineral Based Industries (25 hrs)*

Fiber and Leather Industry

Natural and synthetic fibers used in textile industry
Sources and chemistry of natural fibers (protein and cellulose based)
Synthesis of man-made fiber material (nylon, terrylene, polyester)

Polymer Industry

Natural and synthetic rubber
Chemical structure
Physical and chemical properties
Basic materials for plastic industry
Their origin and the use in the synthesis of plastic (eg. Polyurethane, polystyrenpoly vinylchloride)

Petroleum industry

Mineral Based Industries

Earth materials
The formation, characteristics and classification of minerals and rocks.
The physical and chemical properties of minerals, and the important rock-forming and economic mineral groups.
Chemistry of gems and industrial minerals
Geochemical exploration techniques
Chemistry of colour enhancement and value addition of gems & minerals
Industrial minerals of Sri Lanka
Existing industries: cement, ceramic, lime and tiles industries. Potential industries: production of fertilizer from apatite; production of lime, magnesium oxide; processing of mineral sands
Processing of clay

IFC 9 – Chemical Industries & Industrial Health, Safety and Pollution (25 hrs)*

(a) Chemical Industries

Chemistry of the following industries
Ceramics, bricks and tiles
Steel and wood
Glass manufacture
Cement
Paints & varnishes
Cosmetics & related products
Herbel medicine

(b) Industrial Health, Safety and Pollution

Pollution of the working and living environment
Chemical hazards
Disposal of organic and hazardous wastes
Evaluation and mitigation of pollution
Occupational health and safety in industries

IFC 10 – Environmental Chemistry and Waste Management (25 hrs)*

Introduction of environmental chemistry
Atmosphere; aquatic system; geosphere
Soil chemistry, soil formation, erosion, transportation
Mass movement and deposition
Weather change
Climate change related atmosphere variables
Organic pollutants in the environment weathering

Types of waste: solid; liquid and gas
Nature of solid waste
Types of solid waste: agricultural waste, food processing waste, industrial waste, mining waster, municipal waste, radioactive & clinical waste
Waste disposal methods: Open dumping, ocean dumping, land fills, composting, recycling, sanitary land fills, incineration, incineration and resource recovery
Functional elements in a solid waste management system
Hazardous waste & hospital waste

Visit to analytical laboratories/industrial visit

10 SPECIAL MODULES – CLINICAL LABORATORY TECHNOLOGY

*** In addition to the direct learning hours of 25, each general module include 6 hours of assignments + 2 hours of examination + 20 hours of study period + 10 hours of library period.**

CLT 1 – Introduction to Medical Laboratory Procedures (25 hrs)*

1. Organizational structure of clinical laboratories
2. Basic needs of clinical laboratory
3. Role of doctors and medical laboratory professionals
4. Clinical laboratory accreditation
5. Code of conduct/ethics of medical laboratory professionals
6. Laboratory safety
   - Basic causes of accidents
   - Common types of laboratory accidents
   - Safety requirements of the laboratory
   - First aid in laboratory accidents
7. Laboratory equipment and basic laboratory operations
   - Colorimetry
   - Spectrophotomety
   - Centrifugation
   - Electrophoresis
8. General aspects on specimen collection/transport and storage
9. Units of measurements, preparation of reagents and laboratory calculations
10. Clinical laboratory records
11. Sample analysis and reporting of results
12. Quality control of laboratory results
13. Interpretation of results
14. Clinical utility of laboratory tests
15. Automation and computerization of clinical laboratory, the present status and the future prospects
16. Clinical waste handling

CLT 2 – Urine Analysis and Examination of Stool (25 hrs)*

A. Urine Analysis

1. Physiology of urine formation
2. Composition of normal urine
3. Collection of urine specimens
4. Types of urine specimens
5. Preservation of urine specimens
6. Routine examination of urine/Gross examination
7. Microscopic examination of urine

8. Chemical analysis of urine
9. Common pattern of abnormal urine composition in disease
10. Urinary tract infection and Urine culture

B. Examination of Stool

1. Collection of faecal specimens
2. Physical examination of stool
3. Microscopic examination of stool
4. Chemical examination of stool

