

# Global Oncology University



## CURRICULUM FOR MASTERS OF MEDICINE (MMed) CLINICAL ONCOLOGY

### Overview

The Masters of Medicine in Clinical Oncology program will produce Oncology specialists that will cater for the shortage of qualified and competent staff in this speciality. This program will give the prospective student the in-depth knowledge and skills needed to provide specialized and quality Oncology Care. Moreover, the graduates of this program will be able to handle academic, research, consultancy, and technical as well as administrative responsibilities at local, regional and international levels.

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## 1.0. General basic particulars

### *1.1 Goal:*

To produce highly trained Clinical Oncology specialists capable of managing oncology conditions and delivering oncology services of the highest quality expected of a clinical oncology specialist to patients, their families and the community.

### *1.2 Context*

The philosophy of the MMed Clinical Oncology programme is to alleviate the shortage of Clinical Oncology specialists in Tanzania by providing well trained graduates in this field. This programme will train suitably qualified medical graduates and converting them into knowledgeable, caring and compassionate Clinical Oncology practitioners who are proficient to provide evidence based information, diagnostic, therapeutic, counselling and preventive services to patients, their families and to the community. The programme will prepare students to be life-long learners with affinity for keeping abreast of developments in the field so as to provide the best care available for each patient they encounter and the best services to families and community. The graduates from the Programme will, in addition, provide leadership for the health care team they work in, and will be educators for students, junior colleagues, other health care professionals, peers, patients, families and members of the community. It is therefore compelling and desirable that this postgraduate program will provide a pivotal vertical development to ensuring availability of skilled personnel to facilitate closing the gap in human resources capacity in Clinical Oncology.

### *1.3 Programme objectives*

Upon completion of the program the Clinical Oncology specialist will be able to:

#### **1.3.1 Knowledge**

- (i) Practice the highest quality patient and family centred care that responds to community needs and geared towards improving the quality of life.
- (ii) Apply biomedical sciences knowledge to the practice of evidence-based Clinical Oncology.
- (iii) Demonstrate ability to diagnose and manage oncological illnesses using evidence-based medicine and cost-effective interventions in an integrated manner.
- (iv) Develop therapeutic relationship with patients/families, counsel and build partnership to empower families to make informed decisions with regard to options that are available and the proposed management plan.

- (v) Create effective communication with health care team that ensures a sound understanding of the management and continuity of care within the context of contemporary information and communications technology.
- (vi) Assemble and communicate educational information to juniors, colleagues, individual patients/caretakers and communities.
- (vii) Appraise an atmosphere of cooperative learning to foster interaction during teaching and learning sessions and check understanding.

### **1.3.2 Skills**

- (i) Use of available resources rationally to improve quality of Clinical Oncology
- (ii) Design the highest quality patient and family centred care that is geared towards improving the quality of life
- (iii) Identify shortcomings of health systems at any level and recommend and/or act appropriately

### **1.3.3 Attitude**

- (i) Propose strategies that will improve Patient Protection, Survival and Development
- (ii) Demonstrate behaviour consistent with acceptable professional ethical conduct
- (iii) Demonstrate ability for lifelong learning and Professional Development

## ***1.4 Competency domains and Core competencies***

The graduates of this programme are expected to achieve competencies as listed below:

### **1.4.1 Competency domain 1: Relationships with Patients, Clients and Communities**

- (i) Establish constructive relationships and communicate effectively with patients, clients and/or communities in order to address their needs and preferences
- (ii) Engage and communicate with patients, clients and communities so as to build relationship for the purposes of information gathering, guidance, education, and support
- (iii) Interact with patients, families and clients under a broad range of social, clinical and practical circumstances to solve health problems and improve the quality of care.
- (iv) Demonstrate the ability to communicate health issues and policies effectively to the public.

### **1.4.2 Competency domain 2: Relationships with Colleagues**

- (i) Develop ability to listen and take advice from colleagues.
- (ii) Demonstrate ability to engage and communicate with colleagues and to build relationships for the purposes of information gathering, guidance, mentoring, education, and support.

- (iii) Demonstrate ability to interact and work with colleagues.
- (iv) Demonstrate ability to build teams working under a broad range of personal and practical circumstances.
- (v) Maintain effective working relationships with stakeholders (peers, teachers, and other healthcare professionals).

