



## Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from  
The University of Sheffield

1	<b>Programme Title</b>	Dental Technology
2	<b>Programme Code</b>	DENT37
3	<b>JACS Code</b>	B840
4	<b>Level of Study</b>	Postgraduate
5a	<b>Final Qualification</b>	Master of Science (MSc)
5b	<b>QAA FHEQ Level</b>	Masters (MSc)
6a	<b>Intermediate Qualification(s)</b>	Postgraduate Diploma 120 credits Postgraduate Certificate 60 credits
6b	<b>QAA FHEQ Level</b>	F7 (Masters)
7	<b>Teaching Institution (if not Sheffield)</b>	Not applicable
8	<b>Faculty</b>	Medicine, Dentistry and Health
9	<b>Department</b>	Clinical Dentistry
10	<b>Other Departments involved in teaching the programme</b>	None
11	<b>Mode(s) of Attendance</b>	Full-time
12	<b>Duration of the Programme</b>	1 year
13	<b>Accrediting Professional or Statutory Body</b>	None
14	<b>Date of production/revision</b>	February 2014 / December 2015 / January 2017 / February 2018

### 15. Background to the programme and subject area

Dental technology is changing rapidly with wide ranging technological advancements taking place as there are improvements in materials and the development of more advanced manufacturing processes.

The University of Sheffield's School of Clinical Dentistry is able to offer dental technicians and dentists the opportunity for education at Master's degree level in dental technology. The MSc in Dental Technology will provide students with a unique learning experience in advanced dental technology, new technologies and manufacturing processes in the dental laboratory. This programme provides an advanced level of education in dental technology and related research to dental technologists who desire higher education in areas such as Orthodontics, Fixed and Removable Prosthodontics, Professionalism and Dental Materials Science. Subjects are taught by leaders in the fields of Dental Materials and Dental Technology.

This program allows students to attend lectures and seminars offered by the Postgraduate program to gain a mutual understanding of comprehensive treatment planning and improve communication between dental technicians and dentists.

The programme aims to identify the changing needs demanded of dental technicians through an emphasis on the rapid developments taking place in dental technology. We aim to equip the students with the relevant skills needed for the modern dental technology workplace. Skills that dental technicians acquire are already international skills and are transferrable across communities but the techniques and materials that are available can often be more locally focused. The need for developing extremely high skills levels using traditional techniques and materials will be balanced with the acquisition of new skills in cutting edge manufacturing, techniques and materials.

Universities are adapting in many ways to the forces of globalisation and internationalisation of education. Use of the new manufacturing procedures within the curriculum is just one way in which we can ensure that our work has relevance in the modern dental laboratory. New and traditional technologies will be appropriately integrated into the programme to ensure that graduates develop the awareness and capabilities needed to perform effectively in the workplace after study at the University.

## 16. Programme aims

The aims of the programme are to:

1. provide teaching that is informed and invigorated by the research and scholarship of its staff;
2. provide the skills necessary for the student to be able to compete in the workplace at an advanced level;
3. develop in students an independence of thought and a critical approach to learning, theories and concepts used in dental technology;
4. enable students to build on their current technical skills and demonstrate academic rigour and excellence in all aspects of dental technology;
5. develop a broad understanding of dental technology together with a more detailed and critical understanding of their selected specialist area in dental technology;
6. develop in students a range of subject-specific and generic skills appropriate to employment both within and outside of the field of dental technology;
7. identify the changing needs demanded of dental technicians globally and within the student's own communities.

## 17. Programme learning outcomes

### Knowledge and understanding:

Upon successful completion of the programme students will have developed:

<b>K1</b>	A broad-based core-knowledge (including: dental public health, information technology, cross infection control, law, ethics and professionalism);
<b>K2</b>	In-depth knowledge of specific subject areas (including: advanced dental technology techniques, the evaluation of dental materials, health informatics and the structural and physical properties of materials. To also have the ability to produce work from the synthesis of different subject areas);
<b>K3</b>	A broad-based knowledge of the social and economic impact of the application of various dental technology techniques (including: targeting appropriate techniques for differing world economies);
<b>K4</b>	Demonstrate practical abilities, technical and material concepts and an ability to integrate knowledge across disciplines to achieve the optimum outcome for a dental appliance and have the ability to produce dental appliances from verbal and written instructions independently of help;
<b>K5</b>	A working and critical understanding of the relationship between the information base in the chosen dental technology subject areas and the theory that arises from it;
<b>K6</b>	A working knowledge of advanced dental laboratory techniques and their application;
<b>K7</b>	A working knowledge of dental terminology, nomenclature and classification;
<b>K8</b>	A deep knowledge of the ethical, legal and professional issues related to dental care professionals;
<b>K9</b>	An in depth understanding of the applicability of technical dental skills to different clinical situations.

