Department of Radiation Therapy
Wellington School of Medicine and Health Sciences

BACHELOR OF HEALTH SCIENCE (Medical Radiation Therapy)

BHealSc (MRT)

CURRICULUM DOCUMENT

February 2002

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Stage III

1. Aims of the Programme

1.1 General Aims

The Bachelor of Health Science programme (Medical Radiation Therapy) aims to produce graduates with the following attributes:

1.1.1 clinical competence in medical radiation therapy, demonstrating safe and professional practice.

1.1.2 a sound understanding of the theoretical basis for clinical practice.

1.1.3 excellent interpersonal skills in the demonstration of empathy and sensitivity to all patients.

1.1.4 excellent communication skills, both oral and written in communicating with colleagues and the health care team.

1.1.5 the ability to act independently when professionally appropriate as well as co-operatively with colleagues and other health care team members.

1.1.6 sound analytical skills to enable flexible and creative responses to the changes and challenges presented by clinical practice.

1.1.7 the skills of the "reflective practitioner" in being willing and able to review their own clinical competence and be responsive to the need for personal and professional change.

1.1.8 the ability to apply the principles of research as a foundation for on-going personal and professional development.

1.1.9 an awareness of the importance of the Treaty of Waitangi to the delivery of health care in New Zealand.

Cognitive skills will be progressively enhanced throughout the learning activities that will develop both an academic foundation and technical skill. The student will deal with problems of increasing complexity, recognising increasing contextual dimensions and the recognition of a range of possible solutions. This will involve increasingly proficient and perceptive interpersonal skills.

2. Occupational Conditions

During the programme, students must undertake approved work experience hours and present to the University of Otago a validated log of Work Experience hours.

- The Work Experience hours complement the formal academic clinical components of the BHealSc (MRT) ie Clinical Studies I, Clinical Studies II and Clinical Studies III and fully prepares students for clinical practice upon qualifying.
- Work Experience hours can be completed at times during the year which are not committed to academic studies, eg : mid November to mid February and inter-semester breaks.
- It is recommended that the Work Experience hours are evenly divided between Stage II and Stage III so that integration and consolidation of learning is based on a standard policy.
- The requirements for State Registration (Medical Radiation Technologists Board) require that a ***minimum*** of 2180 clinical hours are completed. The Work Experience hours plus the Clinical Studies hours meet this requirement. Therefore the award of the degree incorporates the professional registration requirements.

Relocation to the University of Otago

With the dis-establishment of CIT in June 2001, the Bachelor of Health Science (Radiation Thearpy) relocated to the University of Otago's Wellington School of Medicine and Health Science. The programme was renamed the Bachelor of Health Science (Medical Radiation Therapy).

The radiation therapy profession and the University of Otago took the opportunity to develop the programme in a university environment. This, then permitted the opportunities for study and research at undergraduate and postgraduate levels in an internationally recognized university focused on health sciences.

Background

The Bachelor of Health Science (Radiation Therapy) programme was a development of the National Diploma in Medical Radiation Therapy – which in turn developed from the Central Institute of Technology Diploma in Therapeutic Radiography.

The radiation therapy profession had, for a number of years, considered that a degree level qualification should be available in New Zealand. In 1990 a survey of the profession was conducted in which 81% of the respondents favoured a degree as the standard qualification.

The British profession had a degree in radiation therapy for many years as had Australia. The USA moved in this direction also. Canada had announced a requirement for a degree level qualification as a pre-requisite for registration by the year 2005.

For New Zealand graduates to maintain parity with their overseas counterparts they required a bachelor's level degree. Between 50-75% of New Zealand graduates in radiation therapy gain overseas experience in Australia and the United Kingdom.

A degree in Diagnostic Imaging had been developed by UNITEC and commenced in 1995. Manawatu Polytechnic also offered a degree, a Bachelor in Applied Science (Medical Imaging Technology) which commenced in 1996. The Bachelor of Health Science (Radiation Therapy) allowed radiation therapists to maintain parity with their professional colleagues in New Zealand.

The degree had been developed in consultation with the radiation therapy profession. A sub-committee of the Radiation Therapy Advisory Committee was formed and had the major responsibility for both the structure and content of the degree programme.

4. Programme Description

The curriculum is designed so that papers are taught as part of an integrated and coherent structure, with a consistent overall process of learning and problem solving and a series of vertical and horizontal learning areas or strands. The programme is based on 35% practical content and 65% theoretical content with 43 points devoted to clinical studies and 80 points devoted to theory studies.

4.1 The Three Stage Programme

The Bachelor of Health Science (Medical Radiation Therapy) comprises three stages. Generally each stage will be completed in one year's full time study.

All papers are compulsory

1 point is equivalent to 30 hours of student learning.

4.2 Stage I

Stage I consists of the following papers:

Paper Title		Points
MERA 101	Anatomy, Physiology and Pathology I	16
MERA 102	Clinical Studies I	3
MERA 103	Radiation Physics	4
MERA 104	Behavioural Science I	4
MERA 105	Radiation Technology I	6
MERA 106	Radiation Therapy and Oncology I	8

4.3 Stage II

Stage II consists of the following papers:

Paper Title		Prerequisite	Points
MERA 201	Anatomy, Physiology and Pathology II	*Anatomy, Physiology and Pathology I*	3
MERA 202	Clinical Studies II	*Clinical Studies I*	20
MERA 203	Behavioural Science II	*Behavioural Science I*	3
MERA 204	Principles of Research		3
MERA 205	Radiation Technology II	*Radiation Technology I & Radiation Physics*	6
MERA 206	Radiation Therapy and Oncology II	*Radiation Therapy and Oncology I*	8

4.4 Stage III

Stage III consists of the following papers:

Paper Title		Prerequisite	Points
MERA 301	Clinical Studies III	*Clinical Studies II*	20
MERA 302	Applied Research Methods	*Principles of Research*	5
MERA 303	Radiation Technology III	*Radiation Technology II*	5
MERA 304	Radiation Therapy and Oncology III	*Radiation Therapy and Oncology II*	9

4.5 Integration of a Process Curriculum

Vertical and horizontal integration of the programme is important to enable students to develop increasingly complex cognitive, affective and psychomotor skills. This integration has been achieved by the overall programme design which links paper content and learning outcomes within and across stages.

Integration will also be achieved by the extensive use of case studies, projects, problem solving exercises, seminars etc, and through clinical situations. Sequencing will guide the student to obtain sufficient background information and level of skill to deal with progressively more complex material and situations.

Integration will require good communication among lecturers. To this end the Head of Department is responsible for regular and frequent communication between members of the teaching team.

4.6 Learning, Interacting and Self-Management

The way in which the student learns and interacts with others (staff, students, patients and other professionals) throughout the programme is considered to be the key to the achievement of the aims concerning personal growth. Students will be encouraged, from the outset, to develop the skills of an independent learner and to reflect upon their learning. The ability to self-assess is an integral part of the programme's objectives.

It is essential to facilitate the early adaptation of students to expectations regarding their role in the learning process and their ability to interact with others.

Exercises in independent learning and critical thinking are introduced at the start of the programme. Developing effective verbal and written communication skills is an important aim throughout the programme. There are papers which specifically address these areas, such as the Behavioural Science papers. However, there is also a formal expectation of early application of the principles in all courses in the first stage and beyond.

In all papers, students will be required to investigate topic areas to a greater depth than that provided during class contact hours. To this end, formal class contact will usually be no more than 20 hours per week.

4.7 Accessing a Specific Academic Base

Biological Sciences

Students will develop the ability to understand the basic systems of the human body and how they interact. Because of the nature of the professional activities of radiation therapists the emphasis in the study of pathology will be towards cancer and its associated conditions. The *Anatomy, Physiology and Pathology* paper forms a foundation for students to meet the learning outcomes of the *Radiation Therapy and Oncology* papers of the programme at the more advanced levels.

