Student Handbook

2022

Faculty of Allied Health Sciences
University of Jaffna

STUDENT HANDBOOK

MEDICAL LABORATORY SCIENCES
NURSING
PHARMACY

FACULTY OF ALLIED HEALTH SCIENCES
UNIVERSITY OF JAFFNA, SRI LANKA
JUNE 2022

(Academic year 2020/21) 16th Batch

INFORMATION FOR UNDERGRADUATES

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The Faculty of Allied Health Sciences,
University of Jaffna

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Chapter 1
GENERAL ASPECTS

1.1 The Crest of the University

The figure of the sacred cow [Nanthi] comes from the flag of the Jaffna kingdom which prevailed in the period of around 16th and 17th centuries. The traditional lamp refers to the light of wisdom. The motto comes from the famous Tamil literature, "Thirukural" meaning 'wisdom is finding the truth'. The flames in the outer circle refer to the 64 disciplines of learning in Tamil Culture.

குறள் 355 அதிகாரம் - மெய்யுணர்தல்
எப்பொருள் எத்தன்மையாயினும் - அப்பொருள்
மெய்ப்பொருள் காண்பது அறிவு

Finding the truth in everything whatever its nature is wisdom.

குறள் 423 அதிகாரம் - அறிவுடமை
எப்பொருள் யார்யார்வாய்க் கேட்பினும் அப்பொருள்
மெய்ப்பொருள் காண்பது அறிவு

Finding the truth in everything whoever said is wisdom.

1.2 History of the Faculty of Allied Health Sciences

The Degree programmes in Allied Health Sciences were commenced with the facilities available in the Faculty of Medicine to fulfil the long standing aspiration of the community when the opportunity was provided by the University Grants Commission. Three degree programmes under Allied Health Sciences were started in the Faculty of Medicine, University of Jaffna on 7th August in 2006. They are Bachelor of Science Honours in Medical Laboratory Sciences, Bachelor of Science Honours in Nursing and Bachelor of Pharmacy Honours.

Later in September 2011, it was established as the Unit of Allied Health Sciences which was functioning under the Faculty of Medicine. The UGC has approved the request made by the University of Jaffna to upgrade the Unit of Allied Health Sciences as Faculty of Allied Health Sciences. In September 2019, Faculty of Allied Health Sciences with three departments was gazetted by the government. The approved departments are: Medical Laboratory Sciences, Nursing and Pharmacy. Faculty of Allied Health Sciences started to function as a faculty from December, 2019 as the 12th Faculty of the University of Jaffna.

The field of Allied Health Sciences is ever growing and the members of the medical care team need sound knowledge, skills and attitude to provide modern and evidenced based medical care. The Allied Health Professionals need to keep in pace with the advancement of science and technology. Therefore, they need to undergo modern training through the degree programmes in the University. Further, there are many vacant positions in the paramedical disciplines and they need to be filled. The curricula

should be designed to provide sound scientific and humanistic foundations to enable the students to develop competencies to deliver appropriate health care related services. The programmes also need to be designed to introduce concepts of research and evidenced based practice. Further to this, graduates should have highly developed analytical skills and leadership qualities. Emphasis need to be given to develop critical and reflective thinking, problem solving and social skills. In addition, the undergraduates should have skills to address professional, moral and ethical issues.

The curriculum for three degree programmes were designed in 2006 and approved by the senate and the UGC with the commencement of the programme. The curriculum revision was done periodically and the curriculum revised in 2019 was implemented from the Academic year 2018/19.

Sports Science Unit

In 2020 Sports Science Unit was attached to the Faculty of Allied Health Sciences. The degree awarded by the Sports Science Unit is Bachelor of Science Honours in Physical Education (Separate Handbook will be issued to the students)

1.3 General Information

- Seventy students are admitted each year to the Faculty of Allied Health Sciences, University of Jaffna for each degree programme.
- The orientation week is organized for two weeks soon after the registration at the university

- The curriculum consists of 120 credits and the duration of the degree programme is four academic years comprising 8 semesters.
- The programme is conducted entirely in English

Degrees awarded:

- Bachelor of Science Honours in Medical Laboratory Sciences [BScHons (MLS)]
- Bachelor of Science Honours in Nursing [BScHons (Nursing)]
- Bachelor of Pharmacy Honours. [BPharmHons]
- This degree will be awarded for the candidates who successfully complete the four academic years of the Curriculum of Faculty of Allied Health Sciences. Degree is awarded by the University of Jaffna, Sri Lanka.

1.4 Vision

"to be the leading centre of excellence in the field of allied health sciences"

1.5 Mission

"to provide excellent training in the field of Allied Health Sciences and generate new knowledge through research"

1.6 Graduate Profile:

1.6.1 BScHons (MLS)

Graduates of Medical Laboratory Sciences degree programme will be able to:

Generic attributes:

- build leadership, administrative and managerial skills
- develop interdisciplinary knowledge

- engage in lifelong learning with commitment
- exhibit critical thinking
- communicate ideas effectively and maintain good public relationship
- develop team work and interpersonal skills
- analyze the issues surrounding the social environmental and ethical concerns
- construct good professional attitude, values and conduct
- perform evidence based practice and carry out research
- apply ethical principles in personal and professional life
- utilize Information Communication and Technology (ICT) skills

Specific attributes

- apply knowledge, skills, competencies and positive attitude to wards implementation and development of the fields in Medical Laboratory services
- maintain ethical norms including confidentiality of information
- demonstrate leadership in the medical laboratory sciences
- maintain health care documents appropriately and accurately
- exhibit professional conduct during patient care
- mentor public and colleagues whenever needed
- maintain management information system (MIS) in the fields of medical laboratory sciences
- apply updated knowledge and competencies required for the betterment and development of professional care

1.6.2 BScHons (Nursing)

Graduates of Nursing degree programme will be able to:

Generic attributes:

- develop interdisciplinary knowledge
- build leadership, administrative and managerial skills
- engage in lifelong learning with commitment
- exhibit critical thinking
- communicate ideas effectively and maintain good public relationship
- develop team work and interpersonal skills
- analyze the issues surrounding the social, environmental and ethical concerns
- construct good professional attitude, values and conduct
- perform evidence based practice and carry out research
- apply ethical principles in personal and professional life
- utilize Information, Communication and Technology (ICT) skills

Specific attributes:

- apply knowledge, skills and positive attitude to perform nursing care at national and international health institutions
- provide excellent nursing care through authentic nursing process
- ensure quality of life and safety of patients by providing quality nursing care
- guide the patients/clients and their families by giving solutions for their problems in an empathetic manner
- partake in the multidisciplinary health care team in managing patients in the hospital and the community

- maintain Management Information System (MIS) for record keeping in nursing
- exhibit quick actions to emergency and other situations

1.6.3 BPharm Hons

Graduates of Pharmacy degree programme will be able to:

Generic attributes:

- build leadership, administrative and managerial skills
- develop interdisciplinary knowledge
- engage in lifelong learning with commitment
- exhibit critical thinking
- communicate ideas effectively and maintain good public relationship
- develop team work and interpersonal skills
- analyse issues surrounding the social, environmental and ethical concerns
- construct good professional attitude, values and conduct
- perform evidence-based practice and carry out research
- apply ethical principles in personal and professional life
- utilize Information Communication and Technology (ICT) Skills

Specific attributes:

- exhibit broad knowledge, skill and positive attitudes in the field of Pharmacy
- partake in the multidisciplinary health care team in managing patients in the hospital and in the community
- dispense prescribed medication and give appropriate instruction and advice to patients
- perform various activities in pharmaceutical industry
- contribute to the delivery of modern health care

- maintain healthy relationships and effective communication with the patients and other health professionals
- maintain Management Information System (MIS) for record keeping in pharmacy related matters with confidentiality
- follow continuous education and be conversant with latest advances in pharmacy to serve the community
- design and carryout the research project
- carry out postgraduate studies in the field of pharmacy

1.7 Educational Programme Objectives

1.7.1 BScHons (Medical Laboratory Sciences)

- Develop knowledge to perform routine testing in clinical laboratories
- Demonstrate theories and principles to perform routine testing in clinical laboratories
- Apply theories and practice related to laboratory management, safety, education and research
- Evaluate the suitability of specimens for analysis and determine the optimal method of analysis
- Demonstrate correct labeling/patient confidentiality, identifying, transport, and storing of specimens
- Correlate laboratory theories and terminologies to practical work
- Troubleshoot problems and take corrective action according to protocol
- Apply mathematical calculations to laboratory situations
- Apply quality control principles to monitor procedures, equipment, and technical competency
- Demonstrate safe work and infection control practices to ensure laboratory safety

- Carryout research, audits and assessments in the fields of medical laboratory sciences
- Formulate new ideas which would lead to innovations in the field of medical laboratory sciences

1.7.2 BScHons (Nursing)

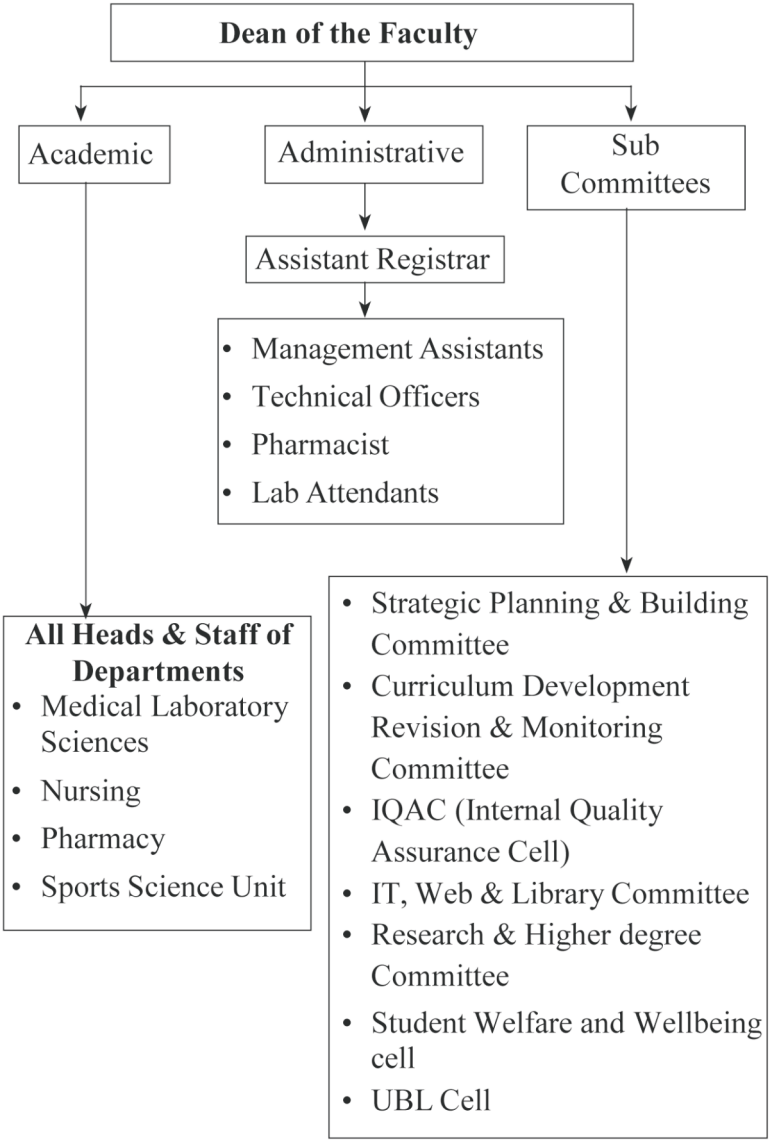
- Apply systematic problem solving approach to provide effective care to culturally diverse individuals, families, and groups
- Modify care in consideration of the client's values, customs, culture, religion and/or beliefs
- Communicate effectively using interpersonal skills and information technology
- Utilize evidence-based nursing interventions to achieve optimal adaptation
- Safely perform and prioritize appropriate nursing care skills
- Employ critical thinking to safely and effectively provide nursing care
- Utilize professional values and standards as a basis for ethical nursing practice
- Distinguish legal scope and boundaries of professional practice as a registered nurse
- Collaborate with the interdisciplinary health care team in planning comprehensive care.
- Safely utilize technology in the provision of care.
- Promote health through education, risk reduction, and disease prevention.
- Explain the multiple roles of the professional nurse as a leader
- Develop personal goals for continued professional development, self-care, and lifelong learning.

- Apply quality enhancement principles.

1.7.3 BPharmHons

- Exhibit high technical competency in the field of Pharmacy with profound fundamental knowledge.
- Make use of gained knowledge with interpersonal and collaborative skills to identify, assess problems and execute the solution.
- Provide patient-centered care to diverse patients using the best available evidence and in consideration of patients' circumstances to devise, modify, implement, document and monitor pharmacotherapy care plans, either independently or as part of healthcare teams.
- Disseminate quality education with highly professional and ethical attitude, strong communication skills to work in a team with a multidisciplinary approach.
- Apply observational, analytical and critical thinking skills to develop, implement and evaluate solutions that solve the health-related problems.
- Identify social determinants of health to diminish disparities and inequities in access to quality care.
- Identify the health care status and needs of a targeted patient population, interpreting drug use evaluation and epidemiologic information to establish and assess meaningful healthcare goals.
- Plan the research project in the field of pharmacy and to disseminate the outcome to the community.
- Develop knowledge of modern techniques that are used in the production of pharmaceuticals.
- Engage in life-long learning process for a highly productive

1.8 Organization chart of the Faculty of Allied Health Science



1.9 Administrative, Academic and Academic supportive staff in the Faculty of Allied Health Sciences

1.9.1 Administrative staff

Dean, Faculty of Allied Health Sciences
Mrs. Deivy Thabotharan

Assistant Registrar
Mrs. Kowsalya Tharmendra

Heads:

Department of Medical Laboratory Sciences
Mrs. Thevaki John Gnanakarunyan
Senior Lecturer

Department of Nursing
Mrs. Luxmi Kamalarupan
Senior Lecturer

Department of Pharmacy
Mr. Paramanathan Kalki
Senior Lecturer

Senior Treasurer
Dr. (Mrs.) Sivasinthujah Srikokulan
Senior Lecturer/ Dept. of Pharmacy

Deputy Proctor
Dr. Kumarasamy. Katheeswaran
Senior Lecturer/ Sports Science Unit

Student Counsellors

Mrs. Thevaki John Gnanakarunyan
Mrs. Viniththira Jegapragash
Mr. Paramanathan Kalki
Mr. Sinnadurai Thuvaragan

1.9.2 Academic Staff

The following academic staff members are attached to the Faculty of Allied Health Sciences:

Department of Medical Laboratory Sciences

- Mrs. Thevaki John Gnanakarunyan — Senior Lecturer
- Dr. Rasaratnam Karunaithas — Senior Lecturer
- Ms. Kumarasamy Sivagini — Lecturer
- Mrs. Sumana Saseevan — Lecturer
- Ms. Kobika Thillainathan — Lecturer
- Mr. Balakittnen Jaikrishna — Lecturer
- Mrs. Fathima Siromiya Shamil Mafras — Lecturer
- Mrs. Losana Kajenthirasenan — Lecturer
- Mrs. Piriyanka Aravinth — Lecturer

Department of Nursing

- Mrs. Deivy Thabotharan — Senior Lecturer
- Mrs. Luxmi Kamalarupan — Senior Lecturer
- Mrs. Viniththira Jegapragash — Senior Lecturer
- Mr. Santhalingam Sathees — Senior Lecturer
- Mrs. Yanuthy Tharshan — Lecturer
- Miss. Nivetha Kanakarasa — Lecturer
- Miss. U. N. T. Maheshika Somrathna — Lecturer

- Miss. Kanthasamy Kajenthini Lecturer
- Miss. Sobika Sivarasa Lecturer

Department of Pharmacy

- Mr. Paramanathan Kalki Senior Lecturer
- Mr. Sinnadurai Thuvaragan Senior Lecturer
- Dr. (Mrs) Sivasinthujah Srikokulan Senior Lecturer
- Ms. Harrithas Celyloni Suluchshika Lecturer
- Mrs. Sathya Pirashanthan Lecturer
- Miss. Lakshy Ganesh Lecturer
- Miss. Krishnananthalingam Dilakshana Lecturer

Visiting Staff

The academic staff from the Faculty of Medicine, other faculties of the University of Jaffna, other universities, Teaching Hospital, Jaffna and College of Nursing are involved in teaching.

1.9.3 Academic Supportive staff

Academic supportive Staff of the Faculty of Allied Health Sciences Dean's Office

- Mrs. K. Tharmendra Assistant Registrar
- Miss. S. Nilany Management Assistant

Department of Medical Laboratory Sciences

- Mrs. T. Kalpana Technical Officer
- Mr. S. Tharsan Technical Officer
- Ms. B.Thanuja Management Assistant
- Mr. S. Sachiharan Lab Attendant

Department of Nursing

• Ms. J. Lavanya	Technical Officer
• Mr. K. Hemanantha	Technical Officer
• S. N. Tharmini	Management Assistant
• Miss. B. Tharmeega	Works Aide

Department of Pharmacy

• Ms. S. Srithevi	Technical Officer
• Ms. S.Nishanthy	Technical Officer
• Ms. S. Kasturi	Pharmacist
• Mr. I. Tharmarasa	Lab Attendant
• Mrs. P. Anoja	Works Aide

Chapter 2
ACADEMIC FACILITIES AT THE FACULTY OF ALLIED HEALTH SCIENCES

2.1 Infrastructure Facilities

Academic activities of Medical Laboratory Sciences, Nursing and Pharmacy are conducted within the premises of the Faculty of Allied Health Sciences. The FAHS is housed in a four storey building; an administrative office, Dean's room and a lecture hall are located in the ground floor, staff room for Pharmacy, room for Internal Quality Assurance Cell (IQAC), and a lecture hall are located in the first floor, staff room for MLS, a lecture hall and advanced biotechnology laboratory are located in the second floor, a cooking demonstration room, staff room for Nursing and a skill laboratory for nursing students are located in the third floor. Laboratories from the Faculty of Medicine and the Teaching Hospital, Jaffna are utilised by students of Faculty of Allied Health Sciences.

2.2 Teaching Hospital, Jaffna

The Teaching Hospital, Jaffna serves as the place for clinical teaching for the Faculty of Medicine and Faculty of Allied Health Sciences. This hospital is situated about 4 kilometres from the Faculty. It has 1015 beds with the following units. General Medicine, General Surgery, Obstetrics & Gynecology, Pediatrics, Orthopedic Surgery, Coronary Care Unit, Oncology,

Ear, Nose and Throat Surgery, Ophthalmology, Anaesthesiology, Neurology, Psychiatry, Dermatology and Unit for Sexually Transmitted Diseases. In addition it has a Pathology Laboratories especially

Chemical pathology, haematology, histopathology, microbiology laboratories, Pharmacy Services, Blood Bank Service, Medical and Surgical Emergency Units, an Intensive Care Unit, Premature Baby Unit, Primary Health Care Unit. The Outpatients Department of this hospital has a daily turnover of about 1000 patients. In addition an average of 1000 patients are seen at specialist's clinics. An outpatient's clinic for leprosy patients is also conducted. The hospital is under the administrative control of a Director of the Teaching Hospital. Psychiatry Unit is functioning at the Base Hospital, Tellippalai, but clinics are conducted both at the Teaching Hospital, Jaffna and the Base Hospital, Tellippalai.

2.3 Libraries:

* **Branch Library located in Faculty of Medicine**

The branch of Main library is located in the first floor of the Faculty of Medicine. It has a collection of books of approximately 10,000 volumes and a good collection of periodicals for Medical and AHS Students. It has three sections – lending, reference and archives sections. The library has a capacity to accommodate 100 students at a time.

The Library is linked to the Health Literature Library Information Services Network (HELLIS), Sri Lanka, Organized under the

aegis of the World Health Organization (WHO). The publications of the WHO are separately organized for the benefits of users. The Library also has a good collection of non – book materials such as cassettes both audio and visual, microfiche with their viewing and listening devices. (Television with deck, slide tape tutors, slide projector and microfiche reader).

There is a section that contains books for Nursing, Pharmacy and Medical laboratory Sciences especially for the Allied Health Sciences Students. They also have a separate reading area.

Library Opening Hours:

Weekdays	:	08.00am – 06.00pm
Saturday	:	08.00am – 02.00pm
Sunday	:	Closed
Public holidays	:	Closed

*** Library, University of Jaffna**

This is situated in the university main premises about half kilometres from the Faculty of Allied Health Sciences. There are ample materials for general reading.

2.4 IT Facilities

FAHS students have access to a well-established Computer Unit at the main University, which can be accessed by 10 minutes of cycling.

2.5 Laboratory Facilities

The department of MLS has laboratory which is located in the second floor of the Faculty of Medicine building. The FAHS students are also using laboratory facilities available at Departments of Anatomy, Biochemistry, Pharmacology, Pathology, Microbiology, Parasitology, Physiology, Physics and Teaching hospital Jaffna. The department of Nursing has a skill laboratory for demonstration and cooking demonstration room at the third floor of FAHS building.

Chapter 3
BASIC RULES FOR STUDENTS

3.1 General

On admission to the University, students must obtain their identity cards from the Examination Branch. This card should be carried by the students at all times and produced when requested. Any change of address must be immediately informed to the Dean/Faculty of Allied Health Sciences (FAHS) and Examination Branch. Students should maintain proper standards of conduct and behaviour. Students are requested to obey the rules of the hospitals and other institutions where they undergo training sessions and visits during their course.

3.2 Record book

Students must obtain their record books from the Office of the FAHS. It is the responsibility of the students to ensure that, the attendance at lectures, tutorials, practicals, clinical laboratory training, work based learning and clinical appointments entered in the record book at the end of each semester and is certified by the appropriate Head of departments. A student will not be allowed to take an examination if the attendance at relevant teaching session is not certified as satisfactory.

3.3 Leave and Illness

A student should not be absent himself/herself without informing leave. Students who require leave should apply in writing to the Dean, FAHS through the Heads of the department in advance. If

the absence is due to unforeseen circumstances, the leave application should be submitted within one week of time.

In case of illness/leave less than three days, students should submit their leave application to the head of the relevant department. If it is more than three days, they should submit their leave application to the Dean/FAHS.

In case of illness more than three days, a medical certificate issued by the University Medical Officer (UMO) or the Medical Certificate certified by the UMO should be submitted to the Dean.

3.4 Student Attendance

Student attendance will be marked in all teaching sessions. The attendance will be evaluated at the end of each semester. The student will be eligible to sit the examination only:

if the student has a minimum of 80% attendance in lectures & tutorials

and

if the student has a minimum of 90% attendance in practical or clinical or work based learning or field activity.

3.5 Dress code for students of the Faculty of Allied Health Sciences

The dress and appearance of the students should be appropriate for the Allied Health Sciences students.

Within the Faculty of Allied Health Sciences premises

Dress code to be applied during working hours (8.00 am-5.00 pm) on week days and for academic sessions on other days:

Male students should wear shirts, trousers, socks and shoes properly. Hair should be neatly cut short & combed and face should be shaved. T shirts, jeans and slippers should be avoided.

Female students can wear skirts, blouse, frocks, chudithar, veil (face should not be covered), saree and respectable footwear. T shirts, miniskirts, divided skirts and rubber slippers should be avoided. All length of skirts should be below the knee. Hair should be neatly combed and tied.

In a community field or centers or institutional visit or in Laboratories:

The White coat with name plate should be worn over the above mentioned dress code. Hair should be tied up without touching the coat.

At Teaching Hospital, Jaffna or all other Hospitals (Nursing)

For male students: wear light blue shirt with black trousers. The white coat should be worn with name plate. Black shoes with socks should be worn.

For female students: Should wear the approved nursing uniform with the name plate. Wear white shoes with white socks without cap. From second year first semester, after nursing oath ceremony, they need to wear the white cap.

The Nursing Oath Ceremony:

The nursing students will have the nursing oath ceremony at second year first semester. The male students will take only the nursing oath and female students will have the capping with nursing oath.

Other requirements are as follows:

- Fingernails must be shortened and clean, no nail polish
- Hair must be braided and wear it up for girls.
- No rings: only small plain ear studs are acceptable.
- Watches should either be digital or analog, no sharp edges, fancy watch bands or large buckles.
- Clean shave for boys, Hair should be cut short neatly.

At Examinations:

Theory papers:

Students must follow usual dress code during examination.

For practical examinations for MLS and Pharmacy

Student must use dress code which they use during the hospital or laboratory posting. Instead of name plate the index number should be worn.

For Viva exam, Proposal and Thesis defense:

Female: Wear light colour saree and white coat with index number. Male: White shirt & Black jeans and white coat with index number.

For the practical evaluation for Nursing At Hospital:

Students should wear the dress code applicable to Hospital posting. Instead of name plate, they need to wear their index number.

At Field and demonstration room:

The students should wear the white coat over the university dress code with index number plate.

For teaching practice, Viva exam, Proposal and thesis defense:

Female: Wear light colour saree and white coat with index number. Male: White shirt & Black jeans and white coat with index number.

Chapter 4
PROGRAMME STRUCTURE

4.1 Duration of the Degree Programme

The duration of each degree programme is 4 academic years comprising of 8 semesters.

4.2 Medium of instruction

English

4.3 Academic Year

The duration of the degree programme is four academic years. Each academic year consists of 2 semesters, semester I and semester II. Each semester consists of 15 weeks for academic work, 1 week for mid semester vacation, 1 or 2 weeks for study leave for end of course examinations and 6 weeks for end of course examinations including vacation.

4.4 Credit valued course unit system

A Course is a subject module that has a credit value. A credit is a time based quantitative measure assigned to courses on the basis of notional hours. Each course consists of theory, practical, field experience and clinical practice alone or combined. One credit is considered as equivalent to 50 notional learning hours which includes student contact hours along with independent learning hours for a taught course, laboratory training or field studies/ clinical work. One credit is equivalent to 15 hours of lectures or

30 hours of practical or 50 hours of field or clinical training or minimum of 100 hours of industrial training/research. For every one hour of lecture, a student is expected to carry out at least 2 to 2 1/2 additional hours of independent learning.

4.5 Course Codes

Each course is coded with the degree programme abbreviation (three alphabets), course abbreviation (two alphabets) and four digit number. The sequence of the digits denotes the year of study, the semester, the serial number of the course in the specific semester and the number of credit value assigned to the course respectively.

Example for the abbreviations for a course: NURCL 1213

4.6 Fees

The following fees are payable by Sri Lankan students admitted to the Faculty of Allied Health Science.

New admission and Registration (Rs.)

Registration Fee	250.00
Medical Fee	250.00
Library Fee	250.00
Laboratory Deposit	500.00
Hand Book Fee	250.00
Student Charter Fee	100.00
Identity card Fee	250.00
Orientation Fee	250.00

Annual Hostel Fee	2400.00
Total	4500.00

Renewal of Registration

Registration Fee	100.00
Medical Fee	50.00

Examination and course fees

Examination fees for repeat students for a course unit Rs. 250.00

Chapter 5
CURRICULUM

5.1 Curriculum for BScHons (MLS) -16th Batch

5.1.1 Credit Allocation and Distribution

YEAR	SEMESTER	CREDITS		TOTAL CREDITS
		THEORY	PRACTICAL	
FIRST YEAR	SEMESTER 1	9.5	2.5	12
	SEMESTER 2	13	2	15
SECOND YEAR	SEMESTER 1	12	5	17
	SEMESTER 2	08	6	14
THIRD YEAR	SEMESTER 1	11	7	18
	SEMESTER 2	8.5	5.5	14
FOURTH YEAR	SEMESTER 1	-	18	18
	SEMESTER 2	-	12	12
TOTAL CREDITS				**120**

5.1.2 Courses offered in First Year

Course code	Subjects	Credits			Theory Hours	Practical Hours
		Theory	Practical	Total		
Semester 1						
AHSBE 1110	Basic English	Auxiliary Course (A/C)			60	-
AHSCL 1120	Basic Computer Literacy	Auxiliary Course (A/C)			10	44
MLSMT 1132	Medical Laboratory Technology I	1	1	**2**	15	30
MLSPM 1143	Physiology for MLS I	3		**3**	37+13*	15
MLSAM 1154	Anatomy for MLS	3	1	**4**	33+13*	20
MLSBM 1163	Biochemistry for MLS I	2.5	0.5	**3**	30+7*	15
	Total	**9.5**	**2.5**	**12**		
Semester 2						
MLSMT 1213	Medical Laboratory Technology II	2	1	**3**	30	30
MLSCH 1221	Basic Community Health for MLS	1	-	**1**	15	-
MLSBS 1231	Basic Statistics	1	-	**1**	15	-
MLSPM 1243	Physiology for MLS II	3	-	**3**	34+13*	03
MLSGM 1253	General Microbiology	2	1	**3**	21+8*	30
MLSBM 1262	Biochemistry for MLS II	2	-	**2**	22+7*	06
MLSGP 1272	General Pathology	2	-	**2**	17+13*	-
	Total	**13**	**2**	**15**		
	Total credits for the year			**27**		

* Tutorial

5.1.3 Courses offered in Second Year

Course code	Subjects	Credits			Theory Hours	Practical Hours
		Theory	Practical	Total		
Semester 1						
MLSHE 2115	Haematology I	3	2	**5**	28+ 10*	60
MLSSP 2125	Systemic Pathology	3.5	1.5	**5**	46 +09*	45
MLSMB 2133	Medical Bacteriology	2	1	**3**	25+7*	30
MLSIM 2144	Immunology	3	1	**4**	30+11*	36
	Total	**11.5**	**5.5**	**17**		
Semester 2						
MLSEC 2211	Ethics & Communication	1	-	**1**	15	-
MLSHE 2225	Haematology II	2.5	2.5	**5**	32+9*	75
MLSCB 2235	Clinical Biochemistry I	2.5	2.5	**5**	35+09*	71
MLSLQ 2243	Laboratory Management and Quality Assurance	2	1	**3**	30	30
	Total	**08**	**06**	**14**		
	Total credits for the year			**31**		

* Tutorial

5.1.4 Courses offered in Third Year

Course code	Subjects	Credits			Theory Hours	Practical Hours
		Theory	Practical	Total		
Semester 1						
MLSRM 3113	Research Methodology & Medical Statistics	3	-	**3**	45	-
MLSCB 3126	Clinical Biochemistry II	3.5	2.5	**6**	41 + 9*	75
MLSCH 3135	Clinical Histotechnology	2.5	2.5	**5**	35 + 9*	80
MLSMP 3144	Medical Parasitology	2	2	**4**	17 + 11*	60
	Total	**11**	**7**	**18**		
Semester 2						
MLSBM 3212	Biotechnology & Molecularbiology	1	1	**2**	15	30
MLSMV 3223	Medical Mycology & Virology	2	1	**3**	30	30
MLSTM 3234	Transfusion Medicine	2.5	1.5	**4**	39	45
MLSDM 3243	Diagnostic Microbiology	1	2	**3**	15	60
MLSRM 3252	Research Project I	2	-	**2**	30	-
	Total	**8.5**	**5.5**	**14**	**120**	**183**
	Total credits for the year	**21.5**	**12.5**	**32**		

* Tutorial

5.1.5 Courses offered in Fourth Year

Course code	Subjects	Credits			Theory Hours	Clinical laboratory training Hours
		Theory	Clinical	Total		
Semester 1						
MLSWL 4116	Work Based Learning (Haematology)	-	6	6	-	300
MLSWL 4126	Work Based Learning (Clinical Biochemistry)	-	6	6	-	300
MLSWL 4136	Work Based Learning (Clinical Microbiology)	-	6	6	-	300
	Total		**18**	**18**		**900**
Semester 2						
MLSRP 4216	Research Project II	-	6	**6**	-	600
MLSWL 4226	Work Based Learning (Histotechnology)	-	6	6	-	300
	Total	**-**	**12**	**12**	**-**	**900**
	Total credits for the year		**30**	**30**		

FIRST YEAR FIRST SEMESTER

AHSBE 1110 Basic English (L-60)

Course Aim:

The aim of this course is to develop and enhance the ability to read and understand subject oriented materials and to improve the ability to communicate through speech and writing.

Intended Learning Outcomes:

At the completion of this course students will be able to,

- describe how the English Language is structured, and used in a theoretical framework
- demonstrate how grammar contributes to the meaning of sentences and texts
- explain the distinction between form and function in language
- illustrate language in an analytical and precise manner
- exhibit usage of correct and idiomatic English

Course Content:

Reading: Basic reading, Identifying main ideas, Reading for details and understand a text from contextual clues and grammatical clues; writing: Basic grammar – revision, writing letters and memos etc, writing application and form filling and report writing skills; Listening: Listening for specific information for over all comprehension, for making inferences and note taking; Speech(Oral skills): Interviewing skills, facing interviews, Model group discussions, Inter - personal conversational patterns and presentation skill.

AHSCL 1120 Basic Computer Literacy (L-10: P-44)

Course Aim:

The aim of this course is to provide sufficient knowledge, skill and attitude to make use of the information technology for effective learning and practice of Para Medical degree.

Intended Learning Outcomes:

At the completion of this course students will be able to,

- describe the hardware of the computer system and their functions
- apply the techniques used to protect from malware such as viruses
- utilize techniques protect themselves from harmful effects of using computers
- illustrate computer ethics
- apply word processing to prepare documents such as notes, research reports etc.
- construct spread sheet programs for their needs
- develop databases regarding reference material, notes, patient details etc for future retrieval
- prepare effective presentations using computers
- utilize statistical packages to do data analysis for their needs
- make use of internet to perform literature search and electronic communication

Course Content:

Introduction; Data processing; Purpose and basic components of a computer Software, hardware and operating system and its

concepts and definitions, Computer operations, File management,

Internet: searching, browsing, e-mail and information retrieval using the www and internet; Computer maintenance and practical statistical software, Data security.

MLSMT 1132 Medical Laboratory Technology I (L-15: P-30)
Course Aim:
The aim of this course is to develop knowledge, attitude and skills of the students to use different instruments and equipment in clinical laboratories.

Intended Learning Outcomes:
At the end of the course the students will be able to,

- explain the working principles, handling techniques and safety measures of equipment used in clinical laboratories
- describe the standard precautions in clinical laboratories
- describe the preventive measures used in a laboratory to handle the hazardous chemicals and bio hazard wastes
- explain the procedures used to prevent blood borne infections and its transmission at clinical laboratories
- carry out routine maintenance and safety precautions

Course Content:
Microscopy, Centrifuges, Biological safety cabinet, Universal precautions and laboratory safety practices, Handling and storage of chemical and Chemical spillage, Risk groups and Bio-safety

levels, Blood borne pathogens, Transport of bio hazardous specimens, Biohazardous waste management, safety and Bio hazardous spill management, Contingency plans and emergency procedures and Fire Extinguisher

MLSPM 1143 Physiology for MLS I (L-37: P-15: T-13)

Course Aim:

The aim of this course is to provide knowledge basic functions of all body systems and apply them in their practice.