C Investigations of Renal Function

1. Functions of the kidney
2. Tests of glomerular function
   Glomerular filtration rate,
   Serum creatinine
   Blood Urea
   Proteinuria
3. Investigations of tubular functions
   Osmolality measurements in plasma and urine
   The water deprivation test
   The acid load test
   Proteinuria and Aminoaciduria

CLT 3 – Practical Session: Clinical laboratory (30 hrs)

1. Normal urine constituents
2. Abnormal constituents of urine/UFR
3. Laboratory diagnosis of diabetes mellitus/ oral glucose tolerance test
4. Assessment of liver function - serum bilirubin/AST/ALT
5. Assessment of renal function - serum creatinine/ blood urea
6. Lipid profile - TC/ HDL-C/ Triglycerides
7. Estimation of hemoglobin concentration

Assessment (4 hrs)

CLT 4 – Diagnostic Microbiology and Parasitology (25 hrs)*

A. Diagnostic Microbiology

1. Introduction to diagnostic microbiology and microbiological techniques
2. Laboratory identification of infectious agents / pathogenic bacteria
3. Antibacterial susceptible test (ABST)
4. Laboratory diagnosis mycotic infections

B. Diagnostic Parasitology

1. Introduction to medical parasites – Morphology, life cycle and pathogenesis
2. Laboratory diagnosis of protozoan infections – Entamoeba histolytica, Gicardia lamblia, Trichomonas vaginalis
3. Laboratory diagnosis of Helminths – round worm, hook worm, thread worm, filarial worms.
4. Laboratory diagnosis of Malarial parasite.

CLT 5 – Clinical Hematology I (25 hrs)*

1. Introduction to hematology – components of blood and their functions
2. Specimen collection and laboratory preparations in hematology
3. Routine haematological tests and their clinical significance
    a. Determination of haemoglobin concentration
    b. Determination of Haematocrit
    c. Blood cell counting
    d. Calculation of red blood cell indices – MCV, MCH and MCHC
    e. Determination of Erythrocyte sedimentation rate (ESR)
4. Blood smear preparation and differential blood counts
5. Interpretation of laboratory findings in hematology

CLT 6 – Clinical Hematology II (25 hrs)*

A. Special Haematological Tests

1. Screening for sickle cell anaemia
2. Haemoglobin electrophoresis
3. Heinz body preparation
4. Lupus erytheamatosus cell preparation
5. Preparation of bone marrow smear

B. Laboratory Investigations of Bleeding Disorders

1. Determination of bleeding time
2. Determination of clotting time

C. Immuno Haematology (Blood Banking)

1. Principles of immunohaematology
2. Human blood group system
3. Clinical significance of blood transfusion
4. Collection and processing of blood for transfusion

CLT 7 – Laboratory Investigations of Miscellaneous Body Fluids and Some Other Specialized Investigations (25hrs)*

1. Examination of cerebrospinal fluid, serous fluids(pleural, pericardial and peritoneal fluids), synovial fluid, gastric juice, duodenal contents and saliva
2. Analysis of semen

3. Examination of sputum
4. Investigation of cardiac markers
5. Investigation and interpretation of lipid profile
6. Investigation of tumour markers
7. Determination of serum uric acid
8. Pregnancy test
9. Rheumatoid factor
10. C – Reactive protein

CLT 8 – Investigations of Gastrointestinal and Endocrine Disorders (25 hrs)*

1. Pancreatic function tests
2. Liver function tests biochemical assessment of liver function
    a. Determination of serum bilirubin
    b. Determination of plasma enzymes – AST, ALT, AP, γ - GT
    c. Determination of plasma proteins
3. Diagnosis and management of diabetes mellitus
    a. Urine testing – glucose, ketone bodies
    b. Blood glucose testing – Fasting blood glucose, random blood glucose, Post prandial blood glucose, oral glucose tolerance test
    c. Determination of glycosylated haemoglobin, fructosamine and urinary microalbumin and their clinical use in long term management of diabetes mellitus.
4. Thyroid function test – determination of T_4, T_3 and TSH
5. Gonadal function and subfertility
6. Laboratory testing in calcium disorders and bone diseases.
7. Electrochemiluminescence and ELISA technique

CLT 9 – Basic Concept in Acid Base Balance, Blood Gases and Electrolytes (25 hrs)*