Students will be expected to develop an in-depth understanding of the relationship between pathology and treatment, relevant to radiation therapy.

4.8 Behavioural Science

Students need to have access to knowledge from behavioural science to enable them to perform as competent professionals in the field of radiation therapy.

This knowledge is essential to enable graduates to understand the context of illness and work with clients, colleagues and others they may interact with while performing as a professional in the field. These skills will be integrated into the *Clinical Studies* papers as well as the more specific *Behavioural Science* papers.

4.9 Physics and Allied Sciences

Since most radiation treatment is provided using advanced technology students require a sound knowledge of physics as well as sufficient understanding of electronics to enable them to perform in a professional manner. Specialist lecturers will be employed to ensure that the latest information is presented to students. The papers relevant to this area are *Radiation Physics* at Stage I and the three stages of *Radiation Technology*.

4.10 Clinical Studies

This section of the curriculum, which includes the *Clinical Studies* papers at all three stages, is designed to prepare the student for practice in a modern clinical setting. The clinical studies papers are designed to integrate the students' learning to a point where practical skills and theoretical understanding merge. Students currently have the opportunity to develop their clinical skills under supervision in well equipped radiation oncology departments in Auckland, Waikato, Palmerston North, Wellington, Christchurch and Dunedin.

4.11 Research

As professionals in the field of radiation therapy graduates must be able to critically analyse research published by others. To this end students will study the principles of good research methodologies. While these principles are covered in the *Principles of Research* and *Applied Research Methods* papers the concepts will be carried through all the subjects of the final stages of the programme.

5. Timing of the Programme

5.1 Duration of the Course

The Bachelor of Health Science (Medical Radiation Therapy) is a three year full time programme.

5.2 Composition of Each Stage

5.2.1 Stage I

30 weeks attending classes at the Department of Radiation Therapy, Wellington School of Medicine and Health Sciences, University of Otago

3 weeks clinical experience in the Sponsoring Hospital.

5.2.2 Stage II

1 semester clinical experience in the Sponsoring Hospital.

1 semester attending classes at the Department of Radiation Therapy, Wellington School of Medicine and Health Sciences, University of Otago

1 week clinical experience in a hospital other than the Sponsoring Hospital.

5.2.3 Stage III

1 semester attending classes at the Department of Radiation Therapy, Wellington School of Medicine and Health Sciences, University of Otago

1 semester clinical studies in the Sponsoring Hospital.

1week clinical studies in a hospital other than the Sponsoring Hospital.

For Stage II and III, the week allocation for the time in the Sponsoring Hospital and at the University of Otago may alter slightly. This is dependent on the semester breaks during each academic year.

6. Structure of the Programme

The programme consists of 3690 notional hours of student learning divided into three stages.

6.1 Stage I

MERA 101	Anatomy, Physiology and Pathology I
MERA 102	Clinical Studies I
MERA 103	Radiation Physics
MERA 104	Behavioural Science I
MERA 105	Radiation Technology I
MERA 106	Radiation Therapy and Oncology I

6.2 Stage II

MERA 201	Anatomy, Physiology and Pathology II
MERA 202	Clinical Studies II
MERA 203	Behavioural Science II
MERA 204	Principles of Research
MERA 205	Radiation Technology II
MERA 206	Radiation Therapy and Oncology II

6.3 Stage III

MERA 301	Clinical Studies III
MERA 302	Applied Research Methods
MERA 303	Radiation Technology III
MERA 304	Radiation Therapy and Oncology III

7. Assessment

7.1 Assessment Philosophy

All assessment tasks will allow students to demonstrate their achievement of the learning outcomes being assessed.

This philosophy will be implemented by the use of the following strategies:

- All assessment tasks will be appropriate for the level and nature of the learning outcomes being assessed.
- Each assessment task will be clearly stated.
- Dates for assessments will be advised to students in advance. The dates for all summative assessments will be published at the beginning of each semester.
- Self and peer assessment will be encouraged and used whenever appropriate.
- Formative assessments will be carried out to identify difficulties students may be encountering, and to provide frequent feedback on learning progress.
- When it is appropriate for students work to be returned after marking, it will be returned as soon as practical.

7.2 Assessment Pattern

MERA 101: Anatomy, Physiology and Pathology I
Summative assessment will consist of the following :

- one test = 15% of total mark
- one test = 15% of total mark
- one test = 15% of total mark
- one assignment = 15% of total mark
- one final 2 hour examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 102: Clinical Studies I
Summative assessment will consist of the following :

- one theory test = Pass/Fail
- one clinical journal = Pass/Fail

A pass will be awarded to all students who gain a pass in both components.

MERA 103: Radiation Physics
Summative assessment will consist of the following :

- problem sheets = 5% of total mark
- labs = 25% of total mark
- one test = 15% of total mark
- one test = 15% of total mark
- one final 2 hour examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 104: Behavioural Science I

Summative assessment will consist of the following :

• one test	=	10% of total mark
• one test	=	20% of total mark
• oral presentation	=	10% of total mark
• one assignment	=	20% of total mark
• one final 2 hour examination	=	40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 105: Radiation Technology I

Summative assessment will consist of the following :

• one test (photography)	=	20% of total mark
• one test	=	15% of total mark
• one test	=	15% of total mark
• one assignment	=	10% of total mark
• one final 2 hour examination	=	40% of total mark
• computer assignments	=	Pass / Fail

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall, and who pass the computer assignments.

MERA 106: Radiation Therapy and Oncology I

Summative assessment will consist of the following :

• one test	=	20% of total mark
• one test	=	20% of total mark
• one assignment	=	20% of total mark
• one final 2 hour examination	=	40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 201: Anatomy, Physiology and Pathology II

Summative assessment will consist of the following :

• one presentation		40% of total mark
• one test	=	60% of total mark

A pass will be awarded to all students who gain 50% overall.

MERA 202: Clinical Studies II

Summative assessment will consist of the following :

- one practical assessment (treatment) = Pass/Fail
- one practical assessment (simulation) = Pass/Fail
- one practical assessment (dosimetry) = Pass/Fail
- one clinical journal = Pass/Fail

A pass will be awarded to those students who gain a pass in each component.

MERA 203: Behavioural Science II

Summative assessment will consist of the following :

- one project = 50% of total mark
- one test = 50% of total mark

A pass will be awarded to all students who gain 50% overall.

MERA 204: Principles of Research

Summative assessment will consist of the following :

- one assignment (research) = Pass/Fail
- one assignment (statistics) = Pass/Fail

A pass will be awarded to those students who gain 50% or better in each component.

MERA 205: Radiation Technology II

Summative assessment will consist of the following :

- one theory test = 30% of total mark
- three assignments at 10% each = 30% of total mark
- one final 2 hour examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 206: Radiation Therapy and Oncology II

Summative assessment will consist of the following :

- One test (radiobiology) = 20% of total mark
- One test = 20% of total mark
- One practical assignment = 20% of total mark
- One 2 hour examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 301: Clinical Studies III

Summative assessment will consist of the following :

- one clinical journal = Pass/Fail
- one competency based assessment (CBA)= Pass/Fail

A pass will be awarded to those students who gain a pass in each component.

MERA 302: Applied Research Methods

Summative assessment will consist of the following :

- one project = Pass/Fail

A pass will be awarded to those students who gain an A, B or C Grade.

MERA 303: Radiation Technology III

Summative assessment will consist of the following :

- three assignments at 20% each = 60% of total mark
- one final 2 hour examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

MERA 304: Radiation Therapy and Oncology III

Summative assessment will consist of the following :

- One test (radiobiology) = 20% of total mark
- One test = 20% of total mark
- One practical assignment (Radplan) = 20% of total mark
- One 2 hour examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

7.3 Assessment Standards

The overall standards are laid out in the *Aims of the Programme* as the attributes of the graduate of the programme. (See 1. Aims of the Programme, p.1).