#### **1.4.3 Competency domain 3: Teaching Skills**

- (i) Produce and deliver educational information to juniors, colleagues, patients and communities.
- (ii) Prepare and conduct small group teachings and make demonstrations.

#### **1.4.4. Competency domain 4: Maintaining Good Practice**

- (i) Demonstrate the ability to evaluate one's own performance and practice.
- (ii) Analyse practice experiences using a systematic methodology.
- (iii) Appraise evidence from scientific studies related to Clinical Oncology problems.
- (iv) Apply knowledge of study designs and statistical methods to the appraisal of Clinical Oncology.
- (v) Exhibit a capacity to regularly seek information necessary to improve professional practice (life-long learning).
- (vi) Demonstrate the ability to apply evidence-based decision-making.
- (vii) Recognize one's abilities and limitations and know when to request assistance.
- (viii) Demonstrate leadership and managerial skills.

#### **1.4.5 Competency domain 5: Working Within the System and Context of Health Care**

- (i) Demonstrate knowledge of how the healthcare system functions (structures, policies, regulations, standards and guidelines)
- (ii) Work effectively in various health care delivery settings and systems (hospitals, government, ministries, NGO's, communities, industry).
- (iii) Demonstrate ability to coordinate and implement health service delivery and health interventions within the health care system.
- (iv) Recognize and incorporate considerations of cost effectiveness into health service delivery.
- (v) Recognize and incorporate considerations of patient cost burden into health service delivery

- (vi) Demonstrate the understanding and promote quality care in health systems through audits, accreditations, and/or evaluations
- (vii) Demonstrate the ability to identify system challenges, errors and implement potential solutions

#### **1.4.6 Competency domain 6: Professionalism**

- (i) Maintain ethical standards (confidentiality, informed consent, avoid practice errors, avoid conflicts of interest).
- (ii) Apply entrepreneurial skills for advancement of practice and the profession.
- (iii) Show sensitivity and responsiveness to diversity (culture, age, socioeconomic status, gender, religion, and disability)
- (iv) Demonstrate awareness of the health care needs of ageing patients and a willingness to care for the elderly.
- (v) Show respect, compassion, and integrity while interacting with patients, clients, communities and health professionals.
- (vi) Advocate and implement fair distribution of health care resources in Tanzania.
- (vii) Recognize one's personal abilities and limitations, knowing when to request assistance.
- (viii) Describe and discuss the implications of basic ethical principles, including confidentiality, informed consent, truth telling, and justice, for the care of patients.
- (ix) Demonstrate professionalism and high ethical standards in all aspects of medical practice, specifically competence, honesty, integrity, dependability, courtesy, compassion, respect for others, professional responsibility and social responsibility.
- (x) Recognize the impact of their professional attitudes and behaviour on others
- (xi) Establish an appropriate balance for personal and professional commitments, set clear goals for lifelong learning use new opportunities for intellectual growth

#### **1.4.7 Competency domain 7: Professional Knowledge**

- (i) Recognize the basis for professional practice in Clinical Oncology.
- (ii) Apply professional knowledge in identification and management of Clinical Oncology problems.
- (iii) Demonstrate ability to propose a management plan and employ critical reasoning to solve Clinical Oncology problems.

#### **1.4.8 Competency domain 8: Practical Skills**

- (i) Employ appropriate technique for conducting complete and relevant clinical evaluation in a systematic manner.
- (ii) Evaluate the patient's medical problems and to formulate accurate hypotheses to serve as the basis for making laboratory diagnostic and treatment decisions
- (iii) Formulate and prioritize correct and appropriate laboratory investigations for patients' management.
- (iv) Apply laboratory tests results appropriately in making diagnostic and treatment decisions.
- (v) Gather focused information, in an organized manner and make appropriate documentation of the clinical situation.
- (vi) Perform relevant procedures to alleviate patient's problems while observing the confidentiality and privacy.

### **1.9 Programme learning outcomes**

The Master of Medicine in Clinical Oncology degree program intends to produce:

- I. Graduates who are competent and able in transferring professional skills across a range of clinical problems and settings.
- II. Graduates who employ evidence-based best practice models in Clinical Oncology settings, and exhibit capacity in regularly seeking information necessary to continually improve their professional practice with primary focus of best services/practice to the client and the community as a whole.
- III. Graduates practising based on principles of ethical standard, in a culturally sensitive manner and are responsive to diversity in health delivery systems including professional standards so as to save the community appropriately.
- IV. Graduates empowered with capacity for strategic development of policies related to Clinical Oncology practice in Tanzania and beyond, with commitment to demonstrate leadership and managerial skills to serve the community.