Intended Learning Outcomes:

At the end of the course the students will be able to,

- describe the composition of body and body fluids and its functions
- explain the functions of blood components and mechanism of haemostasis
- carryout basic test on blood sample
- outline the components and functions of immune system and the basis of immunization
- describe the functions of excitable tissues, respiratory system, cardiovascular system and endocrine system and its control

Course Content:

Body fluids: Homoeostasis, Body composition and fluids, blood: Blood Volume, Red Blood Cells, Thrombocytes, Haemostasis, White Blood Cells and Defence Reaction, Blood Groups and Transfusion, Tissue Transplantation, Excitable tissue: Nerve, Muscle, Energy balance and temperature regulation: Heat

Exchange, Body temperature, Temperature Regulation, fever and extremes of temperature, Energy intake, expenditure, storage and requirements, Metabolic Rate- BMR, Energy Balance and its control, Respiration: Air ways, Mechanics of ventilation, Gas exchange in lungs, Gas transport and exchange with tissues, Neural regulation of respiration, Chemical control of respiration, Hypoxia and oxygen therapy, Respiratory acid base balance, Respiratory adjustments, Heart and circulation: Structure and properties of cardiac muscle, Electro-physiology of the heart, Cardiac Cycle, Cardiac output, Cardiac work and metabolism, Vessels, Hemodynamics, Blood pressure & cardiovascular regulation, Regional Circulation, Capillary circulation, Placental and fetal circulation, Cardiovascular adjustments.

MLSAM 1154 Anatomy for MLS (L-33: P-20: T-13)

Course Aim:

The aim of this course is to provide a comprehensive overview of the gross and microscopic structure and, the development of the human body to correlate with the clinical manifestations.

Intended Learning Outcomes:

At the end of the course the students will be able to,

- describe the basic concepts of the anatomy of cell and its functions
- explain different types of tissues on human body and its functions
- outline the structure and functions of all the systems in human body
- define the concepts of medical genetics

Course Content:

Cell Biology: Cell structure and function, Organelles, cell division and cell cycle; Biological membranes: structure and function, transport mechanisms, signal transduction and cell-cell interactions; Classic and molecular genetics; Histology: Structure and function of different cells and tissue types; Organ: Name of the organ and structure, location and feature: large organ systems with emphasis on the relation between form and function, skin (integument), skeleton, joints (articulations), muscular system, nervous system and special senses, digestive system, endocrine system, respiratory system, circulatory system, urinary system, reproductive system and early embryology.

MLSBM 1163 Biochemistry for MLS I (L-30: P-15: T-07)

Course Aim:

The aim of this course is to provide knowledge in the chemistry and properties of biomolecules in order to understand the biochemical concepts, importance of vitamins and minerals in health and disease conditions.

Intended Learning Outcomes:

At the end of the course unit the students should be able to,

- describe the structure and functions of bio-molecules of the human body
- explain the structure, kinetic properties and part of the enzymes in chemical reactions
- describe the sources of Vitamins and Minerals and their metabolism and functions.
- explain the synthesis and metabolism of haemoglobin

Course Content:

pH and buffers: Buffers and Dissociation constant, Body buffers, Chemistry of Carbohydrates: General Introduction, classification and identification, Chemistry of lipids: General Introduction, classification and their properties, Chemistry of amino acids and proteins: General Introduction, extra cellular matrix, Properties of amino acids and proteins, Movement of substances across membrane: membrane structure, different mechanisms of movement and different transporters, Chemistry of nucleic acids: Introduction to DNA and RNA, DNA compaction and replication Enzymes: General properties, mechanism of action, Factors affecting the catalysed reaction, Enzyme activators, inactivators and inhibitors, Regulatory enzymes and isoenzymes, Digestion and absorption, Immunoglobulin, Minerals:Iron metabolism, Iodine, Calcium metabolism, Zn, Cu, Floride and Se, Vitamins: Vitamins A, D, E, K, thiamine, Riboflavin, Nicotinic acid and Pyridoxal phosphate, Vitamin B12 and Folic acid, Vitamin C and Biotin, Hemoglobin: Types and synthesis of Hemoglobin and Hemoglobin metabolism, Biological Oxido-reduction and mitochondria.

FIRST YEAR SECOND SEMESTER

MLSMT 1213 Medical Laboratory Technology II

(L-24: P-30: T-06)

Course Aim:

The aim of this course is to provide appropriate knowledge, attitude and skills about the use different instruments and equipment in clinical laboratories including routine maintenance and the safety precautions.

Intended Learning Outcomes:

At the end of the course the students should be able to,

- explain the working principles, handling techniques of advanced equipment used in clinical laboratories
- identify the safety measures in relation to advanced laboratory equipment.
- identify the applications of each equipment used in clinical laboratories.
- explain different automation techniques used in clinical laboratory

Course Content:

Laboratory Automation, Analytical principles of biochemical and hormone analyser, Chemical and enzymatic measuring methods, Principle, Handling, Applications of: Flame photometer and Ion Selective Electrode, Spectrophotometer, Nephelometry, Turbidimetry and Fluorometry, Chromatography (Column, Thin layer, Paper, Gas, Ion-exchange and High Performance Liquid Chromatography), Electrophoresis, Vacuum filtration, Vacuum concentration, Freeze drying and Spray drying, Blood gas analyser

MLSCH 1221 Basic Community Health for MLS (L-15)

Course Aim:

The aim of this course is to provide comprehensive overview on epidemiology and prevalence of communicable and non-communicable diseases and focus on the prevention and control

Intended Learning Outcomes:

At the end of the course unit the students will be able to,

- outline the communicable and non-communicable diseases
- explain the epidemiology of communicable and non communicable diseases
- outline the environmental health and sanitation
- discuss the occupational hazards and prevention

Course Content:

Epidemiology: Natural history of disease – primary, secondary, tertiary prevention; Descriptive epidemiology, Analytical epidemiology, Epidemiology and control of communicable disease, Epidemiology and control of non - communicable disease, Notification , Epidemiology and control of air bone infection, Epidemiology of water & food bone infection, Epidemiology and control of vector bone infection; Aging: old age care; Occupational health; Health education principles of learning: Method of Health Education, Person to person communication; Source and collection of vital statistical data; Child care: general aspects; Maternal care: general aspects; Family planning; Sanitation.

MLSBS 1231 Basic Statistics (L-15)

Course Aim:

The aim of this course is to provide fundamental knowledge in statistic

Intended Learning Outcomes:

At the end of the course unit the students should be able to,

- describe the importance of statistics in laboratory analysis
- discuss different measurement variables
- express given data in graphical form

Course Content:

Identify Measurements Variables (qualitative and quantitative) Scales of measurements Identify Frequency distributions, Express data in a graphical form, Calculate central tendency, Describe disperse Distinguish Variance, range and interquantile range, Calculate Standard deviation, Calculate Coefficient of variability, Probability, Normal distribution

MLSPM 1243 Physiology for MLS II (L-34: P-06: T-13)

Course Aim:

The aim of this course is to provide knowledge to describe the basic functions of all body systems.

Intended Learning Outcomes:

At the end of the course, the students should be able to,

- explain the principles of energy balance and temperature regulations of human body
- describe the functions of gastrointestinal and renal system and its control.
- explain the functions of male and female reproductively system and the principles of fertility control.
- discuss the physiological aspects of pregnancy and lactation.

- relate the components and functions of central nervous system and its control.

Course Content:

Endocrinology: Insulin, Glucagon, Thyroid Hormone, Parathyroid Hormone, Thyrocalcitonin and Vitamin D3, Catecholamines, Adrenocorticotropic Hormone, Glucocorticoids, Mineralocorticoids, Pituitary gland, Anti-Diuretic Hormone, Growth hormone, Gastrointestinal system: Mouth and Pharynx, Stomach, Duodenum, Small Intestine, Large intestine and Anus, Renal Physiology: Renal Circulation, Glomerular function, Tubular Function, Acid Base balance, Renal function tests ,

Micturition, Reproductive physiology: Reproductive function in male, Reproductive function in female, Pregnancy, Lactation, Neurophysiology: Cerebrospinal Fluid, Cutaneous sensation, Motor System, Autonomic nervous System, Limbic System, Eye, Ear, Vestibule, Taste and Smell

MLSGM 1253 General Microbiology (L-21: P-30: T-08)

Course Aim:

The aim of this course is to provide basic theoretical knowledge and introduce the practical skills in General Microbiology.

Intended Learning Outcomes:

At the completion of the course students should be able to,

- describe the morphology and physiology of bacteria
- outline the basic structure and classification of viruses fungi and parasites

- outline the quality control procedures in a microbiology laboratory
- carry out the sterilization and disinfection procedures in a microbiology laboratory
- apply the acquired skills in preparation of basic stains and culture media used in a microbiology laboratory

Course Content:

Morphology, Structure and multiplication of bacteria, transmission of microorganisms into the body, Bacterial genetics, Sterilization, Disinfection, Introduction to antibiotics, Antimicrobial resistance, Introduction to viruses, fungi and parasites, Quality control in microbiology

MLSBM 1262 Biochemistry for MLS II (L-22: P-06: T-07)

Course Aim:

The aim of this course is to provide knowledge in metabolism of bio molecules, to understand the principles of nutrition and its relation to growth, energy needs, health and diseases and make the students to apply this knowledge in the promotion of health care of people.

Intended Learning Outcomes:

At the completion of this course students will be able to,

- discuss the metabolism of bio molecules in human body
- relate the principles of metabolism in health and disease conditions
- analyse the urine for its normal and abnormal constituents and interpret the results

Course Content:

Carbohydrate metabolism: Introduction, Glycolysis, Tri carboxylic cycle and control, Hexose Mono phosphate pathway and significance, Metabolism of fructose and galactose and gluconeogenesis, Glycogenesis and glycogenolysis, Diabetes Mellitus, Blood glucose maintenance and measurement of blood glucose, Lipid metabolism: Introduction, metabolism of chylomicron, Metabolism of VLDL,LDL and HDL, lipid metabolism in liver and adipose tissue, role of hormones, Oxidation and synthesis of fatty acids, Fatty acid Metabolism, Ketogenesis and cholesterol metabolism, Amino acid metabolism: Transamination and deamination, Urea cycle, Hereditary disorders in amino acid metabolism Nucleic acid metabolism: Biosynthesis of purine and pyrimidine and their regulation, Catabolism of purine and pyrimidine, Hyperuricemia, Protein metabolism: Transcription and types of RNA, Translation, Post translational modification of proteins, antibiotic inhibitors of protein synthesis and mutations.

MLSGP 1272 General Pathology (L-17: T-13)

Course Aim:

The aim of this course is to provide basic knowledge in fundamental mechanisms of disease in general and associated pathological changes which occurs in various organs or tissues in the body

Intended Learning Outcomes:

At the end of the course unit the students should be able to,

- explain the causes and mechanism of cell injury, sub-cellular responses to injury and cellular adaptation

- describe the acute and chronic inflammation and their vascularand cellular changes
- describe the wound healing process, haemodynamic disorders, ischemia infarction, thromboembolism and shock
- distinguish the characteristics of benign and malignant tumors
- describe the molecular basis of cancer

Course Content:

Introduction and overview of general pathology, Cell injury, mechanism of cell injury and apoptosis, Cellular adaptation, Intracellular accumulation and calcification, Necrosis, Acute inflammation, Chronic inflammation, Wound healing, Haemodynamic disorders, Shock, Ischemia & Infarction, Basics of neoplasia and Molecular basis of cancer.

SECOND YEAR FIRST SEMESTER

MLSHE 2115 Haematology I (L-28: P-60: T-10)

Course Aim:

The aim of this course is to provide knowledge, attitude and skills on basic haematological procedures and to train the students to analyse, evaluate and interpret the findings and to identify the possible errors and its sources and solve the problems.

Intended Learning Outcomes:

- describe the general aspects of haemopoeisis including the component, mechanism and regulation of haemostasis in health and disease conditions
- describe the common morphological abnormalities of blood cells and their clinical importance in the diagnosis of diseases

- explain the collection and handling of blood samples in haematology laboratory
- explain the principles of basic haematological techniques using both manual and automated techniques
- carry out testing and interpretation of results
- describe the aspects on the diagnosis of blood parasites using different techniques in haematology laboratory
- outline the morphological classification, causes and haematological diagnosis of anaemia

Course Content:

Composition of blood and normal haemopoiesis, Standard procedures for collection and handling of blood specimen in haematological analysis, Anticoagulants used in the specimen collection, Effects of storage, Reference ranges of haematological values for healthy individuals and the physiological variations, Principle behind the basic haematological techniques, Automated blood count techniques, Calibration of automated blood cell counters, Preparation and staining methods for blood and bone marrow films, Examination of blood films for parasites, Blood cell morphology in health and disease, Morphological classification of anaemia, Iron metabolism and iron deficiency anaemia, Vitamin B 12 and Folate metabolism and Megaloblastic anaemia, Introduction to haemolytic anaemia, Quality assurance in Haematology laboratory.

MLSSP 2125 Systemic Pathology (L-46: P-45: T-09)

Course Aim:

The aim of this course is to provide knowledge in pathophysiological changes and their importance which take place at the systemic levels and identify the pathological changes macroscopically and microscopically in cells and tissues related to disease in specific organs and organ systems

Intended Learning Outcomes:

At the end of the course the students should be able to,

- outline the causes and pathophysiological mechanisms underlying the development of disease
- explain the causes, pathogenesis and clinical features of disease in all the system
- identify the microscopic structure of given tissues and organs
- describe the laboratory diagnosis of disease conditions related to all the system

Macroscopic and Microscopic structure: Cardio vascular system, Lymphatic and musculoskeletal system, Respiratory system, Urinary system, Female reproductive system, Male reproductive system, Nervous system, Digestive system and associated glands, Endocrine system

Systemic Pathology: Diseases of the blood vessels, Heart diseases, Lung & upper respiratory tract diseases, Renal system diseases, Male and female reproductive system diseases, Muscular skeletal system diseases, Central Nervous system diseases, Gastrointestinal tract diseases, Liver diseases, Diseases of the Pancreas, Endocrine disorders

MLSMB 2133 Medical Bacteriology (L-25: P-30: T-07)

Course Aim:

The aim of this course is to provide theoretical knowledge in systematic bacteriology and make the students to identify medically important bacterial pathogens in a clinical laboratory.

Intended Learning Outcomes:

At the completion of the course students will be able to,

- describe general aspects of medically important bacterial pathogens
- perform biochemical tests to identify the common bacterial pathogens
- describe the ABST methods and gain handful experience in each method
- state the importance of quality control in a microbiology laboratory

Biochemical tests and quality control, Common bacteriological culture media, Staphylococci, Streptococci, Enterococci, Pneumococci, Enterobactereaceae, Non fermenting gram negative bacteria, Gram negative cocci, Parvobacteria, Vibrio, Campylobacter, Helicobacter, Gram positive aerobic bacilli, Common anaerobic bacteria, Mycobacterium tuberculosis, Mycobacteriam leprae, Treponemes, Leptospira, Mycoplasma Chlamydia, Rickettsia, Nocardia and other filamentous bacteria, ABST- methods and principle, Antimicrobial resistance

Quality control in ABST, Microbiology analysis of water and other samples

MLSIM 2144 Immunology (L-30: P-36: T-11)

Course Aim:

The aim of this course is to provide adequate knowledge in immunology and train the students in immunological techniques performed in a clinical laboratory.

Intended Learning Outcomes:

At the end of the course unit students should be able to,

- discuss the composition, function of immune system and regulation of immune response
- outline the key components of the innate and acquired immune response
- differentiate the different hypersensitive states
- explain the basic principles of immunological techniques
- outline the pathophysiology of autoimmune diseases
- carryout basic and advanced immunological techniques used in a clinical laboratory
- interpret the results of different immunological techni-ques

Introduction of immunology: Cells & Tissues of the immune system, Immunity: definition and types, Vaccines: immunization schedules, principles of passive immunization and its significance in clinical medicine; Mechanism of specific immune response, Mechanism of non-specific immune response, Major Histocompatibility Complex, Hypersensitivity; Immunologic Techniques: Immunoglobulin structure & Function, Nature of antigen, Antigen Antibody interaction and detection, Precipitation, Agglutination, Immunofluorescence, Neutralization tests, Complement fixation test, Coombs test, Blotting Technique, Autoimmune Diseases.

SECOND YEAR SECOND SEMESTER

MLSEC 2211 Ethics and Communication (L-15)

Course Aim:

The aim of this course is to develop knowledge, skills and attitude of the students in ethical issues and communication skills.

Intended Learning Outcomes:

At the end of the course students should be able to,

- describe the code of ethics for medical laboratory profession
- develop a balanced and unified vision on humans, with respect for their integrity and rights.
- discuss the general concepts of ethics
- demonstrate the ability to think critically and solve problems in a laboratory setting
- demonstrate the ability to communicate verbally and in writing
- define ethical rules in human experiments

Introduction to Medical Ethics and Ethical Models, Visions on values, humans and life, Ethical problems related to autonomy related to integrity, informed consent and duty of secrecy, Ethical guidelines and basic values in professional work, Code of Ethics for MLT, Professional and Inter professional use of communication, Communication process, Methods of Communication, Conflicts: handling conflicts, Levels of conflict, Conflict process Conflict Management

MLSHE 2225 Haematology II (L-32: P-75: T-09)

Course Aim:

The aim of this course is to provide knowledge, attitude and skills on advanced haematological procedures followed in a

haematology laboratory and train the students to perform tests using advanced haematological procedures, interpret the results, identify the possible errors and the sources and solve the problems.

Intended Learning Outcomes:

At the end of the course the students will be able to,

- describe the normal haemostasis
- carryout the coagulation screening tests
- interpret the results to do the second line coagulation investigations appropriately
- demonstrate the skills in staining techniques for differential count on a bone marrow aspirate film
- identify the appropriate investigations to identify the cause of haemolytic anaemia
- describe the benign and malignant disorders of white cells
- make use of various erythrocyte and leucocyte cytochemistry
- explain laboratory organization and management

Normal haemostasis and its components. Introduction to the investigation of bleeding disorders, Clotting screening, Second line coagulation investigations, Investigation of a thrombotic tendency, Differential cell count on aspirated bone marrow films, Investigations to find out the cause of Haemolyticanaemia, Investigations of abnormal Haemoglobin, Investigation of a suspected Thalassemia, The White blood cells and their benign disorders, Introduction to Haematological malignancies, Erythrocyte and leucocyte cytochemistry, Haematology laboratory organization and management, Introduction to

Immunophenotyping, Multi-colour flow cytometry methods, Immunological markers in Acute Leukaemia and Chronic lympho proliferative disorders, Laboratory control of anticoagulants, Laboratory control of thrombolytic therapy, Introduction to molecular and cytogenetic analysis for haematological disorders.

MLSCB 2235 Clinical Biochemistry I (L-35: P-71: T-09)

Course Aim:

The aim of this course is to provide knowledge and skills in the procedures that are followed in clinical chemistry and provide hands-on experience in chemical analysis and make them to understand the analytical principles to assess the results.'

Intended Learning Outcomes:

At the end of the course the students should be able to,

- describe the role of clinical biochemistry investigations in diagnosis, monitoring and treatment of disease
- describe the pathophysiology of the major organ systems under investigation in clinical biochemistry
- describe the diseases of the liver, biliary tract, renal, gastrointe stinal tract, endocrine and muscle
- carryout the biochemical investigation on various clinical conditions
- interpret the test results on various clinical conditions

Course Content:

Urinalysis, Pregnancy test, Acid base balance, Plasma proteins, Laboratory diagnosis of Diabetes Mellitus, Hypoglycemia, Diseases of the liver and biliary tract, Tests in Renal Diseases, Analysis of fluids and electrolytes, Lipid disorders and lipid profile, Seminal fluid analysis, Cardiac Function test Muscle diseases, Biochemical investigations of Iron metabolism.

MLSLQ 2243 Laboratory Management and Quality Assurance (L-30: P-30)

Course Aim:

The aim of this course is to provide basic knowledge and skills on organization of a clinical laboratory, quality assurance and proper documentation of laboratory procedures.

Intended Learning Outcomes:

At the end of the course the students should be able to,

- describe the organization of a clinical laboratory
- explain sample collection, labelling, specimen rejection and pre-analytical, analytical and post-analytical variables
- adopt laboratory audit and inventory
- describe filling system, indexing system, budget planning, financing and information system
- describe pre-analytical, analytical and post-analytical Quality Assurance
- demonstrate the skills in internal and external quality control
- describe clinical laboratory accreditation

Course Content:

Laboratory organization, Health care organizational behaviour and Human resource management, Specimen collection procedure, labelling methods, specimen rejection criteria, Pre analytical, analytical and post analytical variable in clinical laboratories, Filing, indexing system and store keeping, Skills required for management roles, Identify management role in organization, explain manager's basic skills, Time management, Team development concepts, Procurement procedures in laboratory, Laboratory Information system, Standard Operating Procedures, Accuracy, precision, Youden plots, ROC Curve, reference interval and critical value, Quality Assurance, Quality control, Validation of reports, Laboratory Accreditation, Laboratory audit.

THIRD YEAR FIRST SEMESTER

MLSRM 3113 Research Methodology & Medical Statistics (L-45)

Course Aim:

The aim of this course is to provide adequate knowledge and skills to design scientifically valid research, perform it and write report.

Intended Learning Outcomes:

At the end of the course the students should be able to,

- discuss the various types and designs of research
- identify the research problem
- demonstrate the ability to choose methods appropriate to research aims and objectives

- develop skills in qualitative and quantitative data analysis and presentation
- exhibit advanced critical thinking skills
- demonstrate enhanced writing skills

Course Content:

Hypothesis testing, Estimation, Regression and correlation, Non parametric tests, Categorical data analysis, Introduction to research, Classification of Research and Research designs , Research problem & topic formulation, Review of literature, Formulation of Research Problem, Questions and Objectives, Formulation of research hypotheses, Study population, Sample & Sampling techniques Ethical issues in research, Technique & methods of data collection, Pre – test / Pilot study, Data analysis and statistical procedures

MLSCB 3126 Clinical Biochemistry-II (L-41: P-75: T-09)

Course Aim:

The aim of this course is to provide advanced knowledge in the use of specific biochemical principles, biological variation and the clinical relevance of analytical results and train the students to evaluate the medical probability of analytic results and the importance of emergency situation.

Intended Learning Outcomes:

At the end of the course unit students should be able to,

- describe the principle and laboratory procedures of urine and body fluids analysis

- describe the pathophysiology, laboratory investigation of the paediatric inborn metabolic disorders, calcium metabolism and lipid disorders
- carryout macroscopic and microscopic examination and biochemical analysis of urine and body fluids
- analyse and interpret test results
- evaluate the sensitivity, specificity and limitations of laboratory techniques applied in the diagnosis of disease
- discuss the importance of quality control and assurance to diagnostic work.
- describe the laboratory analysis of therapeutic and toxic substances

Course Content:

Gastrointestinal tract diseases, Endocrine disorders, Tumour markers, Blood gases analysis, Bone diseases and calcium metabolism, Clinical importance and investigation of fluids and electrolytes, CSF and other body fluid analysis

MLSCH 3135 Clinical Histotechnology (L-35: P-80: T-09)

Course Aim:

The aim of this course is to provide knowledge and hands on experience to perform routine procedures in histology and cytology laboratories.

Intended Learning Outcomes:

At the end of the course the students should be able to,

- describe the principles and practices of preparation of clinical specimen for histological and cytological examination

- apply the knowledge on fixation, embedding, section cutting, mounting, and staining procedures
- carry out special staining procedures used for different kinds of tissue
- describe the principles and practices of liquid based cytology, immunohistochemistry and enzyme histochemistry
- utilize different instruments used in histotechnology maintenance and quality control
- identify the faults in each and every steps involved in preparation of histology slides
- troubleshoot the problems in histology slide preparation

Course Content:

Instrumentation in histotechnology, Examination of Tissue, Fixation, Processing, Tissue section Cutting, Staining, Immunohistochemistry & Immunofluorescence, Enzyme histochemistry, Quality assurance measures in histotechnology, Internal quality control in histotechnology, Application of accreditation principles, Cytotechnology

MLSMP 3144 Medical Parasitology (L-17: P-60: T-11)

Course Aim:

The aim of this course is to provide basic knowledge in medically important parasites and make the students to perform the basic and advanced techniques used in a clinical laboratory for the isolation and identification of parasites.

Intended Learning Outcomes:

At the end of the course the students should be able to,

- name the medically important parasites
- outline the life cycle, morphology diagnostic stages of each parasite
- describe the sample collection methods, transport and storage of parasitic samples
- demonstrate the skills in stool examination for the identification of amoebic ova, cyst of intestinal parasites
- test for blood parasites in thick and thin blood smears
- prepare and use appropriate stains for the identification of parasitic diseases
- use the appropriate immunological techniques for the identification of parasites
- utilize genetic material for molecular tests for the identification of parasites

Course Content:

Introduction, CVS: Malarial Parasites, Leishmaniasis, Toxoplas mosis, Reproductive: Trichomoniasis, GIT: Amoebiasis and Balantidiosis, Giardiasis and Cryptosporidiosis, Intestinal Nematodes, Soil transmitted parasites:, Ascaris lumbricoides, Necator americanus and, Ancylostoma duodenale, Strongyloides stercolaris, Trichuris trichura, Non-Soil transmitted parasites:, Enterobius vermicularis, Tissue Nematodes. Lymphatic filariasis, Plathelminthes, Cestodes, Medically important Snakes.

THIRD YEAR SECOND SEMESTER

MLSBM 3212 Biotechnology and Molecular Biology (L-15: P-30)

Course Aim:

The aim of this course is to provide knowledge and skills to perform basic techniques in Biotechnology, Molecular biology and cytogenetics.

Intended Learning Outcomes:

At the end of the course the students should be able to,

- discuss on various applications of Molecular Biology in the field of Medicine
- describe human genome and phenotypic features of genetic disorders
- describe the procedures involved in chromosomal analysis
- describe the process of genetic engineering
- demonstrate the skills in Polymerase Chain Reaction (PCR)
- illustrate the process used in Fluorescence Insitu Hybridization (FISH) and other hybridization techniques

Course Content:

Introduction to Molecular Biology & its application in Medicine, Human genome & Molecular Genetics, Genetic Engineering tools and diagnosis of genetic disorders, PCR, Forensic DNAAnalysis, Nucleic acid hybridization, Fluorescence Insitu Hybridization, Introduction to basic steps in cell culture.

MLSMV 3223 Medical Mycology & Virology (L-30: P-30)

Course Aim:

The aim of this course is to provide knowledge on medically important fungal pathogens and viruses and train the students to perform techniques to identify those pathogens in the laboratory.

Intended Learning Outcomes:

At the end of the course unit students should be able to,

- describe general properties medically important fungal pathogens
- describe microscopic structures of medically important fungal pathogens
- outline the classification, clinical features and epidemiology of medically important viruses
- describe the laboratory diagnosis of viral infections
- carry out preparation of basic fungal culture media
- examine for medically important fungal pathogens
- identify the laboratory contaminants
- apply the advanced methods to identify viral pathogens

Course Content:

Introduction to Mycology; Superficial infections; Subcutaneous infections; Systemic infections; Yeast and yeast like organisms; Opportunistic Fungi, Antifungal agents; Laboratory diagnosis of fungal infections; Basic methods employed in a diagnostic mycology lab; Advanced methods used in mycology, General characteristics of viruses and classification, Pathogenesis of viral infections, Immune response to viral infections, Influenza virus, Para influenza, RSV, Mumps virus, Measles virus, Rubella virus,

Rabies virus, Enteroviruses, Viruses causing gastro enteritis, Arboviruses, Herpes viruses, Hepatitis viruses, Human cancer viruses, Haemorrhagic fever viruses, emerging viruses, Safety in the virology Laboratory, Laboratory diagnosis of viral infections, Collection and Transport of specimen for reference laboratory, Specimen processing, Techniques used in virology laboratory.

MLSTM 3234 Transfusion Medicine (L-39: P-45)

Course Aim:

The aim of this course is to provide knowledge, attitude and skills on procedures followed in the Blood bank and also to provide sound scientific foundation for medical technologies to develop competencies for providing a safe and effective blood transfusion service to the public.

Intended Learning Outcomes:

At the end of the course students will be able to,

- state the basis of blood group system
- outline the technological aspects of safe and effective blood transfusion
- carryout pre transfusion compatibility tests
- carryout serological tests in pregnancy and investigations of suspected Haemolytic Disease of New born (HDN)
- explain the complications of blood transfusion
- assess a transfusion reaction
- carry out preparation of different blood components
- adopt the quality assurance techniques used in the blood bank

Course Content:

Introducing blood cell antigens and antibodies, ABO, Rh systems and other blood group systems and their antibodies, Screening of donors, General aspects of serological techniques, ABO & Rh grouping and blood group discrepancies, Preparation of blood components, Transfusion transmitted Infections (TTI) and screening for TTI in donor sample, Antiglobulin test , Antibody screening, Antibody identification and cross matching, Blood transfusion, Technological aspects of safe and effective blood transfusion, Transfusion reactions and investigations, Compatibility testing in special transfusion situations, Ante natal serology and Haemolytic disease of newborn Clinical significance of alloantibodies, Mechanism of Immune destruction of red cells, Immune haemolytic anaemia, Titration of cold antibodies and determination of thermal range of cold agglutinins, An introduction to Haemopoietic stem cell transplantation, Quality assurance in blood bank

MLSDM 3243 Diagnostic Microbiology (L-15: P-60)

Course Aim:

The aim of this course is to provide students the knowledge on common infections in all the body systems and make the students to develop skills to identify the pathogens in a clinical microbiology laboratory.

Intended Learning Outcomes:

At the completion of the course students should be able to,

- describe sample collection, handling and storage of specimens for microbiological analysis
- discuss rejection criteria for each clinical specimen for microbiological analysis
- carry out the necessary identification tests to identify causative organisms according to site of infection
- develop the skills to perform the ABST pattern of the isolated bacteria
- interpret microbiology laboratory results
- adopt standard operating procedures for all procedures carried out in the laboratory

Course Content:

Laboratory diagnosis of Urinary Tract Infections, Laboratory diagnosis of Respiratory infections, Laboratory diagnosis of Gastrointestinal infections, Laboratory diagnosis of Sexually transmitted infections, Laboratory diagnosis of central nervous system infections, Laboratory diagnosis of skin and wound infections, Laboratory diagnosis of ear and eye infections, Laboratory diagnosis of infections in blood and sterile fluids, Typhoid, brucellosis, leptospirosis, Rickettsiosis, generalized sepsis.

MLSRP 3252 Research Project I (I-200)

Course Aim:

The aim of this course is to explain the purpose and objectives of laboratory based research, identify problems for research study,

plan and conduct simple research related to the field of medical laboratory sciences.

Intended Learning Outcomes:

At the completion of the course students should be able to,

- demonstrate knowledge on basic research concept
- exhibit critical thinking and reading skills
- design the tentative research plan
- develop scientific writing skills

Course Content:

Selection of the research problem, selection of researchable topic, necessity of definingtheproblem, techniquesin - volvedindefining theproblem; Literature survey: review of literature, concepts, principles and other aspects of problem review of researches previously conducted; Formulation of objectives: General and specific objectives & hypothesis; Research Design: features of gooddesign, different research designs, methods of investigation sampling techniques.

FOURTH YEAR FIRST SEMESTER

MLSWL 4116 Work Based Learning (Haematology) (F-300)

Course Aim:

The aim of this course is to provide knowledge and technical skills of all the routine and special procedures followed in a clinical haematology laboratory.

Intended learning Outcomes:

At the completion of the course students should be able to,

- explain routine procedures on collection, handling and storage of haematological specimens.
- carryout routine haematological techniques and identify trouble shootings
- interpret routine test reports in order to diagnose disease or conditions.
- demonstrate special test used in haematology laboratory
- apply the knowledge on different staining techniques and its trouble shootings
- explain handling of automated haematology analysers
- explain the steps in Quality Assurance, laboratory management and laboratory accreditation of haematology laboratory.

Course Content:

Specimen reception- Specimen registration, acceptance, rejections, collections at laboratories for special tests. (observation), Laboratory Safety, universal precautions and waste disposals, Preparation of sample collection containers for different tests, Preparing routine and special stains in haematology laboratory, Perform basic procedures (ESR, blood film preparation and staining), FBC using automated haematology analyzers (observation), Identification of abnormal results in FBC report and validation of test report (Demonstration), Perform coagulation test (Demonstration), Identify the abnormal cells in blood and bone marrow film of

patient, Preparing bone marrow films on bone marrow aspirate/Trephine biopsy (observation), Staining of blood and bone marrow smear using special stains (observation), Calibration of automated analysers (Observation), Routine maintenance of all equipment, Perform Quality control procedures of all haematological tests (observation).

MLSWL 4126 Work Based Learning
(Clinical Biochemistry) (F-300)
Course Aim:
The aim of this course is to provide knowledge and technical skills of all the routine and special procedures followed in a clinical biochemistry laboratory,

Intended Learning Outcomes:
At the completion of the course students should be able to,
- apply the sample rejection criteria during sample reception
- identify the components of request forms for routine and special investigations
- segregate samples to appropriate benches in the laboratory
- carry out centrifugation and other pre analytical procedures
- apply the specimen rejection criteria after pre analytical procedures
- carry out procedures in automated biochemical analyzers
- troubleshoot automated biochemical analyzers
- interpret laboratory results
- validate laboratory results using other test results and clinical condition of patients

- recognize the procedures of reporting routine and special laboratory results
- recognize the steps of internal quality control and external quality assurance
- recognize the steps in calibration of biochemical analyzers
- carryout anticoagulant preparation
- identify the steps involving in the maintenance of automated analyzers
- identify the steps involved in total quality management of laboratory

Course Content:

Sample reception at the Sample counter – Observation, Application of sample rejection criteria at sample reception – Observation, Sample and request form identification – Routine and special tests Observation, Troubleshooting in sample reception- Observation, Segregation of samples to the relevant benches, Centrifugation or any other pre analytical procedure, Application of sample rejection criteria after pre analytical procedure – Observation, Entering of patient's information in analyzers – Observation, Pipetting of serum and dispensing into sample cups, Troubleshooting of analyzers – Observation, Interpretation and validation of reports Observation, Delta check, Reporting- Observation, Dispatch of reports – Registering, CSF and other special tests – Observation, Internal Quality Control Procedures- Observation, External Quality Assurance Procedures – Observation, Calibration – Observation. Reagent and anticoagulant preparation, Maintenance of analyzers - Observation.

MLSWL 4136 Work Based Learning
(Clinical Microbiology) (F-300)

Course Aim:

The aim of this course is to provide knowledge and technical skills of all the routine and special procedures followed in a clinical microbiology laboratory,

Intended Learning Outcomes:

At the completion of the course students should be able to,

- demonstrate the skills in sample collection, handling and storage of specimens for microbiological analysis
- describe rejection criteria for each clinical specimen for microbiological analysis
- carryout the necessary identification tests to identify causative organisms in each site
- describe the ABST pattern of the isolated bacteria
- report microbiology laboratory results
- adopt standard operating procedures for all procedures carried out in the laboratory

Course Content:

Routine standard operating procedures in a clinical microbiology laboratory, Specimen reception, transport, storage and handling, Stains and reagents which are used in clinical microbiology laboratory, Quality control procedure and trouble shooting, Handling of biohazard waste disposal in clinical microbiology laboratory,

Handling of laboratory equipment and their maintenance, Special test/techniques, Sample accession procedure in a microbiology laboratory (observation), Application of rejection criteria at sample accession (observation), Sample identification(observation), Types of request forms for different samples and assigning lab accession number(observation), Types of sample containers, Trouble shooting in sample accession (observation), Preparation of culture media

FOURTH YEAR SECOND SEMESTER

MLSRP 4216 Research Project II (I-600)

Course Aim:

The aim of this course is to plan and conduct simple laboratory based research related to medical laboratory sciences, present research findings and appreciate the importance of research in raising the standard of health care.