These aims have been developed in close association with the profession through the Radiation Therapy Advisory Degree Sub-committee.

7.4 Moderators

Internal moderation occurs for each paper within the Department of Radiation Therapy. Two external moderators are appointed from the profession (one clinical tutor and one senior clinical radiation therapist) to moderate written examinations. A clinical radiation therapist moderates a sampling of clinical journals.

7.5 Monitor

A programme monitor from the School of Medical Radiation Science, Sydney University, has been appointed since 1996.

7.6 Assessors - Competency Based Assessment

Clinical radiation therapists are contracted (along with the academic radiation therapists) to undertake final competency based assessments (CBAs) at the end of the third year.

A radiation therapist from the University of Otago moderates a sampling of the CBAs annually.

8. Procedures for Changes to the Programme

There are three levels of change in the programme which can take place:

8.1 Minimal Changes

Small alterations to the programme will be implemented within the Department of Radiation Therapy.

8.2 Minor Changes

Where the changes are more significant, but do not involve the structure of the programme they will be referred on to the Radiation Therapy Board of Studies. Minutes from these minutes refer issues to the Health Sciences Divisional Board.

8.3 Major Changes

Any change to the overall structure will be referred to CUAP for approval following approval by the University of Otago Senate.

10. Relationship to Other Programmes

10.1 Overseas Undergraduate Qualifications

A number of New Zealand radiation therapists have gained degree level qualifications in radiation therapy. The most popular programmes were the BHSc – Conversion Programme from the Central Institute of Technology and the BSc (Radiography) Conversion Programme from the Anglia Polytechnic University in England. These programmes and others such as the BSc(Hons) Radiotherapy from Southbank University, London, require students to attain high levels of competency, the skills of the reflective practitioner and the skills of critical analysis in relation to research. The outcomes of these qualifications are similar to those of the BHealSc(MRT) programme.

10.2 New Zealand Postgraduate Qualifications

There are a number of postgraduate qualifications available to the graduates from the BHealSc(MRT). For example the Master of Health Science Programmes offered by Otago University and the Auckland University of Technology.

9. Management of the Programme

9.1 Programme Co-ordination

The Director and Head of Department has responsibility for the overall co-ordination of the programme.

9.2 Paper Convenors

Paper convenors are responsible for the efficient co-ordination and delivery of papers.

9.3 Year Leaders

Year leaders have an overall responsibility for the students in a particular stage of the course. Responsibilities include pastoral care and assessment schedules.

11. Programme Regulations

11.1 Entry Requirements

All enrolments to the Bachelor of Health Science (Medical Radiation Therapy) degree programme are subject to the approval of the Radiation Therapy Admissions Committee. To gain entry to the programme applicants must satisfy the following criteria:

- In general students will be sponsored by the District Health Board which operates an oncology unit. This is to ensure that there is adequate access to an appropriate clinical environment. An exception to this may be made provided the applicant can provide evidence that she or he can obtain the required clinical experience and tuition.
- Students are required to hold a current first aid certificate on entry to the programme. This Certificate is to be maintained throughout the duration of the programme.
- Mature Students who have attained the age of 20 years by Feb 1 in the year for which admission is sought, may be admitted to the programme if it is considered that they are likely to achieve success on the programme.
- Students with Unit Standard qualifications are eligible to apply. These will be assessed on an individual basis.

For a student whose application for admission is based on qualifications gained outside New Zealand and whose first language is not English or Maori, evidence of such competence and understanding to be supplied shall be in the form of certified results in:

- the International English Language Test (IELT) with a score of not less than 7.5 in the academic band, with a score of 8 or better in the listening band and 8 or better in the speaking band. This test is to be taken in New Zealand.

Selection Criteria

Applicants will be selected on the basis of having met the following criteria:

- Demonstration of suitability to the profession by interview.
- Achievement of University Entrance (Higher School Certificate, three "C" passes in Bursary or an A or B Bursary). **Priority will be given to those successfully completing English and Mathematics, and either Biology or Physics.**

Note: Student numbers will be limited to the availability of clinical placements.

11.2 Admission to the Course

(a) Admission to the course for the degree of Bachelor of Health Sciences shall be determined by the Assistant Vice-Chancellor (Health Sciences) on the advice of the Radiation Therapy Admissions Committee.

(b) The number of candidates to be admitted to the first year of the course will be determined by the number of places available for clinical teaching.

(c) Candidates will be selected by the Radiation Therapy Admissions Committee on the basis of their academic record and their interview.

Note: Applications for admission to first year classes must reach the Division of Health Sciences not later than 15th September in the year preceding desired entry.

11.3 Completion of the Programme

(a) The programme consists of three stages. Generally students must succeed at each stage to progress to the next stage.

(b) The structure of the programme makes it unlikely that a student would be able to complete a trailing subject and continue with the following stage of the programme.

(c) Students will be expected to complete the programme in five years or less. Students who do not complete the programme within a three year period will need to seek an extension of their sponsorship from the District Health Board or other approved clinical training institution.

(d) Every course of study must satisfy the requirements for one option in the schedule of endorsements for the degree.

(e) Every course of study for the degree shall normally be followed for not less than three years of full-time study.

Attendance

(f) Students must attend all classes unless excused on medical or other acceptable grounds. If a student is unwell they must inform the lecturer **PRIOR** to the class.

11.4 Assessments

(a) Students will be given a range of formative assessments throughout the year as a basis for determining progress.

(b) Extensions to due dates will only be considered by the Head of Department in mitigating circumstances.

(c) In the case of illness at the time of a test, the student must notify the lecturer, either directly or through the Administration Manager, **PRIOR** to the start of a test. A medical certificate must be produced before an alternative test will be arranged. Failure to observe this

procedure may result in the student being refused an opportunity to sit the test, and therefore receive a score of zero for it.

(d) Students must complete all coursework requirements, which includes formative and summative assessments to gain terms.

(e) Students who are refused terms will be required normally to repeat the year as a whole, with the approval of the Radiation Therapy Board of Studies.

Submission of Previously Assessed Work

(f) Any student who attempts to pass off their own work, either in part or whole, which has previously been assessed in the same or another paper, **as original work** will receive no assessment result for that work, nor will they have an opportunity to resubmit the work for that assessment. In addition, the student may be subject to disciplinary action.

Plagiarism

(g) Any student who attempts to pass off the work or ideas of another person as their own will receive no assessment result for that work nor will they have an opportunity to resubmit work for that assessment. In addition the student may be subject to disciplinary action.

General

(h) Any student who attempts to deceive or practice deceit, or obtain unfair advantage by their actions as a student may be subject to disciplinary action.

11.5 Reassessment Policy

- There will be no reassessments, except for Pass/Fail papers.
- Students may apply to resit one assessment ONLY within any of the Pass/Fail papers.

11.6 Examination

(a) Every candidate must gain terms before being admitted to examinations. This is defined as at least a 50% pass in the coursework component.

(b) Candidates will need to achieve at least 40% in any examination to be eligible to be awarded a pass overall.

(c) A special examination will only be offered for the Competency Based Assessment in MERA 301 : Clinical Studies III.

11.7 Awarding of Degree

Candidates must pass all papers in the programme and obtain a minimum of 123 points to be awarded the Bachelor of Health Science (Medical Radiation Therapy) degree by the University of Otago.

11.8 Withdrawal from the Course

A candidate who withdraws from the course must obtain the approval of the Radiation Therapy Board of Studies before being readmitted to the course. Applications for readmission must be with the Board of Studies by 1 July in the year prior to that for which readmission is sought.

11.9 Exclusion from the Course

Any candidate who fails to complete the requirements for a paper in two academic years may be excluded by the Board of the Division of Health Sciences on the recommendation of the Radiation Therapy Board of Studies in Health Sciences.