### *1.10. Duration*

The duration of the programme is six semesters (3 years) with a maximum allowable duration of eight semesters.

### *1.11. Title of the final award*

Masters of Medicine in Clinical Oncology

### *1.12. Sustainability*

- (i) **Human Resource:** The Clinical Oncology program has many committed qualified professors from Harvard GHC and partner institutions pooling their time to teach the courses online. This faculty need to teach only one class each semester in their specialist area. Practical training is done at local/regional credentialed sites with 'win-win' arrangement that allows these sites to also benefit from mentorship/research and teleoncology support.

- (ii) **Financial Resources:** The University also raises funding from grants and support from government and private/industry partners
- (iii) **Teaching Materials and Infrastructure:** Each credentialed partner training site has adequate facilities for clinical teaching and learning. The university library provides access to various on line learning resources and there are resources for telemedicine.
- (iv) **Student availability:** Significant number of students are interested in this from different Low and Middle Income Countries

### *1.13. Program Regulations*

**Targeted Students:** Candidates for the Clinical Oncology MMed programme will be recruited from the pool of medical graduates from MD programmes and other equivalent programme from within and outside the country. The graduate should have completed a successful internship at a recognized hospital and worked for at least one year as a medical doctor in a hospital.

## **2.1 Admission Requirements:**

Candidates for admission into the Master of Medicine in Clinical Oncology shall hold the following qualifications:

- (i) An honours degree or equivalent degree from a recognized University.
- (ii) Undergraduate performance in either; Internal Medicine, Surgery, Obstetrics and Gynaecology or Paediatrics and Child Health of B grade or higher.
- (iii) They have demonstrated academic potential through subsequent research experience and/or additional training.
- (iv) Candidates who hold an unclassified degree (e.g., MD) should have a GPA of 2.7 or above. A “B” or higher grade in the intended subject for specialization or related subject for specialities whose subjects were not examined independently at undergraduate level is an added advantage

## *2.2. Expected teaching methodologies*

This semesterized and modularized academic program will utilize the following teaching/instructional methods: Lectures, seminars, small-group discussions, case presentations, Bedside teaching, simulations, teaching ward rounds, workshops, self-directed learning, internet access, out-patients clinical teaching, role modelling, peer learning, near peer learning, journal clubs, research projects, interdisciplinary teams, case based teaching, mentoring, grand rounds, conferences, and others.

## *2.3 Students Assessment Policy*

- (i) The objectives of the University student assessment policy are to:
- (ii) Stimulate students’ self-directed learning.

- (iii) Provide timely feedback to students so that they can learn from errors and build upon their achievements.
- (iv) Determine whether students have achieved specified competencies to the standard requirements.
- (v) The University is aware that assessment is a necessary driver of student learning and therefore assessment strategy shall be an integral part of the overall learning and teaching strategy. The University has a responsibility to ensure that the assessment processes employed in the MMed Clinical Oncology programme are both rigorous and fair and guarantee the standard of the award to this programme.
- (vi) The assessment methods used are designed to assess whether students are meeting competencies (learning objectives) specified for the programme. The University is cognizant of the fact that it is not possible to assess every competency, and therefore the assessment processes are designed such that an appropriate set of competencies is tested, so that students will be motivated to learn materials across the whole breadth of the curriculum and competencies which are judged as essential are invariably assessed. The University employs a combination of formative and summative assessments in each module of the course in the programme. Formative assessment (**FA**) is designed to encourage learning and ensure failing students are identified early and reduce reliance on formal examinations. Components of FA have a summative function, in that marks from them count towards a student's overall mark in the final grade. Thus the University encourages timely and informative feedback to accomplish the above.
- (vii) Summative assessment (**SA**) is used to test whether students have achieved the desired competencies for the preceding period of teaching before progressing to the next level.
- (viii) Assessment is carried out by a number of people. External examiners will be used to inform on performance of programmes and to provide a benchmark by scrutinizing all aspects of the quality of the assessment system. The assessment scheme demonstrates progression. As students move through the programme they are expected to demonstrate achievement of higher order learning objectives and to build upon learning from earlier stages of their studies.
- (ix) Methods of assessment shall include: Written examinations (Short answer questions and long essays), clinical examinations (Mini-CEX/OSCE), oral examinations, direct observation by faculty/preceptor and rating, graded presentations, log books, review of case-notes/reports peer feed-back, instructor/supervisor feedback, and multi-source rating.