1. Basic concepts of fluid and electrolyte balance
2. Hypernatraemia and potassium disorders
3. Determination of serum electrolytes
4. Osmolality measurements
5. Basic concepts of acid – base balance
6. Metabolic acid - base disorders, respiratory and mixed acid base disorders – Diagnosis and management – blood gas analysis, PCO_2, PO_2, Blood pH
7. Interpretation of acid – base data
8. Oxygen transport and its disorders

CLT 10 – Therapeutic Drug Monitoring and Toxicology and Molecular Diagnostics (25hrs)*

A. Therapeutic Drug Monitoring and Toxicology

1. Sampling for TDM
2. Measuring plasma concentrations
3. Interpretation of drug levels
4. Monitoring of specific drugs – Anticonvulsants, Digoxin, lithium, theophylline, methotrexate
5. Poisoning with specific agents – Paracitamol and lead

B. Molecular Diagnostics

1. Introduction to recombinant DNA technology
2. DNA cloning
3. Gel electrophoresis, blotting and hybridization techniques
4. Practical applications of recombinant DNA technology
5. Polymerase chain reaction and its uses
6. DNA finger printing

C. Visit to clinical Laboratories

EXAMINATION CRITERIA AND AWARD OF CERTIFICATES

The course is composed of 24 Modules each of 25 hours duration.

1. EXAMINATIONS

Examinations are conducted on completion of each Modules Based on the results of the examinations for the 24 Course Modules; three categories of passes are awarded:

1. Honours Pass
2. Merit Pass
3. Ordinary Pass

A candidate should sit for the examination in the 24 modules comprising 14 general modules (including laboratory practice) and 10 special modules, over the two year period of the DLTC programme.

Grades will be assigned for each module on the following basis:

A : 75-100%
B : 55-74%
C : 40-54%
D : 25-39%
E : 0-24%

Passing the DLTC Examination

A candidate will be deemed to have passed the DLTC examination if he obtain

(1) an overall average of at least 40% from among the 24 modules
(2) at least a grade C in laboratory practice I & laboratory practice II, and
(3) at least a grade C in all special modules, and
(4) grade C in at least 9 of the 14 general modules, and
(5) at least D grades in the remaining 5 general modules

OR does not obtain a grade E in any of the 24 modules)

Failure

A candidate who does not qualify for a pass under regulation (1.3) will be deemed to have failed the examination.

Completing the DLTC examination

A candidate who fails the DLTC examination as per regulation (1.4) will deemed to have passed the examination at a subsequent attempt or attempts if he satisfies regulation (1.3) by repeating in modules he has not obtained at least C grade. However he will be entailed only to an ordinary pass and not an Honours or Merit pass as per regulation (1.6)

Honours/ Merit Pass at the DLTC examination

A candidate who becomes eligible for a pass as per regulation (1.3) within two years of the completion of the DLTC programme will be eligible for an Honours or Merit Pass if the overall mark secured and the grades obtained are commensurate with the requirements of the table given below:

Category of Pass	Overall average in 24 modules	Minimum number of A grades	Minimum number of B or better grades	Minimum number of A grades in special modules	Minimum number of B or better grades in special modules
Honours	75%	14	-	6	-
Merit	55%	-	14	-	6

2. AWARDS

The Institute of Chemistry gives awards to students performing excellently in the programme with an **honours pass** as follows.

1. First in Batch - Dr G C N Jayasuriya Award for the Best Performance

G C N Jayasuriya Award for the Best Performances

Dr. G C N Jayasuriya donated Rs. 10,000 in 1987 as an endowment for the award for the Best Performances. The fund now stands at Rs. 92000. Further Institute of Chemistry Ceylon gives cash awards to the second and third in the batch.

2. First in Industrial and Food Chemistry- Mr. Rohan K Fernando Prize for the best performance
3. First in Clinical Laboratory Technology - P D Luckmal De Zoysa Memorial Prize for the best performance

However, these awards will not be made if the candidates do not secure at least a Merit pass.