If exiting with a PG Certificate students will have gained learning outcomes K1, K3, K7, K8.

If exiting with a PG Diploma students will have gained learning outcomes K1, K2, K3, K4, K7, K8, K9.

### Skills and other attributes:

Upon successful completion of the programme students will have developed:

<b>S1</b>	Recognise and apply practical concepts, principles and/or techniques to their work;
<b>S2</b>	Obtain and integrate practices from different specialisms;
<b>S3</b>	Design investigations that address focussed questions and interpret data in an objective, critical and informative manner;
<b>S4</b>	Exercise independent thought and judgement;
<b>S5</b>	Recognise the moral and ethical issues of a particular approach and appreciate the need for ethical standards and appropriate codes of conduct;

<b>S6</b>	Use factual knowledge of dental technology and, where appropriate, information technology to analyse and/or address complex technical dental issues;
<b>S7</b>	Critically analyse, synthesise, summarise and cite printed and electronic information;
<b>S8</b>	Recognise health and safety risks and devise safe systems of working;
<b>S9</b>	Collect, record, organise and/or analyse data to address technically based dental questions;
<b>S10</b>	Use commercial software for the analysis, design and presentation of information and/or data.

<b>Transferable skills:</b>	
Students will be able to:	
<b>T1</b>	Find and utilise electronic and printed information effectively;
<b>T2</b>	Communicate effectively in writing;
<b>T3</b>	Communicate effectively orally;
<b>T4</b>	Use AV presentation aids effectively;
<b>T5</b>	Manage projects;
<b>T6</b>	Identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles;
<b>T7</b>	Recognise and respect the views and opinions of other team members;
<b>T8</b>	Reflect on individual and group performance and adjust subsequent approaches;
<b>T9</b>	Negotiate effectively;
<b>T10</b>	Self-manage and have the skills underpinning life-long learning (time-management, independent learning, organisational skills);
<b>T11</b>	Make informed / justifiable decisions;
<b>T12</b>	Identify and work towards targets for personal, academic and career development;
<b>T13</b>	Develop an adaptable, flexible and effective approach to study and work;
<b>T14</b>	Appreciate the interdisciplinary nature of science;
<b>T15</b>	An ability to organise and manage practical and literary projects to a high standard.

### 18. Teaching, learning and assessment

#### **Development of the learning outcomes is promoted through the following teaching and learning methods:**

The main teaching and learning methods adopted for each learning outcome are shown below. In most cases a combination of methods is used. Skills are acquired mainly through self-directed, assessed work conducted during lecture modules, laboratory classes and group projects. In the research project, more emphasis is placed on student centred learning exercises (SCLEs), seminars and project work (small group and individual) as methods by which knowledge and understanding are gained and skills are acquired and improved. Observation of clinical methods and team working, with a strong emphasis on self-directed, autonomous use of acquired skills and the need to work efficiently in groups or as part of a team, develops transferable skills that will serve our students well.

#### **Opportunities to demonstrate achievement of the learning outcomes are provided through the following assessment methods:**

See table below

Learning Outcome (abbreviated, see section17)	TEACHING AND LEARNING METHODS								
	lectures	seminars	Tutorials	workshops	Problem based learning	Computer based information processing	Laboratory work	Research project	
K1 Core knowledge	<input type="checkbox"/>								
K2 Specific detailed knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
K3 Impact and application			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
K4 Integration of concepts/facts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
K5 Theory generation and testing			<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
K6 Advanced dental techniques	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
K7 Terminology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
K8 Ethics and philosophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
K9 Application of skills					<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
S1 Application of core principles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
S2 Integration of technical principles			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
S3 Experimental design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S4 Independent thought/judgement				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S5 Ethical and moral issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6 Problem solving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S7 Literature evaluation and synthesis			<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
S8 Risk assessment	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>	
S9 Data generation and analysis					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S10 Software use					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T1 Information retrieval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T2 Written communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T3 Oral communication			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T4 AV use						<input type="checkbox"/>		<input type="checkbox"/>	
T5 Project management					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T6 Goal identification				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T7 Teamwork					<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
T8 Self assessment					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T9 Negotiation						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T10 Self-management and life long learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T11 Informed decision making			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T12 Personal, academic and career development			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T13 Flexible and effective working					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T14 Interdisciplinarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
T15 Professional project management					<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

## 19. Reference points

The learning outcomes have been developed to reflect the following points of reference:

### External

The Framework for Higher Education Qualifications in England, Wales and Northern Ireland, Quality Assurance Agency for Higher Education (2001) <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/The-framework-for-higher-education-qualifications-in-England-Wales-and-Northern-Ireland.aspx>

The General Dental Council's standards on the training of Dental Technicians

The General Dental Council's lifelong learning statements good knowledge of basic clinical techniques and terminology relating to complete and partial dentures: <https://www.gdc-uk.org/professionals/cpd>

### Internal

<https://www.sheffield.ac.uk/ourplan>

<http://www.sheffield.ac.uk/als/strategy> Departmental Research Interests  
(<http://www.sheffield.ac.uk/dentalschool/research>)

In assessing the learning outcomes, the level of performance, e.g. the extent of knowledge and depth of understanding, will be compliant with guidance given in the above references.

## 20. Programme structure and regulations

The programme is divided into 6 core modules (Postgraduate Diploma 120 credits) covering the subjects that underpin the subject of Dental Technology, plus a research project/dissertation module of 60 credits required for the award of the Masters Degree. A candidate who has been awarded not less than 60 credits from the core modules shall be eligible for the award of Postgraduate Certificate in Dental Technology.

## 21. Student development over the course of study

<b>Semester 1</b>	In semester 1 the students will undertake core subjects relevant to the field of dental technology, e.g. Dental Materials Science, Research Problems & Approaches and Dental Laboratory Governance. Students will be introduced to a broad range of theory, foundation skills and data collection methods that build on and consolidate skills and knowledge acquired previously. The student will develop information processing and data interpretation skills (ORP608) and will build a solid base for conceptual thinking, logical argument, professional judgment (Dental Laboratory Governance), communication skills, teamwork and skills for life-long learning (Dental Laboratory Governance).
<b>Semester 2</b>	Semester 2 brings in advanced technological procedures and builds on the specialist subject areas of dental technology that dental care professionals would be expected to have an in depth knowledge of at this level. The modules at this level, permits students to broaden and deepen their interests whilst developing greater laboratory based skills. Students also develop greater technological skills (Introduction to Digital Dentistry and Dental Manufacturing),

<b>Research project</b>	Running across both semesters it is expected that the student will identify a research question/problem or area, investigate and fully answer the area of interest that they have identified using the skills gained previously. The research project will develop knowledge, understanding and a critical approach to evidence, theories and concepts and utilise a range of teaching and assessment methods appropriate to their learning aims.
-------------------------	---

## 22. Criteria for admission to the programme

Detailed information regarding admission to the programme is available at [http://www.sheffield.ac.uk/dentalschool/masters/dental\\_technology](http://www.sheffield.ac.uk/dentalschool/masters/dental_technology)

### 23. Additional information

The Dental School in Sheffield was first established in the early 1900s and Sheffield University has been awarding a degree in Dental Surgery since 1922. The current Dental School building was opened in 1992.

On the ground floor of the School you will find our 120-seat lecture theatre which was upgraded in 2007 and is equipped with up-to-date audio visual equipment. There are also six seminar/tutorial rooms, an IT Suite with 20 workstations and an internet café / common room. If you need it, the School has wireless connectivity.

On the second floor of the School there is a 54-unit recently upgraded Clinical Skills Laboratory with a dental chair for demonstrations via a live video link and computers offering computer aided learning packages. In the annexe to the School, we have a newly refurbished 40-unit Dental Technology Laboratory with associated materials processing facilities.

In 2009 the School opened a new wing which houses purpose-built and state of the art research laboratories for cell and tissue culture, microbiology, electron microscopy, histology, histochemistry and immuno-cytochemistry, biochemistry, molecular biology, proteomics and materials science.

The Dental School is connected to the recently redeveloped Charles Clifford Dental Hospital. Completed in 2009, the redevelopment included the upgrading of many areas within the hospital including new clinical facilities.

The various clinical departments are equipped with dental units in both open clinics and small side clinics. Facilities for treatment under inhalation anaesthesia as well as conscious sedation and recovery are available. The Dental Hospital has a well equipped radiography department and we also have our own oral pathology laboratories which provide support services for all clinical areas. A dental production laboratory supports both undergraduate and postgraduate teaching and learning as well as providing National Health Service treatment. All these clinical facilities are used by undergraduate and postgraduate dental students. All students are provided with clinical attire. Changing rooms and canteen facilities are available in the basement of the Dental Hospital.

For further information prospective students are directed to the School web pages at <http://www.sheffield.ac.uk/dentalschool/index>

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at <http://www.shef.ac.uk/ssid>.