Intended Learning Outcomes:

At the completion of this course students will be able to,

- demonstrate knowledge on basic research concept
- exhibit critical thinking and reading skills
- design the research experiments
- develop scientific writing skills

Course Content:

Collection of data, Application of suitable statistical techniques in research, Processing & Analysis of Data; Interpretation of

results; Preparation & presentation of report: report writing style, context, and bibliography.

MLSWL 4226 Work Based Learning (Histotechnology) (F-300)

Course Aim:

The aim of this course is to provide knowledge and technical skills of all the routine and special procedures followed in a clinical histopathology laboratory,

Intended Learning Outcomes:

At the end of the course the students should be able to,

- explain the principles and practices of preparation of clinical specimen for histological and cytological examination
- adopt the routine standard operating procedures in a clinical histopathology laboratory
- apply the knowledge on fixation, embedding, section cutting, mounting, and staining procedures
- carryout special staining procedures used for different kinds of tissue
- carryout of liquid based cytology, immunohistochemistry and enzyme histochemistry
- utilize different instruments used in histotechnology and follow the maintenance
- adopt quality control procedures followed in the histote - chnology

- identify the faults in each and every steps involved in preparation of histology slides
- troubleshoot the problems in histology slide preparation

Course Content:

Sample accession procedure including tissue and fluid samples for histopathological, cytopathological and frozen tissue examination (observation), Application of rejection criteria at sample accession (observation), Sample identification (observation), Types of request forms for different samples and assigning lab accession number (observation), Types of sample containers, Trouble shooting in sample accession (observation), Preparation of fixatives (observation), Preparation of cassettes for grossing, Assisting grossing of tissues for processing (observation), Decalcification, Tissue processing steps, Embedding /microtome/preparation of tissue sections for staining (Hands on experience with tissue samples that are not used for reporting), Staining – H and E and Mounting , Labeling and Forwarding slides for reporting (observation), Special staining procedures((Hands on experience with tissue samples that are not used for reporting), Reagent, stain and buffer solution preparation (hands on experience under direct supervision of in charge MLT of the laboratory), Quality control slide selection,

staining and assessment of batch tissue control and documentation and checking of quality of processing and staining, Identification of errors in each step of tissue section preparation, Immunohistochemistry techniques (observation), Automated equipment in histopathology, Maintenance of equipment, Documentation of daily maintenance of charts of reagent change, equipment maintenance, environmental condition monitoring, Archiving and retrieval of histopathology material, Prepration of fixative for cytology smears, Prepration for FNAC, staining of FNAC slides and other non gynaecological specimen smears, PAP smear staining and identification of cells, Safety measures in Histopathology laboratory , Disposal of waste in histopathology laboratory.

5.2 Curriculum for BScHons (Nursing) -16th Batch

5.2.1 Credit Allocation and Distribution

YEAR	SEMESTER	CREDITS			TOTAL CREDITS	
		THEORY	PRACTICAL	FIELD/ CLINICAL EXPERIENCE		
First year	Semester I	10.5	2.5	-	13	30
	Semester II	13.0	1.0	3.0	17	
Second year	Semester I	12.5	2.5	2.0	17	32
	Semester II	12.0	0.5	1.5	14	
Third year	Semester I	10.0	1.0	6.0	17	32
	Semester II	7.0	1.0	7.0	15	
Fourth year	Semester I	7.0	1.0	4.0	12	27
	Semester II	5.0	-	10.0	15	
TOTAL		77.0	11.5	31.5	120	120

5.2.2 Courses offered in First Year

Course code	Courses	Credits				Theory Hours	Practical Hours	Field/ clinical experience	(week*days* hrs)
		Theory	Practical	Field / clinical experience	Total				
Semester I									
AHSBE 1110	Basic English	Auxiliary Course (A/C)				60	-	-	
AHSBCL 1120	Basic Computer Literacy	Auxiliary Course (A/C)				10	44	-	
NURNP 1133	Nursing Principles and Procedures I	2	1	-	**3**	30	30	-	
NURPY 1143	Physiology for Nurses I	3	-	-	**3**	37+13*	15	-	
NURAN 1153	Anatomy for Nurses I	2.5	0.5	-	**3**	30+8*	15	-	
NURBN 1162	Biochemistry for Nurses I	2	-	-	**2**	26+8*	-	-	
NURNE 1171	Nursing Ethics, Trends and Professional Adjustment I	1	-	-	**1**	15	-	-	
NURCO 1181	Communication Skills and Health Promotion	-	1	-	**1**	-	30	-	
Total		**10.5**	**2.5**	**-**	**13**	**237**	**134**	**-**	

Course code	Courses	Credits				Theory Hours	Practical Hours	Field/ clinical experience	(week*days*hrs)
		Theory	Practical	Field/ clinical experience	Total				
Semester II									
NURCL 1213	Clinical Practice I	-		3	**3**	-	-	150	(6*5*5)
NURMP 1223	Microbiology and Parasitology	2.5	0.5	-	**3**	30+8	15	-	
NURNP 1231	Nursing Principles and Procedures II	1	-	-	**1**	15	-	-	
NURPY 1243	Physiology for Nurses II	3	-		**3**	34+13*	6	-	
NURAN 1253	Anatomy for Nurses II	2.5	0.5	-	**3**	30+8*	15	-	
NURBN 1263	Biochemistry for Nurses II	3	-	-	**3**	37+7*	6	-	
NURPA 1271	General Pathology	1	-	-	**1**	15	-	-	
	Total	**13**	**1**	**3**	**17**	**197**	**36**	**150**	
Total I & II		**23.5**	**4.5**	**3**	**30**	**434**	**170**	**150**	

5.2.3 Courses offered in Second Year

Course code	Courses	Credits				Theory Hour	Practical Hours	Field/ clinical	(week*-days* hrs)
		Theory	Practical	Field/ Hospital	Total				
Semester I									
NURCL 2113	Clinical Practice II	-	1	2	**3**	-	30	100	(4*5*5)
NURMS 2123	Medical Surgical Nursing I	3	-	-	**3**	45	-	-	
NURNP 2131	Nursing Principles and Procedures III	1	-	-	**1**	15	-	-	
NURDT 2142	Diet Therapy	1	1	-	**2**	15	30		
NURSP 2153	Systemic Pathology	2.5	0.5	-	**3**	40	15	-	
NURPS 2162	Psychology for Nurses	2	-	-	**2**	30	-	-	
NURPH 2173	Pharmacology I	3	-	-	**3**	45	-	-	
	Total	**12.5**	**2.5**	**2**	**17**	**190**	**75**	**100**	

Course code	Courses	Credits				Theory Hour	Practical Hours	Field/ clinical	(week*-days* hrs)
		Theory	Practical	Field/ Hospital	Total				
Semester II									
NURCL 2212	Clinical Practice III		0.5	1.5	**2**	-	15	75	(3*5*5)
NURMS 2222	Medical Surgical Nursing II	2	-		**2**	30	-	-	
NURNP 2231	Nursing Principles and Procedures IV	1	-	-	**1**	15	-	-	
NURCH 2243	Community Health Nursing I	3	-	-	**3**	45	-	-	
NURCN 2252	Child Health Nursing I	2			**2**	30		-	
NURPH 2262	Pharmacology II	2	-	-	**2**	30	-	-	
NURSO 2272	Sociology for Nurses	2	-	-	**2**	30	-		
	Total	**12**	**0.5**	**2.5**	**14**	**180**	**15**	**75**	
Total I & II		**24.5**	**3**	**4.5**	**31**	**370**	**90**	**175**	

5.2.4 Courses Offered in Third Year

Course Code	Courses	Credits				Theory Hours	Practical Hours	Field/ clinical	(week*days* hrs)
		Theory	Practical	Field/ Clinical	Total				
Semester I									
NURCL 3114	Clinical Practice IV	-	1	3	**4**	-	30	150	(3*6*8)
NURMS 3123	Medical Surgical Nursing III	3	-	-	**3**	45	-	-	
NURED 3132	Emergency & Disaster Nursing	2	-	-	**2**	30	-	-	
NURCH 3142	Community Health Nursing II	2	-	-	**2**	30	-	-	
NURCP 3153	Community Health Nursing Practice	-	-	3	**3**			150	(3*6*8)
NURRM 3163	Research Methodology and Medical Statistics	3	-	-	**3**	45		-	
	Total	**10**	**1**	**6**	**17**	**150**	**30**	**300**	

Course Code	Courses	Credits				Theory Hours	Practical Hours	Field/ clinical experience	(week*-days* hrs)
		Theory	Practical	Field / Hospital	Total				
Semester II									
NURRP 3212	Research Project I	-	-	2	**2**	-	-	200	
NURPM 3226	Psychiatric and Mental Health Nursing	3	-	3	**6**	45	-	150	(3*6*8)
NURNE 3231	Nursing Ethics, Trends and Professional Adjustment II	1			**1**	15			
NURCN 3243	Child Health Nursing II	3	-	-	**3**	45	-	-	
NURCP 3253	Child Health Practice		1	2	**3**	-	30	100	(3*5*8)
	Total	**7**	**1**	**7**	**15**	**105**	**30**	**450**	
Total I & II		**17**	**02**	**12**	**32**	**255**	**60**	**750**	

5.2.5 Courses offered in Fourth Year

Course code	Courses	Credits				Theory Hrs	Practical Hrs	Field / Hospital	(week*days*hrs)
		Theory	Practical	Field / Clinic	Total				
Semester I									
NURTL 4113	Teaching and Learning	2	1	-	**3**	30	30	-	
NURLM 4123	Leadership and Ward Management	2	-	1	**3**	30	-	50	(1*6*8)
NURMN 4133	Maternity Nursing I	3	-	-	**3**	45	-	-	
NURMP 4143 NURCL 4143	Maternity Nursing Practice I/ Clinical Practice V	-	-	3	**3**	-	-	150	(4*5*8)
Total		**7**	**1**	**4**	**12**	**105**	**30**	**200**	

Course code	Courses	Credits				Theory Hrs	Practical Hrs	Field / Hospital	(week*days* hrs)
		Theory	Practical	Field / Clinic	Total				
Semester II									
NURRP 4216	Research Project II	-	-	6	**6**	-	-	600	
NURGN 4222	Geriatric Nursing	2	-	-	**2**	30	-	-	
NURMN 4233	Maternity Nursing II	3	-	-	**3**	45	-	-	
NURMP 4242 or NUREO 4242	Maternity Nursing Practice II/ Emergency and Oncology Nursing Practice	-	-	2	**2**		-	100	(2x6x8)
NURGP 4252	Geriatric Nursing Practice	-	-	2	**2**	-	-	100	(2x6x8)
Total		**05**	-	**10**	**15**	**75**	-	**850**	
Total I& II		**12**	**1**	**14**	**27**	**180**	**30**	**1050**	

FIRST YEAR FIRST SEMESTER

AHSBE 1110 Basic English (L-60)

Course Aim:

The aim of this course is to develop and enhance the ability to read and understand subject oriented materials and to improve the ability to communicate through speech and writing.

Intended Learning Outcomes:

At the completion of this course students will be able to,

- describe how the English Language is structured, and used in a theoretical framework
- demonstrate how grammar contributes to the meaning of sentences and texts
- explain the distinction between form and function in language
- illustrate language in an analytical and precise manner
- exhibit usage correct and idiomatic English

Course Content:

Reading: Basic reading, Identifying main ideas, Reading for details and understand a text from contextual clues and grammatical clues; writing: Basic grammar – revision, writing letters and memos etc, writing application and form filling and report writing skills; Listening: Listening for specific information for over all comprehension, for making inferences and note taking; Speech(Oral skills): Interviewing skills, facing interviews, Model group discussions, Inter – personal conversational patterns and presentation skill.

AHSCL 1120 Basic Computer Literacy (L-10: P-44)

Course Aim:

The aim of this course is to provide sufficient knowledge, skill and attitude to make use of the information technology for effective learning and practice of Para Medical degree.

Intended Learning Outcomes:

At the completion of this course students will be able to,

- describe the hardware of the computer system and their functions
- apply the techniques used to protect from malware such as viruses
- utilize techniques protect themselves from harmful effects of using computers
- illustrate computer ethics
- apply word processing to prepare documents such as notes, research reports etc.
- construct spread sheet programs for their needs
- develop databases regarding reference material, notes, patient details etc for future retrieval
- prepare effective presentations using computers
- utilize statistical packages to do data analysis for their needs
- make use of internet to perform literature search and electronic communication

Course Content:

Introduction; Data processing; Purpose and basic components of a computer Software, hardware and operating system and its concepts and definitions, Computer operations, File management,

Internet: searching, browsing, e-mail and information retrieval using the www and internet; Computer maintenance and practical statistical software, Data security.

NURNP 1133 Nursing Principles and Procedures I
(L-30: P-30)
Course Aim
The course is designed to provide the knowledge on basic principles of nursing to meet the health needs of the individual and family and able to develop basic nursing skills

Intended Learning Outcomes
At the completion of this course students will be able to
- explain the factors that provide comfort rest and sleep to the patients
- describe the types and purposes of beds, patient's positions, lifting and transporting
- demonstrate the various types of beds, patient's positions, lifting and transporting
- develop the ability to perform hygienic procedures

Course Content
Patient's Environment and Comfort rest and sleep: bed making, different types of beds, different positions used for client comfort, comfort devices, Common problems of sleep; apply Principles of body alignment to lifting moving turning and positioning; Personal hygiene & Health: Care of skin, care of mouth, eyes, nose, ears, hair, nails, menstrual hygiene; performing Vital signs: Temperature, Pulse, Respiration, Blood pressure & Oxygen saturation.

NURPY 1143 Physiology for Nurses I (L-37: P-15: T-13)

Course Aim

Course is designed to describe the basic functions of all body systems and apply them in their practice.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the body composition, body fluids and principles of fluid replacement
- explain the structure and functions of blood and the basic function of immune system
- illustrate the heat exchange with environment and regulation of body temperature
- describe the basics of energy balance and its regulation
- explain the functions of respiratory system and their control
- describe the functions of cardiovascular system and their control
- outline the principles of evaluating the functions of the above systems

Course Content

Introduction; The Body fluids and Blood: Functions of Blood, Properties of Blood volume, RBC, WBC and platelets and Blood grouping; Excitable tissue and Autonomic nervous system: Nerve - Conduction of nerve impulse, Muscle - Physiology of muscle contractions, Types of muscles, Autonomic nervous system; Cardiovascular system: Heart & blood vessels, cardiac cycle, cardiac sound, Blood pressure and ECG, Lymphatic system: Function of lymph, lymph nodes & spleen; Respiratory

system: Functions, Mechanisms of pulmonary ventilation, Exchange of gases in the lungs, Transport of gases & exchange of gases in tissues, Regulation of respiration. Energy metabolism: Metabolic rate, Body temperature regulation.

NURAN 1153 Anatomy for Nurses I (L-30: P-15: T-08)

Course Aim

The course is designed to provide the basic knowledge in gross and microscopic structure and the development of the human body to correlate with the clinical manifestations.

Intended Learning Outcomes

At the completion of this course students will be able to

- summarize the basic concepts and subdivisions of anatomy.
- describe the normal anatomy of various regions of human body.
- demonstrate the structure of musculoskeletal system, Integumentary system, Cardiovascular and lymphatic system, Respiratory system
- outline the medical genetics

Course Content

Cell Biology: Cell structure and function, Organelles, cell division and cell cycle; Biological membranes: structure and function, transport mechanisms, signal transduction and cell-cell interactions; Classic and molecular genetics; Histology: Structure and function of different cells and tissue types; Organ: Name of the organ and structure, location and feature large organ systems with emphasis on the relation between form and function, joints (articulations), muscular system, respiratory system, circulatory system and medical genetics.

NURBN 1162 Biochemistry for Nurses I (L-26: T-8)

Course Aim

Course is designed to provide basic knowledge in the chemistry, properties of bio-molecules in-order to understand the biochemical concepts as a basis for later work in the appropriate fields and to apply this knowledge in the promotion of health and care of people.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the structure & functions of bio-molecules of the human body
- explain the structure, kinetic properties and part of the enzymes in chemical reactions
- discuss the sources of vitamins and minerals
- explain the transport across the membrane
- illustrate the digestion and absorption of nutrients

Course Content

pH and buffer system; H-ion concentration-acids, bases buffer and Zwitterions-Henderson-Hussel Bach equations, derivation and application; Chemistry of Carbohydrates; Chemistry of amino acids and proteins; Physical and chemical properties and structure of Proteins; Chemistry of lipids; Chemistry of nucleic acids; Enzymes: Enzyme kinetics, classification, properties of enzymes, mechanism of action, coenzymes, Hemoglobin; Vitamins, Minerals, Transport across bio membranes; Oxidation-reduction potential with reference to biological system, free energy and entropy; Replication and transcription; Protein

synthesis; Plasma proteins; Immunoglobulin. Digestion and absorption of nutrients.

NURNE 1171 Nursing Ethics, Trends and Professional Adjustment I (L-15)

Course Aim

Course is designed to provide knowledge on historical growth and development of nursing, legal and ethical basis of nursing practice, international code of nursing ethics, characteristics and responsibilities of a nursing professional.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss the importance of nursing ethics and ethical behaviour in nursing profession.
- develop knowledge, skills and attitude for maintaining acceptable personal and interpersonal relationships.
- explain the organizations and registration process related to nursing.

Course Content

Definition of terms: Nursing, Profession, Nurse, Patient, Hospital, Physician/ Surgeon, Health team & ethics; International Council of Nurses (ICN) code of ethics ; Nursing Theories, Nursing as a Profession: Responsibilities of a professional nurse, Professional Etiquette; History of Nursing: History of ancient period; Changing pattern of nursing; image of nurse; current status of nursing; Florence Nightingale; Ethical dilemma Legal Responsibilities: Early adjustments:

homesickness, social adjustments; Problem solving; Critical thinking; Identify the opportunities available for Nurses for Nursing Education & Nursing Services in Sri Lanka & other Countries; Registration and organizations: Sri Lanka Nursing Council (SLNC), Graduate Nurses foundation; Explain the Organizations: Sri Lanka Nursing Association (SLNA); International Organizations: ICN, Red Cross, World Health Organization (WHO); Trends in Nursing.

NURCO 1181 Communications Skills and Health Promotion (P-30)

Course Aim

Course is designed to provide practice on developing effective communication with stakeholders and to promote health.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss the communication types, process and barriers.
- describe the importance of effective communication in nursing
- practice the communication skills through public education and formal presentation.
- develop counselling skills
- develop interpersonal skills and therapeutic communication
- develop communication skills related to clinical settings
- discuss basic activities related to health promotion

Course Content

Introduction to communication in nursing, effective communication in work place, barriers of effective communication, Demonstrate effective communication with

individuals, families, groups, communities and systems, Common communication challenges and shortcomings in hospital settings, Counselling, Health Promotion, Health Education.

FIRST YEAR SECOND SEMESTER

NURCL 1213 Clinical Practice I (F-150)

Course Aim

Course is designed to explain nursing process and develop critical thinking skills on caring the patients and carryout admission, discharge & transfer procedures and collecting specimen.

Intended Learning Outcomes

At the completion of this course students will be able to

- apply knowledge and skills in history taking, health assessment, physical assessment techniques and documentation
- develop the ability to perform basic hygienic procedures to the patients
- apply nursing process to develop nursing care plan for the patient
- apply knowledge and skills in collecting specimens

Course Content

Practice bed making, different types of beds, different positions used for client comfort, comfort devices, apply Principles of body alignment to lifting moving turning and positioning; Personal hygiene & Health: Care of skin, care of mouth, eyes, nose, ears,

hair, nails, menstrual hygiene; performing Vital signs: Temperature, Pulse, Respiration, Blood pressure & Oxygen saturation; Nursing Process/ critical thinking in nursing practice: history taking, and General Physical Examination, Formulating care plans, admission and discharge procedure, specimen collection.

NURMP 1223 Microbiology and Parasitology
(L-30:P-15:T-08)
Course Aim
Course is designed to provide knowledge about microorganisms & their clinical importance & prevention of infectious diseases.

Intended Learning Outcomes
At the completion of this course students will be able to
- explain the basic aspects of microorganism
- describe the pathogenic microorganisms and their transmission
- list the causative organisms, clinical features and prevention of the infections in human.
- describe the transmission, life cycle, clinical signs , diagnosis and treatment of parasitic diseases.
- outline the features venomous snakes

Course Content
Microbiology: Morphology, growth and multiplication, pathogenicity, genetics, nutrition and metabolism of bacteria and culture methods, Discovery and development of antibiotics, Sources and routes of microbial infection, Mode of spread & transmission of diseases , Immunity, hypersensitivity reaction,

Vaccines: immunization schedules, Systematic bacteriology, Virology, Mycology, Sterilization and Disinfection, Collection and transport of clinical specimens, Parasitology: Protozoology, Malaria, Amoebiasis, Balantidiosis, Giardiasis, Cryptos - poridiosis, Leishmaniasis, Trypanosomiases, Toxoplasmosis, Trichomoniasis, Helminths: Round worm infection, Whipworm infection, Hookworm infection, Enterobiasis, Intestinal cestode (adult cestode) infection, Larval cestode infections, Lymphatic filariasis,

Other human filarial infections, Animal filariasis, Trematode infections. Entomology: Mosquitoes, Houseflies, Fleas, Lice, Bed bugs, Ticks, Scabies, Other mites (Transmit scrub typhus) & Management.

NURNP 1231 Nursing Principles and Procedures II (L-15)

Course Aim

Course is designed to describe the nursing process and draw care plan for various disease conditions and discuss admission, discharge & transfer procedures and collecting specimen.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss the nursing process and draw care plans for various conditions.
- apply knowledge and skills in history taking and physical health assessments.
- explain the procedure in specimen collections for various tests.

Course Content

Formulate Nursing Process/ critical thinking in nursing practice: history taking, and General Physical Examination, care plans, collecting specimen for therapeutic & diagnostic measures, Admission & discharge of patient, Standard precautions and asepsis.

NURPY 1243 Physiology for Nurses II (L-34:P-06:T-13)

Course Aim

Course is designed to describe the basic functions of all body systems and apply them in their practice.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the functions of the endocrine and gastrointestinal system
- explain the function of kidney and control of micturition
- describe the changes during puberty
- explain the functions of male and female reproductive systems and outline the principles of fertility control
- discuss the functions of sensory and motor systems and autonomic nervous system
- illustrate the higher functions of the brain, arousal and sleep
- describe the functions of the special senses
- outline the principles of evaluating the functions of the above systems

Course Content

Digestive system and Energy metabolism: Function of organs of digestion, Digestion, Absorption, Urinary system: Functions of urinary system, Formation of urine, Fluid, electrolytes balance & acid base dynamic; Endocrinology: The functions of hormones & their effects, Pituitary, Pineal, Thyroid,& Parathyroid, Thymus, Adrenal, Pancreas, Ovaries & Testis, Reproduction: Functions of male reproductive system, Functions of female reproductive system, Female sexual cycle, pregnancy and lactation, Fertility, infertility and contraceptives; Neurophysiology: Introduction: Brain, spinal cord, cerebrospinal fluid, cranial & spinal nerves, Reflexes and muscle tone, The special sense organs & sensations: Pain & touch, vision, hearing & equilibrium, smell & taste, Higher function of the nervous system: learning and memory.

NURAN 1253 Anatomy for Nurses II (L-30:P-15:T-08)

Course Aim

Course is designed to provide the knowledge in organ system and basic functions of the human body to correlate with the clinical manifestations.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the normal anatomy of various regions of human body.
- demonstrate the structure of nervous system and special senses, alimentary system, genitor urinary system.
- outline the human fetal development.

Course Content

Name of the organ and structure, location and features: large organ systems with emphasis on the relation between form and function, Nervous system and special senses, alimentary system, genitor urinary system, and human fetal development.

NURBN1263 Biochemistry for Nurses II (L-37:P-06:T-07)

Course Aim

Course is designed to provide basic knowledge on metabolism of biomolecules principles of nutrition and its relation to growth; energy needs health and diseases and apply this knowledge in the promotion of health and care of people.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the metabolism of biomolecules in human body
- discuss the foods from animal and plant origin
- explain the causes and importance of malnutrition
- classify the nutritional requirements for different age group

Course Content

Carbohydrate metabolism; Lipid metabolism; Amino acid metabolism, Nucleic acid metabolism; Principles of Nutrition; Energy requirements for age groups, special population, Malnutrition, Foods and nutritive factors.

NURPA 1271 General Pathology (L-15)

Course Aim

Course is designed to describe the sequence of pathological changes which occurs in various organs or tissues in common diseases.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the basic concepts in pathology, and disease process
- explain the concepts of cells and tissues and their changes during injuries
- apply the knowledge in caring the wound of the patient

Course Content

Introduction: Cellular adaptations, necrosis, apoptosis & intracellular accumulation; Acute inflammation: Inflammation mediators, chronic inflammation; Wound healing: Factors influencing in wound healing, bone fracture and healing; Oedema: haemorrhage, thrombosis, embolism; Infarction: shock; Neoplasm: Characteristic of features of malignant and benign; Epidemiology; Carcinogens; Carcinogenesis, clinical aspects of neoplasia, paraneoplastic syndrome, laboratory diagnosis of cancer, tumour immunity, diseases of the immune system, auto immune disease: rejection and transplant, AIDS, amyloidosis.

SECOND YEAR FIRST SEMESTER

NURCL 2113 Clinical Practice II (P-30:F-100)

Course Aim

Course is designed to provide holistic care and carryout nursing procedures of respiratory, nutritional, therapeutic hot & cold applications & administration of medications to meet the need of individuals in health and illness and to assist in diagnostic & therapeutic procedures related to cardiovascular, haematology, respiratory, integumentary disorders and surgical infection.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate knowledge and skills in performing medications administration
- apply numeric skills required for basic drug calculations.
- demonstrate skills on feeding the sick people.
- demonstrate the skills on oxygen administration
- demonstrate the skills on hot and cold application
- demonstrate the skills on peri-operative nursing care
- demonstrate the skills on pain management
- demonstrate the nursing procedures related to cardiovascular, hematology, respiratory, integumentary systems and surgical infection.
- apply nursing process to provide holistic care to the individuals who suffer from carcinoma, and surgical infections and disorders in cardiovascular, hematology, respiratory, and integumentary systems

Course Content

Practical aspects of Temperature regulations: applying heat & cold; Nutritional needs: assess the nutritional needs of patients, common problems of nutrition, Anthropometric measurement; Administration of medication: Types of medication, dosage, storage, principles and routes of administration of medication, nurses' responsibilities in the administration.

Practical aspects of perioperative nursing care of patients with various surgical conditions; application of nursing care plan for pain management, diagnostic, therapeutic care procedures and

application of nursing process of cardiovascular disorders; hematology, respiratory disorders, integumentary disorders and surgical infections.

NURMS 2123 Medical Surgical Nursing I (L-45)

Course Aim

Course is designed to describe the peri-operative nursing, oncology nursing, management of pain and etiology, pathophysiology, manifestation of cardiovascular disorders, haematological disorders, respiratory disorders, integumentary system disorders and surgical infections, apply nursing process/ problem solving approach in the care of patient with specific medical- surgical condition and assist with therapeutic and diagnostic procedures.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate the peri-operative care of a patient undergoing for surgery
- describe the pathway, causes, and management of pain
- explain the causes, diagnosis and treatment of carcinoma
- identify the causes, clinical features, investigations and complications of the cardiovascular, haematology, respiratory, integumentary disorders and surgical infections,
- explain the medical, surgical and nursing management of patients with cardiovascular, haematology, respiratory, in tegumentary disorders and surgical infections,

- demonstrate the patient preparation, assist and post procedural care for diagnostic and therapeutic procedures related to cardiovascular, haematology, respiratory, integumentary disorders and surgical infections

Course Content

Perioperative nursing care of patients with various surgical conditions; Pain management, General aspects of Oncology Nursing; Nursing process pertaining to patients with disturbance in cardiovascular functions: Heart, Acquired disorders, Disorder of peripheral vessels and Blood, Central Venous Cannulation. Nursing process pertaining to patients with disturbance in hematologic disorders; Anaemia, Polycythaemia, Leucopenia, Transfusion therapy; Nursing process pertaining to patients with disturbance in respiratory functions: Nose & larynx, Bronchi, Lungs; Nursing process pertaining to patients with disturbance of Skin diseases: allergic reaction, scabies, herpes, pediculosis, eczema, psoriasis, neoplasm; Nursing process pertaining to patients with disturbance of surgical infections and wound.

NURNP 2131 Nursing Principles and Procedures III (L-15)

Course Aim

Course is designed to describe the principles and carryout procedures to meet the respiratory, nutritional needs and apply the therapeutic thermal applications and principles on safe administration of medication.

Intended Learning Outcomes

At the completion of this course students will be able to

- explain the principles on safe administering medications; oral, tropical, rectal, Injections, infusion
- discuss the manAgement of patients with respiratory needs
- discuss the various feeding methods for sick people.
- explain therapeutic usage of hot and cold applications

Course Content

Respiration needs: Physiology of respiration, factors affecting respiratory function, identify the signs & symptoms of abnormal breathing, nursing action and evaluation, oxygen administration; Temperature regulations: body's mechanism for temperature regulation, fever & types of fever, applying heat & cold, therapeutic bath: sitz bath, Hot water bath, warm water bath, tepid sponging, soaks bath; Nutritional needs: Nutritional needs of the person, factors affecting the needs, common problems of nutrition, and Nutritional assessment: Anthropometric measurement, nursing action and evaluation; Admission of medication: Types of medication, dosage, storage, principles and routes of administration of medication, nurses' responsibilities in the administration.

NURDT 2142 Diet Therapy (L-15:P-30)

Course Aim

The course is designed to provide knowledge regarding diet &apply the principles of diet therapy in the care of people with various disease conditions and provide advice to select proper nutritional diets for patients and families with alterations in different body systems.

Intended Learning Outcomes

At the completion of this course students will be able to

- analyze the nutritive value of food elements
- recognize the importance of using nutrition in health promotion and disease prevention
- develop the ability to prepare food for patients with various health conditions

Course Content

Introduction: Nutritional policies in Sri Lanka, Factors affecting food & Nutrition, Food classification, BMR; Nutritional requirement & menu plan: Balanced diet, Feeding Methods: Hospital Diet, Types of feeding methods, Enteral feeding & Parenteral feeding, Introduction to Diet Therapy: Diet as a therapeutic agent, Modification of normal diet; Diet for patients with Gastro- Intestinal disorders, liver disorders, disorders of cardio-vascular system, renal disorders, metabolic disorders, obesity and allergy.

NURSP 2153 Systemic Pathology (L-40:P-15)

Course Aim

The course is designed to describe the causes and pathophysiological changes in various disease conditions with their clinical manifestations, progress and outcome and apply that knowledge in the care of patients.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the causes and pathophysiological changes in various disease conditions

- discuss the clinical manifestations, progress and outcome of various diseases
- apply the knowledge on pathophysiological changes in caring the patient

Course Content

Special pathology of major organ systems; Respiratory tract: bronchial asthma, obstructive and restrictive airway disease, pneumonia and tuberculosis, lung tumours; Cardiovascular system: hypertension, ischemic heart disease, heart failure, infective endocarditis, rheumatic vascular disease, varicose vein; Gastrointestinal Tract: diseases in oral cavity, oesophagus, stomach & intestine; Inflammatory bowel disease: diarrhoea; Liver: hepatitis, gall bladder stone; Endocrine system: thyroid gland, thyroid carcinoma, diabetes mellitus; Renal system: glomerular; Breast; Cervical cancer; Prostate cancer; Bones; CNS.

NURPS 2162 Psychology for Nurses (L-30)

Course Aim

The course is designed to acquire knowledge on fundamentals of psychology and develop an insight into behaviour of self and others; which will enable students to develop positive attitude and good interpersonal relationships in the practice of nursing in all health care settings.

Intended Learning Outcomes

At the completion of this course students will be able to
- describe the fundamental of psychology
- explain the behaviours of self and others

- describe different personality traits and its associated factors
- apply the psychological aspects while caring the patients

Course Content

Introduction to Psychology, Biological basic of behaviour, Cognitive processes, Motivation and Emotional Processes, Learning, Personality and its Assessment, Developmental Psychology, Normal & Maladaptive behaviour, Psychological assessment & tests, Mental Health, Counselling and Nursing Profession.

NURPH 2173 Pharmacology I (L-45)

Course Aim

The course is designed to provide knowledge on principles of general and clinical pharmacology, pharmacology of different groups of drugs used in clinical practice, their unwanted effects and clinical applications and to learn skills and responsibilities of a nurse related to usage of medications in clinical setting.

Intended Learning Outcomes

At the completion of this course students will be able to
- describe the terms and definitions that are used in pharmacology
- explain the basic principles of clinical pharmacology
- outline the pharmacology of different groups of drugs
- explain the clinical application of drugs
- identify adverse drug effects
- describe the skills related to usage of drug in the wards and other clinical setting.

- plan health education programme to the patients about medications

Course Content

Introduction; Terminology; Pharmacokinetics: Principles of administration of drugs, Routes of administration of drugs, Nurses responsibilities in the administration & safe custody of drugs; Antimicrobial: Introduction to chemotherapy, betalactum antibiotics, antibiotics act on bacterial protein synthesis, antibiotics act on bacterial DNA synthesis, miscellaneous antibiotics, anti TB and anti leprosy drugs, anti malarial , anti amoebic drug and other anti protozoal agents, anti fugal agents, antiviral agents; Drugs acting on ANS: sympathomimetics and sympatholytics, cholinomimetic & anti cholinergics; Drugs acting on CVS & renal system: diuretics, drugs acting on RAS, drugs used in coagulation disorders, dyslipidaemias, anti anginal agents, antihypertensives, drugs used in HF , antiarrhythmic agents/

SECOND YEAR SECOND SEMESTER

NURCL 2212 Clinical Practice III (P-15: F-75)

Course Aim

Course is designed to explain the principles and carryout procedures on safety, security and self-esteem needs, sexual needs of the individual in health and illness and the nursing procedures of dental, gastro intestinal, genito urinary, and Breast disorders, and to assist in diagnostic & therapeutic procedures related to disease conditions.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate skills in performing wound care
- demonstrate skills in maintaining the fluid electrolyte balance.
- apply numeric skills required for calculating infusion rate.
- apply the skills on caring the patients with altered sensory needs and follow the standard precautions for the safety of patients
- demonstrate the nursing procedures related to dental, gastro intestinal, genito urinary, and Breast disorders
- apply the nursing process to provide holistic care to the individuals who are suffering from dental, gastro intestinal, genito urinary, and Breast disorders

Course Content

Nursing procedures related to Fluid and Electrolytes, Acid base balance, Wound care, Safety, Security and Self-esteem, Sexuality and Death care.

Diagnostic, therapeutic care procedures and application of nursing process for dental, gastrointestinal, genitourinary, and breast disorders.