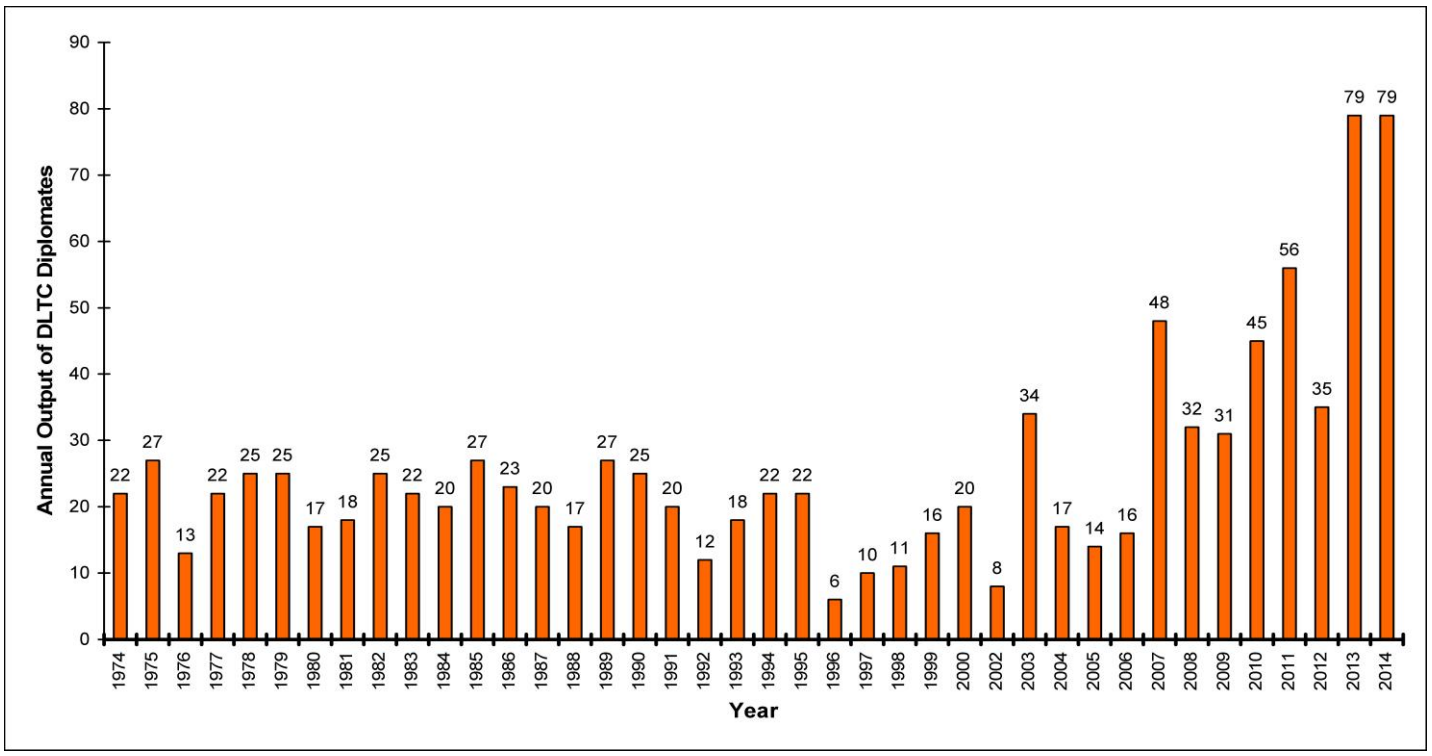
Tuition fee of Graduateship in Chemistry (Levels 1& 2) for all honours passes in the Batch will also be paid by the College of Chemical Sciences, if following Graduateship Programme

