




**STUDENT AND ACADEMIC SERVICES**

**MODULE SPECIFICATION**

Part 1: Basic Data					
Module Title	Radiotherapy Planning and Dosimetry				
Module Code	UZYS1X-15-2	Level	2	Version	2
Owning Faculty	Faculty of Health and Applied Sciences	Field	Allied Health Professions		
Contributes towards	BSc (Hons) Radiotherapy and Oncology				
UWE Credit Rating	15	ECTS Credit Rating	7.5	Module Type	Project
Pre-requisites	None		Co- requisites	None	
Excluded Combinations	UZYSEG-40-2 Clinical Oncology and radiotherapy Technology	Module Entry requirements	N/A		
Valid From	September 2017 (v2)	Valid to	September 2021		

<b>CAP Approval Date</b>	31 May 2017 (v2)
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Part 2: Learning and Teaching	
Learning Outcomes	<ul style="list-style-type: none"> <li>• Apply radiobiological principles that underpin radiotherapy prescriptions (Component A).</li> <li>• Compare methods of conforming to the target volume and apply parameters effectively for treatment planning (Component A).</li> <li>• Discuss quality control principles within radiotherapy treatment planning and dosimetry. (Component A)</li> <li>• Generate, evaluate and calculate radiotherapy treatment plans for a range of tumour sites (Component A).</li> <li>• Apply knowledge of regional and cross sectional anatomy for a range of tumour sites and evaluate how this anatomy impacts upon the treatment planning process (Component A).</li> </ul>
Syllabus Outline	<ul style="list-style-type: none"> <li>• Application of physics interactions, beam modification and dosimetry in the oncology setting</li> <li>• Application of tumour site-specific knowledge to treatment planning and application. For example forward and inverse planning and considerations for patient immobilisation and tumour mobility</li> <li>• Applied cross sectional imaging, integrating knowledge of patient immobilisation and organ/volume movement to optimise plan for</li> </ul>

	<p>organs at risk, tolerance doses and evaluate these factors with regard to treatment side effects.</p> <ul style="list-style-type: none"> <li>• Radiotherapy treatment planning and protocols to include ICRU guidance</li> <li>• General introduction to biological modelling, fractionation and volume effects. Introduction to statistical techniques of biological model data</li> <li>• Beam modelling for radiotherapy treatment planning, to include convolution/pencil beam and Monte Carlo approaches.</li> <li>• Error management and quality assurance systems in radiotherapy treatment planning</li> <li>• Preparation of plan for treatment delivery' within the multidisciplinary team. Consideration of paper light and paperless environments</li> </ul>																									
Contact Hours	<p>Students will engage in approximately 50 hours of contact time including key note lectures and practical sessions in small groups on the VERT system and planning computers (max 10 per group), minimum of 5 sessions required, but are expected to do additional self-study within their own time. In addition, email contact with staff is available throughout the module and during scheduled tutorial time.</p>																									
Teaching and Learning Methods	<p><b>Scheduled learning</b> includes lectures and seminars, practical sessions on the VERT system and radiotherapy planning computers. Formative assessment and feedback related to the assessment component will consist of group and independent planning practical tutorials. Students will require a minimum of 5 scheduled planning practical sessions.</p> <p><b>Independent learning</b> includes hours engaged with essential reading, completion of dosimetry planning portfolio and interactive online learning materials, assessment preparation.</p> <p>Formative assessment opportunities throughout the module will enable students to develop practical experience of undertaking a range of treatment planning tasks with feedback in preparation for the summative assessment.</p>																									
Key Information Sets Information	<p>Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which a requirement is set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are interested in applying for.</p> <table border="1" data-bbox="459 1563 1369 1951"> <thead> <tr> <th colspan="5">Key Information Set - Module data</th> </tr> <tr> <td colspan="5"><i>Number of credits for this module</i></td> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td style="border: 2px solid black; text-align: center;">15</td> </tr> <tr> <th>Hours to be allocated</th> <th>Scheduled learning and teaching study hours</th> <th>Independent study hours</th> <th>Placement study hours</th> <th>Allocated Hours</th> </tr> <tr> <td style="text-align: center;">150</td> <td style="text-align: center;">50</td> <td style="text-align: center;">100</td> <td style="text-align: center;">0</td> <td style="text-align: center;">150</td> </tr> </tbody> </table> <p style="text-align: right;"></p> <p>The table below indicates as a percentage the total assessment of the module which constitutes a -</p>	Key Information Set - Module data					<i>Number of credits for this module</i>									15	Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours	150	50	100	0	150
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**Written Exam:** Unseen written exam, open book written exam, In-class test  
**Coursework:** Written assignment or essay, report, dissertation, portfolio, project  
**Practical Exam:** Oral Assessment and/or presentation, practical skills assessment, practical exam

Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description:

Total assessment of the module:			
Written exam assessment percentage		0%	
Coursework assessment percentage		100%	
Practical exam assessment percentage		0%	
		100%	

Reading Strategy

Core reading

Any core reading will be indicated clearly, along with the method for accessing it, eg students may be expected to purchase a set text, be given a study pack or be referred to texts that are available electronically, or in the Library. Module guides will also reflect the range of reading to be carried out.

Further reading

All students are encouraged to read widely using the library search, a variety of bibliographic and full text databases and Internet resources. Many resources can be accessed remotely. Guidance to some key authors and journal titles available through the Library will be given in the module handbook and updated annually. Assignment reference lists are expected to reflect the range of reading carried out.

Access and skills

Students are expected to be able to identify and retrieve appropriate reading. This module offers an opportunity to further develop information skills introduced at Level 1. Students will be given the opportunity to attend sessions on selection of appropriate databases and search skills. Additional support is available through the library web pages, including interactive tutorials on finding books and journals, evaluating information and referencing. Sign-up workshops are also offered by the Library.

Indicative Reading List

The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. *Current* advice on additional reading will be available via the module handbook or Blackboard pages.

Bridge, P. and Tipper, D. (2011) CT anatomy for radiotherapy. [online] Keswick: M&K update ltd. [Accessed 13 November 2014].

British Institute of Radiology & Royal College of Radiologists (Great Britain) (2008) Towards safer radiotherapy, Royal College of Radiologists, London.

Department Of Health (2012) *Improving Outcomes: A strategy for cancer*. Available from: <https://www.gov.uk/government/publications/improving-outcomes-a-strategy-for-cancer>. [Accessed 15 September 2014]

Dobbs, J., Barratt, A., Morris, S., and Roques, T. (2009) *Practical Radiotherapy Planning* [online] 4<sup>th</sup> Ed. London: Hodder Arnold. [Accessed 15 September 2014]

Hoskins, P. (2012) *Radiotherapy in Practice: External Beam Therapy* [online] 2<sup>nd</sup> ed. Oxford: Oxford University Press. [Accessed 15 September 2014]

The Royal College of Radiologists, Society & College of Radiographers, Institute of Physics & Engineering in Medicine, On target: ensuring geometric accuracy in Radiotherapy London( 2008): the Royal College of Radiologists, Available at [http://www.rcr.ac.uk/docs/oncology/pdf/BFCO\(08\)5\\_On\\_target.pdf](http://www.rcr.ac.uk/docs/oncology/pdf/BFCO(08)5_On_target.pdf)

Sibtain, A., Morgan, A. & MacDougall, N. (2012), *Radiotherapy in practice: physics for clinical oncology*, Oxford University Press, Oxford.

Symonds, P. and Walter, J. (2012) *Walter and Miller's Textbook of Radiotherapy* [online] London: Churchill Livingstone. [Accessed 15 September 2014]

<b>Part 3: Assessment</b>	
<b>Assessment Strategy</b>	<p><b>Component A:</b> Dosimetry planning portfolio. Students will undertake 2 radiotherapy treatment plans which they will then critique with a supporting precis of 1000 words each. Rationale: To allow students to demonstrate knowledge and understanding of the radiotherapy treatment planning process, principles and protocols in order to produce a clinically acceptable treatment plan and meet the specified learning outcomes.</p> <p>Formative learning will take place throughout the module within the planning suite and VERT to provide practical experience of undertaking a range of treatment planning tasks in preparation for the summative assessment.</p>

Identify final assessment component and element	<b>Component A</b>	
% weighting between components A and B (Standard modules only)	A:	B:
<b>First Sit</b>		
Component A (controlled conditions) Description of each element	Element weighting	
1. Case study portfolio (2 X 1000 words)	100%	

<b>Resit (further attendance at taught classes is not required)</b>	
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b>
1. Case study portfolio (2 X 1000 words)	100%
If a student is permitted an <b>EXCEPTIONAL RETAKE</b> of the module the assessment will be that indicated by the Module Description at the time that retake commences.	

**FOR OFFICE USE ONLY**

First CAP Approval Date	30 April 2015		
Revision CAP Approval Date	31 May 2017	Version	2
<a href="#">Link to RIA 12319</a>			