NURMS 2222 Medical Surgical Nursing II (L-30)

Course Aim

Course is designed to describe the etiology, pathophysiology, manifestation of dental, gastro intestinal and genito-urinary and breast diseases and apply nursing process/ problem solving approach in the care of patient with specific medical- surgical condition and assist with therapeutic and diagnostic procedures

Intended Learning Outcomes

At the completion of this course students will be able to

- identify the causes, clinical features, investigations and complications of the disorders in dental, gastro intestinal system, genitourinary system and breast
- explain the medical, surgical and nursing management of patients with dental, gastro intestinal, genitourinary and breast disorders
- explain the patient preparation, assist and post procedural care for diagnostic and therapeutic procedures related to dental, gastro intestinal, genitourinary and breast disorders

Course Content

Nursing process pertaining to patients with dental functions: gingivitis, periodontitis , abnormalities of teeth, dental plague, caries, malocclusion, dental injuries, care of dentures: Nursing process pertaining to patients with disturbance of : Gastrointestinal functions, Hepatic functions, Biliary functions, Pancreatic functions, Splenic functions, Mouth & Esophagus, Stomach & duodenum, Small & large bowel, Liver, Pancreas & gall bladder, Spleen; Therapeutic & diagnostic procedures related to gastrointestinal procedure: Abdominal Paracentesis, Gastro Oesophagescopy, ERCP, Proctoscopy, Sigmoidoscopy / colonoscopy, Digital Rectal examination, Liver biopsy/liver abscess aspiration; Nursing process pertaining to patients with disturbance of Genitourinary function, male reproductive organs, nephritis, renal failure, congenital anomalies, menstrual abnormalities, infection and inflammation; Therapeutic & diagnostic procedures related to Cystoscopy, Supra pubic

puncture, Peritoneal dialysis catheter, Fine needle aspiration biopsy , Kidney biopsy. Nursing process pertaining to patients with Breast Disorders & infections- mastitis, cysts, abscess, neoplasms

NURNP 2231 Nursing Principles & Procedures IV (L-15)
Course Aim
Course is designed to provide the principles on altered condition of fluid electrolytes, wound care, safety, security, self-esteem and sexual needs and to meet the needs of the individual in with special conditions.

Intended Learning Outcomes
At the completion of this course students will be able to
- explain the wound classification and principles on wound healing
- interpret the altered conditions of fluid balance & acid base balance.
- discuss care of patients with altered sensory, sexual needs and follow the standard precautions for safety

Wound care: Wound classification and healing; Conditions related to altered fluid, electrolytes and acid base balance, Security and self esteem needs: factors affecting security and self esteem, common health problems; Sexual needs: factors affecting sexual functioning, common health problems: assessment, planning nursing interventions, and evaluation of nursing action; Safety needs: Factors affecting the person's activity to protect him self, common safety problems,

assessment, planning, nursing interventions and evaluating safety measures; Care of patients with special conditions: Unconscious , chronically ill, convulsive, sensory alteration and immobile patient.

NURCH 2243 Community Health Nursing I (L-45)

Course Aim

Course is designed to provide knowledge on family& community health and describe the concepts of epidemiology and influence of environmental factors on health, prevention and control the communicable & non communicable diseases.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the concept of community, community diagnosis & home visit.
- describe the epidemiology, epidemiological triad, prevention & control of communicable & non communicable diseases.
- identify the importance of environmental hygiene on health of the people.
- discuss the family nutrition for all types of age group
- explain the occupational health and related hazards.
- discuss the importance of immunization programme in the prevention of child hood diseases.

Course Content

Concept of Community: Community diagnosis, home visit, Family care; Concept of health; Dimensions of health, disease continuum; Definition of terms; Epidemiology: Natural history

of disease: Epidemiological triad: Epidemiology of communicable and non communicable diseases; Environmental health: Air, Ventilation, Lightening, Noises, Radiation, , Disposal of solid wastes, Disposal of human excreta, Housing, Water; Water borne diseases; Occupational Health; Health Education: Family Nutrition & Metabolic Syndrome; Immunization: Cold chain; Health Promotion.

NURCN 2252 Child Health Nursing I (L-30)

Course Aim

Course is designed to provide the knowledge to assist the growth and development of healthy children and assist them in providing nutrition and immunization.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the features of new born.
- discuss the appropriate care of new born
- explain the minor health problems in new born
- discuss the growth & development of a child
- discuss the nutritional need of children

Introduction: Right of Child, Baby friendly Hospital, Biostatistics related to child health, Child care through the ages; New Born: Healthy newborn, Assessment, Reflexes, Care of new born, Health problems of newborn, High risk new born; Growth & Development: Developmental milestones, ECCD; Nutrition: nutritional requirements, balanced diet for children, breast feeding, weaning, feeding problem; Immunization:

Immunization Schedule EPI, vaccination, cold chain maintenance; Assessment of children: use of specific charts & records; Illness & the child.

NURPH 2262 Pharmacology II (L-30)

Course Aim

The course is designed to describe the responsibility of a nurse in administration of drugs and to list the chemical names, doses, preparations & side effects of the various common drugs & therapeutic agents and also able to explain the principles of storage & make appropriate reports & records of drugs.

Intended Learning Outcomes

At the completion of this course students will be able to

- explain the clinical application of drugs for various diseases
- identify adverse drug effects
- explain the actions of medications in the body
- plan health education programme to the patients about medications

Course Content

Rheumatology; NSAIDs, immune modulators, drugs used in RA and Gout; Drugs act on RS: antihistamines & antitussives, drugs

used in BA; Drugs acting on GIT: drugs used in PUD, anti emetics & laxatives, antidiarrhoeals; Endocrinology: DM, thyroid and anti thyroid drugs, corticosteroids, posterior pituitary hormone; Anaemia; IV fluids; Drugs act on CNS: CA, LA, skeletal muscle relaxants, opioids; Psychotropic drugs: anticonvulsants, drugs

used in PD & migraine, hypnotics & anxiolytics, anti psychotics,anti depressants& mood stabilizers, substance abuse; Reproductive: sex hormones & related drugs, hormonal contraception, other drugs used in obstetrics; Malignant disease: drugs used in cancer chemotherapy; Topical preparations: Ophthalmic, dermatological etc; Bone disorders: Calcium & vitamin D, drugs used osteoporosis.

NURSO 2272 Sociology for Nurses (L-30)

Course Aim

Course is designed to provide nursing students with a through multidisciplinary, systematic, and comparative knowledge on sociology. The prime objective of the course is to train students to analyze and apply sociological knowledge in nursing practice.

Intended Learning Outcomes

At the completion of this course students will be able to

- identify the important social and cultural aspects related to nursing practice
- identify the relationship between social factors and health
- discuss the influence of social and cultural factors on the interaction between health care workers and patients
- apply basic sociological knowledge and principles to personal and professional life
- apply sociological knowledge and methods to solve the social problems in the health care setting and building better relationship between nurses and patients.
- develop knowledge, interpretation, social skills, values and soft skills

Course Content

Introduction: Definition of sociology, Scope and subject matter of sociology, Sociology as a science, Importance of sociology; Fundamental concepts: Society, Community, Institution and association, Social structures; Man, society and environment: Origin of society, Inter dependence between man and society; Social Processes: Co-operation and competition, Conflict and accommodation, Assimilation and isolation; Social groups; Marriage and family; Culture; System of social stratification; Social change: Factors influencing social change; Social planning and social reconstruction: Social legislation, Social security measures, selected social problems & social work.

THIRD YEAR FIRST SEMESTER

NURCL 3114 Clinical Practice IV (P-30:F-150)

Course Aim

Course is designed to demonstrate providing holistic care and carryout the nursing procedures related to Eye, ENT, Endocrine and Metabolism, Immunology, masculo-skeletal, neurology disorders and infectious diseases.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate the nursing procedures related to Eye, ENT, Endocrine and metabolic, immunology, masculo-skeletal, and neurology disorders and infectious diseases
- apply the nursing process to provide holistic care to the individuals who are suffering from Eye, ENT, Endocrine and

metabolic, immunology, masculoskeletal, and neurology disorders and infectious diseases
- carryout basic & Advance life support for the sick in emergency situation
- develop the ability to manage the emergency conditions of adult patients

Course Content

Application of Diagnostic, therapeutic care procedures and application of nursing process of Eye, ENT, Endocrine and metabolic, immunology, masculoskeletal, and neurology disorders and infectious diseases; Nursing Procedures related to Basic approach to emergency care, Airway management & Cardio pulmonary Resuscitation, Management of shock, Management of trauma, System based Emergency Management.

NURMS 3123 Medical Surgical Nursing III (L-45)

Course Aim

Course is designed to describe the etiology, pathophysiology, manifestation of Eye, Ear, Nose, Throat, Musculoskeletal, endocrine, metabolic, immunology, neurology and infectious diseases and apply nursing process/ problem solving approach in the care of patient with specific medical- surgical condition and assist with therapeutic and diagnostic procedures.

- identify the causes, clinical features, investigations and complications of the disorders in eye, ear, nose, throat, musculoskeletal, endocrine metabolic, immunologic, neurologic and infections

- explain the medical, surgical and nursing management of patients with eye, ear, nose, throat, musculoskeletal, endocrine metabolic, immunologic, neurologic disorders and infections
- demonstrate the patient preparation, assist and post procedural care for diagnostic and therapeutic procedures related to eye, ear, nose, throat, musculoskeletal, endocrine metabolic, immunologic, neurologic disorders and infections

Course Content

Nursing process pertaining to patients with disturbance in eye functions: congenital deformities, inflammatory, keratomalacia, glaucoma, cataract; Ear, Nose, Throat functions: otitis media, mastoiditis, hearing loss, congenital anomalies, epitasis, sinusitis, upper respiratory infection; Nursing process pertaining to patients with disturbance of endocrine & metabolic functions: Pancreas, Thyroid, Pituitary; Nursing process pertaining to patients with disturbance of musculo- skeletal functions: Bones, immune disorders; Neurological conditions: Meningitis, Encephalitis, Epilepsy; infectious diseases.

NURED 3132 Emergency & Disaster Nursing (L-30)

Course Aim

Course is designed to get the skills and knowledge with regards to the emergency management in hospital as well as in the community settings.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate the basic principles, assessment and management of patient in emergency condition
- explain the causes, clinical manifestation and management of patient with shock, injuries and poisoning.
- explain the emergency management of patients with conditions involved in all systems
- apply the principles and management of disaster

Course Content

Basic approach to emergency care, Airway management & Cardio pulmonary Resuscitation, Management of shock, Management of trauma, System based Emergency Management, Poisoning, Environmental emergencies, Disaster nursing.

NURCH 3142 Community Health Nursing II (L-30)

Course Aim

Course is designed to develop knowledge, skills and attitude to improve individual, family and community on promotion of health and prevention of disease. Also able to know the national health programmes and organizational pattern of health care services and its activities available at MOH level for improve the maternal, child, reproductive health and to maintain relevant records, reports and registers at MOH level.

- identify the records and reports maintained at the PHC
- partake in the National Health Programmes which aim to promote the health of the community

- describe the interactions between people & the environment in relation to health and diseases.
- apply the principles of Primary Health Care to assist the community participation in health care decisions.
- build the health of the mother and child in the field

Course Content

Records, Reports & Registers in PHC; National Health Programme: Malaria Control Programme, Tuberculosis Control Programme, Leprosy Control Programme, Filarial Control Programme, Diarrhoel Disease Control Programme, STD/ AIDS Control Programme, Family Health Programme, Immunization Programme, Role of nurse in all these programme; Demography and family welfare (family planning); Maternal and child health services: Antenatal care, Postnatal care, New born care, Infant and Child care; School health services; Primary Health Care.

NURCP 3153 Community Health Nursing Practice (F-150)

Course Aim

Course is designed to perform all the activities carried out by the PHC during antenatal clinic, postnatal clinic, well baby clinic, poly clinic and school health programme.

Intended Learning Outcomes

At the completion of this course students will be able to

- identify the needs and problem among the family members and give care to them
- teach the family according to their needs and problems

- partake in mass health education programme for their community area, based on priority needs

Antenatal Clinic

- partake in routine activities in antenatal clinics
- teach the antenatal mothers on ante-natal exercise, personal hygiene, preparation of delivery, nutritional supplements, anaemia, new born care and family planning etc
- identify the records maintained at the PHC Postnatal Clinic
- partake routine activities in postnatal clinics
- Apply skills in assisting IUD insertion.
- teach the postnatal mothers on post-natal exercise, personal hygiene, breast feeding, cord care, episiotomy care, nutritional supplements, family planning, importance of CHDR etc

Well baby Clinic & Weighing Post

- partake routine activities in well baby clinics & weighing post
- develop the skills in weighing and recording the readings in the CHDR in the weighing post
- administer vaccination
- carryout anthropometric measurements
- teach the mothers on nutrition, growth faltering, personal hygiene
- partake in the mothers club and community empowerment

School Health Programme

- plan school health programme
- mark the records which are used for the school Health Programme
- partake the activities in school Health Programme

Course Content

Practical: Visit to MOH field and Clinics

Students will be posted to MOH area for 3 weeks for full time. Activities in MOH area:

- According to the number of students they have to divide the houses equally and do the community survey. Finally they have to submit community survey report.
- Among their selected houses they have to select any one family and provide nursing care for individual and families at home based on priority needs. (Individual – Family Case Study)
- Visit the MOH Office, Children home, home visit and mothers' club meeting, slaughter house, preschool, and post partum visit
- Inspection of hotel, bakery and water factory
- Involving in the screening programmes at preschool and schools, NCD prevention, occupational health, school dental care and vaccination, school medical inspection and health education

Students will be posted to Primary Health Centre and asked to learn about PHC activities and set – up. They will be posted to antenatal clinic, post natal clinic, well baby clinic and weighing post to observe the delivery of primary health care services and follow up of patients with common problems and illnesses. End of the proposed hours students have to submit an assignment regarding the activities at Primary Health Center.

NURRM 3163 Research Methodology & Medical Statistics (L-45)

Course Aim

Course is designed to state the definition and basic principles of research, explain the purpose and objectives of nursing research, identify problems for research study, plan and conduct simple research related to nursing, present research findings, appreciate the importance of research in raising the standard of patient care.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss the various types and designs of research
- identify the research problem
- demonstrate the ability to choose methods appropriate to research aims
- develop skills in qualitative and quantitative data analysis and presentation
- build advanced critical thinking skills
- demonstrate enhanced writing skills

Course Content

Introduction; Defining the research problem: Selection of the research problem, selection of researchable topic, necessity of defining the problem, techniques involved in defining the problem; Literature survey: review of literature, concepts, principles and other aspects of problem review of researches previously conducted; Formulation of objectives: General and specific objectives & hypothesis; Research Design: features of good design, different research designs, methods of investigation

sampling techniques; Collection of data: Methods of Data collection: Preparation of questionnaire, statistical techniques applicable in research: Processing & Analysis of Data; Interpretation of results; Preparation & presentation of report: report writing style, context, bibliography.

THIRD YEAR SECOND SEMESTER

NURRP 3212 Research Project I (I-200)

Course Aim

Course is designed to explain the purpose and objectives of nursing research, identify problems for research study, plan and conduct simple research related to nursing.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate knowledge on basic research concept
- build critical thinking and reading skills
- design the tentative research plan
- develop scientific writing skills

Course Content

Selection of the research problem, selection of researchable topic, necessity of defining the problem, techniques involved in defining the problem; Literature survey: review of literature, concepts, principles and other aspects of problem review of researches previously conducted; Formulation of objectives: General and specific objectives & hypothesis; Research Design: features of good design, different research designs, methods of investigation sampling techniques.

NURPM 3226 Psychiatric & Mental Health Nursing (L-45:F-150)

Course Aim

Student should be able to outline the perspectives of Mental Health Nursing and should be able to describe the psycho - pathology of various mental disorders and apply specific Nursing skills in various settings.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the principles and concepts of psychiatric Mental Health Nursing
- outline comprehensive nursing assessment to the patient with various psychiatric conditions
- carry-out nursing interventions to the patient, family and community
- develop therapeutic communication skills

Course Content

Introduction to Psychiatric Nursing, Principles and Concepts of Mental Health Nursing, Assessment of mental health status, Therapeutic communication and nurse-patient relationship, Non pharmacological therapies used in mental disorders, Psycho pharmacology, Nursing management of patient with Schizophrenia, and other psychotic disorders, Nursing management of patient with mood disorders, Nursing management of patient with neurotic, stress related and somatization disorders, Nursing management of patient with Substance use disorders, Nursing management of patient with personality, Sexual and Eating disorders, Nursing management

of childhood and adolescent disorders including mental deficiency, Nursing management of organic brain disorders, Psychiatric Emergencies and Carry out crisis intervention , Community Mental Health Nursing, Psychological issues of hospitalized patients, Maternal mental health, Inheriting psychiatric conditions.

NURNE 3231 Nursing Ethics, Trends & Professional Adjustment II (L-15)

Course Aim

Course is designed to further develop understanding of ethics in nursing and concept of Bioethics.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss occupational factors that affect nurses in ethical decision-making.
- identify major bioethical issues related to health care
- discuss ethical dilemmas in direct nursepatient relationships
- discuss specific ethical issues related to nursing practice.

Course Content

Ethical decision-making: factors affecting ethical decision making by Nurses; introduction to bioethics; ethical dilemmas in direct nurse patient relationship; ethical issues related to nursing practice; politics, ethics and access to health in Sri Lanka; contribution of an individual nurse to the nursing professional development; employee etiquette; facilitating colleagues and student nurses in their learning clinical settings.

NURCN 3243 Child Health Nursing II (L-45)

Course Aim

Course is designed to describe the problems of children and provide appropriate care for them.

Intended Learning Outcomes

At the completion of this course students will be able to

- identify the causes, clinical features, investigations for the common illnesses in all the systems
- explain the pathophysiology, medical & nursing managements for the common illnesses in all the systems
- apply the nursing process in caring the sick child
- discuss the appropriate care for the sick children

Course Content

Health Deviations: The child with respiratory dysfunction: upper respiratory infection, pneumonia, bronchitis, bronchial asthma, viral induced wheezing; Gastro intestinal disorders: congenital abnormalities, infectious diseases, peptic ulcer, & cirrhosis; Blood disorders: anaemia, thalassemia, hamophilia, leukaemias, lymphomas; Cardiac disorders: congenital heart deformities, rheumatic fever, congestive heart failure, infective endocarditis; Genitourinary disorders: renal failure, urinary tract infection, acute glomerulonephritis; Neurological disorders: convulsive disorders, cerebral palsy, spinal defect, Meningitis, Hydrocephalus, encephalitis & mental retardation; Endocrine dysfunction: dwarfism, diabetes incipidus, gigantism, acromagaly; Integumentary dysfunction: scabies, impetigo, burns; Skeletal dysfunction: fractures, congenital deformities,

osteomylities, fractures; Communicable diseases: neonatal infection, typhoid, mumps, measles, chickenpox & pertussis.

NURCP 3253 Child Health Practice (P-30:F-100)

Course Aim

Course is designed to develop the skills in handling the problems of children and provide appropriate care for them.

Intended Learning Outcomes

At the completion of this course students will be able to

- develop knowledge and skill in care the sick children with common illnesses in all the systems.
- draw the appropriate care plan for sick children with all disease conditions.
- apply practical skills on doing procedures for care the sick children.
- apply communication skills to educate the child's parents

Course Content

Handle the paediatric patients with respiratory dysfunction, Gastro intestinal disorders, Cardiac disorders, Genitourinary disorders, Neurological disorders, Endocrine dysfunction, Integumentary dysfunction, Musculo-Skeletal dysfunction, Communicable diseases: neonatal infection, typhoid, mumps, measles, chickenpox & pertussis. Practice the procedures and educate the caregivers regarding appropriate prevention & cure.

FOURTH YEAR FIRST SEMESTER

NURTL 4113 Teaching & Learning (L-30:P-30)

Course Aim

Course is designed to outline the principle and concepts of education, methods of teaching, curriculum development and use this knowledge while preparing, implementing and evaluating teaching programmes at various settings.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the philosophy, trends & aim of nursing education.
- explain the curriculum development and curriculum planning.
- prepare rotation plan, course plan & unit plan.
- discuss class room & clinical teaching methods, use of audio visual aids in nursing education.
- explain the principles , Characteristics and types of evaluation

Course Content

Philosophy of education; Aim & trends in education & nursing education; Nursing curriculum: curriculum planning, course planning & unit planning; Educational objectives & domains; teaching & role of nursing educators; Principles & methods of teaching; Concept of Good teacher and good learning; Review of principles of educative process; learning process and communication; Teaching- learning methods; class room & clinical teaching; Teaching plan & Aids; Evaluation.

NURLM 4123 Leadership & Ward Management (L-30:F-50)

Course Aim

Course is designed to describe the concepts, principles, methods& process of management and apply these principles in hospitals and community settings.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the principles of management & supervision.
- apply these principles to the management of a ward, unit or a clinic.
- describe the principles of supervision & guidance in ward management.
- discuss the recruitment, selection process, budget planning & material management in ward management.
- explain the patient assignment, rotation plan, supervision and guidance.
- communicate effectively in oral & written modes

Course Content

Introduction: Concept, principles, characteristics & levels of management, management process; Ward management; Describe the management process; planning, organization, staffing, leading & directing, controlling; Communication; Human resource management: Job description, process of HRM, recruitment & selection process; Job description of various personnel; Budget planning; Material management: Inventory and quality control; patient assignment and rotation; Principles of supervision & guidance; documentation: Maintenance of records or reports; Performance Appraisal, Group dynamics.

NURMN 4133 Maternity Nursing I (L-45)

Course Aim

Course is designed to provide the knowledge on assessing the physical and mental needs of the child bearing women and care during normal pregnancy, labour& assist in delivery and new born care.

Intended Learning Outcomes

At the completion of this course students will be able to

- recall the anatomy and functions of female reproductive system& menstruation.
- explain the problems and their management in reproductive system
- explain the disorder of menstrual cycle and its management
- describe the fertilization, development of foetus
- describe the care during uncomplicated pregnancy, labour
- assist in delivery and care of new born

Course Content

Review of anatomy and physiology of female reproductive system; Menstrual cycle; Fertilization &development of foetus: Conception an embryonic development: Gametogenesis, Fertilization, Placenta &Amniotic fluid, Foetal circulation; Pregnancy: physiological changes in pregnancy and minor disorders in pregnancy; Normal Labour and Physiology of puerperium: Foatal skull, Female pelvis, stages of Labour, patogram, Placental delivery, Induction of Labour, Involution of uterus & Postnatal care; Influence of maternal nutrition, exercise and relaxation; health and environment on the developing foetus; postnatal check-up, post natal exercises; Normal new born:

physiology of newborn, Care of new born, bath, immunization; Breast-feeding; Family Planning Methods.

NURMP 4143 Maternity Nursing Practice I (F-150)

Course Aim

Course is designed to assess the physical and mental needs of the child bearing women and understand normal pregnancy, labour, new born & assist in conducting delivery.

Intended Learning Outcomes

At the completion of this course students will be able to

- provide nursing care for patients with gynaecological and reproductive disorders
- perform antenatal screening, complete physical examinations include breast and abdominal examinations.
- manage the 1st, 2nd, and 3rd stage of Labour
- perform complete physical assessment for post natal mothers
- educate the antenatal, postnatal mothers on nutrition, breast feeding, new born care etc.

Course Content

During the posting they have to perform breast examination & teach self-breast examination, describe female pelvis with regards to diameters and land marks, take obstetrical history, perform general physical examinations on antenatal mothers, perform abdominal examinations on pregnant mothers, perform urinalysis for antenatal mothers, measure blood pressure, health educate on preparation of delivery, health education ante-natal exercise, demonstrate mechanism of normal labour, prepare the mother for labour, perform vaginal examination, conduct uncomplicated labour under supervision, assist repair of

episiotomy, manage an immediate post-partum mother in the labour room, perform postnatal examinations, perform post natal care, provide care of episiotomy, assist in breastfeeding, perform new born examination, document the delivery details & perform immediate care of new- born.

NURCL 4143 Clinical Practice V
(Neurology & Urology Nursing) (F-150)
Course Aim
Course is designed to demonstrate providing holistic care and carryout the nursing procedures related to neurology, & urology disease conditions

Intended Learning Outcomes
At the completion of this course students will be able to
- demonstrate the advanced care of patients with neurology, & urology disease conditions
- apply nursing process in caring the patients with neurology, & urology disease conditions
- provide holistic care to the patients with neurology, & urology disease conditions

Course Content
Practical aspects of management of Neurologic conditions and prepare nursing care plan, Rehabilitation of stroke patients; practical aspects of management of urologic disorders, prepare care model for CKD patients.

FOURTH YEAR SECOND SEMESTER

NURRP 4216 Research Project II (I-600)

Course Aim

Course is designed to explain the purpose and objectives of nursing research, identify problems for research study, plan and conduct simple research related to nursing, present research findings, appreciate the importance of research in raising the standard of patient care.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate knowledge on basic research concept
- exhibit critical thinking and reading skills
- design the research
- develop scientific writing skills

Course Content

Research Design: features of good design, different research designs, methods of investigation sampling techniques; Collection of data: Methods of Data collection: Preparation of questionnaire, statistical techniques applicable in research: Processing & Analysis of Data; Interpretation of results; Preparation & presentation of report: report writing style, context, and bibliography.

NURGN 4222 Geriatric Nursing (L-30)

Course Aim

Course is designed to describe the problems of older adults and provide appropriate care for them.

- describe the normal physiological changes take place in all systems in elders.
- discuss the needs of the elders

- explain the common health problems of elders
- discuss the appropriate care for the elders

Course Content

Overview of ageing: terms, theories, rights of elders, attitudes about ageing; Physical changes and common problems: physiological changes in all systems; Effects of impairment on communication; Problems affecting mental health: dementia, delirium, depression; Cognition and perception needs; Nutrition and fluid balance: changes in body composition, nutritional assessment, identify the risk client; Safety needs of older adults: falls, burns, poisoning &accidents; Love &Sexual needs: Changes in reproductive organs and sexual behaviour, barriers to sexual health and measures to solve the problem; Spiritual needs; coping and Stress: methods to reduce the stress; Rest and Sleep; Medications for elders; Promoting quality of life: Recommended healthy practices; End of life care.

NURMN 4233 Maternity Nursing II (L-45)

Course Aim

Course is designed to provide the knowledge on high risk pregnancy; abnormal labour, high risk new born & assist in conducting abnormal delivery, guide the health personnel in the care of mother and baby and provide appropriate intervention in emergency situations in obstetrics.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss the high risk pregnancy & its management
- explain the abnormal labour
- describe puerperal complications
- discuss the management of obstetric emergencies

Course Content

Abnormalities of pregnancy: Multiple pregnancies and its management, Hyperemisis gravidaram, ectopic pregnancy, trophoblastic neoplasia, Hydatidiform mole, placenta praevia, abruption placenta & ante partum haemorrhage; diagnosis and management of high risk pregnancies and nursing care; Diseases complicating pregnancy: Hypertension, anaemia, heart disease, diabetic mellitus, Rh isoimmunization, bronchial asthma; Abnormal labour; Forceps delivery, caesarean section, preterm pre-labour rupture of membrane, prolonged labour, malposition, pre term labour; Abnormalities of placenta & amniotic fluid: polyhydramniosis, oligohydramnios; Obstetrical emergencies: antepartum & postpartum haemorrhage, shoulder dystocia & uterine rupture; Abnormal puerperium: postpartum hemorrhage, retained placenta, placenta accrete, uterine inversion, puerperal sepsis, breast complications, psychological disorders during puerperium.

NURMP 4242 Maternity Nursing Practice II (F-100)

Course Aim

Course is designed to assist in conducting abnormal delivery, guide the health personnel in the care of mother and baby and provide appropriate intervention in emergency situations in obstetrics.

- develop the skill in assisting the LSCS, forceps and vaccum deliveries
- apply nursing process in managing the abnormalities and medical, surgical conditions that complicating pregnancy
- partake in the abnormal labour, puerperium and its complication
- apply knowledge in managing the obstetrical emergencies

Course Content

During the ward posting, students have to perform general physical examinations on antenatal mothers, perform abdominal examinations on pregnant mothers, prepare the mother for labour, perform vaginal examination, conduct uncomplicated labour under supervision, assist repair of episiotomy, manage an immediate post-partum mother in the labour room, provide care to a postnatal mother with abnormal delivery, perform postnatal examinations & postnatal care, provide care of episiotomy, assist IUD insertion, assist in breast feeding, perform newborn examination, document the delivery details &perform immediate care of new-born.

NUREO 4242 Emergency and Oncology Nursing Practice (F-100)

Course Aim

Course is designed to demonstrate how to provide holistic care and carryout the nursing procedures related to emergency & oncology conditions

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate the advanced care of patients with Emergency & oncology disease conditions
- build the ability to provide holistic care to the patients with emergency & oncology disease conditions
- apply nursing process in caring the patients with emergency and oncology disease conditions

Course Content

Emergency Nursing: BLS, ALS, Pain Management, nursing process pertaining to Emergency condition; Application of Oncology Nursing; fundamentals of Oncology nursing, holistic management of patient, Palliative care, end of life care.

NURGP 4252 Geriatric Nursing Practice (F-100)

Course Aim

Course is designed to assist older adults with various problems and provide appropriate care for them

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate the holistic care of the elders in the elders home
- apply the knowledge and skills in assisting the elders in their day to day activities
- demonstrate therapeutic communication with elders

Course Content

Assisting the client with walking, changing position, lifting, transporting, daily care- brushing, bathing, dressing and grooming, help in active and passive physical exercises, providing medications, organize spiritual events, documentation maintain daily care note, plan and prepare meals according to the nutrients requirement and condition of the client; Assess and care the client with common problems: bedsores, urinary tract infection, incontinent of urine and stool, prostatitis, hearing problems, alzheimer's disease, dementia, depression, arthritis/ osteoporosis, parkinson's disease, diabetics; perform therapeutic communications with older adults.

5.3 Curriculum for BPharmHons -16th Batch

5.3.1 Credit Allocation and Distribution

Year	Semester	Credits			Total Credits	
		Theory	Practical	Field experience/ Hospital Practice		
First year	Semester I	12	02	-	14	**28**
	Semester II	12	02	-	14	
Second year	Semester I	13	03	-	16	**30**
	Semester II	11	03	-	14	
Third year	Semester I	14	01	02	17	**32**
	Semester II	10	03	02	15	
Fourth year	Semester I	17	02	01	20	**30**
	Semester II	04	-	06	10	
Total credits		**93**	**16**	**11**	**120**	

5.3.2 Courses offered in First Year

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field experience/Hospital practice	Total	Theory	Practical	Field experience/ Hospital practice
Semester 1								
AHSBE 1110	Basic English	AC			-	60	-	-
AHSCL 1120	Basic Computer Literacy	AC			-	10	44	-
PHABS 1131	Basic Statistics	01	-	-	**01**	15	-	-
PHAAP 1143	Anatomy for Pharmacy	2.5	0.5	-	**03**	30+08*	15	-
PHABP 1153	Biochemistry for Pharmacy I	2.5	0.5	-	**03**	27+08*	15	-
PHAPP 1163	Physiology for Pharmacy I	03	-	-	**03**	38+13*	15	-
PHACH 1173	Pharmaceutical Chemistry I	02	01	-	**03**	30	30	-
PHAPM 1181	Pharmaceutical Mathematics	01	-	-	**01**	15	-	-
	Total	**12**	**02**	-	**14**	**254**	**119**	-

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field experience/Hospital practice	Total	Theory	Practical	Field experience/ Hospital practice
Semester II								
PHASF 1210	Safety and First Aids	-	-	-	-	-	08	-
PHABP 1222	Biochemistry for Pharmacy II	02	-	-	**02**	22+08*	-	-
PHAPP 1233	Physiology for Pharmacy II	03	-	-	**03**	34+13*	3	-
PHACH 1241	Basic Community Health for Pharmacy	01	-	-	**01**	15	-	-
PHACE 1254	Physical Pharmaceutics	03	01	-	**04**	45	30	-
PHACH 1264	Pharmaceutical Chemistry II	03	01	-	**04**	45	30	-
Total		**12**	**02**	-	**14**	**189**	**71**	-
Total credits for the year		**24**	**4**		**28**			-

5.3.3 Courses offered in Second Year

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field ex-perience/ Hospital practice	Total	Theory	Practical	Field ex-perience/ Hospital practice
Semester I								
PHACE 2113	Pharmaceutics I	02	01	-	**03**	30	30	-
PHACG 2123	Pharmacognosy I	02	01	-	**03**	30	30	-
PHACL 2133	Pharmacology and Pharmacotherapy I	03	-	-	**03**	45	-	-
PHAPM 2144	Pharmaceutical Microbiology	03	01	-	**04**	45	30	-
PHAPA 2153	Pathology for Pharmacy	03	-	-	**03**	45	-	-
Total		**13**	**03**	-	**16**	**195**	**90**	-

Semester II								
PHACE 2213	Pharmaceutics II	02	01	-	**03**	30	30	-
PHACG 2223	Pharmacognosy II	02	01	-	**03**	30	30	-
PHACL 2232	Pharmacology and Pharmacotherapy II	02	-	-	**02**	30	-	-
PHAFP 2243	Forensic Pharmacy and Ethics	03	-	-	**03**	45	-	-
PHACO 2253	Community Pharmacy	02	01	-	**03**	30	30	-
Total		**11**	**03**	-	**14**	**165**	**90**	-
Total credits for the year		**24**	**06**		**30**			

5.3.4 Courses Offered in Third Year

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field experience/ Hospital practice	Total	Theory	Practical	Field experience/ Hospital practice
Semester I								
PHAPT 3112	Pharmaceutical Technology I	02	-	-	**02**	30	-	-
PHAHP 3122	Hospital Pharmacy	02	-	-	**02**	30	-	-
PHAPR 3132	Hospital Pharmacy Practice I	-	-	02	**02**	-	-	120
PHACG 3143	Pharmacognosy III	02	01	-	**03**	30	30	-
PHACL 3153	Pharmacology and Pharmacotherapy III	03	-	-	**03**	45	-	-
PHAMC 3163	Medicinal Chemistry I	02	01		**03**	30	30	
PHARM 3173	Research Methodology and Medical Statistics	03	-		**03**	45		
Total		**14**	**02**	**02**	**18**	**210**	**60**	**120**

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field experience/ Hospital practice	Total	Theory	Practical	Field experience/ Hospital practice
Semester II								
PHAPT 3214	Pharmaceutical Technology II	03	01	-	**04**	45	30	-
PHAPR 3222	Hospital Pharmacy Practice II	-	-	**02**	**02**	-	-	120
PHACL 3232	Pharmacology and Pharmacotherapy IV	02	-	-	**02**	30	-	-
PHAPA 3244	Pharmaceutical Analysis	03	01	-	**04**	45	30	-
PHAMC 3253	Medicinal Chemistry II	02	01	-	**03**	30	30	-
Total		**10**	**03**	**02**	**15**	**150**	**90**	**120**
Total credits for the year		**24**	**05**	**04**	**33**	-	-	-

5.3.5 Courses Offered in Fourth Year

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field experience/ Hospital practice	Total	Theory	Practical	Field experience/ Hospital practice
Semester I								
PHAPT 4112	Pharmaceutical Technology III	02	-	-	**02**	30	-	-
PHADD 4122	Drug discovery and development	02	-	-	**02**	30	-	-
PHACL 4134	Clinical Pharmacy	03	-	01	**04**	45	-	60
PHAMB 4144	Molecular Biology and Pharmaceutical Biotechnology	03	01	-	**04**	45	30	-
PHAPE 4152	Pharmacoepidemiology	02	-		**02**	30	-	-
PHAMM 4163	Pharmaceutical Management and Marketing	03	-	-	**03**	45	-	-
PHARP 4172	Research Project I	-		02	**02**	-	-	200
	Total	**15**	**01**	**03**	**19**	**225**	**30**	**260**

Course code	Course Title	Credits				Hours		
		Theory	Practical	Field experience/Hospital practice	Total	Theory	Practical	Field experience/ Hospital practice
Semester II								
PHABP 4212	Biopharmaceutics and Pharmacokinetics	02	-	-	**02**	30	-	
PHAPE 4222	Pharmacoeconomics	02	-	-	**02**	30	-	
PHAIT 4230	Industrial training	00	00	-	-	-	30	
PHARR 4236	Research Project II	-	-	06	**06**	-	-	600
Total		**04**	**-**	**06**	**10**	**60**	**30**	
Total credits for the year		**19**	**01**	**09**	**29**			

FIRST YEAR FIRST SEMESTER

AHSBE 1110 Basic English (L-60)

Course Aim

The course is designed to develop and enhance the ability to read and understand subject oriented materials and to improve the ability to communicate through speech and writing.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe how the English language is structured, and used in a theoretical framework
- demonstrate how grammar contributes to the meaning of sentences and texts
- explain the distinction between form and function in language
- illustrate language in an analytical and precise manner
- exhibit usage of correct and idiomatic English

Course Content

Reading: Basic reading, Identifying main ideas, Reading for details and understand a text from contextual clues and grammatical clues; writing: Basic grammar – revision, writing letters and memos etc, writing application and form filling and report writing skills; Listening: Listening for specific information for overall comprehension, for making inferences and note taking; Speech (Oral skills): Interviewing skills, facing interviews, Model group discussions, Inter – personal conversational patterns and presentation skill.