Past Records of LTCC/DLTC Programme

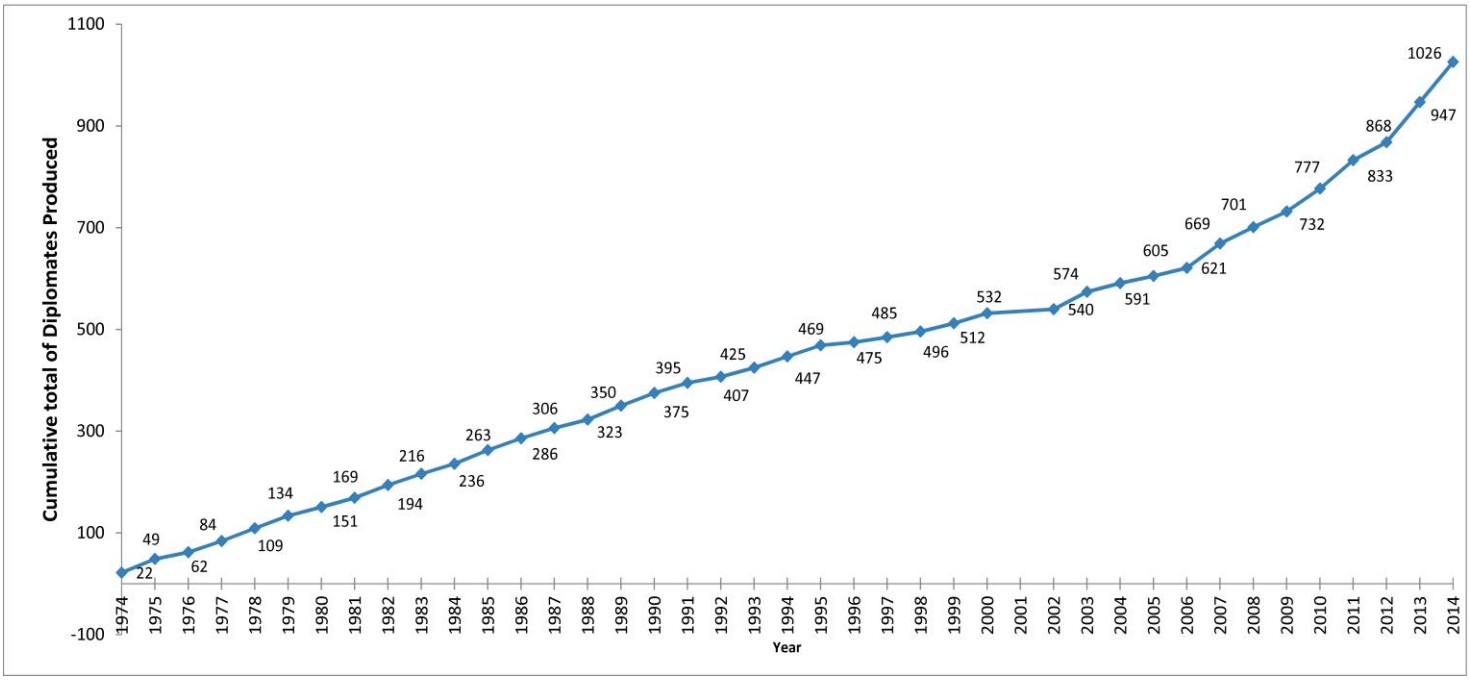
Number of successful students – 1974 to 2014

Year	Honours Pass	Merit Pass	Ordinary Pass	Total Pass
1974	3	8	11	22
1975	8	3	16	27
1976	2	4	7	13
1977	2	4	16	22
1978	3	4	18	25
1979	3	3	19	25
1980	3	1	13	17
1981	4	9	5	18
1982	10	9	6	25
1983	4	9	9	22
1984	2	4	14	20
1985	3	10	14	27
1986	1	6	16	23
1987	3	6	11	20
1988	2	4	11	17
1989	8	10	9	27
1990	8	9	8	25
1991	5	4	11	20
1992	-	8	4	12
1993	4	6	8	18
1994	3	9	10	22
1995	3	8	11	22
1996	3	3	-	6
1997	1	5	4	10
1998	-	3	8	11
1999	1	8	7	16
2000	-	6	14	20
2002	-	5	3	8
2003	2	12	20	34
2004	1	6	10	17
2005	1	6	7	14
2006	1	7	8	16
2007	4	23	21	48
2008	2	16	14	32
2009	4	11	16	31
2010	5	23	17	45
2011	6	18	32	56
2012	4	13	18	35
2013	8	44	27	79
2014	9	41	29	79
TOTAL	136	388	502	1026

Annual Production of DLTC Diplomates (1974–2014)



Cumulative Production of DLTC Diplomates (1974-2014)



