# For entrants in FY 2020

Appended Form 1

### Specifications for Major Program

Name of School (Program) [School of Dentistry, Program of Oral Health Sciences]

Program name	(Japanese)	口腔工学プログラム
	(English)	Program of Oral Engineering

1. Degree to be obtained: Bachelor of Oral Health Sciences

#### 2. Overview

The Program for Oral Health Science provides two courses (Course of Oral Science and Course of Oral Engineering) to educate students to become researchers, educators, or highly advanced medical staff in the area of oral health sciences while liaising with other areas such as medicine, engineering, and nursing in a manner based on scientific evidence. The Course of Oral Engineering aims to enable students to acquire knowledge, skills, and attitudes regarding medicine, dentistry, and engineering, from the basics to the cutting-edge, in order to be able to contribute to the fields of dental medicine and medical care with advanced techniques, knowledge, and rich humanity in line with changes in society and future development in the sciences. The educational program provided in this course educates medical staff in fields of highly advanced oral engineering, researchers in areas of oral health science, dental technicians, and educators.

- 3. Diploma policy (policy for awarding degrees and goal of the program)
- Course of Oral Engineering educates students to be able to integrate knowledge and skills regarding dentistry, medicine, and engineering to work in the following positions in oral engineering:
- Dental medical staff, with the mindset of researchers, and business people, researchers, and educators with a clinical mindset;
- Oral engineers who can work in international fields;
- Educators and researchers who can pioneer fields of oral engineering and establish, systematize, and develop them to a highly specialized level; or
- Medical staff, educators, and researchers with a deep devotion to humanity, ethics, a deep human spirit, and a decisive sense of responsibility.
- Based on the aims above, this program will award the degree of bachelor of oral health sciences to students who have acquired the capabilities described below and earned the required credits for the educational course.
- (1) The ability to integrate and exercise knowledge and skills regarding liberal arts subjects, dental technology, basic dental medicine, clinical dental medicine, adjacent medicine, and related areas

of engineering;

- (2) The normative awareness and manner, together with the knowledge, skills, and communication abilities required for medical staff, and a capability for establishing good relationships with patients and staff, and contributing to patient-oriented team dental medicine; and
- (3) The ability to take a leading role in research, education, and clinical fields related to oral engineering, based on state-of-the-art knowledge, advanced skills, information gathering skills, problem solving abilities, an inquiring scientific mind, research capabilities, logical thinking skills, and an ability for lifelong study.
- 4. Curriculum policy (policy for arranging and implementing the curriculum)
  To enable students to achieve the targets that are defined for Course of Oral Engineering, the educational course is organized and implemented according to the following policies:
- (1) In the first year, students study liberal arts subjects, together with students in other schools, in order to acquire a wide-ranging intelligence and establish the intellectual foundation required for dental medical staff. In addition to this, through PBL (Problem Based Learning) in the liberal arts seminars, students also acquire the basic attitude, skills, and knowledge required for self-disciplined study. Furthermore, they acquire fundamental knowledge regarding specialized areas in order to establish the foundation for enhancing professional knowledge and skills.
- (2) From the second to the fourth year, students study specialized subjects to acquire expertise and specialized skills. The specialized subjects include not only those related to dental technicians but also those regarding basic sciences such as life science, dentistry, and adjacent medicine.
- (3) In the third and fourth terms of the third year and in the fourth year, students take the subject "Clinical Practice in Oral Health Engineering" that is provided at the university hospital in order to practice the knowledge and skills that they have acquired up to this time. Students are expected, through this practice, to learn skills and knowledge regarding the tasks of an oral engineer, specialized dental medicine, general dental medicine, and team medicine at a university hospital, and to acquire communication abilities, the normative awareness and manner required for medical staff, social skills, a cooperative mindset, and sound judgment.
- (4) In the third and fourth terms of the third year and in the fourth year, students take the subject "Special Study for Graduation" to acquire information gathering skills, problem solving abilities, research capabilities, logical thinking skills, and presentation skills, and to foster an inquiring scientific mind, positiveness, flexibility, creativity, and patience.
- (5) This course provides a bio-dental education program and IPE that aims to educate students to foster their scientific inquiring mind and acquire advanced knowledge and medical techniques that make them capable of cooperating with experts in various professions.