11.10 Variations

The Assistant Vice-Chancellor (Health Sciences) may in exceptional circumstances approve a course of study which does not comply with these regulations.

PAPER
DESCRIPTORS

STAGE ONE PAPERS

MERA 101 Anatomy, Physiology and Pathology I

MERA 102 Clinical Studies I

MERA 103 Radiation Physics

MERA 104 Behavioural Science I

MERA 105 Radiation Technology I

MERA 106 Radiation Therapy and Oncology I

12. Anatomy, Physiology and Pathology I

Reference Number : MERA 101

Date : February 2002

Duration : 240 contact hours and 240 hours of independent learning

Points: Sixteen (16)

Aim : To enable students to gain a basic understanding of the principles and terminology of the anatomy, physiology and pathology of the human body.

Recommended Entry Level : Entry to programme

Learning Outcomes : On completion of this paper the successful student will be able to:

1. describe the normal anatomical organisation of the human body in terms of cells, tissues, organs and organ systems;
2. describe the principal systems of the human body and their functions;
3. explain the ways in which body systems interact to maintain homeostasis;
4. identify the relationship of all organs to other organs, structures, and to the surface landmarks of the body;
5. discuss common pathological changes which can occur in the human body.

Content

Corresponding to Learning Outcome 1

1. Basic cell organisation and biochemistry
2. Classification of body tissues
3. Organisation and structure of major body systems

Corresponding to Learning Outcome 2

1. Structure and function of :
   - skeletal system
   - muscular system
   - nervous system
   - cardiovascular system
   - lymphatic system
   - respiratory system
   - urinary system
   - digestive system
   - endocrine system
   - reproductive system
   - integumentary system

Corresponding to Learning Outcome 3

1. Principles of homeostasis
2. Roles of endocrine and nervous systems in maintenance of homeostasis

Corresponding to learning outcome 4

1. Body regions and planes
2. Boundaries and contents of body cavities
3. Main surface landmarks.

Corresponding to Learning Outcome 5

1. Infectious diseases (viral, bacterial, fungal, protozoal)
2. Genetic disorders and cancers
3. Common pathological changes in each of body's major systems

Suggested Learning and Teaching Approaches :

The learning outcomes of this paper could be achieved by the following:

1. Lectures
2. Student centred tutorials
3. Practicals and laboratory demonstrations
4. The use of media such as videos, journals and texts

Assessment of Learning Outcomes :

Summative assessment will consist of the following :

- one test = 15% of total mark
- one test = 15% of total mark
- one test = 15% of total mark
- one assignment = 15% of total mark
- one final 2 hour written examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

Reporting Results to Students

Results will be reported to students as follows:

Course work, out of	60
Final examination, out of	40
TOTAL	100

Student result notices will carry grades from A to E.

Resources

Backhouse, K; (1986) A Colour Atlas of Surface Anatomy. Wolfe.

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Cooper, G M; (1997) The Cell; A Molecular Approach. ASM Press.

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Cunningham, M W; (2000) Effects of Microbes on the Immune System. Lippincott, Williams and Wilkins.

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Hutchings, R; Cohen, B; (1989) Medical Terminology. J B Lippincott Company.

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Royal College of Surgeons of Edinburgh; (1983) A colour Atlas of Demonstrations in Surgical Pathology. (Volume 1 & 2), Wolfe.

Tortora, G; (2000) Principles of Anatomy & Physiology. 9th Edition, Harper Collins.

Tranel, L; Mills, A; (1995) Instructors Resource Guide. Prentice Hall.

CD ROM; (1995) Whole Body Computed Tomography. Blackwell Science.

Taber's Cyclopedic Medical Dictionary; (1997) 18th Edition. F.A. Davis Company.

13. Clinical Studies I

Reference Number : MERA 102

Date : February 2002

Duration : 40 contact hours and 100 hours of independent learning

Points : Three (3)

Aim : The student will gain a basic understanding of the role of the radiation therapist.

Recommended Entry Level : Entry to programme

Learning Outcomes :
On completion of this paper the successful student will be able to:

1. discuss the concepts of health and illness;
2. describe the role of the radiation therapist;
3. explain the uses of clinical information in a radiation therapy department;
4. apply the basic principles of nursing care;
5. describe the basic principles of infection control in a radiation therapy department.

Content

Corresponding to Learning Outcome 1
1. Definitions of health and illness
2. Health spectrum
3. Factors influencing health
4. Homeostasis
5. Stages of illness
6. Current health issues

Corresponding to Learning Outcome 2
1. Role of radiation therapist
2. Role of members of an oncology team
3. Role of student radiation therapist

Corresponding to Learning Outcome 3
1. Types of clinical information
2. Uses of clinical information
3. Privacy and security issues in relation to clinical information

Corresponding to Learning Outcome 4
1. Department emergency procedures
2. Emergency first aid procedures including oxygen and suction
3. Safe patient mobility and positioning
4. Patient toileting including colostomy and urinary catheters
5. Vital signs in patients
6. Patient safety and comfort including IV fluids
7. Specific patient needs eg blindness, hearing impairment, diabetes

Corresponding to Learning Outcome 5

1. Personal cleansing procedures
2. Methods by which infections spread
3. Methods of cleaning and sterilisation in a radiation therapy department
4. Sterile/non-sterile dressings

Suggested Learning and Teaching Approaches :

The learning outcomes of this paper could be achieved by the following :

- student centred tutorials with an emphasis on class discussion;
- seminar and project presentations;
- the use of media such as videos, journals, texts, newspaper articles and television will provide a rich source of material for discussion, exploration;
- use of a variety of small scale investigative techniques;
- clinically based observation.

Assessment of Learning Outcomes :

Summative assessment will consist of the following :

- one theory test = Pass/Fail
- one clinical journal = Pass/Fail

A pass will be awarded to all students who gain a pass in both components.

Reporting Results to Students

Results will be reported to students as Pass/Fail

Resources

Fully equipped and operational radiation therapy department.

Bomford, C; Kunkler, I; Sheriff, S; (1993) Walter and Miller's Textbook of Radiotherapy. 2nd Edition, Churchill Livingstone.

Gunn, C; Jackson, C S; (1991) Guidelines on Patient Care in Radiography. (2nd Edition) Churchill Livingston, UK.

Murphy, G; Lawrence, N; Lenhard, R; (1995) American Cancer Society Textbook of Clinical Oncology. American Cancer Society.

Shahabi, S; (1989) Blackburns Introduction to Clinical Radiation Therapy. Medical Physics Publishing Co-op, Madison.

Washington, C M; Leaver D T; (1996) Introduction to Radiation Therapy. Volume 1. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1996) Physics, Simulation & Treatment Planning. Volume 2. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T (1997) Practical Applications. Volume 3. Mosby, St Louis, Missouri.

14. Radiation Physics

Reference Number : MERA 103

Date : February 2002

Duration : 90 contact hours and 30 hours of independent learning

Points : Four (4)

Aim : To introduce students to the principles of radiation physics and its application to radiation technology.