AHSCL 1120 Basic Computer Literacy (L-10:P- 44)

Course Aim

The course is designed to provide sufficient knowledge, skill and attitude to make use of the information technology for effective learning and practice of Para Medical degree.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the hardware of the computer system and their functions
- apply the techniques used to protect the computers from malware such as viruses
- utilize the techniques used to protect themselves from harmful effects of using computers
- illustrate computer ethics
- apply word processing to prepare documents such as notes, research reports etc
- construct spreadsheet programmes for their needs
- develop databases regarding reference material, notes, patient details etc for future retrieval.
- prepare effective presentations using computers
- utilize statistical packages to do data analysis for their needs
- make use of internet to perform literature search and electronic communication

Course Content

Introduction; Data processing; Purpose and basic components of a computer Software, hardware and operating system and its concepts and definitions, Computer operations, File

management, Internet: searching, browsing, e-mail and information retrieval using the www and internet; Computer maintenance and practical statistical software, Data security.

PHABS 1131 Basic Statistics (L-15)

Course Aim

The course is designed to provide basic knowledge in mathematics and statistics

Intended Learning Outcomes

At the end of the course unit the students should be able to,

- apply statistical techniques in data analysis
- identify different measurement variables
- apply given data in graphical form

Course Content

Identify Measurements Variables (qualitative and quantitative) Scales of measurements Identify Frequency distributions, Express data in a graphical form, Calculate central tendency, Describe disperse Distinguish Variance, range and interquantile range, Calculate Standard deviation, Calculate Coefficient of variability, Probability, Normal distribution.

PHAAP 1143 Anatomy for Pharmacy I (L-30:P-15: T-08)

Course Aim

The course is designed to briefly describe gross and microscopic structure and the development of the human body to correlate with the clinical manifestations.

Intended Learning Outcomes

At the completion of this course students will be able to

- summarize the basic concepts and subdivisions of anatomy
- describe the normal anatomy of various regions of human body
- demonstrate the structure of musculoskeletal system, Integumentary system, Cardiovascular and lymphatic system, Respiratory system
- outline the human fetal development

Course Content

Basic concepts of Anatomy and cell; Tissue Muscular Skeletal system; Nervous system and Special sense organs; Cardiovascular and Lymphatic system; Respiratory system; Alimentary system; Genito urinary system; Human fetal development; Medical genetics.

PHABP 1153 Biochemistry for Pharmacy I (L-27:P-15:T-08)

Course Aim

Course is designed to provide basic knowledge in the chemistry, properties of bio-molecules in-order to understand the biochemical concepts as a basis for later work in the appropriate fields and to apply this knowledge in the promotion of health and care of people.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the structure and functions of bio-molecules of the human body

- explain the structure, kinetic properties and part of the enzymes in chemical reactions
- discuss the sources of vitamins and minerals
- explain the transport across the membrane
- illustrate the digestion and absorption of nutrients

Course Content

Biologically important macromolecules: Introduction to Carbohydrates and different sugars, Biochemically important homo and hetero poly saccharides, Introduction to lipids and different lipids, Phospholipids, glycolipids, sterols and sterol derivatives and its biological important, Types of amino acids, proteins such as insulin, keratin and glutathione, Elastin, collagen, Eicosanoids, Muscle proteins, globular proteins and properties of proteins, Introduction to nucleic acids: DNA, RNA, DNA compaction and replication, Types of immunity and antibody formation, Structure and functions of immunoglobulin; Movement of Substance across membrane and Different types of receptors: Structure of cell membrane, movement of substances by different mechanism and different transporters; Digestion and Absorption: Introduction and carbohydrate digestion and absorption, Protein and lipid digestion and absorption; Hemoglobin: Types and oxygen dissociation curve, Synthesis of Haemoglobin, Fate of Haemoglobin and Haemoglobinopathies; Biological Oxido-reduction: Biological oxido-reduction and mitochondria; Vitamins: Vitamin A, Vitamin D, Vitamin E,K, Thiamine, Riboflavin Biotin, Nicotinic acid pantothenic acid and Pyridoxal phosphate, Vitamin B12, Folic acid and Vitamin C; Minerals: Iron metabolism, Iodine (Thyroid hormone and test for thyroid function), Calcium metabolism, Zn, Cu, Fluorine and Sc.

PHAPP 1163 Physiology for Pharmacy I (L-38:P-15:T-13)

Course Aim

Course is designed to describe the basic functions of body systems and use the knowledge in their practice.

Intended Learning Outcomes

At the completion of this course students will be able to
describe the body composition, body fluids and the principles of fluid replacement

- explain basics of immune system and blood
- i llustrate the functions of the respiratory system and its control.
- describe pumping by the heart, maintenance of blood pressure and factors affecting blood flow to various organs
- describe the heat exchange with the environment and the regulation of body temperature

Course Content

Body composition and Body Fluids: Homeostasis, Body composition, Fluid compartments and composition, Microcirculation, Lymphatic circulation, Fluid and electrolyte balance; Blood and Immune system: General properties, plasma and control of volume, Red cells, anaemia, White cells, Haemostasis, Blood groups- ABO and Rh, Innate immunity, Acquired immunity, Principles of immunization; Nerves, muscles and Autonomic nervous system: Membrane potentials and conduction of impulse, Properties of Skeletal, cardiac and smooth muscles, Basic structure and function of autonomic nervous system; Temperature Regulation and Energy Balance: Mechanisms of heat exchange, Responses in extremes of

temperature, Fever, Energy intake, expenditure and body energy storage and their regulation. Respiratory system: Functions of airways, Mechanics of breathing, Gas exchange, Respiratory acid base balance, Cardiovascular system: Electrical properties of heart and ECG, Heart as a pump, Systemic circulation, Control of cardiovascular function, Pulmonary, cerebral, coronary, splanchnic, cutaneous and placental circulations.

PHACH 1173 Pharmaceutical Chemistry I (L-30:P-30:T-02)

Course Aim

Course is designed to enable the students to gain basic knowledge on Inorganic chemistry and physical chemistry and organic chemistry

Intended Learning Outcomes

At the completion of this course students will be able to

- explain chemical kinetics
- apply the concepts of phase equilibrium
- discuss basic thermodynamics
- illustratebasic concepts of organic chemistry
- describe the stereochemistry of compounds
- define bonding of molecules

Course Content

Chemical kinetics: Rate, order and molecularity of chemical reactions, Determination of order and rate constant, factors affecting the rate of chemical reactions, kinetics of catalysis; Phase equilibrium: One component systems, Two component systems, Raoult's law, Henry's law, Three component systems, Construction of phase diagrams, Adsorption and its utilisation;

Basic thermodynamics: First law of thermodynamics, Thermochemistry, Second law of thermodynamics, and third law of thermodynamics; Bonding: Ionic, Covalent, Coordinate bonding, Molecular structure, Introduction to molecular orbitals, Vander Waal's forces, Hydrogen bonding, Metallic bonding, Bonding in molecules and their shapes, Hybridisation, Valence shell electron pair repulsion theory, Delocalisation, Magnetic properties, Polarisation, Electronegativity, Dipolemoment, Fajan's rules; Basic concepts of organic chemistry: Hybridisation in carbon compounds, Conjugation, Aromaticity, Inductive effect, Mesomeric effect, Steric effect, Organic acids and bases, Stability and reactivity of reaction intermediates, Mechanisms of reactions and factors affecting these reactions; Nomenclature of organic chemistry: IUPAC; Stereochemistry: Geometrical isomerism: Nomenclature and configurational assignment of olefins and oximes; Optical isomerism: Molecular dissymmetry and optical activity, Chirality and configuration, Notations of configuration, Configurational nomenclature, Racemic modifications, Atropisomerism in biphenyls, Enantiomerism in allenes and spiranes, Conformation and chemical reactivity of 6-membered saturated rings; Constitutional isomerism. Crystal system, Co-ordination chemistry.

PHAPM 1181 Pharmaceutical Mathematics (L-15)

Course Aim

Course is designed to enable the students to acquire knowledge in the theory and their application of mathematics in pharmacy and be able to solve the different type of problems by applying the theory

Intended Learning Outcomes

At the completion of this course students will be able to

- solve simulation, quadratic, exponentiation
- evaluate derivatives
- find maxima and minima
- use differentiation to plot graphs
- apply integration to find area underneath the curve

Course Content

Solving Equations: Simultaneous equations, Quadratic equations, Exponentiation Logarithm; Differentiation: Differentiation of functions of one real variable, maxima and minima of functions; Graph of functions; Integration: Integration of various functions, Area under the curve of functions; Differential Equations: Solutions of first order differential equations of different types.

FIRST YEAR SECOND SEMESTER

PHASF 1210 Safety and First Aid (P-08)

Course Aim

Course is designed to enable the students to develop the basic skills in safety and first aid.

Intended Learning Outcomes

At the completion of this course students will be able to

- apply basic skills of safety and first aid in different situations.

Course Content

Introduction, Basic principles Dressing and bandaging, Breathing and aspexia, Chest pain, Choking, Shock, Unconsciousness, Bleeding, Fracture and Dislocation, Injures of skin, Muscles and ligaments; Burns: Chemical and Electrical; Chemical splash in the eye, Poisoning; Miscellaneous conditions: Foreign bodies in the skin, eye, ear ,nose, throat and stomach; Frostbite ,Effects of heat, Cramps bites and stings; Transporting of injured persons; First aid box, Cardiac Pulmonary Resuscitation (CPR).

PHABP 1222 Biochemistry for Pharmacy II (L-22:T-08)

Course Aim

Course is designed to provide basic knowledge on metabolism of biomolecules principles of nutrition and its relation to growth; energy needs health and diseases and apply this knowledge in the promotion of health and care of people.

Intended Learning Outcomes

At the completion of this course students will be able to

- explain the metabolism of biomolecules in human body
- discuss the foods from animal and plant origin
- determine the nutritional requirements for different age group

Course Content

Carbohydrate metabolism: Introduction to Carbohydrate metabolism, glycolysis and Tri carboxylic cycle and control, Hexose Mono phosphate path way and significance, Metabolism of fructose and galactose, Glycogenesis and glycogenolysis and

gluconeogenesis, Blood glucose maintenance, pH maintenance in metabolic acidosis; Lipid metabolism: Introduction, composition and metabolism of lipoprotein, Lipid metabolism in liver and adipose tissue, Fatty acid metabolism, Ketone and cholesterol metabolism; Protein metabolism: Transcription and types of RNA, Translation and Post translational modification of proteins, Antibiotic inhibitors of protein synthesis and mutations; Amino acid metabolism: Introduction, Transamination and Deamination, Urea cycle, Inborn errors in metabolism; Nucleic acid metabolism: Biosynthesis of purine and pyrimidine and their regulation, Catabolism of purine and pyrimidine: Hyperuricemia; Nutrition: Principles of nutrition, Energy requirements and Energy requirement calculations, Requirements of carbohydrates, fats and proteins, Requirements of proteins and calculation, supplementary action, Nutritional requirements for infants, children, adolescents, adults, pregnant, lactating mothers and sportsmen, Obesity and Malnutrition; Food of plant and animal origin: Food of animal: Milk, Egg, Fish and Meat, Food of plant origin: Cereals, Legumes, Roots, Tubers, Vegetables, Nuts, Oils and Fibers.

PHAPP 1233 Physiology for Pharmacy II (L-34:P-03:T-13)

Course Aim

Course is designed to describe the basic functions of the body systems and use the knowledge in their practice.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe the functions of the endocrine and gastrointestinal system

- explain the function of kidney and control of micturition
- describe the changes during puberty
- explain the functions of male and female reproductive systems and outline the principles of fertility control
- discuss the functions of sensory and motor systems and autonomic nervous system
- illustrate the higher functions of the brain, arousal and sleep
- describe the functions of the special senses
- outline the principles of evaluating the functions of the above systems

Course Content

Endocrine system: Anterior pituitary, Posterior pituitary, Thyroid, Parathyroid, 1-25 dihydrocholecalciferol, thyrocalcitonin, Adrenal medulla, Adrenal cortex, Endocrine pancreas; Digestive system: Salivation, mastication, deglutition, Gastric secretion, motility and their control, Secretions of liver and exocrine pancreas and their control, Motility and secretion of small and large intestines, Defecation; Renal system: renal blood flow, glomerular function, tubular function, micturition; puberty in males and females, male reproductive system and endocrine function of testis, female reproductive system, menstruation, ovulation, fertilization, pregnancy, lactation, principles of fertility control; Nervous system: Cerebrospinal fluid, Cutaneous sensations, Motor system, Autonomic nervous system, Limbic system, Higher functions- learning and memory, Sleep, Eye, Ear, Vestibule, Smell and taste.

PHACH 1241 Basic Community Health for Pharmacy (L-15)

Course Aim

The course is designed to provide comprehensive overview on epidemiology and prevalence of communicable and non-communicable diseases and focus on the prevention and control.

Intended Learning Outcomes

At the completion of course students will be able to,

- outline the communicable and non-communicable diseases
- describe epidemiology
- explain the environmental health and sanitation
- discuss the occupational hazards and prevention

Course Content

Epidemiology: Natural history of disease – primary, secondary, tertiary prevention; Descriptive epidemiology, Analytical epidemiology, Epidemiology and control of communicable disease, Epidemiology and control of non - communicable disease, Notification , Epidemiology and control of air bone infection, Epidemiology of water and food bone infection, Epidemiology and control of vector bone infection; Occupational health; Health education principles of learning: Method of Health Education, Person to person communication; Child care: general aspects; Maternal care: general aspects; Family planning; Sanitation.

PHACE 1254 Physical Pharmaceutics (L-45:P-30)

Course Aim

The course is designed to enable the students to obtain knowledge about the physiochemical properties of pharmaceuticals dosage forms.

Intended Learning Outcomes

At the completion of this course students will be able to

- apply metrological system in pharmaceutical calculations
- apply the aspects of micrometrics in the formulation development
- explain the rheological aspects in the pharmaceutical product development.
- describe the importance of surface and interfacial phenomena in pharmaceutical formulations
- explain types of complexes used in drug development
- apply stability studies in pharmaceuticals
- discuss type of pharmaceutical dispersions

Course Content

Pharmaceutical calculation: Metrology: Metric weights and measures, Basic derived S.I. weights and measures, Weighing–selection and care of weights and balance, Weatphal balance, Sensitivity reciprocal and minimum weighable quantities, Density - absolute, apparent and relative, Specific gravity, Specific volume; Micrometrics: Particle size, Size distribution, Methods of determining particle size, Particle shape and surface area, Pore size, Derived properties of powders; Rheology: Viscosity, Newtonian and Non Newtonian fluids, Thixotropy and its applications, Rheology of disperse system, Viscometers; Surface and interfacial Phenomena: Liquid interfaces, Adsorption at liquid interfaces, Electrical properties of interfaces, Surface tension and it determination, Classification of Surfactants; Complexation and Protein binding: Complexation: Definition, Classification,; Protein binding: Experimental

methods of protein binding, hydrophobic interaction,; Kinetics: Decomposition and stabilisation of medicinal agents, Accelerated stability analysis, Kinetic of drug transport; Catalysis: Theory of catalysis and its application in Pharmacy; Solution: Solubility, Factors affecting solubility, Steady state diffusion, Dissolution, Drug release, Diffusion principles in biological system and Isotonic solution; Colloids: Introduction, Types of colloidal systems, Properties of colloids - Optical, Kinetic and Electric, Solubilisation; Coarse dispersion: Suspension: Interfacial properties of suspended particles, Flocculation and Deflocculation in suspension, Formulation of suspension; Emulsion: Theories of emulsification, Physical stability of emulsion, Preservation of emulsion, Rheological properties of emulsion, emulsion formulation, Special emulsion system and gels.

PHACH 1264 Pharmaceutical Chemistry II
(L-42:P-30:T-03)
Course Aim
Course is designed to enable the students to gain knowledge on organic compounds.

Intended Learning Outcomes
At the completion of this course students will be able to
- discuss the structure of organic compounds
- explain the preparation of organic compounds

- identify the type of reaction mechanism
- predict the reaction mechanism
- describe the reactions of organic compounds

Course Content

Structure, Preparation, Reaction of organic compounds: Alkane, Alkene, Alkyne, Alkyl halides (SN1,SN2,E1,E2 reactions), Alcohol, Aldehyde, Ketones, Carboxylic acid, Esters, Amines, Amides, Heterocyclic compounds.

SECOND YEAR FIRST SEMESTER

PHACE 2113 Pharmaceutics I (L-30:P-30)

Course Aim

The course is designed to enable the students to obtain knowledge about dosage forms classifications, dispensing techniques of various dosage forms and patient medication counselling and safe use of medication.

Intended Learning Outcomes

At the completion of this course students will be able to

- outline dosage forms and their classifications
- discuss pharmaceutical excipients
- explain posology and route of administration
- identify different parts of prescription
- explain the dispensing techniques of various dosage forms
- discuss important components of patient medication counselling and safe use of medication

- describe galanical preparations

Course Content

Introduction to dosage forms: Classification of Dosage forms, Concepts of formulation, Route of administration, Introducing Pharmacopoeias and formularies, Historical background and developments of dosage forms; Pharmaceutical excipient (preservatives flavouring agents): Posology: Definition, Factors determining dose of drugs, Adult dose of important drugs and their route of administration and method of calculating children dose, Percentage calculation, Calculation based on Allegation method, Alcohol dilution, Proof spirit, Hydrometers, Isotonic solution and displacement value; Prescription: Definition, Latin terms used in prescriptions, Form, Handling, Maintenance of records and pricing of prescription, Prescription refilling, Copies of the prescription order and importance of patient compliance with prescribed medication, Prescription errors, Patient counselling; Dispensing Techniques: Compounding and dispensing procedures, Storage and stability of medicines, Labelling of dispensed products, Principles involved in the procedures adapted in dispensing of various dosage forms; Containers and closures for packaging of dosage forms; Incompatibility: Definition, Types of incompatibility – physical, chemical and therapeutic, responsibility of pharmacist in overcoming incompatibilities in prescription; Galanical preparation: Maceration, percolation , decoction.

PHACG 2123 Pharmacognosy I (L-30:P-30)

Course Aim

Course is designed to enable the students to gain knowledge in basic concepts of plants studies related to pharmaceutical field and pharmacognostic studies of naturally occurring medicinal crude drugs and their evaluation techniques.

Intended Learning Outcomes

At the completion of this course students will be able to

- outline the basic concepts of pharmacognosy
- identify the parts of medicinal plants
- classify the crude drugs
- demonstrate the biological origin of the crude drugs
- apply quality control methods to the crude drugs
- describe plant physiology and biochemistry
- explain general methods of cultivation, collection and processing of crude drugs

Course Content

Introduction: Historical background, present status and future scope of pharmacognosy, different systems of medicine practice in Sri Lanka. Various systems of classification of drugs from biological origin including Chemotaxonomy and Serotaxonomy. Introduction to parts of medicinal plants; Plant physiology and Plant biochemistry, basic metabolic pathways (biosynthesis): Acetate, shikimate, mavolanate pathways; Organised and unorganized crude drugs: Uses of organised drugs which are obtained from Barks, Woods, Leafs, Flowers, Seeds, Fruits, Whole Plants, Root and Rhizome and unorganised drugs with

special examples; Study of Source, Characters (macroscopy and microscopy); General methods of cultivation, collection and processing of drugs; Analytical Pharmacognosy: drug adulteration, drug evaluation and quality control of herbal drugs. Diagnostic characters (both macroscopical and microscopical), constituents, chemical tests, Substitutes and adulterants; Important commercial fibres used in pharmacy; Study of source, characters (macroscopy and microscopy), constituents and preparation for pharmaceutical uses; Constituents and uses of materials of mineral origin; Marine natural products; Surgical dressings; Nutraceuticals; Natural pesticides; Natural allergens: Introduction, classification, preparation of allergenic extracts, sensitivity testing and treatment of allergy; Immuno pharmacognosy; Types and standardization of Ayurvedic, Siddha formulations; different methods of extraction of plant extracts; WHO guidelines for evaluation of safety and efficacy of herbal drugs.

PHACL 2133 Pharmacology and Pharmacotherapy I (L-45)
Course Aim
The course is designed to enable the students to gain knowledge in description of movement of drugs (pharmacokinetics), effect of drugs (pharmacodynamics) within the body, the factors influencing them and understanding the basis of drug interactions and drugs dosage.

Intended Learning Outcomes
At the completion of course students will be able to,
- describe the general aspects of Pharmacology

- describe poisoning and the management of poisoning
- explain the Mechanism of action, Indications, Side effects, Drug Interactions, Dosage and Administration of Antimicrobials
- discuss the pharmacotherapy of selected infections
- explain the Mechanism of action, Indications, Side effects, Drug Interactions, Dosage and Administration of drugs used in infections

Course Content

General Pharmacology: Introduction to pharmacology, Drug regulation and drug information, Pharmacokinetics, Pharmacodynamics, Factors influencing drug response, Drug interactions, Drug dosage, Therapeutic drug monitoring, Adverse drug reactions and ADR reporting; Toxicology: Heavy metal poisoning and chelating agents, Management of poisoning; Antimicrobials: Introduction to Chemotherapy, Beta Lactum antibiotics, Macrolides, Chloramphenicol and Sulphonamides, Aminoglycosides and Tetracyclines, Quinolones, Urinary Antiseptics and metronidazole, Antituberculosis Agents and treatment of TB, Antimalarial Agents and treatment of malaria, Antiamoebic agents and treatment of GIT infections, Antifungal drugs and Antihelminthic agents, Antiviral agents; Infections: Respiratory tract infections, Rheumatic fever and Endocarditis, Meningitis, Cerebral abscess, Encephalitis.

PHAPM 2144 Pharmaceutical Microbiology (L-45:P-30)

Course Aim

The course is designed to enable the students to acquire knowledge about Microbiological control methods, sterilization and preservation techniques used in Pharmaceutical manufacturing.

Intended Learning Outcomes

At the completion of the course students will be able to,

- outline the basic aspects of Bacteriology, Virology and Mycology
- demonstrate the medically important Protozoans, Helminths and Insects
- explain human immunity and immunization
- describe microbiological control methods
- discuss the production of microbiologically generated pharmaceuticals
- discuss the effect of microorganism on pharmaceuicals

Course Content Basic Microbiology: Introduction and classification of microbiology; Sources, routes and mode of transmission of infection. General Bacteriology: Morphology (exotoxin and endotoxin), growth and reproduction, genetics, nutrition and metabolism, culture methods; Virology: Classification, structure and general characteristics, reproduction; Mycology: Classification, morphology and diseases caused by them; Basic Parasitology: Protozoology: Introduction, life cycle and mode of transmission of medically important protozoology; Helminths: Introduction, life cycle and

mode of transmission of medically important helminths parasites; Entomology: Outline the life cycle and mode of transmission of medically important entomology. Mosquitoes, Lice, Scabies, mites. Immunity: Innate and adaptive immunity, antigen – antibody reactions; hypersensitivity reactions; Vaccines; immunization schedules, principles of immunization and its significance in clinical medicine; Pharmaceutical aspects of microbiology; Antibiotics: Discovery and development of antibiotics. Effect of microorganisms on pharmaceuticals: Role of microorganisms in causing hazards and contamination of pharmaceuticals; Microbial control methods used in pharmaceuticals: Sterilisation - different techniques, Control of microbes by sterilisation, Chemical agents and physical agents used to control microorganisms in pharmaceuticals; Sterility techniques used in pharmaceutical products; Resistance of microorganisms to chemical, physical, antimicrobial agents; Microbial quality assurance: Limit and standard; Disinfection: Factors influencing disinfection, Dynamic of disinfection; Disinfectants and antiseptics and their evaluation; Microbiologically generated pharmaceuticals: Vitamins, Enzymes, Antibiotics, Alcohols, Insulin; General principles of pharmacopoeial methods of microbiological assays with reference to vitamins and antibiotics.

PHAPA 2153 Pathology for Pharmacy (L-46)

Course Aim

The course is designed to describe the sequence of pathological changes which occurs in various organs or tissues in common diseases.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe inflammation
- describe wound healing
- explain pathophysiology of Oedema
- explain the pathophysiology of Neoplasms
- demonstrate pathophysiology of common non-infectious diseases
- demonstrate pathophysiology of infectious diseases

Course Content

Introduction: Cellular adaptations, necrosis, apoptosis and intracellular accumulation; Inflammation: Acute inflammation, Inflammation mediators, chronic inflammation; Wound healing: Factors influencing wound healing, bone fracture and healing; Oedema: haemorrhage, thrombosis, embolism; Neoplasm: Characteristic features of malignant and benign, Epidemiology, Carcinogens, Carcinogenesis, paraneoplastic syndrome, tumour immunity Pathophysiology of common diseases: Parkinsonism, Schizophrenia, Depression and Mania, Hypertension, Stroke (ischaemic and haemorrhage),Angina, Congestive Cardiac Failure, Atherosclerosis, Myocardial infarction, Shock, Diabetes Mellitus, Peptic ulcer, inflammatory bowel disease, Cirrhosis and Alcoholic liver disease, Acute and chronic renal failure, Asthma and chronic obstructive airway disease; Infectious diseases : Sexually transmitted diseases (HIV), Urinary tract infections, Pneumonia, Typhoid, Tuberculosis, Leprosy, Dysentery

(bacterial and amoebic), Hepatitis- infective hepatitis, Diseases of the immune system: Auto immune disease, rejection and transplant, amylodosis.

SECOND YEAR SECOND SEMESTER

PHACE 2213 Pharmaceutics II (L-30:P-30)

Course Aim

The course is designed to enable the students to obtain knowledge about historical background of Pharmacy profession and classification and general preparation of various dosage form.

Intended Learning Outcomes

At the completion of this course students will be able to

- outline various aspects of pharmacy profession
- describe solid dosage forms, semisolid dosage forms, medicinal gases and radiopharmaceuticals
- formulate solid dosage forms, semisolid dosage forms, medicinal gases
- discuss preparation and dispensing of radiopharmaceuticals
- choose packaging for different types of pharmaceuticals

Course Content

Pharmacy Profession: Pharmacy as a carrier, Pharmaceutical education; History of Pharmacy: Pharmacy as a carrier, Pharmaceutical education; Surgical Dressings: Fibres, Fabrics, Bandages, Self-adhesive plasters, Compound dressings; Introduction to tablets: Introduction, Classification/ Types, Formulation additive, Manufacture of tables; Introduction to capsules: soft and hard gelatine capsules, formulation, properties

of gelatine shells; Suppositories: Semisolid formulations types: Oral, Cream, Paste, Gels; Medical gases: Official medicinal gases and their uses, containers and fittings, handling and storage; Pharmaceutical packaging: Primary, Secondary, Tertiary; Radio pharmaceutics.

PHACG 2223 Pharmacognosy II (L-30:P-30)

Course Aim

Course is designed to enable the students to acquire knowledge in natural medicinal products with emphasis on their source, isolation, chemical properties and utilisation of natural medicinal products in Pharmacy and medicine

Intended Learning Outcomes

At the completion of this course students will be able to

- identify sources and structure of primary metabolites and secondary metabolites
- outline the classification of primary metabolites, and secondary metabolites
- describe synthesis of primary metabolites, glycosides, and secondary metabolites
- explain the isolation methods of primary metabolites, and secondary metabolites
- discuss the uses of primary metabolites, and secondary metabolites
- apply qualitative and quantitative tests for primary metabolites
- outline the classification of primary metabolites, and secondary metabolites

Course Content

Carbohydrates: Source, isolation, structure, chemistry, synthesis uses and test for qualitative and quantitative test of monosaccharides, disaccharides, oligosaccharides and polysaccharides (crude drugs of carbohydrates including acacia, starch, agar, tragacanth, pectin and honey); Proteins: Source, isolation, structure, chemistry, synthesis uses and qualitative and quantitative test for proteins. Classification, General characteristics of protein, amino acids and essential amino acids, Degradation of protein, Study the official compounds in Pharmacopoeia; Lipids: Source, isolation, structure, chemistry, synthesis uses and test for qualitative, quantitative test and general chemical composition of Fixed oils, Fats and Waxes; Glycosides: Introduction, classification of glycosides; source, isolation, structure, chemistry, synthesis uses and test for qualitative and quantitative test of glycosides; Alkaloids: Introduction, classification of alkaloids; source, isolation, structure, chemistry, synthesis uses and test for qualitative and quantitative test of alkaloids; Terpenes: Introduction, classification of terpenes, source, isolation, structure, chemistry, synthesis uses and test for qualitative and quantitative test of terpenes; Vitamins: Classification of Vitamins, Skeleton structure of Vitamins, Constitutions and synthesis of official compounds in BP. Carotenoids: Sources, Structure and conversation to Vitamin A.

PHACL 2232 Pharmacology and Pharmacotherapy II (L-30)

Course Aim

The course is designed to enable the students to gain knowledge in description of pharmacology, adverse effects and therapeutic applications of drugs acting on autonomic system, renal system, cardiovascular system, blood and blood forming organ and brief description of pathophysiology, clinical features and drug therapy of disorders of autonomic and cardiovascular systems.

Intended Learning Outcomes

At the completion of course students will be able to,

- explain the Mechanism of action, Indications, Side effects, Drug Interactions, Dosage and Administration of Drugs Acting on Autonomic Nervous System
- describe the Mechanism of action, Indications, Side effects, Drug Interactions, Dosage and Administration of Drugs acting on kidney
- discuss the Mechanism of action, Side effects, Drug Interactions, Dosage and Administration of Drugs acting on cardiovascular system
- explain the Mechanism of action, Side effects, Drug Interactions, Dosage and Administration of drugs acting on Respiratory System
- illustrate Pathophysiology, clinical features and drug therapy of Rheumatoid Arthritis

Course Content

Drugs Acting on Autonomic Nervous System: Cholinomimetics, Anticholinergics, Sympathomimetics, Sympatholytics,

Myasthenia Gravis and Organophosphate poisoning, Serotonin andrelated drugs; Drugs acting on kidney: Renin angiotensin system and related drugs, Diuretics and Antidiuretics; Drugs acting on cardiovascular system: Antianginal agents, Antihypertensive agents, Drugs used in cardiac failure, Antiarrhythmic agents, Antihyperlipidaemic agents, Drugs used in coagulation disorders, Haemopoietic agents and anaemia, Therapeutics Ischemic Heart Disease, Therapeutics Hyper Tension, Therapeutics Cardiac Failure; Immuno pharmacology: Immune modulators and vaccines; Rheumatology: NSAIDs, Drugs used in Rheumatoid Arthritis (RA) and Gout, Therapeutics RA and Collagen disorders Arthropathies; Drugs acting on Respiratory System: Histamine, Bradykinin and their antagonist, Drugs used in asthma, Therapeutics asthma and chronic obstructive pulmonary disease.

PHAFP 2243 Forensic Pharmacy and Ethics (L-45:T-05)

Course Aim

Couse is designed to enable the students to obtain knowledge about general principles of the law relating to the practice of pharmacy with special reference and principles of Ethics and Concepts in the profession of Pharmacy

Intended Learning Outcomes

At the completion of this course students will be able to

- define Forensic Pharmacy
- discuss the scope of Forensic Pharmacy
- explain Pharmaceutical legislation in Sri Lanka
- outline National Law and Medical Ordinance

- discuss International Law
- list miscellaneous legislation
- describe the ethics involved in the profession

Course Content

Definition and scope of Forensic Pharmacy; Pharmacist's role in the drug treatment and drug usage; Pharmacist as a member of Health care team; Pharmaceutical legislation in Sri Lanka: National Law: Medical Ordinance: Registration of Pharmacist; Poison, Opium and Dangerous Drugs Ordinance, Cosmetics Devices and Drug Act 1980's, Regulation and their Amendments, Food Act, Excise Ordinance, Fair Trading Commission and pricing of pharmaceuticals; International Law: Convention on Narcotic drugs, Convention on Psychotropic drugs and their legislation affecting the practice of Pharmacy; Miscellaneous legislation: Health and Safety Legislation, Consumer Protection Law Act on Trade, An awareness of the regional legislation and their relationship to National Legislation; Ethics: Principles of Ethics, Oath of Pharmacist; World Health Organisation (WHO) criteria of ethical drug promotion, Sri Lanka Medical Association (SLMA) ethical criteria for the promotion of Medicinal Drugs and Devices in Sri Lanka, International Federation of Pharmaceutical Manufacturers Association (IFPMA); Professional responsibilities (towards patients, public pharmacy and other professions), " Code of Ethics" of the profession. National medicinal regulation authority (NMRA) Act.

PHACO 2253 Community Pharmacy (L-30:P-30)

Course Aim

To enable the students to acquire knowledge about the community pharmacy facilities, services, management and its legislation and psychological application in the pharmacy profession.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe community pharmacy facilities
- identify the roles and responsibilities of personnel involved in community pharmacy
- explain pharmaceutical services
- describe Documentations used in community pharmacy
- explain the Legislation involved in community pharmacy
- apply psychological principle in pharmacy practice

Course Content

Role and contribution of pharmacist in community health care and education; Community pharmacy facilities: Pharmacy premises, Dispensing area, Storage of Medicines, Equipment, Reference books, Rest rooms; Personnel: Pharmacist/Chief pharmacist, Apprentice pharmacist, Supportive personnel; Professional conduct of pharmacists; Staff training and development; Continuous professional development (CPD); Pharmaceutical services: Reception and assessment of prescription, assembly of the required medicine or product, Good Compounding Practice (GCP), Good Labelling of Medicine (GLM), Packing of medicine, Dispensing, Patient medication

counselling, Forged prescriptions, Medication errors, and Disposal of expired medicines; Documentation: Prescription book and Patient's Medication records (PMR); Non-prescription medicine; Pharmacy Management: Quality management, Inventory management, Responsibilities of the management; Client/customer services; Legislation: legal requirements to operate community pharmacy and documents; Illustration of psychology: Introduction of the main trends in psychology application, Verbal communication and non – verbal communication, Stress, frustration and conflicts, Health, illness and norms, Mental hygiene, Psychology of a patient and psychology of a health service worker.