#### 2.4. *Programme Evaluation*

The program evaluation is based on Kirkpatrick's levels of evaluation of programs as follows:

- (i) **Learner reaction/satisfaction:** This will be done through pre-and post class assessment, and end of semester evaluation of teaching (faculty and courses) by learners using the evaluation tools available in the university for this purpose.



(ii) **Learning (competencies development):** In order to determine that learning is taking place review of performance in examination will be done by comparing grades across audit years as well as assessment of competencies using appropriate tools for the assessment of the eight competency domains.

(iii) **Application (performance):** In order to know whether the learners are applying what was learnt, observation of performance and procedures during training, or at workplaces will be carried out. This is done by training faculty as well as evaluation by supervisors, colleagues, co-workers, employers and end-users (patients). This information is obtained regularly during training and also through Tracer studies done two to five years after completion of the programme.

(iv) **Organizational benefits:** The University will benefit from the program through gaining public recognition (both locally and internationally) by producing safe, competent, skilled and professional medical practitioners as well as in research quality and output. Again this will be assessed in a manner similar to item (iii) above i.e. observation of performance and procedures during training, internship and/or at workplaces as well as evaluation by supervisors, colleagues, co-workers, employers and end-users (patients).

(v) **Results, patients and community satisfaction (outcomes):** The outcomes of the MMed in Clinical Oncology program will be measured by improved quality of life of individuals and the community in general, reduction in burden of cancers in the community, reduced morbidity and mortality and influence on general health policies.

#### 2.5. *Programme Completion and Graduation Requirements*

The student will be awarded the MMed in Clinical Oncology after passing all the modules/rotation in the programme courses and submitting an error free dissertation.

#### 2.6. *Moderation of Examinations*

(i) Every University Examination shall be conducted by a Board of Examiners which shall consist of one or more examiners appointed from outside the examining unit and approved by the University Senate, in conjunction with one or more of the teachers of the candidates in the subject(s) under examination; except that, in the case of the re-examination of candidates who have failed in the ordinary University examination, all the examiners may be appointed from within the University, provided that at least one of them had no part in teaching the candidate(s) the subject or subjects under examination.

(ii) Notwithstanding the provisions of sub-paragraph 2.12.8 (i) University examinations conducted during and/or at the end of the module may be conducted by internal examiners only, provided that the relevant examination papers and answer scripts by candidates shall be submitted to external examiners together with the papers and scripts at the end of semester or audit year.

#### 2.7. *Examination regulations*

##### *Examination regulations for the MMed (Clinical Oncology) programme*

(i) The MMed Clinical Oncology programme is a six (6)-semester programme and the maximum tenure for the MMed degree shall be eight (8) semesters.

- (ii)** All modules, modular courses/rotations offered during a semester shall be examined at the end of the module or modular course or rotation. External examiners or moderators shall be invited at the end of the semester or audit year.
- (iii)** There shall be at least two Continuous Assessment Tests (CAT) for each module/modular course or rotation taught during semester one and at least one CAT in each of semesters 2-6 and regular assessment of competencies. CAT and assessment of competencies shall form the Formative Assessment (FA).
- (iv)** The FA in semesters 2-6 shall consist of evaluation of clinical and other competency domains using appropriate tools in addition to written examination.
- (v)** The FA shall contribute 50% of the final grade in the end of module/modular course or rotation Summative Assessment (SA).
- (vi)** The SA for semesters 2-6 shall consist of written, clinical/practical and oral components whose proportional contribution will be 40%, 50% and 10%, respectively.
- (vii)** To pass a course a candidate has to attain a B grade or higher.
- (viii)** Decision-making on failing students in basic science courses shall be determined at the end of the audit year.
- (ix)** No candidate shall be allowed to sit for supplementary in more than three failed courses at any given time irrespective of GPA and shall be discontinued from the programme.
- (x)** A candidate who fails any number of modules, modular courses or rotations and has a GPA of 2.4 or less shall be discontinued from studies.
- (xi)** Supplementary examination for a failed clinical module or rotation shall be offered at the end of long vacation.
- (xii)** A candidate who fails the first supplementary examination shall be allowed to sit for a second supplementary examination when next offered provided he/she has an average GPA of 2.7 or above.
- (xiii)** A candidate who fails the second supplementary examination shall be discontinued from the course, except in special circumstances, if recommended by the School Board and approved by the Senate.
- (xiv)** To pass the end of modules/modular course or rotation examinations in semesters 2-6 the written and clinical/practical parts have to be passed separately.
- (xv)** A candidate who passes a supplementary examination at any level shall be awarded a "B" grade.
- (xvi)** No candidate will be allowed to repeat a semester except in very exceptional circumstances, on the recommendation of the School Board and approved by the Senate.
- (xvii)** A student shall be awarded the MMed Clinical Oncology degree after passing all examinations in the prescribed courses in the programme and submitting an error free dissertation.