Recommended Entry Level : Entry to programme

Learning Outcomes :
On completion of this paper the successful student will be able to:

1. demonstrate skills of mathematical calculation as applied to radiation therapy;
2. demonstrate an understanding of general physics principles in relation to radiation therapy;
3. discuss basic principles of atomic physics;
4. discuss the basic physics of X and gamma radiation;
5. demonstrate an understanding of basic electrostatics, electric circuits, electrodynamics and electronics;

Content

Corresponding to learning outcome 1
1. Mathematical and algebraic calculations
2. Measurement - units and uncertainties
3. Normal distribution and experimental errors
4. Trigonometry and solid geometry

Corresponding to Learning Outcome 2
1. Kinematics, the description of motion
2. Dynamics - motion and force
3. Circular motion
4. Energy - types, transformations and conservation
5. Electromagnetic radiation
6. Optics - geometrical optics, lasers

Corresponding to Learning Outcome 3
1. Hydrogen spectrum
2. Emission and absorption spectra
3. Quantum mechanics
4. Electromagnetic spectrum

Corresponding to Learning Outcome 4

1. Ionizing radiation
2. Production of X-rays
3. Radioactive decay and the production of gamma rays
4. Interaction of radiation with matter
5. Application to radiation therapy

Corresponding to learning outcome 5

1. Electric charge and electric fields
2. Electric potential and electric energy
3. Electric currents and DC circuits
4. Magnetic fields and interactions with currents and moving conductors
5. Electrical measurements
6. Solid state components and devices

Suggested Learning and Teaching Approaches :

The learning outcomes of this paper could be achieved by the following :

- lectures, including laboratory demonstrations;
- practical sessions.

Assessment of Learning Outcomes :

Summative assessment will consist of the following :

• problem sheets	=	5% of total mark
• labs	=	25% of total mark
• one test	=	15% of total mark
• one test	=	15% of total mark
• one final 2 hour written examination	=	40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

Reporting Results to Students

Results will be reported to students as follows:

Course work, out of	60
Final examination, out of	40
TOTAL	100

Student result notices will carry grades from A to E.

Resources

Chesney, D; (1984) X-Ray Equipment for Student Radiographer. Blackwell Scientific, Oxford.

Duncan, T; (1987). John Murray.

Freedman, D; Pisani, R; Purves, R; (1978) Statistics. W W Norton.

Giancoli, D; (1995) Physics-Principles with Applications. (5th Edition), Prentice Hall.

Griffiths, S; Short, C; (1994) Radiotherapy : Principles to Practice. Churchill Livingstone.

Halliday, D; (1966) Physics. John Wiley & Sons.

Hendee, W; (1981) Radiation Therapy Physics. Year Book Medical Publishers.

Johns, H; Cunningham, J; (1983) The Physics of Radiology. 4th Edition, Charles & Thomas.

Khan, F; (1984) The Physics of Radiation Therapy. Williams and Wilkins.

Meredith, W; Massey, J; (1977) Fundamental Physics of Radiology. John Wright & Sons, Bristol.

National Radiation Laboratory; (1992) Code of Safe Practice for the Use of Irradiating Apparatus in Therapy. NRL, C12.

Sanders, D; (1990) Statistics, A Fresh Approach. McGraw Hill.

Stanton, R; Stinton, D; (1996) Applied Physics for Radiation Oncology. (2nd Edition). Medical Physics Publishing, Wisconsin, US.

Sternheim, K; Kane, J; (1991) General Physics. John Wiley.

Washington, C M; Leaver, D T; (1996) Introduction to Radiation Therapy. Volume 1. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1996) Physics, Simulation & Treatment Planning. Volume 2. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T (1997) Practical Applications. Volume 3. Mosby, St Louis, Missouri.

POSTRAD Papers

Higher Diploma of the College of Radiographers; (1986) Therapeutic Radiography. Science & Instrumentation.

CBA Eligibility

- Students will need to have a current approved comprehensive First Aid Certificate before taking the CBA.
- Students will need to have completed a minimum of 2180 clinical hours (clinical studies plus work experience) taking the competency based assessment.

Students will normally be required to retake all assessment components in a repeat enrolment.

Reporting Results to Students

Results will be reported to students as Pass/Fail

Resources

Fully equipped and operational radiation therapy department.

Baird, S; (1991) A Cancer Source Book for Nurses. 6th Edition, American Cancer Society.

Bentel, G; Nelson, C; Noell, K; (1989) Treatment Planning and Dose Calculation in Radiation Oncology. Pergamon Press.

Blackburns Introduction to Clinical Radiation Therapy, Medical Physics Publishing Co-op, Madison 1989

Bomford, C; Kunkler, I; Sherriff, S; (1993) Walter & Miller's Textbook of Radiotherapy. 2nd Edition, Churchill Livingstone.

Dobbs, J; Barrett, A; Ash, D; (1994) Practical Radiotherapy Planning. 2nd Edition. Edward Arnold, London.

Dowd, S; (1994) Practical Radiation Protection and Applied Radiobiology. W B Saunders Company.

Griffiths, S; Short, C; (1994) Radiotherapy : Principles to Practice. Churchill Livingstone.

International Commission on Radiation Units and Measurements: (1993) Prescribing, Recording, and Reporting Photon Beam Therapy. (ICRU Report 50)

International Commission on Radiation Units and Measurements: (1999) Prescribing, Recording, and Reporting Photon Beam Therapy. Supplement to ICRU 50 Report (ICRU Report 62).

Khan, F M; Potish, R A; (1998) Treatment Planning in Radiation Oncology. Williams and Wilkins. Baltimore.

Lau, L; Campo, J; (1985) Radiological Diagnosis. Holt-Saunders.

Mould, R; (1985) Radiotherapy Treatment Planning. 2nd Edition, (Medical Physics Handbook 14), Adam Hilger Ltd.

Murphy, G; Lawrence, W; Lenhard, R; (1995) American Cancer Society Textbook of Clinical Oncology. American Cancer Society.

New Ethical Catalogue 1994.

Osten, R; Shahabi, S; (1990) Cancer Manual. 8th Edition, American Cancer Society.

Strackee, J; (1989) On-Line Acquisition and Analysis of Portal Images. Harm Meertens.

Washington, C M; Leaver, D T; (1996) Introduction to Radiation Therapy. Volume 1. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1996) Physics, Simulation & Treatment Planning. Volume 2. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1997) Practical Applications. Volume 3. Mosby, St Louis, Missouri.

25. Applied Research Methods

Reference Number : MERA 302

Date : February 2002

Duration : 60 contact hours and 60 hours of independent learning

Points : Five (5)

Aim : To enable students to demonstrate their abilities to apply knowledge of research, design and analysis to a topic of their choice.

Recommended Entry Level : Satisfactory completion of HS6205 Principles of Research

Learning Outcomes : On completion of this paper the successful student will be able to :

1. demonstrate skills of research design;
2. critically evaluate research design in clinical, epidemiological and social science research particularly in relation to radiation therapy;
3. identify the appropriate protocol for writing up and publishing research and for applying for research funding;
4. produce a research project following specific guidelines and procedures commensurate with degree level studies.

Content

Corresponding to Learning Outcome 1

1. Design of research protocols
2. Ethical considerations in design

Corresponding to Learning Outcome 2

1. Critical analysis of clinical, epidemiological and social science research related to radiation therapy

Corresponding to Learning Outcome 3

1. Research paper presentation
2. Publishing criteria
3. Application for research funding

Corresponding to Learning Outcome 4

1. Production of research project

Suggested Learning and Teaching Approaches :

The learning outcomes of this paper could be achieved by the following :

- student centred tutorials with an emphasis on class discussion and debate;
- guest speakers who are able to offer current and practical information on topics;
- seminar and project presentations;
- use of a variety of small scale investigative techniques.

Assessment of Learning Outcomes :

Summative assessment will consist of the following :

- one project = pass/fail

A pass will be awarded to those students who gain an A, B or C grade

Reporting Results to Students

Results will be reported to students as

A B C	pass grades
D E	fail grades

Resources

Benn, K; Benn, C; (1997) Writing a Thesis or Long Document Using a Word Proceesor ; A Practical Guide. The Dunmore Press, New Zealand

Currier, D; (1990) Elements of Research in Physical Therapy. 3rd Edition. Williams and Wilkins.

Fletcher, R; Fletcher, S; Wagner, E; (1987) Clinical Epidemiology. 2nd Edition. Williams and Wilkins.