THIRD YEAR FIRST SEMESTER

PHAPT 3112 Pharmaceutical Technology I (L-30)
Course Aim
Couse aim is to enable the students to obtain knowledge about basic techniques used in the dosage form and industrial hazards and safety precautions in pharmaceutical industry.

Intended Learning Outcomes
At the completion of this course students will be able to
- outline the heat, mass transfers and fluid flow
- explain the principle involved in the air conditioning and humidity in pharmaceutical industry
- describe different processes used in pharmaceutical industry

- discuss the industrial hazards and safety precaution in pharmaceutical industry

Course Content

Heat transfer and mass transfer; Materials of plant construction: physical, chemical and economic factors affecting the pharmaceutical industry; Fluid flow: Types of flow, Reynold's number, Concepts of boundary layers; Humidity: humidity chart, Measurement of humidity, Humidifier and Dehumidifier; Air conditioning: Principles and application in pharmaceutical field; Basic concepts, Theory/ Mechanism and Equipment used in Pharmaceutical industries of Evaporation, Distillation, Extraction, Drying, Mixing, Size reduction, Size separation, Filtration, Centrifugation, Crystallization; Various mechanisms involved in filling; Powder flow, granulation and compaction; Compression process used in tablet machine; Industrial hazards and safety precautions, Materials handling system.

PHAHP 3122 Hospital Pharmacy (L-30)

Course Aim

The course is designed to enable the students to obtain knowledge in hospital and hospital pharmacy and its organization, layout and function and distribution of drugs in hospital and production and applications of Nuclear pharmacy in hospital.

Intended Learning Outcomes

At the completion of this course, students will be able to

- describe hospital organization and administration
- discuss the different activities of hospital pharmacists
- explain basic aspects of nuclear pharmacy

Course Content

Hospital: Hospitals and their organisation; typical organisation and the structure of hospital pharmacy; Drug distribution system in hospital: Ambulatory and inpatient and charging of prescribed drugs; Dispensing of narcotic and other hazardous substances in hospital pharmacy; Hospital formulary system: Guiding principles, Preparation of the formulary; Purchase, Inventory control and storage of drugs in hospital; Nomenclature and uses of surgical instruments and hospital equipment; Budget preparation and implementation; Pharmacy therapeutic committee: Objective, Organisation and important functions; Communication in the hospital pharmacy: Patient communication, Inter departmental communication; Drug information service: Advice and consultation regarding drug therapy; Role of hospital pharmacist in educational and training programme; Applications of computer in hospital pharmacy; Nuclear pharmacy: Production of radiopharmaceuticals, isotope tagging, preparation of radioisotopes in laboratory using radiation dosimetry and radioisotope generators; quality control; Permissible radiation dose level, radiation hazards, their prevention and specifications for radioactive laboratory.

PHAPR 3132 Hospital Pharmacy Practice I (F-120)

Course Aim

The course is designed to enable the students to obtain knowledge in hospital and hospital pharmacy and its organization, layout and function and distribution of drugs in hospital.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe hospital organization and administration
- explain pharmacy services
- demonstrate the skills in various activities of hospital pharmacists
- make use of inventory management

Course Content

At outpatient department; Interpretation of prescription; Accounting of drugs, Compounding of pharmaceutical products, Issue of narcotic drugs, At indoor dispensary; Receiving of drug from main stores; Medical gasses (Identification (include valve type), Storage, Supply, Handling, Refilling, Transportation, Inventory management, Checking of expiry dates); Drug on BHT; Disinfectant dispensing; Roaster and practice of floor stock supply (ward)(Detail accounting, Bulk accounting).

PHACG 3143 Pharmacognosy III (L-30:P-30:T-02)

Course Aim

The Course is designed to enable the students to acquire knowledge in Natural medicinal products with emphasis on their source, isolation and chemical properties, official preparation and utilization of natural medicinal products in Pharmacy and Medicine and evaluation of safety and efficacy of herbal medicine.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate the sources and isolation methods for anthocyanins, purines, steroids, oestrogen, progesterone and adrenal cortex hormone
- discuss the structure and chemistry of anthocyanins, purines, steroids, oestrogen, progesterone and adrenal cortex hormone
- explain the synthesis and uses of anthocyanins, purines, steroids, oestrogen, progesterone and adrenal cortex hormone
- make use of different methods used for estimation of anthocyanins, purines, steroids, oestrogen, progesterone and adrenal cortex hormone

Course Content

Anthocyanins: Source, isolation, structure, chemistry, synthesis, uses, qualitative and quantitative test of Flavones, Isoflavones and tannins; Purines: Source, isolation, structure, chemistry, synthesis, uses, qualitative and quantitative test of Uric acid, Caffeine, Theobromine and Theophylline (Inter relationship of Caffeine, Theobromine and Theophylline); Steroids: Source, isolation, structure, Nomenclature, chemistry, synthesis, uses, qualitative and quantitative test of Cholesterol, Ergosterol, Stigmasterol, Bile acids and Androgens; Oestrogens: Source, isolation, structure, nomenclature, chemistry, synthesis, uses (drugs containing Anthocyanins), qualitative and quantitative test of Estrone, Esterole, (Inter – relationship of Estrone, Esterole, and Estradiol) and synthetic non-steroid estrogenic compounds: Benzesterol, Hexesterol, Dienosterol, Stillbosterol; Progesterone: Source, isolation, structure, chemistry, synthesis, uses,

qualitative and quantitative test of Progesterone; Adrenal cortex hormone: Source, isolation, structure, classification, chemistry, synthesis, uses, qualitative and quantitative test of Cortisone, Corticosterone, Hydrocortisone; Drugs containing Anthocyanins, Drugs containing phenolics; Drugs containing volatile oils; Drugs containing enzymes.

PHACL 3153 Pharmacology and Pharmacotherapy III (L-45)

Course Aim

The course is designed to enable the students to gain knowledge in description of pharmacology, adverse effects and therapeutic applications of drugs acting on gastrointestinal system and brief description of pathophysiology, clinical features and drug therapy of gastrointestinal disorders.

Intended Learning Outcomes

At the completion of course students will be able to,

- explain the mechanism of action, indications, side effects, drug interactions, dosage and administration ofdrugs acting on gastrointestinal Tract
- discuss pathophysiology, clinical features and drug therapy of gastrointestinal disorders
- explain the mechanism of action, indications, side effects, drug Interactions, dosage and administration of anticancer Drugs
- describe the mechanism of action, side effects, drug interactions, dosage and administration of hormones and related drugs

Course Content

Drugs acting on Gastrointestinal Tract: Drugs used in peptic ulcer disease, Pharmacology of vomiting and antiemetics, Laxatives, Antidiarrhoeal, Drugs used in inflammatory bowel disease, Intravenous fluids, Therapeutics Peptic ulcer, Therapeutics Liver disease and Portal hypertension; Chemotherapy of Neoplastic Diseases: Introduction, Anticancer drugs; Hormones & related drugs: Hypothalamic and Pituitary hormones, Thyroid and Antithyroid drugs, Corticosteroids and related drugs, Gonadal hormones and related drugs, Contraceptives, Insulin, Oral hypoglycaemics, Drugs affecting calcium & bone metabolism, Therapeutics Diabetes mellitus, Disorders of pituitary and adrenals, Therapeutics Disorders of thyroid.

PHAMC 3163 Medicinal Chemistry I (L-30:P-30)

Course Aim

The course is designed to enable the students to gain knowledge on basics of medicinal chemistry.

Intended Learning Outcomes

At the completion of the course students will be able to,

- discuss the Physico - Chemical aspects in drug designing and development
- discuss the basic aspects of drug receptor interactions
- illustrate receptor signalling pathways
- explain the Chemistry related to drug development including Structure Activity Relationship (SAR) of drugs

Course Content

Basic principles of Medicinal Chemistry: Physico – Chemical aspects of drug molecules in relation to biological activity, Drug receptor interaction including transduction; Synthetic procedures of selected drugs, Mode of action, Structure activity relationship, Physico-Chemical properties, Formulation, Storage condition, Assays and Therapeutic uses of following classes of drugs: Antimicrobials: Sulphonamides, Antihelminthic drugs, Antiamoebic drugs, Antimalarials, Antitubercular drugs, Antileprotic drugs, Antifungal drugs, Anticancer drugs; Drugs acting on Autonomic nervous system: Cholinergic drugs, Anticholinergic drugs, Adrenergic drugs, Anti adrenergic drugs; Drug acting on Cardiovascular system: Antiarrhythmic drugs, Antihypertensive drugs, Antianginal drugs, Vasodilators, Hypo lipidaemic drugs; Diuretics; Anticancer drugs: Alkylating and Metallating agents, Farnesyl Transferase Inhibitors, Protein Kinase Inhibitors, Matrix Metalloproteinase Inhibitors; Drugs acting on Respiratory system: Antitussives, Bronchodilators.

PHARM 3173 Research Methodology and Medical Statistics (L-45)

Course Aim

The course is designed to enable the students to identify the main sequence in research process, gain knowledge in research methodology and able to apply this in health care set ups.

Intended Learning Outcomes

At the completion of this course students will be able to,

- discuss the various types and designs of research

- identify the research problem
- demonstrate the ability to choose methods appropriate to research aims and objectives
- develop skills in qualitative and quantitative data analysis and presentation
- exhibit advanced critical thinking skills
- demonstrate enhanced writing skills

Course Content

Introduction; Defining the research problem: Selection of the research problem, selection of researchable topic, necessity of defining the problem, techniques involved in defining the problem; Literature survey: review of literature, concepts, principles and other aspects of problem review of researches previously conducted; Formulation of objectives: General and specific objectives and hypothesis; Research Design: features of good design, different research designs, methods of investigation sampling techniques; Collection of data: Methods of Data collection, Preparation of questionnaire; Statistical techniques applicable in research: Processing and Analysis of Data, Interpretation of results; Preparation and presentation of report: report writing style, context, bibliography.

THIRD YEAR SECOND SEMESTER

PHAPT 3214 Pharmaceutical Technology II (L-45:P-30)

Course Aim

The course is to enable the students to acquire knowledge in formulation principles of various dosage forms and importance of optimisation of drug formulation system.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe formulation and manufacturing of liquid, semi solid and solid formulations
- demonstrate the preparation and application of microencapsules
- explain the formulation and manufacturing of sterile pharmaceutical such as parenterals, ophthalmic and otic preparations
- discuss the principle and various devices used in the pulmonary and intrauterine drug delivery
- explain the principle, approaches used in controlled and targeted drug delivery systems
- apply quality control methods to different dosage form
- formulate different types of pharmaceuticals

Course Content

Liquid dosage forms: Formulation, manufacturing, packing and evaluation of various liquid formulations; Semi solid dosage forms; Drug penetration through skin, types and formulation, manufacturing, packing and evaluation; Suppositories:

formulation, manufacturing, packing and evaluation. Tablets: Formulation, Granulation methods, General formulation, Preparation and Evaluation, Types of coating, Pharmacopoeial formulation; Capsules: Advantages of capsules, Hard gelatin and Soft gelatin capsules: Shell formation, Manufacturing, Size, Storage, Painting, Filling, Cleaning, Binding, General formulation of contents, Evaluation; Microencapsulation: Advantages, Coating materials, Method of application of coating materials; Parenterals: (Products requiring sterile packing) Types, Advantages and Limitations, General formulations, Vehicles, Production procedure and facilities, Controls, Tests, Selected BP injections, Sterile powders, Implants, Emulsions and Suspensions; Pulmonary drug delivery: Mechanisms involved in the pulmonary delivery of drugs, formulation and devices of Metered dose inhaler; dry powder inhaler and nebulizer ; Ophthalmic preparation: Formulations, Method of preparation, Containers, Evaluation. Controlled drug delivery system: Oral controlled drug delivery system; Principle, Advantages and disadvantages, selection of drug candidates, various approaches to design controlled release formulations; Parenteral controlled drug delivery system; Transdermal delivery system, Osmotic drug delivery system, Targeted drug delivery system, concept of targeting; different types of nanocarriers; Trans mucosal drug delivery system : Buccal, nasal, rectal and vaginal drug delivery systems; Intrauterine drug delivery: mechanism of drug release and application.

PHAPR 3222 Hospital Pharmacy Practice II (F-120)

Course Aim

The course is designed to enable the students to obtain knowledge in hospital and hospital pharmacy and its organization, layout and function and distribution of drugs in hospital.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe hospital organization and administration
- explain pharmacy services
- demonstrate the skills in various activities of hospital pharmacists
- make use of inventory management

Course Content

The main drug stores; Condemning of items, Annual estimate, Sampling and sending to NMQAL for testing, STV, invoice, Receipt order/issue order and advice note, Local purchase; Surgical section; Accounting of surgical consumable and non-consumable, Distribution register, Maintenance of general surgical inventory, repairs and maintenance, UNICEF and gift items.

PHACL 3232 Pharmacology and Pharmacotherapy IV (L-30)

Course Aim

The course is designed to enable the students to gain knowledge in description of pharmacology, adverse effects and therapeutic applications of drugs acting on central nervous system and brief

description of Pathophysiology, clinical features and drug therapy of disorders of central nervous system.

Intended Learning Outcomes

At the completion of course students will be able to,

- explain the Mechanism of action, Indications, Side effects, Drug Interactions, Dosage and Administration of Drugs acting on central nervous system
- discuss pharmacotherapy of CNS related diseases
- demonstrate clinical trials in drug development
- explain drug usage in special populations

Course Content

Drugs acting on central nervous system: Pharmacology of CNS, General anaesthetics and Therapeutic gases, Local Anaesthetics and Skeletal muscle relaxants, Hypnotics, Sedative and Anxiolytics, Antipsychotics, Mood stabilizers, Antidepressants, Opioids and Antagonists, Ethanol, Drug abuse, Anticonvulsants, Drugs used in parkinsonism and migraine, Therapeutics Epilepsy, Therapeutics Psychiatric disorders; Miscellaneous: Prenatal and paediatric pharmacology, Drugs geriatric Pharmacology, Drug development and clinical trials, Life style drugs, drugs in sports, Gene therapy, stem cell therapy.

PHAPA 3244 Pharmaceutical Analysis (L-45:P-30: T - 03)

Course Aim

The course aim is to enable the students to understand basic concepts of separation and analytical techniques and about quality control of pharmaceuticals.

Intended Learning Outcomes

At the completion of this course students will be able to

- describe various separation and purification techniques
- explain principle of various analytical techniques
- interpret the spectra obtained in the various analytical techniques
- apply analytical techniques in the analysis of drug/ crude drug

Course Content

Separation and Purification techniques: Basic principles and Pharmaceutical applications of Crystallisation, Sublimation, Distillation, Solvent extraction, Gel filtration and Chromatographic techniques (Column, Thin layer, Paper, Gas, Ion-exchange and High Performance Liquid Chromatography); Spectroscopic and Analytical techniques: Instrumentation, Interpretation of spectra and Pharmaceutical applications of Ultra violet – Visible, Infrared, Nuclear Magnetic Resonance and Electron Spin Resonance spectroscopies and Mass spectrometry; Basic concepts, Instrumentation and Pharmaceutical applications of Flame photometry, Nephelometry, Turbidimetry and Fluorimetry.

PHAMC 3253 Medicinal Chemistry II (L-30:P-30:T-05)

Course Aim

The course is designed to enable the students to gain knowledge on medicinal chemistry of drugs including pharmacodynamics, chemical synthesis, drug design and development.

Intended Learning Outcomes

At the completion of course students will be able to,

- outline the synthetic procedures for selected drugs
- explain Structure Activity Relationship (SAR) of selected class of selected class of drug drugs
- discuss the basic aspects of prodrug design and development

Course Content

Synthetic procedures of selected drugs, Mode of action, Structure activity relationship, Physico-chemical properties, Formulation, Storage condition, Assay and Therapeutic uses of following classes of drugs: Drugs acting on Gastrointestinal tract: Antidiarrheal, Emetics and Antiemetics, Laxatives and Purgatives, Antispasmodics, Carminatives and Digestants; Hormones and related drugs: Anti thyroid drugs and Oral hypoglycaemic drugs, Corticosteroids; Drugs acting on Blood: Coagulants and Anticoagulants, Antithrombotic drugs. Drugs acting on Central nervous system: General anaesthetics, Sedatives and Hypnotics, Antiepileptics, Antiparkinsonism drugs, Antipsychotics, Anxiolytics, Antidepressants, Narcotic analgesics and their antagonist, CNS stimulants and Muscle relaxants and Local anaesthetics; Antihistamine: H1 Antagonists and H2 Antagonists; Analgesics: Opioid analgesics, General non-narcotic analgesics, Antipyretic and Anti-inflammatory drugs; Miscellaneous: Antiseptics and Disinfectants, Medicinal dyes, Diagnostic agents and Immunosuppressants.

FOURTH YEAR FIRST SEMESTER

PHAPT 4112 Pharmaceutical Technology III (L-30)

Course Aim

The course is to enable the students to acquire knowledge about stability testing for dosage formulations and packaging and various concepts used in production management, various cosmetic formulations.

Intended Learning Outcomes

At the completion of this course students will be able to

- apply preformulation studies to the drug substances
- explain the stability testing and degradation pathways of drug substances
- describe the various process involved in the production of pharmaceuticals in industry
- discuss different packaging materials used for pharmaceuticals
- formulate different cosmetic formulations
- outline various blood related products and plasma substitutes

Course Content

Preformulation studies: Importance, Physical properties: Physical forms, Particle size, Crystal form, Bulk control, Solubility, Wetting, Flow cohesiveness, Compressibility, their effect on final product; preformulation of tablets, capsules and liquid dosage forms; Selection of excipients; Stability testing: Stability of formulated products: Requirements, Shelf life, Overage, Containers and Closures; Solid state stability, physical degradation, prolonging shelf life of drugs; Degradation pathways; Pharmaceutical pilot plant: importance, layout of pilot

plant, activities, Pilot studies of various dosage forms; Scale up techniques of various process; Product processing: Production management and GMP consideration, quality control and assurance, pharmaceutical validation; Packaging of pharmaceuticals: desirable features and detailed study of different types of pharmaceutical packing materials; Cosmetic formulations: Formulation and preparation of Dentifrices, Hair creams, Lipsticks, Face powers, Shaving preparations, Baby powder, Bath preparations, Skin creams, Shampoo, Conditioners, Hair dyes, Depilatories, Manicure preparations, Deodorants, Perfumes; Blood related Products and Plasma Substitutes: Concentrated human RBCs, dried human plasma, human fibrinogen, human thrombin, human normal immunoglobulin, human fibrin foam, plasma substitutes, ideal requirements, ex - PVP, dextran, etc.

PHADD 4122 Drug Discovery and Development (L-30:T-05)
Course Aim
The course is designed to enable the students to gain knowledge on medicinal chemistry of drugs including pharmacodynamics, chemical synthesis, drug design and development.

Intended Learning Outcomes
At the completion of this course students will be able to
- discuss the aspects involved pre-drug discovery
- illustrate processes involved in drug discovery
- describe the steps involve in the clinical trails
- explain the regulatory affairs involved in new drug registration
- demonstrate the computer aided drug design

Course Content

Drug discovery: Choosing a diseases, Choosing drug target: Target specificity and selectivity between species, Target specificity and selectivity within the body and Targeting drugs to specific organs and tissues; Conventional and new strategies to identify drug targets Finding the lead compound, optimizing the target interactions, optimizing the stability of the drug at the physiological level; Finding the lead compound, optimizing the target interactions, optimizing the stability of the drug at the physiological level, Combinatorial and parallel synthesis; solid phase techniques, structure determination of active compounds, planning and designing of combinatorial and parallel synthesis, Choice of bioassay; in vitro test in vivo tests and animal models of disease, High-throughput screening; assay development and validation, screening libraries and compound logistics. Computer aided drug discovery; molecular properties, conformational analysis, identifying the active conformation, pharmacophore identification, docking procedures, screening databases for lead compounds; Ligand-based and Structure-based virtual screening; Drug development: Clinical development: Phases I, II, III and IV; Patenting the drug; regulatory affairs.

PHACL 4134 Clinical Pharmacy (L-40:P-30:T-05)

Course Aim

Course is designed to enable the students to acquire knowledge in clinical pharmacy skills and Basic Concepts of Pharmacotherapy Principles and Practices, Evidence-based medicine and Pharmaceutical and patient-centred care.

Intended Learning Outcomes

At the completion of this course students will be able to

- apply clinical pharmacy skills
- describe basic concepts of pharmacotherapy principles in geriatrics,paediatrics and palliative care, pregnant and lactating mothers
- analyse case studies based on the knowledge of therapeutic management in various disorders of organ systems
- construct strategies to improve adherence of patients
- describe adverse drug reactions
- illustrate the management of drug interaction
- apply evidence-based medicine in clinical pharmacy
- discuss the concepts of pharmaceutical and patient-centred care

Course Content

Clinical pharmacy skills: Clinical pharmacy definition, Role of clinical pharmacists, Prescription screening and monitoring, Pharmacist documentation in patient medical records (PMR) and history taking, Understanding medical records, Medication review, Medication reconciliation, Intervention monitoring, Obtaining patient medication histories, Medication-use evaluation (MUE), Medication errors, Patient assistance programs, Drug and medication information services; Basic Concepts of Pharmacotherapy Principles and Practices: Introduction, Geriatrics, paediatrics and palliative care, pregnant and lactating mothers; Disorders of organ systems and therapeutic management: Case studies from cardiovascular disorders, gastrointestinal disorders, renal disorders, neurologic

disorders, psychiatric disorders, endocrinologic disorders, gynaecologic and obstetric disorders, urologic disorders, immunologic disorders, Bone and Joint disorders, Disorders of the ENT, dermatologic disorders; diseases of infectious origin; Cancer Chemotherapy and Treatment; Parenteral Nutrition; Adherence: Introduction, Adherence measures, Strategies to improve adherence and adherence counselling; Adverse drug reactions and drug interactions: Introduction, Classification of ADRs Adverse reactions: drug or disease, Helping patients understand the risk of ADRs, Reporting ADRs, Drug interactions, Managing drug interactions, Anaphylaxis management; Evidence-based medicine: Evidence-based medicine (EBM) and clinical pharmacy, Statistical vs. clinical significance, Odds ratios and relative risk; Pharmaceutical and patient-centred care: The concepts of patient-centred and pharmaceutical care, Core elements of pharmaceutical care, Medication problem checklist, Medication therapy management.

PHAMB 4144 Molecular Biology and Pharmaceutical Biotechnology (L-45:P-30)

Course Aim

The course is to enable the students to obtain knowledge in broad studies in enzyme, immune, plant and fermentation biotechnology and their pharmaceutical applications and brief studies about recombinant DNA technology and Blood products and Plasma substitutes.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss on various applications of Molecular Biology in the field of Medicine.
- describe human genome and phenotypic features of genetic disorders.
- demonstrate the procedures involved in chromosomal analysis.
- describe the principles of genetic engineering.
- explain Polymerase Chain Reaction (PCR)
- illustrate the process used in Fluorescence Insitu Hybridization (FISH) and other hybridization techniques.
- discuss biotechnology of enzymes, immunology, fermentation and medicinal plants
- describe the hybridoma technology
- explain the recombinant DNA technology

Course Content

Introduction to Molecular Biology and its application in Medicine, Human genome and Molecular Genetics, Genetic Engineering tools and diagnosis of genetic disorders, PCR, Forensic DNA Analysis, Nucleic acid hybridization, Fluorescence Insitu Hybridization, Introduction to basic steps in cell culture. Enzyme Biotechnology: Introduction to enzyme biotechnology, General enzymes isolation methods; size/mass, polarity, solubility and specific biding, Purification and application of immobilized enzyme; Immunobiotechnology: Vaccinology: Production of vaccines, sera and immunoglobulin of bacterial origin and viral origin, Blending and containerization

of vaccines, Principles criteria and standardization methods of quality control of vaccines, sera and immunoglobulin; Hybridoma technology: Introduction, Techniques of production and purification of monoclonal antibodies, Application of monoclonal antibodies; Fermentation Technology: Principles, Types of process, Surface culture, Protected culture, Solid state fermentation, Microbial transformation, Limitation and advantages; Preparation of alcohol, citric acid, lactic acid, penicillin, vitamin B12 and glutamic acid ; Genomics: Introduction to genomics Introduction to gene expression in prokaryotes and eukaryotes; Recombinant DNA technology: Introduction, mutagenesis, cutting and re-joining; polymerase chain reaction, Isolation and amplification of gene, cloning vectors, gene expression and their applications; Production of Insulin, Heparin and interferon; Introduction to DNA sequencing and methods of gene sequencing; Genetically engineered animals and plants; Techniques used in biotechnology: Northern blotting, Southern blotting and Western blotting, ELISA technique, Immunohistochemistry, DNA microarray techniques; Medicinal plant biotechnology: Introduction, Preparation of culture media, Types of culture, micropropagation, Protoplast microinjection methods of gene transfer in plants, Pharmaceutical application of plant tissue culture.

PHAPE 4152 Pharmacoepidemiology (L-30)

Course Aim

To enable the students to identify the main sequence in research process, gain knowledge in research methodology and able to apply this in health care set ups.

Intended Learning Outcomes

At the completion of this course students will be able to

- outline themeasurement ofoutcomes inpharmaco-epidemiology
- describe the pharmacoepidemiologic methods
- explain the Concept of risk in pharmacoepidemiology
- describe the sources of data for pharmacoepidemiologic studies
- outline the applications of pharmacoepidemiology

Course Content

Definition and scope: Origin and evaluation of pharmacoe pidemiology, need for pharmacoepidemiology; Measurement of outcomes in pharmacoepidemiology: Outcome measure and drug use measures Prevalence, incidence and incidence rate. Monetary units, number of prescriptions, units of drugs dispensed, defined daily doses and prescribed daily doses, medication adherence measurement; Pharmacoepidemiological methods : Includes theoretical aspects of various methods and practical study of various methods with the help of case studies for individual methods Drug utilization review, case reports, case series, surveys of drug use, cross – sectional studies, cohort studies, case control studies, case –cohort studies, meta – analysis studies, spontaneous reporting, prescription event monitoring and record linkage system; Concept of risk in pharmacoepidemiology: Measurement of risk, attributable risk and relative risk, time-risk relationship and odds ratio; Sources of data for pharmacoepidemiological studies : Ad Hoc data sources and automated data systems; Applications of pharmaco-

epidemiology : Studies of vaccine safety, hospital pharmacoe - p idemiology, pharmacoepidemiology and risk management, drug induced birth defects.

PHAMM 4163 Pharmaceutical Management and Marketing (L-45)

Course Aim

To enable the students to gain knowledge in basic concept of Management and Organization. Pharmaceutical marketing and advertising with special references to the pharmaceutical trade and basic Accountancy and Economic studies related to Government and private sectors in pharmaceutical trade.

Intended Learning Outcomes

At the completion of this course students will be able to

- explain the basic concept of management
- explain the basic concept of organization
- discuss aspects of marketing and advertising in thepharmaceutical trade
- apply accountancy in government and private sectors of pharmaceutical trade
- describe aspects of economics with special reference to the pharmaceutical trade

Course Content

Management: Management and Organisation of commercial offices: principle and important concepts include filing and indexing system; Basic principles of Industrial Management; Factory organisation and management; Commercial

correspondence; Pharmaceutical marketing and advertising with special references to the pharmaceutical trade: Definition and scope of marketing, Functions: Buying, Selling, Transportation, Storage, Finance, Feedback, Information; Channel of distribution of drugs: The wholesaler; role of wholesaler in distribution of pharmaceutical services offered to the manufacturer and the retailer, retail institutions; Analysing the market-market research; Sales promotions and salesmanship; Pharmaceutical Product Development; Information system: Computer information system, Non – information system; Accountancy: Basic accountancy: principles of accounting, ledger posting and preparation of trial balance, capital and revenue, columnar cash book, treatment of bank account, preparation of profit and loss account and balance sheet, elements of income tax treatmentary bills as related to pharmaceutical trade; Principles of Economics: Law of demand and supply, demand schedule, demand curve, consumption, organisation production; Labour distribution: problem, condition, affecting demand and supply, legislation, welfare, trade, union, inland and foreign trade; Principles of importing and exporting goods; Governing international trade; Theory of comparative cost; Foreign exchange; Principles of insurance: general, fire and marine; Sales organisation, factors governing sales.

PHARP 4172 Research Project I (I-200)

Course Aim

The aim of this course is to explain the purpose and objectives of Pharmacy research, identify problems for research study, plan and conduct simple research related to Pharmacy.

Intended Learning Outcomes

At the completion of the course students should be able to,

- demonstrate knowledge on basic research concept
- develop critical thinking and reading skills
- design and implement the tentative research plan
- develop scientific writing skills

Course Content

Selection of the research problem, selection of researchable topic, necessity of defining the problem, techniques involved in defining the problem; Literature survey: review of literature, concepts, principles and other aspects of problem review of researches previously conducted; Formulation of objectives: General and specific objectives and hypothesis; Research Design: features of good design, different research designs, methods of investigation sampling techniques.

FOURTH YEAR SECOND SEMESTER

PHABP 4212 Biopharmaceutics and Pharmacokinetics (L-30)

Course Aim

Course is designed to enable the students to acquire knowledge in pharmacokinetics

Intended Learning Outcomes

At the completion of this course students will be able to

- outline the ADME of drugs and their influencing factors

- describe Pharmacokinetic models
- evaluate the pharmacokinetic parameters
- describe Bioequivalence and bioavailability studies
- discuss Distribution kinetics
- outline the application of pharmacokinetics in specific populations

Biopharmaceutics: Absorption, distribution, biotransformation, and elimination of drugs and factors influence on them, biopharmaceutical consideration in drug product development; Pharmacokinetic models: Introduction and Pharmacokinetic models, Classification Non-Compartmental analysis, compartment models, catenary and mammillary models, physiologically based pharmacokinetic models; Compartment models: Concept of apparent volume of distribution, concept of clearance One compartment open model- IV bolus, One compartment open model- IV infusion, One compartment open model- extravascular administration, Multi compartment models, Non compartment analysis Evaluation of pharmacokinetics: Parameters, plasma half-life, elimination rate constant and absorption rate constant, Nonlinear pharmacokinetic, Dose adjustment in renal and hepatic failure; Multiple dosage regimen: Repetitive intravenous regimen and multiple oral dose regimen; Application of pharmacokinetics to specific populations: Geriatric, paediatric and obese patients; Bioequivalence and bioavailability: Biopharmaceutical classification of medicinal and biowaivers.

PHAPE 4222 Pharmacoeconomics (L-30)

Course Aim

The course is designed to provide the basic knowledge in pharmacoeconomic concepts and their application.

Intended Learning Outcomes

At the end of the course unit the students should be able to,

- describe the basic concepts of Pharmacoeconomics
- when should a pharmacoeconomic study be performed for a health care regimen
- select the appropriate analysis method for each study

Course Content

Pharmacoeconomics covers the principles and to introduce the fundamental topics, define the terminology used in pharmacoeconomic research, focuses on different types and measurement of pharmaceutical costs and outcomes, and investigates how they are analysed in pharmacoeconomic techniques such as Cost-Benefit Analysis, Cost Effective Analysis, Cost-Utility Analysis, Cost-Minimization Analysis, and Cost Consequence Analysis. It also introduces the fundamental topics and define the Terminology used in pharmacoeconomic research in addition to giving examples in evaluating published research.

PHAIT 4230 Industrial Training (F - 30)

Course Aim

The course is to enable the students to acquire knowledge in formulation principles of various dosage forms and importance of optimisation of drug formulation system.

Intended Learning Outcomes

At the completion of this course students will be able to

- discuss the lay out design of pharmaceutical industry
- identify different processes involved in the manufacturing of pharmaceuticals
- explain manufacturing process of different pharmaceutical formulations
- apply the quality control methods for different pharmaceuticals

Gaining practical knowledge in the lay out design of pharmaceutical industry, development of liquid, semisolid and solid pharmaceutical formulations and their evaluation methods in pharmaceutical industry.

PHARR 4236 Research Project II (I-600)

Course Aim

The aim of the course is to plan and conduct simple laboratory based research related to Pharmacy, present research findings and appreciate the importance of research in raising the standard of health care.

Intended Learning Outcomes

At the completion of this course students will be able to

- demonstrate knowledge on basic research concept
- develop critical thinking and reading skills
- design and implement the research
- develop scientific writing skills

Course Content

Sample collection/ Collection of data, lab based analysis/ Application of suitable statistical techniques in research, Processing and Analysis of Data; Interpretation of results; Preparation and presentation of report: report writing style, context, bibliograph

Chapter 6

By – Laws Relating To Conditions Of Residence And Disipline of Students [by- Laws Made Under Section 135(1) (d) of The Universities Act No 16 Of 1978, As Amended By The Universities (amendment) Act No.07 of 1985]

These by – Laws may be cited as By- Laws No. 1 relating to condition of Residence and Discipline of students and shall come into force on 1st May 1986.

6.1 Conditions of Residence

6.1.1. Student means –any one of all postgraduate, undergraduate and diploma students of the University of Jaffna.

6.1.2. Residence means – the stay during any day of a student within the Campus premises whether it be for purpose of study in a prescribed course, or for the use of the Library and/or any other facility, and/or the stay as a legitimate resident of the University hostel.

6.1.3. All students shall follow the prescribed course of study to the satisfaction of the Senate. Any student who keeps away from the course continuously for a period of one academic term without authorized leave of absence will be deemed to have left the course.

6.1.4. Leave may be granted up to one week by the Dean of Faculty to which the student belongs, and beyond that period, by the Vice –Chancellor.

6.1.5. Any student who contacts a contagious disease shall immediately contact the University Medical Officer, and strictly follow his/her advice. If this is not possible, the student may obtain the advice of a qualified Medical Officer and report to the University Medical Officer as soon as possible.

6.1.6. Students who are residents of the University Hostel are required to fully comply with the rules of Residence issued by the Warden from time to time.

6.1.7. All students except the hostel residents are required to vacate the premises of the University by 22.00 hours (or at any other time notified by the Vice-Chancellor) on each day, unless otherwise engaged in legitimate business. Students who are residents of the University Hostel and who wish to gain entry to the Campus premises after 22.00 hours should either produce their University Identity Cards/Record Books or identify themselves by placing their signature/ index number, when requested by the security staff.

6.1.8. Students receiving visitors who are not persons of the University are required to report of same to the Chief Security Officer or the Officer In-Charge of the Security Staff on duty.

6.1.9. All students are required to be suitably attired during their period of residence in the Campus.

6.2 Registration and Conditions of Discipline

6.2.1. Students of the University at all times shall Endeavour to safeguard the dignity, good name and reputation of the University.