Dr. G C N Jayasuriya Award

1974 – Ms L K Fernando
1975 – Mr M C P Wijeratne
1976 – Mr K Somasunderam
1977 – Mr P M G Senaratne
1978 – Ms H S P Jayatunga
1979 – Ms A Abayasekera
1980 – Ms C Samarawickrama
1981 – Ms T L Y A Siritunga
1982 – Mr S Weeraratne
1983 – Ms I Y Perera
1984 – Ms L S C Perera
1985 – Mr. M R K Abeysinghe
1986 – Ms I Y Abdulla
1987 – Ms G B Premawathie
1988 – Ms M R G Jansz
1989 – Mr T L J C Siritunga
1990 – Mr T L S S Siritung
1991 – Mr B D Gamage
1992 – Not Awarded
1993 – Mr T V Cruze
1994 – Ms A M Warnakulasuriya
1995 – Ms T LRY Siritunga
1996 – Ms Deepika Samanthi
1997 – Mr T BL Peiris
1998 – Not Awarded
1999 – Mr T M P B Tennakoon
2000/02 – Not Awarded
2003 – Ms K S Supramaniam
2004 – Ms S A Wijesinghe
2005 – Ms P A T S Perera
2006 – Mr M K S Sandaruwan
2007 – Ms S K Dharshani
2008 – Ms V Karunathilake
2009 – Mr M R L Fernando
2010 – Ms G A D Kaumadi
2011 – Ms D M Perera
2012 – Ms M Y D Perera
2013 – Mr. A H F Rikasa
2014 – Mr. M S Latheef

Lecturers of the DLTC Programme 2014-2015

Mr. E G Somapala, *B .Sc., M.Sc.*
Mr. J M Ranasighe Banda, *B.Sc., M.Sc.*
Mr. P R K Fernando, *Grad.Chem., M.Sc., PG Dip*
Dr. Lakshmi Arambewela, *B.Sc., Ph.D*
Ms. M N K D S Gunatillake, *Grad.Chem, M.A, M.Phil*
Ms. D H H S Dissanayake, *B.Sc.*
Dr. M P D De Costa, *B.Sc., Ph.D*
Dr. (Mrs) Chandani Udawatta, *Grad.Chem, Ph.D*
Dr. (Ms) G Thiripuranathar, *Grad.Chem, Ph.D*
Dr. Deepani Siriwardena, *M.B.B.S, M.D*
Dr. Hasini Bannahaka, *M.B.B.S, M.D*
Dr. Nilakshi Samaranayake, *M.B.B.S, M.D*
Dr. Chandana Wickramaratna, *M.B.B.S, M.D*
Dr. P P Rasika Perera, *M.B.B.S, Ph.D.*
Dr. Chandani Wanigatunge, *M.B.B.S., M.D*
Dr. Pradeepa Jayawardane, *M.B.B.S., M.D*
Dr. A M B Priyadharshani, *B.Sc ,Ph.D*
Dr. Dilrukshi Wijeratne, *B.Sc., Ph.D*
Dr. Chamari Hettiarachchi, *B.Sc ,Ph.D*
Mr. Rahal Widanagamage, *B.Sc, M.Phil*
Dr. M N Kaumal, *B.Sc., Ph.D*
Dr. D Udakala, *B.Sc., Ph.D*
Dr. Ranmal Gunathilake, *Grad.Chem, Ph.D*
Dr. M Infas, *Grad.Chem, Ph.D*
Dr. M Lamabadusuriya, *B.Sc., MSc, Ph.D*
Dr. L M De Soyza Ariyananda, *Grad.Chem, MSc, Ph.D*
Mr. I M S K Seneviratna, *B.Sc, M.Phil*
Mr. G W C S Perera, *B.Sc.*
Ms. N K B S S K Narasinghe, *Grad.Chem, M.Sc.*
Mr. S C D Fernando, *Grad.Chem, M.Sc.*
Mr. M A N Dias, *Grad.Chem*
Ms. N H P de Silva, *Grad.Chem*
Ms. Sammani Jayalath, *Grad.Chem*
Mr. T S Hamidon, *Grad.Chem*
Mr. C D R Pathirana, *Grad.Chem*
Mrs. J A Vanlangenberg, *Grad.Chem*

DIPLOMA IN LABORATORY TECHNOLOGY IN CHEMISTRY (DLTC)
CO-ORDINATING COMMITTEE

Honorary Rector/ CCS & Chairman, Academic Board: Prof. S.P. Deraniyagala, *C.Chem.*

Co – Ordinator **:** Mr. E.G. Somapala, *C.Chem., F.I.Chem.C*.