Gilbert, N; (ed) (1993) Researching Social Life. Sage, London.

Hulley, S; Cummings, S; (1988) Designing Clinical Research : An Epidemiological Approach. Williams and Wilkins.

Kellehear, A; (1993) The Unobtrusive Researcher: A Guide to Methods. Allen & Unwin, St Leonards.

Marshall, C; Rossman, G; (1989) Designing Qualitative Research. Sage, London.

Ottenbacher, K; (1986) Evaluating Clinical Change. Williams and Wilkins.

Polgar, S; Thomas, S; (2000) Introduction to Research in the Health Sciences. 4th Edition.

Preece, R; (1994) Starting Research. Pinter, London.

Reid, N; (1993) Health Care Research by Degrees. Blackwell, Oxford.

Rudestain, K; (1992) Surviving Your Dissertation: A Comprehensive Guide to Content and Process. Sage, London.

26. Radiation Technology III

Reference Number : MERA 303

Date : February 2002

Duration : 90 contact hours and 90 hours of independent learning

Points : Five (5)

Aim : To enable students to use radiation therapy equipment safely and effectively with minimal supervision.

Recommended Entry Level : Successful completion of Radiation Technology II

Learning Outcomes : On completion of this paper the successful student will be able to:

1. evaluate the suitability of radiation therapy equipment for different clinical situations;
2. discuss the potential future developments of radiation therapy equipment;
3. evaluate the use of brachytherapy equipment in radiation therapy;
4. demonstrate the skills of resource management in relation to a radiation therapy department;
5. critically analyse quality assurance systems in radiation therapy;
6. discuss the principles of planning and treatment in specialised techniques;
7. Computed Tomography (CT) as a treatment planning tool.

Content

Corresponding to Learning Outcome 1

1. Equipment currently available
2. Future equipment development
3. Cost analysis
4. Clinical analysis
5. Clinical resource management

Corresponding to Learning Outcome 2

1. Future technological trends
2. Computer networking
3. Information resources

Corresponding to Learning Outcome 3

1. Manual systems
2. Remote loading systems
3. High dose rate and low dose rate

Corresponding to Learning Outcome 4

1. Cost analysis
2. Service contracts
3. Availability of resources
4. Strategic planning and service planning
5. Human resource management
6. Problem solving

Corresponding to Learning Outcome 5

1. Evaluation methods
2. Implementing quality improvements

Corresponding to Learning Outcome 6

1. Arc and rotational techniques
2. Stereotactic techniques
3. Specialist techniques
4. Current trends and developments

Corresponding to Learning Outcome 7

1. Operational Parameters
2. Image interpretation
3. Role of CT in treatment planning
4. Simulators with CT options
5. CT as a simulation tool

Suggested Learning and Teaching Approaches :

The learning outcomes of this paper could be achieved by the following :

- student centred tutorials with an emphasis on class discussion and debate;
- seminar and project presentations;
- the use of media such as videos, journals, and texts;
- practical sessions.

Assessment of Learning Outcomes :

Summative assessment will consist of the following :

- three practical assignments at 20% each = 60% of total mark
- one final 2 hour written examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

Reporting Results to Students

Results will be reported to students as follows:

Course work, out of	60
Final examination, out of	40
TOTAL	100

Student result notices will carry grades from A to E.

Resources

Electronic Media :

Students have access to a variety of data bases and CD Roms

Textbooks

Dobbs, J; Barrett, A; Ash, D; (1994) Practical Radiotherapy Planning. 2nd Edition. Edward Arnold, London.

Stanton, R; Stinson, D; (1996) Applied Physics for Radiation Oncology. 2nd Edition. Medical Physics Publishing, Wisconsin, USA.

Bushong, S; (1993) Radiologic Science for Technologists. Physics Biology and Protection, Mosby.

Griffiths, S; Short, C; (1994) Radiotherapy : Principles to Practice. Churchill Livingstone.

Nag, S; (1994) Textbook on High Dose Rate Brachytherapy. Blackwell Science.

Washington, C M; Leaver, D T; (1996) Introduction to Radiation Therapy. Volume 1. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1996) Physics, Simulation & Treatment Planning. Volume 2. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1997) Practical Applications. Volume 3. Mosby, St Louis, Missouri.

Webb, S; (1994) The Physics of Three Dimensional Radiation Therapy. Institute of Physics Publishing, Bristol.

27. Radiation Therapy and Oncology III

Reference Number : MERA 304

Date : February 2002

Duration : 120 contact hours and 120 hours of independent learning

Points : Nine (9)

Aim : For students to apply their understanding of oncology by demonstrating the appropriate use of radiation therapy techniques.

Recommended Entry Level : Successful completion of Radiation Therapy and Oncology II

Learning Outcomes : On completion of this paper the successful student will be able to :

1. critically analyse moral, ethical and legal aspects of radiation therapy, and identify appropriate individual and group responses to these aspects;
2. identify the structure and functions of the health care system in New Zealand and the role of radiation therapy within the health care system.
3. evaluate the ways in which effects of radiation therapy can be enhanced;
4. critically analyse standard radiation therapy techniques with application to variations in clinical conditions;
5. apply their knowledge of radiobiology to the clinical setting;
6. describe in detail the oncology and pathology of common malignant tumours;
7. demonstrate the principles of treatment planning and dose calculation;
8. determine a personally and professionally acceptable version of the role of a radiation therapist and be able to integrate this professional role into all their other life roles;
9. consider issues relevant to future professional development and career planning.

Content

Corresponding to Learning Outcome 1

1. Moral dimensions of the role of the radiation therapist
2. Medico-legal dimensions of the role of the radiation therapist
3. Codes of ethics and the radiation therapist
4. Radiation therapists as members of a profcssion - roles and responsibilities
5. Problem solving within a moral/ethical and medico-legal framework

Corresponding to Learning Outcome 2

1. Structure of the New Zealand health care system, historical and current
2. Role of radiation therapy in the New Zealand health care system
3. Change in the New Zealand health care setting - personal, group, and structural responses

Corresponding to Learning Outcome 3

1. Chemotherapeutic agents
2. Radiosensitising drugs
3. Other methods

Corresponding to Learning Outcome 4

1. Standard protocols
2. Anatomical and physiological differences
3. Radiosensitive structures
4. Dose limits

Corresponding to Learning Outcome 5

1. Radiobiological principles
2. Clinical decision making
3. Factors influencing cell response
4. Fractionation
5. Hypoxia and radiosensitivity
6. Dose and dose rate
7. Time and dose relationships
8. Acute radiation syndrome
9. Acute and late effects

Corresponding to Learning Outcome 6

1. Oncology and pathology of common malignant tumours

Corresponding to Learning Outcome 7

1. 2D and 3D computer planning
2. Plan and dose optimisation
3. Describe major factors affecting dosage
4. Manual calculation of dose for radiation therapy treatment techniques
7. Spatial perception

Corresponding to Learning Outcome 8

1. Personal management strategies
2. Professional socialisation

Corresponding to Learning Outcome 9

1. Issues relevant to future professional development and career planning – CV's, letters of application, interview skills.

Suggested Learning and Teaching Approaches :

The learning outcomes of this paper could be achieved by the following :

- student centred tutorials with an emphasis on class discussion and debate;
- seminar and project presentations;
- the use of media such as videos, journals, texts, newspaper articles and television will provide a rich source of material for discussion, and exploration;
- laboratory demonstrations.

Assessment of Learning Outcomes :

Summative assessment will consist of the following :

- One test (radiobiology) = 20% of total mark
- One test = 20% of total mark
- One assignment = 20% of total mark
- One final 2 hour written examination = 40% of total mark

50% must be gained in the coursework to be eligible to take the final examination.

A pass will be awarded to all students who gain 40% minimum in the examination and 50% overall.