Academic achievement is evaluated based on the grade scores for the subjects and the achievement level against the target defined for each educational program.

#### 5. Start time and acceptance conditions

In the first year (when the student enters the university)

In the Program for Oral Health Science, the entrance examination is held for each course. This course is organized only for students who enter the Course of Oral Engineering in the Program for Oral Health Science in the School of Dentistry.

#### 6. Obtainable qualifications

Qualification for the national examination for dental technicians (awarded when the student graduates.)

Students who have earned the credit specified separately are eligible to be awarded the degree in cell culture engineering certified by the Japanese Tissue Culture Association; and to obtain the Basic Grade 2 Certificate for Rehabilitation Make-up from Reiko Kazki Co., Ltd.

# 7. Class subjects and their contents

- \* For the class subjects, refer to the subject table in Attached Sheet 1.
- \* For the details of the class subjects, refer to the syllabus that is published for each academic year.

#### 8. Academic achievement

The evaluation criteria are specified for each evaluation item for academic achievement, and the achievement level against the criteria is designated at the end of each semester.

The evaluation score for each evaluation item is converted to a numerical value (S = 4, A = 3, B = 2, and C = 1) and the evaluation standard for academic achievement, from when the student entered the university to the end of the last semester, is determined using these values while applying weightings. The evaluation standards consist of three levels, i.e. Excellent, Very Good, and Good.

Achievement evaluation	Numerical conversion
S (Excellent: 90 or more points)	4
A (Very good: 80 - 89 points)	3
B (Good: 70 - 79 points)	2
C (Passed: 60 - 69 points)	1

Academic	Evaluation
achievement	standard
Excellent	3.00 - 4.00
Very Good	2.00 - 2.99
Good	1.00 - 1.99

- \* Refer to the relationship between evaluation items and evaluation criteria described in Attached Sheet 2.
- \* Refer to the relationship between evaluation items and class subjects described in Attached Sheet 3.
- \* Refer to the curriculum map in Attached Sheet 4.

Study achievement in the course (specific knowledge, skills, and attitude that students can obtain)

- Knowledge & understanding
- 1. Knowledge and understanding related to liberal arts such as human and natural sciences
- 2. Knowledge and understanding related to foreign languages and culture
- 3. Knowledge and understanding related to the principles of medicine
- 4. Knowledge and understanding related to the basic attitude required for dental medical staff (dental technicians)
- 5. Knowledge and understanding related to social dentistry
- 6. Knowledge and understanding related to life science
- 7. Knowledge and understanding related to dental materials and biomaterials
- 8. Knowledge and understanding related to the prevention, medical examination, medical testing, diagnosis, and treatment of disease in areas of dentistry and adjacent medicine
- 9. Knowledge and understanding related to the specialized fields of dental technicians (dental technology)
- 10. Knowledge and understanding related to engineering (information processing, CAD/CAM, ME (medical engineering), system engineering, and management science)
- o Abilities and skills
- 1. Communication skills required for dental medical staff (dental technician)
- 2. Abilities and skills related to life science, material science, and social dentistry
- 3. Abilities, skills, and attitudes related to prevention, medical examination, medical testing, diagnosis, and treatment of disease in the regions of the mouth, jaw, and face
- 4. Abilities, skills, and attitude required for practically applying techniques in the specialized fields