Lecturer In charge **:** Dr. M Lamabadusuriya, *B.Sc(Hons), MSc Ph.D*

Members **:** Mr. Rahal Widanagamage, *B.Sc, M.Phil.*
Mr. J M Ranasinghe Banda, *C.Chem. , F.I.Chem.C.*
Mr. P R K Fernando, *M.I.Chem.C*

Teaching Assistant In charge: Ms N K B S S K Narasinghe, *Grad.Chem, M.Sc.*

LIST OF OFFICERS/OFFICIALS OF THE COLLEGE OF CHEMICAL SCIENCES
(as at 15.08.2015)

Honorary Rector/ CCS & chairman, Academic Board: Prof. S.P. Deraniyagala, *C.Chem.*

Dean/CCS & Vice-Chairman, Academic Board:- Mr. M R M Haniffa, *C.Chem.*

Academic Laboratory Co-ordinator: Prof. M D P de Costa, *C.Chem.*

Secretary for Educational Affairs : Dr. C S Udawatte, *C.Chem.*
Full Time Senior Professor : Prof. S Sotheeswaran, *C.Chem.*
Prof. K A S Pathirathne, *C.Chem.*
Prof. S A Deraniyagala, *C.Chem.*

Senior Lecturers

Dr. U S K Weliwegamage, *C.Chem.*
Dr. (Ms) C S Udawatte, *Grad.Chem., C.Chem.*
Dr. U K Jayasundara, *PhD*
Dr. R Parthipan, *Grad.Chem., C.Chem.*
Dr. (Ms) R Kandiah, *Grad.Chem., C.Chem.*

Full Time Academics

Dr. (Ms) Gobika Thiripuranathar, *Grad.Chem, Ph.D*
Dr. M Lamabadusuriya, *B.Sc., MSc, Ph.D*
Dr. Ranmal Gunathilake, *Grad.Chem, Ph.D*
Dr. M Infas, *Grad.Chem, Ph.D*
Dr. D Udakala, *B.Sc., Ph.D*

Registrar
Mr. N I N S Nadarasa, *C.Chem*

Deputy Registrar
Mr. J M Ranasinghe Banda, *C.Chem.*

Additional Registrar
Mr. A M Jayasekara, *BSc (Peradeniya)*

Assistant Registrar
Ms. D Attanayake, *Grad.Chem.*

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Ms. B I Hendavitharana, *MSc, LIS*
Mr. N M Waidyasuriya

Assistant Librarians
Ms. Dilmini Mathasinghe
Mr. N. Mahindasiri

Accounting Officer
Ms. Anoma Wijesuriya

Adamantane House at Welikada, Rajagiriya

Pictured above is the Headquarters of the College of Chemical Sciences at 341/22, Kotte Road, Welikada, Rajagiriya. Here you will have the opportunity to follow the greater part of the Graduateship Programme in Chemistry. The building contains modern fully equipped laboratories, lecture halls, Information Technology (computer) centre, Instrument Centre, research laboratories, air conditioned library etc.

Inauguration of the DLTC Programme

The **41st intake** of the DLTC Diplomates was inaugurated by DLTC Diplomate **Mr. Upali Jayasundara**, Shell Petroleum, Asian Region Quality Assurance Consultant on **Friday, 9th January 2015.**

Diploma in Laboratory Technology in Chemistry Programme
Board of Examiners 2014/2015

Seated (L to R) : Mr.G.W.C.S. Perera, Dr.(Ms)L.M.De Zoysa, Ms.D.M.H.S.Dissanayake, Dr.(Ms) Chandani Udawatte , .(Ms)L.S.R.Arambewela , Mr.E.G.Somapala (DLTC Coordinator), Prof. J.N.O. Fernando (Hony. Rector), Prof. H.D. Gunawardane (President, IChem C), Prof.M.D.P.De Costa(Dean,CCS), Ms. N.K.B.S.S.K. Narasinghe ,Mr.P.R.K.Fernando, Dr.M.N.Kaumal, Dr.(Ms)T.Gobika , Mr. S.C.D. Fernando, Mr. M.A.N. Dias