6.2.2. Students are admitted and registered as under-graduate or graduate students of the University subject to their good behaviour and the observance of strict discipline.

6.2.3. On admission to the University no student shall be dully registered as a student unless such student makes a declaration duly signed by him/her as provided for in Schedule 1 to these By-Laws to the effect that he/she had read and understood the provisions of these By-Laws and that he/she will at all times abide by the provisions of these By-Laws.

6.2.4. Upon the receipt of an application on the prescribed from for registration as a student of the University together with such documents as may be necessary for this purpose, along with the declaration referred to in the foregoing paragraph, the Registrar or such other officer as may be nominated by him for this purpose shall register such student and shall issue to the student so registered an Identity Card and a Student's Record Book bearing the photograph of the student concerned duly embossed with the seal of the University which shall be final and conclusive evidence pertaining to the identity of the student and also to the accuracy of the particulars stated therein.

6.2.5. Every registered student of the University shall have in this possession either such Identity Card or Student's Record Book which he shall produce when called upon to do so by a member of the Academic Staff or by any officer authorized by the Vice-Chancellor or Registrar for this purpose.

6.2.6. If any registered student fails to produce or wilfully refuses to produce or neglects to produce such Identity Card or Student's Record Book when called upon to do so by an authorized officer of the University such student shall be deemed to be guilty of an offence punishable under these By-Laws.

6.2.7. In the event of the failure or the refusal to produce such Identity Card or Student's Record Book the authorized officer shall have the power to take such student to custody and to produce him before the Warden of the respective Hall of Residence if such student claims to be residing in a Hall of Resident if such student claims to be residing in a Hall of Residence for identification. In the event of such student not being a resident of a Hall of Residence such student may be produced before the Chief Security Officer or Marshal who shall report him to the Vice –Chancellor for appropriate action.

6.2.8. The particular stated in the Identity Card or Student's Record Book shall be deemed to contain prima facie

evidence of the status of the student and shall be in the manner prescribed in Schedule II of these By-Laws.

6.2.9. No club, society, Union or other association of students shall be recognized except as provided for in the relevant sections of the Universities Act No. 16 of 1978 as amended by the Universities (Amendment) Act No. 07 of 1985.

6.2.10. A recognized body of students so formed shall be hereinafter called a University Society.

6.2.11. A University Society shall be governed by the provisions of the relevant sections of the Universities Act No. 16 of 1978 as amended by the Universities (Amendment) Act No. 07 of 1985, and By-Laws framed under same for the specified purpose.

6.2.12. No public meeting may be held by any student(s), University Society, or other Association of students on the University premises except with the permission of the Vice-Chancellor. The latter shall be obtained in a manner prescribed by notice from time to time.

6.2.13. The Vice – Chancellor shall designate the place and time of meeting when granting approval and the meeting shall not be held elsewhere or at any other time without the prior concurrence of the vice-chancellor.

6.2.14. For the purpose of this section a public meeting may be a gathering of five or more students with or without fees being charged.

6.2.15. Exceptions to the provisions of this section may be permitted by the Vice-Chancellor through delegation to the

Dean of a Faculty or Head of Department the authority to allow at his/her discretion the holding of a meeting which is of an academic nature.

6.2.16. The holding of an unauthorized meeting shall be considered an act of indiscipline and those responsible shall be liable for punishment.

6.2.17. For the purpose of this section, acts of indiscipline under unauthorized meetings include the public announcement of such meetings, the putting up of posters or banners connected with such meetings, conducting the meetings, and addressing meetings.

6.2.18. Unless the prior consent of the Vice Chancellor has been obtained, no subscriptions may be collected from among students of the University by any student(s), University Society or other association; provided that this regulation shall not apply to a subscription collected by a University Society in accordance with, and for purpose of, its rules.

6.2.19. Harassment (including any form of ragging) and intimidation of any person whether physical or mental shall be considered an act of indiscipline.

6.2.20. For the purpose is Section, intimidation shall include the display of posters in the Campus premises by any student or students which are not properties of a University society, calling for the boycott of lectures or strike action.

6.2.21. Even in the case of posters belonging to a University Society, they can be recognized as valid notices only if that Society has met legitimately and taken a majority decision at such meeting.

6.2.22. The causing of actual physical injury or physical harm or of threat to cause same constitutes a grave act of indiscipline and shall be regarded as a punishable offence.

6.2.23. Kidnap, attempted kidnap, or threat to kidnap any person or persons constitutes a grave act of indiscipline and shall be regarded as a punishable offence.

6.2.24. The inciting of students to disrupt legitimate activities of the University constitutes a grave act of indiscipline and shall be regarded as a punishable offence.

6.2.25. Any student, who has stolen or attempted the theft of property within the University premises or has retained stolen property belonging to the University or has caused wilful damage to same, shall be guilty of a punishable offence.

6.2.26. Any teacher of the University may suspend any student from a lecture, practical / demonstration, tutorial or test held by him, but shall in every such case report the suspension to the Head of the Academic Department who shall then report same to the Dean of the Faculty and the Vice-Chancellor. The latter shall then determine further action that requires to be taken upon the recommendation of the Dean.

6.3 Procedure for Inquiry Against Reported Acts of Indiscipline

6.3.1.A) A Committee of Inquiry appointed from time to time by the Vice-chancellor shall deal with matters pertaining to conditions of residence and discipline. This committee shall consists of

I. Such number of members as the Vice-Chancellor thinks necessary

II. Senior Assistant Registrar/Assistant Registrar (Student Welfare) who shall be an ex-officio member serving as Secretary Convener of the Committee.

(B) The Vice-Chancellor shall nominate the Chairman of the Board.

6.3.2. Subject to the provisions of the Act, and of any other appropriate instrument, the Committee of inquiry has the following powers and functions-

i. To hold inquiries or cause inquiries to be held pertaining to allegations of indiscipline or misconduct on the part of any student(s) of the University; and

ii. To recommend appropriate penalties or punishments, on any student who has been found guilty of any acts of indiscipline or misconduct or who have been found guilty of an offence under these By-Laws or , of acting in contravention of the provisions of these By-Laws or the Rules made by the Board

6.3.3. The Dean of each Faculty of the University shall have full power and authority to exercise supervisory control over the discipline of all students within the Faculty.

6.3.4. For the purpose of exercising the powers conferred upon a Dean by the preceding paragraph a Dean may issue from time to time instruction as the deems necessary for the proper administration of such Faculty.

6.3.5. Dean of each Faculty of the University shall be responsible for the maintenance of discipline of the students belonging to the Faculty, and for this purpose he may co-opt the services of any of the members of the academic staff of the Faculty.

6.3.6. Where the Dean of a Faculty of the University is satisfied that there is a likelihood of the breakdown of the smooth functioning of the Faculty due to the dis-orderly behaviour or conduct on the part of student(s) the Dean may take immediate remedial measures to prevent a breakdown of the functioning of the Faculty by-

i. Reprimanding such student(s) for dis-orderly behaviour; or recommending the Vice-Chancellor the suspension of such student(s) from the University or from attending lectures/ courses etc.

ii. Recommending to the University authorities that such student(s) be debarred from sitting a forthcoming examination.

6.3.7. A student who has been reported as having violated any of the provisions of these By-Laws shall normally be afforded an opportunity to be heard before the Committee of Inquiry appointed by the Vice Chancellor. The findings of the Committee shall be reported to the Vice-Chancellor for a determination of the appropriate punishment for those found guilty, and he shall thereafter impose same on the guilty student(s).

6.3.8. The Committee of Inquiry appointed by the Vice-Chancellor shall have the power to summon any student or any member of staff within the University and to oblige such student or staff to render whatever

assistance needed to conduct inquiries on matters pertaining to provisions of these By-Laws.

6.3.9. The Vice-Chancellor may impose appropriate punishment upon the recommendation of the Committee to any person who commits any offence coming within the provisions of these By-Laws.

6.3.10. The Vice-Chancellor shall, at his discretion, declare the Campus premises out of bounds to any student pending an inquiry, or completion of any inquiry or otherwise, if he deems it necessary to maintain discipline in the Campus.

6.3.11. Notwithstanding any of the preceding provisions of the By-Laws the Vice-Chancellor shall take whatever action that he considers necessary, to maintain discipline at the University at his discretion.

6.4 General Provisions

6.4.1. Notwithstanding any provisions in the preceding sections of these By-Laws, any Rules, Regulations, statutes, Orders, Ordinances and other Agreements pertaining to residence, and discipline and which are in force at any time shall apply in addition to the provisions of these By-Laws.

6.4.2. Notwithstanding any provisions in the preceding sections of these By-Laws the Vice-Chancellor may at

his own discretion take action against any act of indiscipline which is not stipulated in these By-Laws to maintain discipline in the University.

6.5 Punishments

6.5.1.i. Warning or a severe reprimand;

ii. a fine;

iii. Suspension from the University or Campus;

iv. Withdrawal of residential facilities and accommodation;

v. Withdrawal, Cancellation or suspension of any financial benefits, assistance or award under the Mahapola Scholarship Scheme, any Bursary Scheme or Endowed Scholarship Scheme.

vi. Disqualification from sitting any University Examination for a specified period.

vii. Suspension of the release of the results of any University Examination for a specified period and

viii. Expulsion from the University or Campus.

6.5.2. Any student on whom a punishment has been imposed by the committee of inquiry and who is aggrieved with the decision of the committee regarding the punishment may within a period of one month from the date of communication to him of such punishment or penalty, appeal against such punishment or penalty to the Vice – Chancellor.

6.5.3. Upon the receipt of an appeal, the Vice-Chancellor shall refer such appeal for consideration to an Appeals Committee.

6.5.4. The Appeals Committee, for the purpose of the above paragraph shall consist of three persons nominated by the Vice Chancellor.

6.5.5. The appeals Committee shall have the power to review the decision of the committee of inquiry regarding the punishment imposed and may either affirm, vary or set aside the decision regarding the punishment.

6.6 Hazing/Ragging

The university Grants Commission has prepared a University Student Charter to serve as a guide for students enrolled in state universities as well as a document that states the conditions of the contract that exist between the university and its students. In this document under the section "Unethical and unlawful activities that are prohibited in the universities" it is given about Hazing/ Ragging. It explains the unethical and unlawful activities that are prohibited in universities and spells out the possible punishment that could be imposed by the university on those who engage in or commit any one or more of the unethical and unlawful activities listed in this document.

Hazing/Ragging: Universities are havens for the independent pursuit of academic excellence. Ragging or hazing has reduced and diminished the freedom or independence of students and it hinders the achievement of academic excellence. Ragging is now a criminal offence under the Anti-Ragging Law passed by the Parliament in 1998. Unfortunately, ragging/hazing occurs in many national universities due to the organized oppression by individuals who suffer from abnormal mentalities and inferiority complexes and also by the blind followers of destructive political movements. Indeed the 'raggers' may be the cat's paws in the armory of political strategies used by some political activists. Hazing or ragging is interpreted as any act (by an individual or group) whether physical, mental, emotional or psychological, which subjects another person, voluntarily or involuntarily, to anything that may abuse, mistreat, degrade, humiliate, harass or intimidate whether on or off the campus. These actions are prohibited and include, but are not limited to, the following.

i. Forcing individuals to perform and/or engage in demeaning or humiliating acts
ii. Bullying or coercing, or intimidating individuals or group of individuals.
iii. Creation of excessive physical or mental fatigue
iv. Causing physical or psychological shocks

v. Forcing to wear clothing which is conspicuous or bad in taste

vi. Forcing an individual or individuals to engage in morally degrading or humiliating acts, games or activities

vii. Forcing individuals or group of individuals to engage in early morning or late evening work sessions which are not in conformity with norms of civil society and/or that may interfere with academic performance University Student Charter 36 Unethical and Unlawful Activities that are prohibited in Universities…

viii. Body marking/painting or any activity that is not consistent with the policy of the university which would adversely affect the University's mission and damage its image.

All reported events of the above nature will be handed over to the police for necessary action under the Anti-Ragging Law passed by the Parliament in 1998, while the university will also take appropriate disciplinary action. In this connection the University Grants Commission has already issued several guidelines and circulars to facilitate the enforcement of law and order by the universities and urge universities to adapt strict measures to prevent the occurrence of any hazing or ragging.

Chapter 7
EVALUATION PROCEDURES AND EXAMINATIONS

All courses will be evaluated by means of Continuous Assessments (CA) and end of course examinations.

7.1. Continuous Assessment

Continuous assessment will be in the form of multiple choice questions (MCQ), single response questions, structured essay questions (SEQ), assessment reports, oral presentations and OSPE examinations in practical or laboratory experiments. This will be carried out during the period of teaching of each course.

Continuous assessments of courses will be carried out at the dates and times determined by the departments offering the courses or the academic staff of the relevant course in consultation with the Head of relevant department.

The percentage of continuous assessment which will be taken for the end of course examination of any course has been indicated in the evaluation table given in this chapter. This continuous assessment marks will be taken only for the first attempt.

7.2. End of Course Examination

End of course examination will be conducted for each course at the end of each semester. The date of commencement of the end

of course examination shall be decided at the beginning of each semester by the Dean based on the calendar of dates. Each examination will have many components such as MCQs, Single response, SEQs, essay, Practical, OSPE, OSCE, viva and clinical examinations. The components may vary according to the nature of course.

7.3. Attendance

Student attendance will be marked in all teaching sessions. The attendance will be calculated at the end of each semester. The student will be eligible to sit the examination only if the student has a minimum of 80% attendance in lectures, tutorials and 90% attendance in practical, clinical and field activity unless the period of absence is exempted by the Faculty Board and the Senate.

7.4. Re-sit Examinations

7.4.1. Continuous Assessments:

1. No student will be allowed to re-sit continuous assessment of any course to improve the marks

2. If a student is unable to sit for a continuous assessment for valid reasons, he/ she shall inform and request for another exam to the Head of relevant department in written form in advance or within five working days from the said examination. If the reason is acceptable, another continuous assessment could be conducted in any form of assessment method in consultation with the relevant academic staff.

3. If a student fails to sit the continuous assessment and the excuse is not accepted, such student will be given zero (0) marks for that continuous assessment component.

4. Continuous Assessment marks will not be taken for the repeat attempts.

5. When a candidate is unable to sit for a scheduled end of course examination due to a valid excuse and sits for the next available examination as the first attempt, continuous assessment marks will be taken into consideration.

7.4.2. End of Course Examination:

1. The students must appear for the first available examination after completion of the courses. Students will be admitted to the end of course examinations as first attempt for the particular course only if they have earned the prescribed credits for the course.

2. Any student who fails to attend the examination will be deemed to have exhausted the first attempt, unless an appeal made in time is accepted by the Faculty Board and the Senate.

3. Students who fail to attend the examination should inform the Dean by any means within five working days from the said examination. Information given after five working days will not be accepted for considering the attempt. If any student happens to be unable to attend the examination due to ill health, the student should get examined by the UMO or a Government

Medical Officer. The medical certificate should be duly certified by the UMO and submitted to the faculty within two weeks. Other reasons of absence also must be adequately confirmed by appropriate evidence. If the appropriate evidence or medical certificate is approved by the Faculty Board, the missed attempt will be given as an excuse. Such excuse will be given only once for each course.

4. If a student fails to get an approved excuse, failure to sit any due or scheduled examination shall be considered as an attempt at that examination.

5. If a student abstains to any exam component of the course at the end of course examination, the grade will not be given and student will be considered as "ab". In such circumstance the student should resit the examination.

6. If a student fails to attend the first exam component in an end of course examination he/she will not be qualified to face the remaining components of the examination.

7. A student who obtains grades of C-, D+, D, D- or E may follow that course again and sit the end of course examination of that course again at his/her own expenses as repeat attempts in order to improve his/her grade. The highest grade that could be awarded for a repeated course is 'C'.

8. The students will be allowed to sit maximum of 3 attempts (proper attempt + two repeat attempts) in order to pass the course.

9. Those who are attempting as repeat candidate either for upgrading or pass the course, they should make use of the earliest opportunities. If they skipped an opportunity, it will be treated as forfeited attempt.

7.5. Requirement to pass a course unit

A candidate to get pass in a course, he /she should get at least 40% of marks in theory and for the courses where practical, OSPE, or clinical/field training are assessed, the candidate should get at least 50% for these components. Candidate should obtain the overall mark of 50% to get pass for a course.

7.6. Eligibility to continue the semester

If a student is unable to follow the whole academic activities in a semester, he/she will not be allowed to continue the subsequent semester.

7.7. Period of candidature

Students should complete the degree programme within a maximum period of 8 years from the date of registration. If they fail to complete the degree within the stipulated period, they are not entitled for studentship.

7.8. Releasing Results

When the marks of all courses of an examination are received by the Dean, a Pre-Result Board will be convened by the Dean. The Pre-Result Board will comprise the Dean, Head, the relevant examiners for each subject who took part in that examination and the Assistant Registrar. The marks will be finalized and sent to the Examinations Branch of the University. The Grades obtained by the students will be displayed on the notice board, subject to confirmation by the Results Board and the Senate.

The Vice Chancellor will convene a Result Board comprising the Vice Chancellor, Dean, Head of the department and all examiners to finalize the results and submit the results for confirmation by the senate. The Result Board will scrutinize the marks again and work out the grades, class honours, passes, failures and prizes.

7.9. Method of evaluation

7.9.1. Medical Laboratory Sciences

7.9.1.1. BScHons (Medical Laboratory Sciences) - First Year

Course Code	Name of the Course	Credits	CA	End of course Examination				Total
				Theory		Practical	OSCE/ Viva	
				Essay	MCQ			
AHSBE 1110	Basic English	-	25	75			-	100
AHSCL 1120	Basic Computer Literacy	-	40	30		30	-	100
MLSMT 1132	Medical Laboratory Technology I	2	20	60	-	-	20	100
MLSPM 1143	Physiology for MLS I	3	20	35	35	-	10	100
MLSAM 1154	Anatomy for MLS	4	20	30	20	30	-	100
MLSBM 1163	Biochemistry for MLS I	3	20	40	40	-	-	100
MLSMT 1213	Medical Laboratory Technology II	3	20	60	-	-	20	100
MLSCH 1221	Basic Community Health	1	20	80	-	-	-	100
MLSBS 1231	Basic Statistics	1	20	80	-	-	-	100
MLSPM 1243	Physiology for MLS II	3	20	35	35	-	10	100
MLSGM 1253	General Microbiology	3	20	30	30	-	20	100
MLSBM 1262	Biochemistry for MLS II	2	20	40	30	10	-	100
MLSGP 1272	General Pathology	2	20	80	-	-	-	100

7.9.1.2. BScHons (Medical Laboratory Sciences) - Second Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination			Spot/ viva	Total
				Theory		Practical		
				Essay	MCQ			
MLSHE 2115	Haematology I	**5**	20	20	20	30	10	100
MLSSP 2125	Systemic Pathology	**5**	20	25	25	-	30	100
MLSMB 2133	Medical Bacteriology	**3**	20	25	25	20	10	100
MLSIM 2144	Immunology	**4**	20	50	-	20	10	100
MLSEC 2211	Ethics & Communication	**1**	20	80	-	-		100
MLSHE 2225	Haematology II	**5**	20	20	20	30	10	100
MLSCB 2235	Clinical Biochemistry I	**5**	20	25	25	30	-	100
MLSLQ 2243	Laboratory Management and Quality Assurance	**3**	20	70	-	-	10	100

7.9.1.3. BScHons (Medical Laboratory Sciences) - Third Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practical	OSCE /Viva	
				Essay	MCQ			
MLSRM 3113	Research Methodology & Medical Statistics	3	30	70	-	-	-	100
MLSCB 3126	Clinical Biochemistry II	6	20	25	25	30	-	100
MLSCH 3135	Clinical Histotechnology	5	20	35	15	30	-	100
MLSMP 3144	Medical Parasitology	4	20	50	-	20	10	100
MLSBM 3212	Biotechnology & Molecularbiology	2	20	50	-	15	15	100
MLSMV 3223	Medical Mycology & Virology	3	20	25	25	20	10	100
MLSTM 3234	Transfusion Medicine	4	20	25	25	30	-	100
MLSDM 3243	Diagnostic Microbiology	3	20	40	-	30	10	100
MLSRP 3252	Research Project I	2	-	Proposal Evaluation – 60 Viva – 40				100

7.9.1.4. BScHons (Medical Laboratory Sciences) - Fourth Year

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical	OSCE/ Viva	
			Assign-ment	SPOT			
MLSWL 4116	Work Based Learning (Haematology)	6	20	20	50	10	100
MLSWL 4126	Work Based Learning (Clinical Biochemistry)	6	20	20	50	10	100
MLSWL 4136	Work Based Learning (Clinical Microbiology)	6	20	20	50	10	100
MLSRP 4216	Research Project II	6	Dissertation Evaluation – 60 Dissertation defense – 40				100
MLSWL 4226	Work Based Learning (Histotechnology)	6	20	20	50	10	100

7.9.1.5. BScHons (Medical Laboratory Sciences) - First Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical	OSPE/ Viva	
			Essay	MCQ			
AHSBE 1110	Basic English		100		-	-	100
AHSCL 1120	Basic Computer Literacy		50		50	-	100
MLSMT 1132	Medical Laboratory Technology I	**2**	70	-	-	30	100
MLSPM 1143	Physiology for MLS I	**3**	50	40	-	10	100
MLSAM 1154	Anatomy for MLS	**4**	40	30	30	-	100
MLSBM 1163	Biochemistry for MLS I	**3**	50	50	-	-	100
MLSMT 1213	Medical Laboratory Technology II	**3**	70	-	-	30	100
MLSCH 1221	Basic Community Health for MLS	**1**	100	-	-	-	100
MLSBS 1231	Basic Statistics	**1**	100	-	-	-	100
MLSPM 1243	Physiology for MLS II	**3**	40	40		20	100
MLSGM 1253	General Microbiology	**3**	50	30	-	20	100
MLSBM 1262	Biochemistry for MLS II	**2**	50	40	10	-	100
MLSGP 1272	General Pathology	**2**	100	-	-	-	100

7.9.1.6. BScHons (Medical Laboratory Sciences) - Second Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course examination			SPOT	Total
			Theory		Practical		
			Essay	MCQ			
MLSHE 2115	Haematology I	5	30	20	40	10	100
MLSSP 2125	Systemic Pathology	5	40	30	-	30	100
MLSMB 2133	Medical Bacteriology	3	40	30	20	10	100
MLSIM 2144	Immunology	4	60		30	10	100
MLSEC 2211	Ethics & Communication	1	100	-	-	-	100
MLSHE 2225	Haematology II	5	30	20	40	10	100
MLSCB 2235	Clinical Biochemistry I	5	40	30	30	-	100
MLSLQ 2243	Laboratory Management and Quality Assurance	3	90	-	-	10	100

7.9.1.7. BScHons (Medical Laboratory Sciences) - Third Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Prac-tical	OSCE/ Viva	
			Essay/ SEQ	MCQ			
MLSRM 3113	Research Methodology & Medical Statistics	**3**	100			-	100
MLSCB 3126	Clinical Biochemistry II	**6**	30	30	40	-	100
MLSCH 3135	Clinical Histotechnology	**5**	50	20	30	-	100
MLSMP 3144	Medical Parasitology	**4**	60	-	30	10	100
MLSBM 3212	Biotechnology & Molecular-biology	**2**	60	-	20	20	100
MLSMV 3223	Medical Mycology & Virology	**3**	40	30	20	10	100
MLSTM 3234	Transfusion Medicine	**4**	30	30	40	-	100
MLSDM 3243	Diagnostic Microbiology	**3**	50	-	40	10	100
MLSRP 3252	Research Project I	**2**	Proposal Evaluation – 60 Viva - 40				100

7.9.1.8. BScHons (Medical Laboratory Sciences) - Fourth Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical	OSCE/ Viva	
			Assign-ment	Spot			
MLSWL 4116	Work Based Learning (Haematology)	6	20	20	50	10	100
MLSWL 4126	Work Based Learning (Clinical Biochemistry)	6	20	20	50	10	100
MLSWL 4136	Work Based Learning (Clinical Microbiology)	6	20	20	50	10	100
MLSRP 4216	Research Project II	6	Dissertation Evaluation- 50 Dissertation defense-50				100
MLSWL 4226	Work Based Learning (Histotechnology)	4	20	20	50	10	100

7.9.2. Nursing

7.9.2. 1. BScHons (Nursing) - First Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practical /OSPE	Viva	
				Essay	MCQ			
AHSBE 1110	Basic English	**A/C**	25	75			-	100
AHSCL 1120	Basic Computer Literacy	**A/C**	40	30		30	-	100
NURNP 1133	Nursing principles and procedures I	**03**	20	30	20	30	-	100
NURPY 1143	Physiology for Nurses I	**03**	20	35	35	-	10	100
NURAN 1153	Anatomy for Nurses I	**03**	20	30	30	20	-	100
NURBN 1162	Biochemistry for Nurses I	**02**	20	40	40	-	-	100
NURNE 1171	Nursing ethics, Trends and Professional Adjustment I	**01**	20	80	-	-	-	100
NURCO 1181	Communication Skills and Health Promotion	**01**	20	-	-	80	-	100
NURCL 1213	Clinical Practice I	**03**	40	-	-	60	-	100
NURMP 1223	Microbiology and Parasitology	**03**	20	30	30	20	-	100
NURNP 1231	Nursing Principles and Procedures II	**01**	20	40	40	-	-	100
NURPY 1243	Physiology for Nurses II	**03**	20	35	35	-	10	100
NURAN 1253	Anatomy for Nurses II	**03**	20	30	30	20	-	100
NURBN 1263	Biochemistry for Nurses II	**03**	20	40	40	-	-	100
NURPA 1271	General Pathology	**01**	20	40	40	-	-	100

7.9.2.2. BScHons (Nursing) - Second Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination			Total
				Theory		Practical OSCE	
				Essay	MCQ		
NURCL 2113	Clinical Practice II	**3**	40	-	-	60	100
NURMS 2123	Medical Surgical Nursing I	**3**	20	40	40	-	100
NURNP 2131	Nursing principles and procedures III	**1**	20	40	40	-	100
NURDT 2142	Diet Therapy	**2**	20	25	25	30	100
NURSP 2153	Systemic Pathology	**3**	20	40	20	20	100
NURPS 2162	Psychology for Nurses	**2**	20	80	-	-	100
NURPH 2173	Pharmacology I	**3**	20	50	30	-	100
NURCL 2212	Clinical Practice III	**2**	40	-	-	60	100
NURMS 2222	Medical Surgical Nursing II	**2**	20	40	40	-	100
NURNP 2231	Nursing Principles and Procedures IV	**1**	20	40	40	-	100
NURCH 2243	Community Health Nursing I	**3**	20	40	40	-	100
NURCN 2252	Child Health Nursing I	**2**	20	40	40	-	100
NURPH 2262	Pharmacology II	**2**	20	50	30	-	100
NURSO 2272	Sociology for Nurses	**2**	20	80			100

7.9.2.3. BScHons (Nursing) - Third Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practical /OSCE	Viva	
				Essay	MCQ			
NURCL 3114	Clinical Practice IV	4	40	-	-	60	-	100
NURMS 3123	Medical Surgical Nursing III	3	20	40	40	-	-	100
NURED 3132	Emergency and Disaster Nursing	2	20	40	40	-	-	100
NURCH 3142	Community Health Nursing II	2	20	40	40	-	-	100
NURCP 3153	Community Health Nursing Practice	3	40	-	-	60	-	100
NURRM 3163	Research Methodology and Medical Statistics	3	30	70	-	-	-	100
NURRP 3212	Research Project I	2	Proposal Evaluation – 70 Proposal Defense – 30					100
NURPM 3226	Psychiatric and Mental Health Nursing	6	20	30	20	30		100
NURNE 3231	Nursing Ethics, Trends and Professional Adjustment II	1	30	70	-	-		100
NURCN 3243	Child Health Nursing II	3	20	50	30	-	-	100
NURCP 3253	Child Health Practice	3	40	-	-	60	-	100

7.9.2.4. BScHons (Nursing) – Fourth Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practical / OSCE	Viva	
				Essay	MCQ			
NURTL 4113	Teaching and Learning	**3**	20	50	-	30	-	100
NURLM 4123	Leadership and Ward Management	**3**	20	50	-	-	30	100
NURMN 4133	Maternity Nursing I	**3**	20	50	30	-	-	100
NURMP 4143 NURCL 4143	Maternity Nursing Practice I/ Clinical Practice V	**3**	40	-	-	60	-	100
NURRP 4216	Research Project II	**6**	Dissertation Evaluation – 70 Dissertation Defense – 30					100
NURGN 4222	Geriatric Nursing	**2**	20	50	30	-	-	100
NURMN 4233	Maternity Nursing II	**3**	20	40	40	-	-	100
NURMP 4242 or NUREO 4242	Maternity Nursing Practice II/ Emergency and Oncology Nursing Practice	**2**	40	-	-	60	-	100
NURGP 4252	Geriatric Nursing Practice	**2**	40	-	-	60	-	100

7.9.2.5. BScHons(Nursing) - First Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical / OSPE	Viva	
			Essay	MCQ			
AHSBE 1110	Basic English	A/C	100		-	-	100
AHSBCL 1120	Basic Computer Literacy	A/C	50		50	-	100
NURNP 1133	Nursing principles and procedures I	**03**	40	30	30		
NURPY 1143	Physiology for Nurses I	**03**	40	40	-	20	100
NURAN 1153	Anatomy for Nurses I	**03**	40	40	20	-	100
NURBN 1162	Biochemistry for Nurses I	**02**	50	50	-	-	100
NURNE 1171	Nursing ethics, Trends and Professional Adjustment I	**01**	100	-	-	-	100
NURCO 1181	Communication Skills and Health Promotion	**01**	-	-	100		100
NURCL 1213	Clinical Practice I	**03**	-	-	100	-	100
NURMP 1223	Microbiology and Parasitology	**03**	40	40	20	-	100
NURNP 1231	Nursing Principles and Procedures II	**01**	50	50	-	-	100
NURPY 1243	Physiology for Nurses II	**03**	40	40	-	20	100
NURAN 1253	Anatomy for Nurses II	**03**	40	40	20	-	100
NURBN 1263	Biochemistry for Nurses II	**03**	50	50	-	-	100
NURPA 1271	General Pathology	**01**	50	50	-	-	100

7.9.2.6. BScHons (Nursing) – Second Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination			Total
			Theory		Practical/ OSCE	
			Essay	MCQ		
NURCL 2113	Clinical Practice II	3	-	-	100	100
NURMS 2123	Medical Surgical Nursing I	3	50	50	-	100
NURNP 2131	Nursing principles and procedures III	1	50	50	-	100
NURDT 2142	Diet Therapy	2	35	35	30	100
NURSP 2153	Systemic Pathology	3	50	30	20	100
NURPS 2162	Psychology for Nurses	2	100	-	-	100
NURPH 2173	Pharmacology I	3	60	40	-	100
NURCL 2212	Clinical Practice III	2	-	-	100	100
NURMS 2222	Medical Surgical Nursing II	2	50	50	-	100
NURNP 2231	Nursing Principles and Procedures IV	1	50	50	-	100
NURCH 2243	Community Health Nursing I	3	50	50	-	100
NURCN 2252	Child Health Nursing I	2	50	50	-	100
NURPH 2262	Pharmacology II	2	60	40	-	100
NURSO 2272	Sociology for Nurses	2	100	-	-	100

7.9.2.7. BScHons (Nursing) - Third Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical/ OSCE	Viva	
			Essay	MCQ			
NURCL 3114	Clinical Practice IV	4	-	-	100	-	100
NURMS 3123	Medical Surgical Nursing III	3	50	50	-	-	100
NURED 3132	Emergency and Disaster Nursing	2	50	50	-	-	100
NURCH 3142	Community Health Nursing II	2	50	50	-	-	100
NURCP 3153	Community Health Nursing Practice II	2	-	-	100	-	100
NURRM 3163	Research Methodology and Medical Statistics	3	100	-	-	-	100
NURRP 3212	Research Project I	2	Proposal Evaluation – 70 Proposal Defense – 30				100
NURPM 3226	Psychiatric and Mental Health Nursing	6	40	30	30	-	100
NURNE 3231	Nursing Ethics, Trends and Professional Adjustment II	1	100	-	-		100
NURCN 3243	Child Health Nursing II	3	60	40	-	-	100
NURCP 3253	Child Health Practice	3	-	-	100	-	100

7.9.2.8. BScHons (Nursing) – Fourth Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical / OSCE	Viva	
			Essay	MCQ			
NURTL 4113	Teaching and Learning	**3**	60	-	40	-	100
NURLM 4123	Leadership and Ward Management	**3**	70	-	-	30	100
NURMN 4133	Maternity Nursing I	**3**	60	40	-	-	100
NURMP 4143 NURCL 4143	Maternity Nursing Practice I/ Clinical Practice V	**3**	-	-	100	-	100
NURRP 4216	Research Project II	**6**					100
NURGN 4222	Geriatric Nursing	**2**	60	40	-	-	100
NURMN 4233	Maternity Nursing II	**3**	50	50	-	-	100
NURMP 4242 or NUREO 4242	Maternity Nursing Practice II/ Emergency and Oncology Nursing Practice	**2**	-	-	100	-	100
NURGP 4252	Geriatric Nursing Practice	**2**	-	-	100	-	100

7.9.3. Pharmacy

7.9.3.1. BPharmHons - First Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practi-cal	Spot/ Viva	
				Es-say	MCQ			
AHSBE 1110	Basic English	AC	25	75			-	100
AHSCL1120	Basic Computer Literacy	AC	40	-	30	30	-	100
PHABS 1131	Basic Statistics	01	30	70	-	-		100
PHAAP 1143	Anatomy for Pharmacy I	03	20	40	20	-	20	100
PHABP 1153	Biochemistry for Pharmacy I	03	20	40	20	20	-	100
PHAPP 1163	Physiology for Pharmacy I	03	20	35	35	-	10	100
PHACH 1173	Pharmaceutical Chemistry I	03	20	50	-	30	-	100
PHAPM 1181	Pharmaceutical Mathematics	01	30	70				100
PHASF 1210	Safety and First Aids	-	-	-	-			-
PHABP 1222	Biochemistry for Pharmacy II	02	20	40	40	-	-	100
PHAPP 1233	Physiology for Pharmacy II	03	20	35	35	-	10	100
PHACH 1241	Basic Community Health for Pharmacy	01	20	80	-	-	-	100
PHACE 1254	Physical Pharmaceutics	04	20	60	-	20	-	100
PHACH 1264	Pharmaceutical Chemistry II	04	20	50	-	30	-	100

7.9.3.2. BPharmHons - Second Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practical	Spot/ Viva	
				Essay	MCQ			
PHACE 2113	Pharmaceutics I	**03**	20	60	-	20	-	100
PHACG 2123	Pharmacognosy I	**03**	20	50	-	20	10	100
PHACL 2133	Pharmacology and Pharmacotherapy I	**03**	20	50	30	-	-	100
PHAPM 2144	Pharmaceutical Microbiology	**04**	20	**50**		30	-	100
PHAPA 2153	Pathology for Pharmacy	**03**	20	50	30	-	-	100
PHACE 2213	Pharmaceutics II	**03**	20	60	-	20	-	100
PHACG 2223	Pharmacognosy II	**03**	20	50	-	30	-	100
PHACL 2232	Pharmacology and Pharmacotherapy II	**02**	20	50	30	-	-	100
PHAFP 2243	Forensic Pharmacy and Ethics	**03**	30	70	-	-	-	100
PHACO 2253	Community Pharmacy	**03**	20	60		-	20	100