(xviii) In addition to these regulations, the General Regulations and Guidelines of Postgraduate Study Programmes shall be binding.

### 2.8. Regulation for Dissertations

- (i) The dissertation shall consist of one research topic. This will be determined by the candidate and approved by the department.
- (ii) Four loosely bound copies of the dissertation shall be submitted to at least three months before the beginning of semester 6 University examinations. A candidate who does not submit a dissertation at this period will be barred from sitting for that examination. The candidate will be required to submit loosely bound copies of the dissertation not less than three months prior to the examination when next offered provided that the regulation on maximum tenure for MMed degrees allows.
- (iii) Oral defence of the dissertation shall be done during the end of semester 6 University examinations.
- (iv) A candidate, having passed all semester examinations, will be required to resubmit error-free dissertation within three months in the case of minor corrections and within six months if there are major corrections.
- (v) In case of outright rejection of a dissertation a candidate may submit another dissertation for examination after nine months provided the maximum tenure allows.
- (vi) A dissertation rejected by examiners after re-submission shall not be accepted for re-examination at this University.

### 2.9. Grading System

The pass mark for the examinations in the MMed Clinical Oncology program shall be 50%. A candidate who passes a supplementary examination at any level shall be awarded a “B” grade.

**The examination marks shall be graded as shown below: -**

Grade	A	B+	B	C	D
<b>Percent</b>	<b>100-70</b>	<b>69-60</b>	<b>59-50</b>	<b>49-40</b>	<b>39-0</b>
<b>GP</b>	5.0-4.4	4.3-3.5	3.4-2.7	2.6-2.0	1.9-0

### 2.10 Computation of GPA

This is obtained by dividing the sum of the product of grade point (GP) and credit (C) for each course by the sum of the credits (C) from each of the courses offered during the audit year. For example:

Course	Credit (C)	Score	Grade point (GP)	GP x C
PA 605	13.8	60	2.713	37.4394
ER 605	10.7	70	3.5	37.45
BM 605	9.2	55	2.352	21.6384
CL 605	10.4	72	3.54	36.816
EE 605	4.6	74	3.58	16.468

Total	48.7	331	12.685	149.8118
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GPA =  $\frac{\sum(GP \times C)}{\sum C} = \frac{149.8118}{48.7} = 3.07$  which is truncated to 3.0 (note that there is no rounding-off when truncating)

### 3.0 ORGANIZATION OF THE PROGRAMME

#### 3.1. Summary of the Courses under the MMed Clinical Oncology Programme

All courses under the programme will be compulsory/core courses. The course shall be organized in 6 semesters (three years) as follows:

#### **Semester 1**

PA 600: Principles of Pathology

ER 600: Epidemiology, Biostatistics and Research Methodology

BM 600: Molecular and Cell Biology

CL 605: Clinical Pharmacology

EE 600: Bioethics.