Reporting Results to Students

Results will be reported to students as follows:

Course work, out of	60
Final examination, out of	40
TOTAL	100

Student result notices will carry grades from A to E.

Resources

Electronic Media

Students have access to a variety of data bases and CD Roms

Textbooks

A Guide to Palliative Care in New Zealand. 2nd Edition, Douglas Pharmaceuticals 1992

Bentel, G; Nelson, C; Noel, K; (1989) Treatment Planning and Dose Calculation in Radiation Oncology, Pergamon Press.

Bomford, C; Kunkler, I; Sherriff, S; (1993) Walter & Miller's Textbook of Radiotherapy, 2nd Edition, Churchill Livingstone.

College of Radiographers; (1986) Process of Patient Care. Oncology. Therapeutic Radiograph. Science and Instrumentation.

De Vita, V; Hellman, S; Rosenbera, S; Cancer - Principles and Practice of Oncology, J B Lippincott Company.

Dowd, S; (1994) Practical Radiation Protection and Applied Radiobiology, W B Saunders Company.

Griffiths, S; Short, C; (1994) Radiotherapy : Principles to Practice. Churchill Livingstone.

Hall, E; (1988) Radiobiology for the Radiologist. 3rd Edition, J B Lippincott Company.

Haskell, C; (1980) Cancer Treatment. W B Saunders Company.

International Commission on Radiation Units and Measurements: (1993) Prescribing, Recording, and Reporting Photon Beam Therapy. (ICRU Report 50)

International Commission on Radiation Units and Measurements: (1999) Prescribing, Recording, and Reporting Photon Beam Therapy. Supplement to ICRU 50 (ICRU Report 62).

Khan, F M; Potish, R A; (1998) Treatment Planning in Radiation Oncology. Williams and Wilkins. Baltimore.

Murphy, G; Lawrence, W; Lenhard, R; (1995) American Cancer Society Textbook of Clinical Oncology, American Cancer Society.

Neal, A; Hoskin, P; (1994) Clinical Oncology: A Textbook for Students. Edward Arnold, London.

Stanton, R; Stinson, D; (1996) Applied Physics for Radiation Oncology. 2nd Edition. Medical Physics Publishing, Wisconsin, USA.

Washington, C M; Leaver, D T; (1996) Introduction to Radiation Therapy. Volume 1. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1996) Physics, Simulation & Treatment Planning. Volume 2. Mosby, St Louis, Missouri.

Washington, C M; Leaver, D T; (1997) Practical Applications. Volume 3. Mosby, St Louis, Missouri.

APPENDIX A

APPENDIX A

EXTERNAL MODERATORS

1. Functions

- External moderators shall be responsible for providing an impartial evaluation of student assessment for degree programme papers.
- Two external moderators will be appointed from the profession to moderate written examinations (one clinical tutor and one senior clinical radiation therapist).
- One clinical tutor will be appointed to moderate clinical journals.

More Specifically

The functions of the external moderators are to ensure that:

- the evaluation of students' performance was fair and impartial;
- the standard of achievement required of students is comparable with that required in other institutions offering degree qualifications.

2. Specific Responsibilities

- To report to the Radiation Therapy Examinations Committee on the effectiveness of assessments and any conclusions drawn from them.
- To have authority to report directly to the Head of Department where there are concerns about standards of assessment and performance.
- To participate as required in any meeting of the Board of Studies which relates to results recommended during the moderator's period of office.
- To concur with the form and content of summative assessments for the paper.
- To ensure that the assessments are conducted in accordance with programme regulations.

3. Appointment Criteria

To carry out their responsibilities, external moderators must be:

- competent in assessing student knowledge and skills at degree level;
- expert in the field of study concerned;
- impartial in judgement;
- properly briefed on their role and on the guiding principle and philosophy of the course.

4. Appointment Procedure

- The appointment of all external moderators must be approved by the Board of Studies based on the recommendations of the Head of Department.
- External moderators will normally be appointed for a term of three years.
- New moderators should take up their appointment on or before the retirement of their predecessors. Moderators should remain available after the last assessments with which they are to be associated in order to deal with any subsequent reviews of decisions.

INTERNAL MODERATORS

1. Functions

Internal moderators shall be responsible for peer review of student assessment for all degree programme papers.

2. Specific Responsibilities

- To concur with the form and content of summative assessments for the paper.
- To ensure that the assessments are conducted in accordance with programme regulations.

3. Appointment Procedure

The appointment of all internal moderators must be approved by the Head of Department.

APPENDIX B

APPENDIX B

DEGREE MONITOR

This person will have responsibility for the following:

- appraising the quality management systems for the programme on an ongoing basis;
- assisting the University of Otago in identifying ways to maintain and enhance the quality of the programme;
- notifying the Head of Department and the Board of Studies of any concerns regarding the standards or integrity of the programme.

APPENDIX C

APPENDIX C

CENTRAL INSTITUTE OF TECHNOLOGY

Te Whare Wananga O Whirinaki

Minutes of the special meeting of the Academic Board held on Wednesday 25 October 1995

Present: Trevor Boyle (Chair), Mike Marfell-Jones, Richard Winder, Packiam Skinnon, Tommy Honey, Jill Harris, Tim Lockyer, Murdoch Pahi, Mike Cooper, Stuart Arden.

Apologies: Christine Roberts, Andrew Logan, Sheena Hudson

1. **Validation Committee recommendations**

The following programmes were presented by the Validation Committee for endorsement by the Academic Board:

Bachelor of Design
Bachelor of Health Sciences (Radiation Therapy)
Bachelor of Health Sciences (Radiation Therapy) conversion
Bachelor of Applied Technology
Bachelor of Counselling Studies
Bachelor of Hospitality Management
Bachelor of Tourism Management,
Master of Science (by research) and Doctor of Philosophy

Richard Winder noted that of these, only Bachelor of Health Sciences (Radiation Therapy) had satisifed the Validation Committee's conditions.

95/139 **Resolved**

That the Academic Board approves the programme and recommends to Council the approval of the **Bachelor of Health Sciences (Radiation Therapy)** as a three year full time programme for 1997 to 2001 inclusive. Enrolment will be onto the full programme or part time on individual modules. Stage 1 of the programme is 33 teaching weeks plus 7 weeks of vacation, a total of 40 weeks. Stages 2 and 3 are 36 teaching weeks plus 3 weeks of vacation, a total of 39 weeks.

Bachelor of Tourism Management

Richard Winder advised that this degree had been removed from consideration.

The remaining programmes were to be considered at a special Academic Board meeting to be held on :

Monday, 30 October 1995, 3.00pm, in the New Council Room.

2. **Formal Thankyou**

The Academic Board thanked with acclamation the Academic Registrar and his various Validation Committee teams for their tremendous efforts in the degree development process.

The meeting closed at 9.00am.

Signed: _____
Chairperson

Dated: _____

octsp.min

403.4.

FACULTY OF SCIENCE & HEALTH SCIENCES

MEMORANDUM Ref: MRT

TO: HOD, Radiation Therapy

FROM: Dean

SUBJECT: NZQA Official degree approval notification

DATE: 14 August 1996

Herewith a copy of the revised letter from NZQA re degree approval (and a copy of MHC's confirmation of receipt) for your records.

Mike Marfell-J

Dr Mike Marfell-Jones
Dean

CENTRAL INSTITUTE OF TECHNOLOGY

Te Whare Wananga O Whirinaki

9 August, 1996

A2-54-1

Copied MMJ

Barry Dawe,
NZ Qualifications Authority,
P.O. Box 160,
WELLINGTON

Dear Barry,

Thank you for your letter of 1 August, 1996 advising of the resolution by the Board of the Qualifications Authority in respect of the Bachelor of Health Science (Radiation Therapy) degree.

The purpose of my letter is to confirm my understanding and acceptance of the four part resolution contained in your letter referring to the BHSc and the associated Conversion programme.