7.9.3.3. BPharmHons – Third Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practi-cal	Spot/ Viva	
				Es-say	MCQ			
PHAPT 3112	Pharmaceutical Technology I	**02**	30	70	-	-	-	100
PHAHP 3122	Hospital Pharmacy	**02**	30	70	-	-	-	100
PHAPR 3132	Hospital Pharmacy Practice I	**02**	20	-		80		100
PHACG 3143	Pharmacognosy III	**03**	20	50	-	30	-	100
PHACL 3153	Pharmacology and Pharmacotherapy III	**03**	20	50	30	-	-	100
PHAMC 3163	Medicinal Chemistry I	**03**	20	50	-	30	-	100
PHARM 3173	Research Methodology and Medical Statistics	**03**	30	70	-	-	-	100
PHAPT 3214	Pharmaceutical Technology II	**04**	20	60	-	20	-	100
PHAPR 3222	Hospital Pharmacy Practice II	**02**	20	-	-	80		100
PHACL 3232	Pharmacology and Pharmacotherapy IV	**02**	20	50	30	-	-	100
PHAPA 3244	Pharmaceutical Analysis	**04**	20	50	-	30	-	100
PHAMC 3253	Medicinal Chemistry II	**03**	20	60	-	20	-	100

7.9.3.4. BPharmHons - Fourth Year

Course Code	Name of the Course	No. of Credits	CA	End of course Examination				Total
				Theory		Practical	Spot/ Viva	
				Essay	MCQ			
PHAPT 4112	Pharmaceutical Technology III	**02**	30	70	-	-	-	100
PHADD 4122	Drug Discovery and development	**02**	20	80	-	-	-	100
PHACL 4134	Clinical Pharmacy	**04**	20	60	-	-	20	100
PHAMB 4144	Molecular Biology and Pharmaceutical Biotechnology	**04**	20	50		30	-	100
PHAPE 4152	Pharmacoepidemiology	**02**	30	70	-	-	-	100
PHAMM 4163	Pharmaceutical Management and Marketing	**03**	30	70	-	-	-	100
PHARP 4172	Research Project I	**02**	Proposal Evaluation – 70 Proposal Defense – 30					100
PHABP 4212	Biopharmaceutics and Pharmacokinetics	**02**	30	70	-	-	-	100
PHAPE 4222	Pharmacoeconomics	**02**	30	70	-	-	-	100
PHAIT 4230	Industrial training	**00**	-	-	-	30	-	-
PHARR 4236	Research Project II	**06**	Thesis Evaluation - 70 Thesis Defense - 30					100

7.9.3.5. BPharmHons - First Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical	Spot/ Viva	
			Essay	MCQ			
AHSBE 1110	Basic English	**AC**	100	-	-	-	100
AHSBCL 1120	Basic Computer Literacy	**AC**	50	-	50	-	100
PHABS 1131	Basic Statistics	**01**	100	-	-	-	100
PHAAP 1143	Anatomy for Pharmacy	**03**	50	30	-	20	100
PHABP 1153	Biochemistry for Pharmacy I	**03**	50	30	20	-	100
PHAPP 1163	Physiology for Pharmacy I	**03**	40	40	-	20	100
PHACH 1173	Pharmaceutical Chemistry I	**03**	70	-	30	-	100
PHAPM 1181	Pharmaceutical Mathematics	**01**	100	-	-	-	100
PHASF 1210	Safety and First Aids	**-**	-	-	-	-	-
PHABP 1222	Biochemistry for Pharmacy II	**02**	50	50	-	-	100
PHAPP 1233	Physiology for Pharmacy II	**03**	40	40	-	20	100
PHACH 1241	Basic Community Health for Pharmacy	**01**	100	-	-	-	100
PHACE 1254	Physical Pharmaceutics	**04**	80	-	20	-	100
PHACH 1264	Pharmaceutical Chemistry II	**04**	70	-	30	-	100

7.9.3.6. BPharmHons - Second Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practi-cal	Spot/ Viva	
			Essay	MCQ			
PHACE 2113	Pharmaceutics I	**03**	80	-	20		100
PHACG 2123	Pharmacognosy I	**03**	70	-	20	10	100
PHACL 2133	Pharmacology and Pharma-cotherapy I	**03**	60	40	-	-	100
PHAPM 2144	Pharmaceutical Microbiology	**04**	70	-	30	-	100
PHAPA 2153	Pathology for Pharmacy	**03**	60	40	-	-	100
PHACE 2213	Pharmaceutics II	**03**	80	-	20		100
PHACG 2223	Pharmacognosy II	**03**	70	-	30	-	100
PHACL 2232	Pharmacology and Pharma-cotherapy II	**02**	60	40	-	-	100
PHAFP 2243	Forensic Pharmacy and Ethics	**03**	100	-	-	-	100
PHACO 2253	Community Pharmacy	**03**	80	-	-	20	100

7.9.3.7. BPharmHons - Third Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practi-cal	Spot/ Viva	
			Essay	MCQ			
PHAPT 3112	Pharmaceutical Technology I	**02**	100	-	-	-	100
PHAHP 3122	Hospital Pharmacy	**02**	100	-	-	-	100
PHAPR 3132	Hospital Pharmacy Practice I	**02**	-	-	100		100
PHACG 3143	Pharmacognosy III	**03**	70	-	30	-	100
PHACL 3153	Pharmacology and Pharmacotherapy III	**03**	60	40	-	-	100
PHAMC 3163	Medicinal Chemistry I	**03**	70	-	30	-	100
PHARM 3173	Research Methodology and Medical Statistics	**03**	100	-	-	-	100
PHAPT 3214	Pharmaceutical Technology II	**04**	80	-	20		100
PHAPR 3222	Hospital Pharmacy Practice II	**02**	-	-	100		100
PHACL 3232	Pharmacology and Pharmacotherapy IV	**02**	60	40	-	-	100
PHAPA 3244	Pharmaceutical Analysis	**04**	70	-	30		100
PHAMC 3253	Medicinal Chemistry II	**03**	70	-	30	-	100

7.9.3.8. BPharmHons – Fourth Year (Repeat)

Course Code	Name of the Course	No. of Credits	End of course Examination				Total
			Theory		Practical	Spot/ Viva	
			Essay	MCQ			
PHAPT 4112	Pharmaceutical Technology III	**02**	100		-	-	100
PHA**DD** 412**2**	Drug Discovery and Development	**02**	100	-	-	-	100
PHACL 4134	Clinical Pharmacy	**04**	80	-	-	20	100
PHAMB 4143	Molecular Biology and Pharmaceutical Biotechnology	**03**	70	-	30	-	100
PHAPE 4152	Pharmacoepidemiology	**02**	100		-	-	100
PHAMM 4163	Pharmaceutical Management and Marketing	**03**	100		-	-	-
PHARP 4172	Research Project I	**02**	Proposal Evaluation – 70 Proposal Defense – 30				100
PHABP 4212	Biopharmaceutics and Pharmacokinetics	**02**	100	-	-	-	100
PHAPE 4222	Pharmacoeconomics	**02**	100	-	-	-	100
PHARR 4236	Research Project II	**06**	Thesis Evaluation – 70 Thesis Defense – 30				100

7.10. Grading system

Performance of students in respect of a course is graded according to the following grading system. A Grade Point Value (GPV) is assigned to each grade as indicated in Table.

Overall mark	Grade	Grade point
85 - 100	A+	4.0
75 - 84	A	4.0
70 - 74	A-	3.7
66 - 69	B+	3.3
62 - 65	B	3.0
58 - 61	B-	2.7
54 – 57	C+	2.3
50 – 53	C	2.0
46 – 49	C-	1.7
42 – 45	D+	1.3
38 – 41	D	1.0
00 – 37	E	0.0

Grade Point Average (GPA)

During the study period, a student accumulates grade points from various courses offered. From the grade points accumulated, a Grade Point Average (GPA) shall be calculated.

The GPA is calculated using the formula

$$GPA = \frac{\sum(C_n g_n)}{\sum C_n}$$

Where cn and gn are the credit value and the grade point value respectively of the nth course.

Any calculated GPA will be rounded to the second decimal place. It will be decided at the end of Fourth year.

7.11. Award of degree

The degree awarded to the MLS students will be Bachelor of Science Honours in Medical Laboratory Sciences.

The degree awarded to the Nursing students will be Bachelor of Science Honours in Nursing.

The degree awarded to the Pharmacy students will be Bachelor of Pharmacy Honours.

An undergraduate student deemed to have satisfied the requirements of the award of degree, if he/she obtains;

- "C' or above for all courses amounting to 120 credits excluding auxiliary courses and overall GPA greater than or equal to 2.00

and

- "C" grade in Auxiliary Courses (Basic English and Basic Computer Literacy)

7.12. Award of Classes: Honours

The candidates who qualifies for the award of degree specified above (in 6.9) within four academic years shall be awarded class of honours if he/she obtains the cut-off GPA given below.

GPA	Class Awarded
Above 3.7	First Class
3.30 - 3.69	Second Class (Upper)
3.00- 3.29	Second Class (Lower)

7.13. Effective Date of the degree

The effective date of the degree shall be the last date of the theory examination.

7.14. Endowments Scholarships, Prizes and Bursaries University Prizes:

The students are eligible for the University prizes at faculty level.

Medical Laboratory Sciences

- University prize for the best performance in Medical Laboratory Sciences in 1st year
- University prize for the best performance in Medical Laboratory Sciences in 2nd year
- University prize for the best performance in Medical Laboratory Sciences in 3rd year
- University prize for overall best performance in Medical Laboratory Science

Nursing

- University prize for the best performance in Nursing in 1st year
- University prize for the best performance in Nursing in 2nd year
- University prize for the best performance in Nursing in 3rd year
- University prize for overall best performance in Nursing

Pharmacy

- University prize for the best performance in Pharmacy in 1st year
- University prize for the best performance in Pharmacy in 2nd year
- University prize for the best performance in Pharmacy in 3rd year
- University prize for overall best performance in Pharmacy

Nanthi Memorial Award:

It is awarded to the candidates who obtain the highest overall GPA with at least second class in upper division in the nursing stream of the Faculty of Allied Health Sciences. The Nanthi memorial award is to be given at the annual convocation ceremony. This memorial prize was donated by the family of late Prof. C. S. Sivagnanasundram.

Chapter 8
SERVICES AND FACILITIES FOR STUDENTS

8.1. University Health Centre

A University Health Centre is located within the University premises at Thirunelvely. Free medical aid is available to the staff and students.

8.2. Hostel Accommodation

The University provides limited lodging facilities in the halls of residence. The halls of residence are situated in the Kokuvil, Kondavil areas. Arrangements could also be made to provide accommodation in approved private lodging houses.

8.3. Students Counselling Services

The University provides a student counselling service to students of all Faculties. Student counsellors are appointed from among the academic staff of each Faculty by the Vice Chancellor. A Director, student welfare coordinates the work of all the Student counsellors of the respective faculties in sorting out their problems, be it academic or of a private nature. Besides providing counselling, student counsellors are responsible for maintaining overall discipline within the premises.

8.4. Recreation

The facilities for recreation are provided by the University. Provisions have been made for sports such as cricket, football, basketball, volley ball, net ball and table tennis. Indoor games such as table tennis, badminton, chess, carom and thachi are also catered.

8.5. Allied Health Sciences Students' Union

All registered students of the BScHonours (Nursing), BScHons (Medical Laboratory Sciences) and BPharm Honours are the members of the Allied Health Sciences Students Union. The affairs of the Union are managed by the office bearers duly elected in accordance with the Ordinance under the Universities Act No.16 of 1978 and subsequent amendments. The Union looks after the various interests of the students besides organizing cultural, religious and social events. A senior lecturer of the Faculty is appointed by the Vice-Chancellor as the Senior Treasurer of Allied Health Sciences Students Union.

8.6. Medical Faculty Canteen

The Medical Faculty canteen is situated in the premises of the Faculty of Medicine. It is managed by the Faculty of Medicine Students Union. A sub-committee comprising all the stakeholders, namely the students, supporting staff and academic staff is responsible to supervise its services.

Chapter 9
STUDENT WELFARE

9.1. Universities (Amendment) Act, No 26 of 1988

[Certified on 21st July, 1988]

An Act to Amend the Universities Act, No 16 of 1978

Be it enacted by the Parliament of the Democratic Socialist Republic of Sri Lanka as follows:-

1. This Act may be cited as the universities (Amendment) Act, No 26 of 1988, and shall come into operation on such date as the Minister may appoint by Order published in Gazette.

2. The following heading is hereby substituted for the heading "Students Relations Councils and Other Associations" appearing in Part XIV of the Universities Act No. 7 of 1985 (hereinafter referred to as the "principal enactment":- "University Students Union and Other Associations".

3. Section 112 of the principal enactment is hereby replaced and the following section substituted therefore:- 112. (1) Each Higher Educational Institution shall have a University Students Union whose composition, duties and functions shall be specified in the Schedule to this Act.112. (2) Each Faculty of a Higher Educational Institution shall have a Faculty Students Union whose composition, duties and functions shall be specified in the Schedule to this Act.

4. 112. (3) The governing authority of each Higher Educational Institution shall prescribe by by-law, the mode of conducting the elections for the election of office-bearers of the unions referred to in subsections (1) and (2) and the duties and functions of such office-bearers. (Section 112)

"SCHEDULE"

University Students Union and Faculty Students Union

1. 1) The University Students Union of each Higher Educational Institution shall be representative of the entire student community of the institution.

2) The University Students Union of each Higher Educational Institution shall consist of all the members of each Faculty Students Union and such union shall elect the following office-bearers:

(a) President;
(b) Vice-president
(c) Secretary;
(d) Editor; and
(e) Junior Treasurer.

1. The duties and of the University Students Union shall be-

a) To foster the spirit of corporate life among students of the university;

b) To organize and supervise, in consultation with the governing authority student welfare activity in the university, recreational facilities, spiritual and religious activities, the counseling of the students and the supply of meals and refreshment;

c) To afford a recognized means of communication with the authorities of such higher educational institution on matters relating to or connected with living and working conditions of the students;

d) To be represented on any other body which may, in accordance with the rules made by the governing authority for the purpose, be appointed to undertake student welfare activities in the university;

e) To assist the university authorities to maintain discipline;

f) To represent students who are accused in disciplinary inquiries;

g) To foster, cultural, literary and aesthetic awareness and activity among students and to organize and publish magazines and periodicals of the students;

h) To foster an interest and understanding in the arts and the life and social well-being of the citizens of the country;

i) To foster activity conducive to the social and moral well-being of the student community and promote activity conducive to healthy social life;

j) To organize and promote cultural, literary social inter-activity with other universities and like organizations in Sri Lanka and abroad;

k) To associate in the organization and the execution of extension courses and adult education programmes in collaboration with staff and students;

l) To safeguard and protect the good name of the Higher Educational Institution;

m) To debate matters of public interest;

n) To further national interest and national unity;

o) To safeguard and protect the property of such Higher Educational Institution;

p) To take steps to encourage and further the academic interest; and

q) To undertake any activities that may be determined by the governing authority from time to time.

2. a) There shall be a Senior Treasurer for the University Students Union who shall be a senior teacher nominated by the office- bearers of such union.

b) An office-bearer of the University Student Union may hold office concurrently in a Faculty Student Union.

c) The office-bearers referred to in this Act shall cease to hold office at the end of an academic year.

d) Where an office in the University Students Union falls vacant, then such Union shall as soon as possible elect a suitable person to fill that vacancy. The person so elected shall hold office for the unexpired portion of the term of office of his predecessor.

e) Where an office of in a Faculty Students Union falls vacant the students of that Faculty shall as soon as possible elect a suitable person to fill that vacancy. The person so elected shall hold office for the unexpired portion of the term of office of his predecessor.

3.1) AUniversity Students Union may raise funds with the approval of the principal executive officer of the Higher Educational Institution concerned for social, cultural and welfare activities approved by such principal executive officer.

2) The governing authority of a Higher Educational Institution shall make rules relating to disbursement of funds by the University Students Union or Faculty Students Union, and the manner of keeping the accounts, of the respective unions.

4) The governing authority of a Higher Educational Institution shall make rule relating to the conduct of meetings and the manner of maintaining records of the proceedings of such meetings of the University Students Union and the Faculty Students Union.

5. A Faculty Student Union shall be representative of all students of such Faculty and the office-bearers of such Union shall be elected by secret ballot for that academic year.

A Faculty Student Union shall consist of –

a) President;
b) Vice-president
c) Secretary;
d) Editor;
e) Junior Treasurer; and
f) Such other members as may be determined by each Higher Educational Institution in the following manner:-

i. Two members for a Faculty with two hundred or less registered students;
ii. Four members for a Faculty with two hundred and one to four hundred registered students;
iii. Six members for a Faculty with four hundred and one to six hundred registered students

iv. Eight members for a Faculty with over six hundred registered students.

6. The duties and functions of a Faculty Students Union shall be:-
   a) To promote the corporate life and welfare of the student community of the Faculty;
   b) To take steps to encourage and further the academic interests of its students;
   c) To safeguard and protect the good name of the Faculty and the Institution;
   d) To foster cultural and sports activities amongst the students of the Faculty;
   e) To make recommendations to the University Students Union on matters pertaining to the disbursement of the funds and the general welfare of the student community of the Faculty; and
   f) To ensure that all decisions of a Faculty Students Union pertaining to the academic and welfare activities of the Faculty are taken by a majority vote of it's members.

9.2. By-Laws Relating To Elections, Disbursement of Funds, Conduct of Meetings and Other Procedures of the University Students Union and the Faculty Students Unions

By-laws made under sections 3.112(3), 4(3) & 5 of Universities (amendment) Act, No. 26 of 1988.

9.2.1. Elections

(I)

a) No university student shall be eligible to vote or stand for stand for elections to the Unions-

1) unless he / She has been duly registered as a student of the University for the academic year in which the election is held and his/her registration is in force.

2) if he/she is under suspension from the University.

b) All eligible students shall have the right to elect or be elected to the Faculty Students Unions. A student can be a candidate for one post only, at any one time. A holder of a post cannot contest any post in a subsequent by-election unless he/she resigns his/her substantive post.

(II) Elections to University Students Union

a) The University Students Union shall normally hold elections and by-elections at meetings convened for such purpose, provided that one week's notice shall be given for general election and at least one week's notice shall be given for by- elections. Such notice shall be given by elections officer, who shall also conduct the general elections / by-elections.

b) The Elections Officer shall publish a notice specifying the post/posts to be filled and the time, date, place for receiving nominations and conducting elections.

c) The Elections Officer shall publish at least one week before a general election and 3 days before a by-election the list of eligible voters.

d) Each nomination shall be made by a proposer and a seconder and the person nominated shall sign his consent to the nomination.

e) The receiving of nominations for general or by elections and the conducting of the elections shall be at the meeting specially called for the purpose.

f) In the case of offices, the election to such offices shall be decided by majority vote by show of hands provided that-

1) in the event of two candidates having an equal number of votes the issue shall be decided by drawing lots.

2) in the event of two candidates having equal number of votes the issue shall be decided by toss of a coin

g) Election petition/s if any shall be filed with the Vice Chancellor within 72 hours of the announcement of results. He may, at his discretion reject it / them or order fresh election/s for the particular post/s in question.

III) Elections to the Faculty Students Union

a) The procedure set out below shall be followed where general elections are held to each Faculty Students Union.

b) A register of eligible voters shall be prepared by the Dean of the Faculty or any one performing his / her functions. It shall be made available to the members at least 3 days before the nomination day for any corrections to be made. The register certified as correct by the Dean shall be conclusive for all purpose.

c) The Senior Student Counselor shall be the Elections Officer and shall have the power to nominate any one of the Faculty Student Counselor as the presiding officer.

d) The Elections officer shall give not less than a week's notice for receiving nominations for general elections and not less than three days for by-elections. He shall publish within the university a notice containing the office to be

filled, a model nomination form as per section (III) (e) below, the time, date and the place for the receipt of nominations.

e) Each candidate shall be nominated by means of a nomination paper. Each nomination paper shall be prepared substantially in the form set out below: We… (name of proposer and seconder) beg to nominate (name of candidate) for election to the post of (name of post) of the Faculty Student Union of the Faculty of ……...……

Signature of the proposer….....……

signature of the seconder….....…….

I consent to the nomination. Date:……...……

Signature of the Candidate.....

f) The nomination paper shall be handed in person to the elections officer by one of the signatories.

g) A candidate who has tendered his nomination paper shall have the right to withdraw his candidature under his hand, within 24 hours from closing time of nominations.

h) The Elections Officer shall permit the candidate or one proposer or one seconder to be present while nominations are being received and to scrutinize the nomination paper of any other candidate for the same post. The Elections Officer shall have the right to reject any invalid nominations.

i) After closing of nominations, if no nomination is received for any post in the Union the Elections Officer shall fix fresh nomination date/s for receiving nominations for such posts.

j) After closing of nominations, if each office in the Union only one valid nomination is received the Elections Officer shall declare the candidate duly elected for such post.

k) In the case of other members of the Union where the number of valid nominations received is equal to or less than the number determined as stipulated in section 6(2) of the Universities (Amendment) Act, No. 26 of 1988, the elections officer shall declare the candidates.

l) Where after closing of nominations, any place in the union under section 6(2)) of the Universities (Amendment) Act, No. 26 of 1988, remains unfilled, the Elections Officer shall fix fresh nomination dates for receiving nominations for such unfilled places.

m) When a contest arises, the Elections Officer shall publish a notice specifying the date, time and place of elections, the posts that are contested, and the names of candidates against each post or group of place (in the case of non-official places in the Union). Normally the date for the general election shall be 7 days and for by-election 3 days from the date of closing nominations.

n) Each election will have as many votes as the number of post/s and places contested. It is not obligatory for a voter to cast all votes which he/she is entitled to exercise. For each post other than the non-official places in the Union membership, he/she has right of casting not more than one vote for the candidate of his choice. As regards the votes for the candidate shall not receive more than one of the elector/s votes. Only one shall be cast by the voter for each candidate.

o) For each post, other than non-official places of the Union, the candidate receiving highest number of valid votes shall be declared elected. In the case of non-official places of the Union membership, as many candidates as the number of posts contested, who head the list of votes received shall be declared elected in that order. In case of a tie, the winner shall be determined by toss of a coin and by drawing lots where more than two candidates poll an equal number of votes.

p) A candidate or his/her accredited against can request the Presiding Officer for a maximum of two recounts.

q) During the time of polling and counting the candidate and his/ her accredited agent, or in the absence of the candidate, two accredited agents are entitled to be present at the polling booth and the place of counting.

r) All the used, unused and spoilt ballot papers shall be packed, sealed and handed over to the Senior Treasurer to be preserved for two weeks.

s) The election officer shall inform the Vice Chancellor and the Dean of the Respective Faculties the results of the election.

t) Election petition/s, if any, shall be filed with the vice Chancellor within 72 hours of the announcement of results. He may at his discretion, reject it/them or order fresh election for the particular post in question.

9.2.2.Disbursement of Funds

a) Source of income: the income of the Union shall be from-

i .Membership and registration fee, if any;

ii. Various sources such as drama, concert, film shows etc;

iii. Donation and voluntary contributions: the acceptance of grants, gifts and donation to be made by a person or body of persons, other than government, the University or Public corporation shall require the prior approval of the vice Chancellor.

iv. Advertisements in the publications of the Union.

v. A llocation made by the University Council from time to time.

b) Utilization of Funds: the activities of the Union on which its income could be spent are-

i. Postage, telephone bills, stationary, telegrams etc;

ii. Travelling incurred in connection with the approval activitie of the Union;

iii. Activities pertaining to the duties and functions of the Union as per "Schedule" added to the principal enactment;

iv. Organizing anniversary celebrations;

v. Publishing journal and other publications;

vi. Taking group photographs of the Union;

vii. Arranging parties on special occasions;

viii. Other activities as may be determined by the Union and approved by the vice Chancellor on the recommendation of the Senior Treasurer.

c)

i. All monies of the Union shall be deposited in the name of the Union in any Public Bank

ii. The cheque book of the Union shall be in the custody of the Senior Treasurer.

iii. Withdrawals of money on the Union accounts shall be valid only when they are signed by the senior treasurer and the President or the junior Treasurer.

d)

i. If for any reasons the Senior Treasurer, the President or the Junior Treasurer resigns the Vice Chancellor or the Dean of the Faculty where applicable, the Bank in question shall be informed.

ii. ` The secretary of the Union shall forward a letter through the vice chancellor to the bank signed by the Senior Treasurer, President and Junior Treasurer indicating the name/s of the office-bearers and the name of the proposer/s and seconder/s.

iii. The acting arrangements under subsection (ii) above shall be effected within one week of the handing in of the letter of resignation by the Senior Treasurer and three weeks in the case of junior Treasurer or President.

e)

i. The estimate of the proposed income and expenditure for the current academic year shall be presented and sanctioned at the second meeting of the union.

ii. An estimate of income and expenditure referred to above and any supplementary estimate shall be regarded as approved only if accepted at a meeting at which three fifths of the total membership is present.

f)

i. The estimate/s of income and expenditure for the current year shall be prepared by the Junior Treasurer in concurrence with the Senior Treasurer and presented to the Union.

ii. The estimate of income and expenditure for the current year and supplementary estimate approved by the Senior Treasurer shall be exhibited on the Notice Board of the Union 72 hours before their consideration is held.

g) The estimate/s of income and expenditure presented at the meeting of the Union and approved by it with or without amendments shall be exhibited on the notice board/s of the Union.

h) Towards the close of the academic year, the Junior Treasurer shall forward an annual statement of accounting inclusive of assets and liabilities. This should be examined by the Senior Treasurer, audited by the internal audit section of the University and displayed on the Notice Boards/s of the Union at least 3 days before the date on which annual statement of accounts are to be presented to the budget meeting of the Union. A copy of the statement signed by the Junior Treasurer, the Auditor with his observations and the senior Treasurer should be submitted to the Vice Chancellor two weeks prior to the expiry of the term of office of the Senior Treasurer.;

9.2.3. Conduct by Meetings

a) Meetings of the Union shall be convened by an official notice circulated to its members by the secretary or president. The Senior Treasurer shall also be informed of such meetings.

b) A meeting may also be convened on written request of at least half the membership.

c) Normally, at least 18 hours notice of meeting shall be given. In exceptional circumstances meeting may be at shorter notice with the concurrence of the senior treasurer.

d) The quorum shall be not less than half of the total membership.

e) Decisions of the union shall be by majority vote.

f) A member who does not attend three consecutive meetings of the Union lose his/her membership of the Union unless the Union decides otherwise.

g) No public meeting may be held by the unions on the university premises except with permission of the Vice Chancellor. The Vice Chancellor shall designate the place and time of meeting when granting approval and the meeting shall not be held elsewhere or at any other time without the prior concurrence of the Vice Chancellor.

9.2.4. Functions and Duties of the Office-Bearers

(I) The functions and duties of the president shall be-

a) To preside at all meetings of the Union;

b) To carry out the decisions of the Union and

c) To call meetings of the Union

(II) The functions and duties of the Vice-President shall be-

a) To preside at any meetings of the Union in the absence of the president;

b) To assist the president in the discharge of his duties and

c) To carry any other function or duty assigned to him by the Union.

(III) The functions and duties of the secretary shall be-

a) To keep records of all proceedings of the Union;

b) To summon meetings of the Union on the instruction of the president or upon the requisition of not less than one third of the total membership of the Union;

c) To ensure that minutes of the proceedings are available for inspection by any member of the Union.

d) To keep informed the student counselors of the activities of the Union.

(IV) The functions and duties of the editor shall be-

a) To be in charge of any publication the union may decide to publish (he/she may seek the help of an editorial board that may be appointed by the Union)

b) To get the approval in writing, of the senior Treasurer or his/her nominee for every article or other contribution before it goes to the press.

c) To have the incomes and expenditures connected with any publication of the Union determined by the Union in concurrence of the Senior Treasurer.

(V) The functions and duties of the Junior Treasurer shall be-

a) To have custody of the funds of the Union.

b) To ensure that all income and expenditure is properly recorded and accounted for in the books kept for this

purpose, subject to the rules pertaining to maintaining of such accounts.

c) To make payments out of the funds of the Union with the approval of the Senior Treasurer.

d) To prepare a budget for the academic year after consultation with the office-bearers to be submitted to the Union within one month from the date of election of the office-bearers.

e) To prepare supplementary estimates when necessary.

f) To submit to the Auditor through the Senior Treasurer a statement of income and expenditure and the balance sheet of the Union for the academic year within two weeks of the end of the academic year in which the Union was elected.

(VI) The functions and duties of the Senior Treasurer shall be-

a) To superintend the finances and to be responsible for the custody of all monies of the Union.

b) To exercise the powers and functions assigned to him/her in sections 2(b) (viii), 2(c) (ii), 2(c) (iii), 2(d) (ii), 2(f) (ii) and 2(h).

9.2.5. Miscellaneous Provisions

a) Where provisions are not available in these By-Laws to cover any special situation that may arise, the Union may with the Concurrence of the vice Chancellor/Senior Treasurer act as it deems fit, till such time as proper provision is made.

b) The senior Treasurer shall have the right of attending any meeting of the Union and of advising any member, office-Bearer or the meeting.

c) In the event of the Senior Treasurer post falling vacant either as a result of resignation or otherwise another Senior Treasurer shall be nominated by the Union as provided in the Schedule appearing under section 8 of the Universities (Amended) Act No. 26 of 1988.

d) Notwithstanding any provisions in these by-laws reserve powers reside in the vice Chancellor which may be used in the interest of the Union in whatever the manner he deems

STAFF MEMBERS OF THE DEPARTMENT OF MEDICAL LABORATORY SCIENCES

Standing L-R: Mr. Sivaguru Sasiharan (Lab Attendant), Mrs. Thanesh Kalpana (TO), Miss. Thanuja Balananthan (MA), Mr.Sivanantham Tharshan (TO).
Seated L-R: Mrs. Kajenthirasenan Losana (Lecturer), Mrs. Thevaki John Gnanakarunyan (Head), Mrs. Deivy Thabotharan (Dean), Miss Kobika Thillainathan (Lecturer), Dr. Rasaratnam Karunaithas (Senior Lecturer)
Absent: Miss. Kumarasamy Sivagini (Lecturer), Mrs. Sumana Saseevan (Lecturer), Mr. Balakittnen Jaikrishna (Lecturer), Mrs. Fathima Siromiya Shamil Mafras (Lecturer), Mrs. Piriyanka Aravinth (Lecturer).

STAFF MEMBERS OF DEPARTMENT OF NURSING

Standing L-R: Mr.Gunaratnam Harshiban (Lab Attendant), Miss. Tharmeega Balachandran (Works Aide), Mrs. Tharshanthan Tharmini (MA), Mrs. Lavanya Selyian (TO), Mr. Kumarapathy Hemanatha (TO)
Seated L-R: Mr.Santhalingam Sathees (Senior Lecturer), Ms. U. N. T. Maheshika Somarathna (Lecturer), Mrs. Deivy Thabotharan (Dean), Mrs. Luxmi Kamalarupan (Head), Mrs. Viniththira Jegapragash (Senior Lecturer)
Absent: Mrs. Yanuthy Tharshan (Lecturer), Miss. Nivetha Kanakarasa (Lecturer), Miss. Kanthasamy Kajenthini (Lecturer), Miss. Sobika Sivarasa (Lecturer)

STAFF MEMBERS OF THE DEPARTMENT OF PHARMACY

Standing L-R: Mrs. Anoja Purusoththaman (Works Aide), Miss Srithevi Sivagnasundaram (TO), Miss. Kasthuri Sivarajasundaram (Pharmacist), Mr. Iyathurai Tharmarasa (Lab Attendant)
Seated L-R: Miss. Haridas Ceyloni Suluckshika (Lecturer), Mr. Sinnadurai Thuvaragan (Senior Lecturer), Mrs. Deivy Thabotharan (Dean), Dr.(Mrs). Sivasinthujah Srikokulan (Senior Lecturer), Miss Krishnananthalingam Dilakshana (Lecturer)
Absent: Mr. Paramanathan Kalki (Head), Mrs. Sathya Pirashanthan (Lecturer), Miss. Lakshy Ganesh (Lecturer), Mrs. Sivakaran Nishanthy (TO)

ACADEMIC STAFF MEMBERS OF THE FACULTY OF ALLIED HEALTH SCIENCES

Standing L-R: Mrs. Kajenthirasenan Losana (Lecturer), Miss Kobika Thillainathan (Lecturer), Ms.U.N.T. Maheshika Somarathna (Lecturer), Miss Krishnananthalingam Dilakshana (Lecturer), Miss Haridas Ceyloni Suluckshika (Lecturer), Dr.(Mrs). Sivasinthujah Srikokulan (Senior Lecturer), Mrs. Viniththira Jegapragash (Senior Lecturer), Dr. Rasaratnam Karunaithas (Senior Lecturer)
Seated L-R: Mr.Santhalingam Sathees (Senior Lecturer), Mrs. Thevaki John Gnanakarunyan (Head Department of MLS), Mrs. Deivy Thabotharan (Dean, FAHS), Mrs. Luxmi Kamalarupan (Head Department of Nursing), Mr. Sinnadurai Thuvaragan (Senior Lecturer)
Absent: Mr. Paramanathan Kalki (Head Department of Pharmacy), Mrs. Sathya Pirashanthan(Lecturer), Miss Lakshy Ganesh (Lecturer), Mrs. Yanuthy Tharshan (Lecturer), Miss Nivetha Kanakarasa(Lecturer), Miss Kanthasamy Kajenthini(Lecturer), Miss Sobika Sivarasa(Lecturer), Mrs. Kumarasamy Sivagini(Lecturer), Mrs. Sumana Saseevan(Lecturer), Mr. Balakittnen Jaikrishna(Lecturer), Mrs. Piriyanka Aravinth (Lecturer), Mrs. Fathima Siromiya Shamil Mafras (Lecturer)

ACADEMIC SUPPORTIVE STAFF MEMBERS OF THE FACULTY OF ALLIED HEALTH SCIENCES

Standing L-R: Mr. Sivaguru Sasiharan (Lab Attendant), Mrs. Lavanya Seliyan (TO), Mrs. Tharshanthan Tharmini (MA), Mrs. Anoja Purusoththaman (Works Aide), Mrs. Thanesh Kalpana (TO), Mr. Iyathurai Tharmarasa (Lab Attendant), Mr.Sivanantham Tharshan (TO), Mr. Kumarapathy Hemanatha (TO)

Seated L-R: Miss Srithevi Sivagnasundaram (TO), Miss Kasthuri Sivarajasundaram (Pharmacist), Mrs. Kowsalya Tharmendra (AR), Mrs. Deivy Thabotharan (Dean), Miss Nilany Sornalingam (MA), Miss. Tharmeega Balachandran (Works Aide), Miss. Thanuja Balananthan (MA).

Absent: Mrs. Sivakaran Nishanthy (TO)

Human Biological Sciences

Nursing

Medical Laboratory Sciences

Pharmacy

Faculty of Allied Health Sciences,
University of Jaffna
Sri Lanka.
2022