#### **Semester 2**

BP 605: Basic Radiation Physics

AP 605: Applied Radiation Physics

HE 600: Educational Principles and Practice for the health Sciences Professionals

RT 605.2: Clinical Apprenticeship

#### **Semester 3**

RB 605: Radiobiology

RT 605.3: Clinical Apprenticeship

RR 605: MMed Dissertation

#### **Semester 4**

CE 605: Cancer Epidemiology

RE 605: Radiotherapy Equipment

RT 605.4: Clinical Apprenticeship

RR 605: MMed Dissertation

#### **Semester 5**

RP 605: Radiotherapy Planning Process

RT 605.5: Clinical Apprenticeship

RR 605: MMed Dissertation

#### **Semester 6**

RD 605: Radiotherapy Delivery Process

PT 605: Professional Ethics

RT 605.6: Clinical Apprenticeship

RR 605: MMed Dissertation

### 3.0 Tabulated Summary of Courses under the Program

(130.7 Credits)

Code	Course Name	Theory/Seminars		Practical/Clinical		Total	
		Hours	Credits	Hours	Credits	Hours	Credits
<b>Semester 1: 28.7 Credits</b>							
PA 600	Principles of Pathology	64	2.1	253	5.6	317	7.7
ER 600	Epidemiology, Biostatistics and Research Methodology	57	2.0	15	0.3	72	4.1
BM 605	Cell and Molecular Biology	90	6.0	48	1.0	138	7.0
CL 600	Clinical Pharmacology	175	5.8	0	0	175	5.8
EE 600	Bioethics	57	3.8	15	0.3	72	4.1
<b>Total</b>		<b>443</b>	<b>19.7</b>	<b>331</b>	<b>7.2</b>	<b>774</b>	<b>28.7</b>
<b>Semester 2: 24.0 Credits</b>							
BP 605	Basic radiation physics	40	2.7	100	2.2	140	4.9
AP 605	Applied radiation physics	65	4.3	29	0.6	94	4.9
HE 600	Educational Principles and Practice for the health Sciences Professionals	40	2.7	60	2.0	100	4.7
RT 605.2	Clinical apprenticeship	0	0	436	9.5	436	9.5
<b>Total</b>		<b>145</b>	<b>9.7</b>	<b>625</b>	<b>14.3</b>	<b>770</b>	<b>24</b>
<b>Semester 3: 19.3 Credits</b>							
RB 605	Radiobiology	55	3.5	60	1.5	115	5.0
RR 699	Dissertation Module 1: Proposal Writing and Ethical Clearance	-	-	225	5.0	225	5.0
RT 605.3	Clinical Apprenticeship	-	-	432	9.3	432	9.3
<b>Total</b>		<b>55</b>	<b>3.5</b>	<b>717</b>	<b>15.8</b>	<b>772</b>	<b>19.3</b>
<b>Semester 4: 22.2 Credits</b>							
RE 605	Radiotherapy Equipment	30	2.1	135	2.9	165	5.0
CE 605	Cancer epidemiology	75	5.0	60	2.0	135	7.0
RR 699	Dissertation Module 2: Data Collection	-	-	325	7.2	325	7.2
RT 605.4	Clinical apprenticeship	-	-	146	3.0	146	3.0
<b>Total</b>		<b>105</b>	<b>7.1</b>	<b>666</b>	<b>15.1</b>	<b>771</b>	<b>22.2</b>
<b>Semester 5: 17.3 Credits</b>							
RP 605	Radiotherapy Planning Process	18	1.2	171	3.5	189	4.7
RR 699	Dissertation Module 3: Data Analysis and Reporting	-	-	250	5.5	250	5.5
RT 605.5	Clinical apprenticeship	-	-	334	7.1	334	7.1
<b>Total</b>		<b>18</b>	<b>1.2</b>	<b>755</b>	<b>16.1</b>	<b>773</b>	<b>17.3</b>
<b>Semester 6: 19.2 Credits</b>							
RD 605	Radiotherapy Delivery Procedures	-	-	225	5.0	225	5.0
PT 605	Professional Ethics	60	4.0	-	-	60	4.0
RR 699	Dissertation Module 4: Submission, Examination and Dissemination	-	-	100	2.2	100	2.2
RT 605.6	Clinical apprenticeship	-	-	390	8.3	390	8.3
<b>Total</b>		<b>60</b>	<b>4</b>	<b>715</b>	<b>15.2</b>	<b>775</b>	<b>19.2</b>
<b>Grand Total</b>		<b>826</b>	<b>45.2</b>	<b>3809</b>	<b>84</b>	<b>4584</b>	<b>131</b>

For Details of Each Course Please refer to addendum