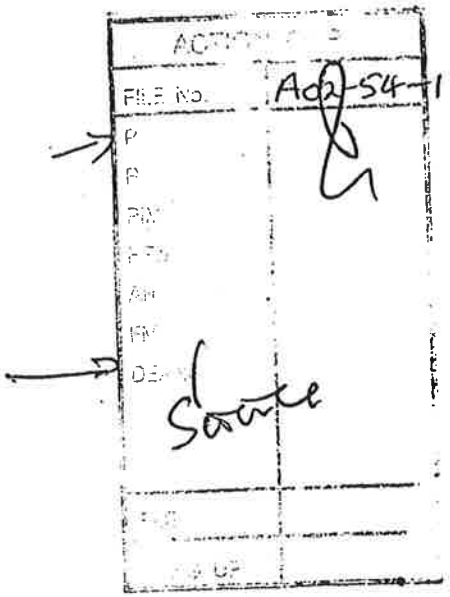
Thank you for your advice of the outcome.

Yours sincerely,

MICHAEL H. COOPER
Principal and CEO

Central Institute of Technology, Somme Road, Heretaunga
P O Box 40-740, Upper Hutt, New Zealand, Telephone (04) 527 6398, Facsimile (04) 527 6359
Auto Attendant (04) 527 6397

NEW ZEALAND QUALIFICATIONS AUTHORITY
Mana Tohu Matauranga o Aotearoa



1 August 1996

Mr Michael H Cooper
Chief Executive
Central Institute of Technology
Box 40-740
UPPER HUTT

Dear Mr Cooper

The Board of the Qualifications Authority accepted the recommendation of the panel which evaluated Central Institute of Technology's Bachelor of Health Science (Radiation Therapy) degree. For your information I have incorporated into this letter the full text of the resolution approved by the Board:

It was resolved by the Board:

"i **that the proposed bachelor of Health Science (Radiation Therapy be approved;**

ii **that the Central Institute of Technology be accredited to provide the Bachelor of Health Science (Radiation Therapy);**

iii **that the conversion programme presented for approval by the Central Institute of Technology is approved as "a conversion programme leading to the award of Bachelor of Health Science" and that the Central Institute of Technology is accredited to teach it;**

iv **the conversion programme is approved for the same period of time as the full programme and that the Central Institute of Technology is accredited to teach it for that period of time."**

The Board requests that a formal reply be received from you indicating your understanding and acceptance of the resolution.

The length of the course is three years, full-time.

U-Bix Centre, 79 Taranaki Street, Wellington, New Zealand, P.O. Box 160, Telephone: (04) 802 3000, Fax: (04) 802 3112

Degree and Post-graduate qualification approval and accreditation allows you to publicise the status of the programme by the following words on certificates and publications:

> *"This degree is approved by the New Zealand Qualifications Authority under the provisions of the Education Act 1989, and Central Institute of Technology is accredited to offer it."*

The approval and accreditation is dependent upon your organisation maintaining the same standards as were documented and demonstrated in your application, and during the approval and accreditation process. If there are any significant changes you must advise NZQA immediately.

Subsequent to approval being granted, Qualifications Authority monitoring will be applied. You will be required to pay all costs relating to the monitoring process.

The approval and accreditation will be reviewed periodically. The first review date has been set at November 2001. Three months before this date information will be sent to you on the report which will be required. Two months before the review date you should send the Authority a report on the course and its delivery. You will be required to pay all the costs relating to this review.

Please convey my congratulations to members of Central Institute of Technology who contributed to the success of this degree approval process.

Yours sincerely

Barry Dawe
Team Leader
Quality Assurance

APPENDIX D

New Zealand Vice-Chancellors' Committee

Postal address
P O Box 11-915, Wellington, New Zealand
Street address
11th floor, 94 Dixon Street, Wellington

Telephone 64-4-381 8500
Facsimile 64-4-381 8501
Website www.nzvcc.ac.nz

COMMITTEE ON UNIVERSITY ACADEMIC PROGRAMMES

Minutes of a meeting held on Thursday/Friday,
19/20 July 2001, from 9.30 am, Thursday, in the NZVCC offices

PRESENT:	Professor G S Fraser	NZVCC (Chair)
	Professor D M Ryan	The University of Auckland
	Dr D W Brook	Auckland University of Technology
	Associate Professor K Turner	The University of Waikato
	Professor K S Milne	Massey University
	Ms P Fenwick	Victoria University of Wellington
	Dr J E Cameron	University of Canterbury
	Professor R J Field	Lincoln University
	Dr P H Meade	University of Otago
	Mr J W Scott	APNZ
	Mr D Scott	ACENZ
	Mr S Huggard	NZUSA
In attendance:	Mr L S Taiaroa	NZVCC (part of the time)
	Mrs A M Werren	NZVCC
	Dr A West	NZQA) for
	Ms K Colbert	NZQA) Item 11

12	Bachelor of Commerce and Administration / Bachelor of Arts	VUW/00	BCA/9 BA/45	na	na	Approved
UNIVERSITY OF CANTERBURY						
	Qualification	Univ. code	Proposal identification	Length*	PG Funding*	Resolved
1	Bachelor of Arts	UC/01	BA/1	na	na	Approved
2	Bachelor of Education	UC/01	BEd/1	na	na	Approved
3	Bachelor of Education	UC/01	BEd/2	na	na	Approved
LINCOLN UNIVERSITY						
	Qualification	Univ. code	Proposal identification	Length*	PG Funding*	Resolved
1	Graduate Diploma in Leisure Events Management	LU/01	GDipLEM/1	1	na	Approved
2	Bachelor of Tourism Management	LU/01	BTourMgt/1	3	na	Approved
3	Diploma in Conservation and Ecotourism Management	LU/01	DipCEM/1	2	na	Approved
4	Graduate Certificate in Maori Planning	LU/01	GCertMP/1	0.5	na	Approved
5	Graduate Diploma in Maori Planning	LU/01	GDipMP/1	1	na	Approved
6	Certificate in Maori Studies	LU/01	CertMS/1	1	na	Approved
7	Postgraduate Certificate in Indigenous Planning	LU/01	PGCertIP/1	0.5	na	Approved
8	Postgraduate Diploma in Indigenous Planning	LU/01	PGDipIP/1	1	na	Approved
9	Master of Maori and Indigenous Planning and Development	LU/01	MIPD/1	2	PG	Approved
UNIVERSITY OF OTAGO						
	Qualification	Univ. code	Proposal identification	Length*	PG Funding*	Resolved
1	Foundation Studies Certificate	UO-01	FoundStudCert-1	na	na	Approved
2	Bachelor of Health Sciences	UO-01	BHealSc-1	3	na	Approved
3	Bachelor of Health Sciences	UO-01	BHealSc-3 (Revised)	3	na	Approved backdated to 01.07.0
4	Bachelor of Medical Sciences	UO-01	BMedSc-1	(Hons) 1	PG	Approved
5	Postgraduate Diploma in Clinical Dentistry	UO-01	PGDipClinDent-1	1	PG	Approved
6	Master of Dental Surgery	UO-01	MDS-1	2	PG	Approved
7	Postgraduate Diploma in Health Sciences	UO-01	PGDipHealSc-1	1	PG	Approved
8	Postgraduate Certificate in Health Sciences	UO-01	PGCertHealSc-1	0.5	PG	Approved
9	Postgraduate Certificate in Health Sciences	UO-01	PGCertHealSc-2	0.5	PG	Approved
10	Postgraduate Certificate in Aeromedical Evacuation	UO-01	PGCertAerEv	0.5	PG	Approved
11	Master of Primary Health Care	UO-01	MPHC-1	2	PG	Approved
12	Postgraduate Certificate in Primary Health Care	UO-01	PGCertPHC-1	0.5	PG	Approved