of dental technicians (dental technology) as a member of a dental medical team

- 5. Abilities and skills required for applying related engineering (information processing, CAD/CAM, ME (medical engineering), system engineering, management science, and bio-technology)
- Comprehensive capability
- 1. Comprehensive capability and attitude for autonomously and positively studying for the whole of one's life as a member of dental medical staff (dental technician)
- 2. Comprehensive capability and attitude related to medical testing, diagnosis, treatment, and prevention of disease in the regions of the mouth, jaw, and face
- 3. Comprehensive capability and attitude required for practically applying techniques in the specialized fields of dental technicians (dental technology)
- 4. Comprehensive capability for gathering, selecting, logically organizing, and presenting information
- 5. Comprehensive capability required for problem identification, research planning and promotion, results analysis, and presentation of results in a field related to oral engineering
- 9. Graduation thesis (graduation research) (meaning, student allocation, timing, etc.) Students are required to prepare their graduation theses.

#### 1 Purpose

To enable students to establish a foundation of knowledge and techniques required for research, in order to allow them to make a smooth start in their research at a higher level when they enter the graduate school.

#### 2 Overview

Students are allocated to one of the departments, i.e. Anatomy and Functional Restorations, Medical System Engineering, and Oral Biology and Engineering. The contents of research vary depending on the department. The details of each department are introduced in the guidance of "Special Study for Graduation." Students join cutting-edge research activities in which the faculty is engaged, or identify a problem regarding oral health sciences by themselves and conduct the research to solve it. They are expected to acquire information gathering skills, problem solving abilities, research capabilities, and logical thinking skills through this process.

# 3 Student allocation timing and method

Students are allocated to the department in the second semester of the third year. Although the allocation method is separately defined, a great deal of importance is attached to the wishes of the student.

#### 10. Responsibility

The dental department headquarters council and the faculty council of the School of Dentistry are engaged in the planning and execution of this course. For the processes of evaluation and action for improvement, the dean of the School of Dentistry consults with the dental department headquarters council and the faculty council of the School of Dentistry, and carries out the required actions while taking the results of consultations into consideration.

# Table of Registration Standards for Liberal Arts Education Subjects, School of Dentistry

# <Program of Oral Engineering>

T y p e			Subject ty	ype	Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration
		Pea	ce Science	Courses	2		2	Elective/ required
	Basic Courses in University Education	Intro	duction to U	University Education	2	Introduction to University Education	2	Required
	Basic C in Uni Educ		Liberal A	rts Education	2	Introductory Seminar for First-Year Students	2	Required
					2	General Health and Oral Sciences I	2	Required
			Area	Courses	2	General Health and Oral Sciences II	2	Required
					4	From Courses in Arts and Humanities / Social Science	3	Elective/ required
				G	2	Communication Basic I	1	
		cts		Communication Basic	2	Communication Basic II	1	
	bjects	Subje	E C.L	Communication I	2	Communication IA	1	Required
	ns u	age (	English	Communication I	2	Communication IB	1	(Note 1)
	Common subjects	Foreign Language Subjects		G : :: #	2	Communication IIA	1	
	ర	ign I		Communication II	2	Communication IIB	1	
Liberal Arts Education Subjects		Fore	Initial P	rogram Languages	4	From Basic Languages Subjects		Elective/ required (Note 2)
lucation		In		and Data Sciences abjects	2	Elements of Information Literacy	2	Required (Note 3)
rts Ec			Health and	Sports Subjects	2			Elective/ required
eral A		<u> </u>			2	Psychology for Medical Care Workers	2	Required (Note 4)
Lib					2	Development of International Collaboration in Medica Science	2	Required
						Foundation biology for life science(Note 6)	2	
						Cell Science	2	
						Anatomy for Understanding Human Being I	1	Elective/
					4	Anatomy for Understanding Human Being II	1	required
			Basic Subj	ects		General Chemistry	2	(Note 5)
						Foundation physics for life science (Note 6)	2	
						Fundamental Physics I	2	
					2	Basic Calculus or Foundation Mathematics for Life science (Note 6)	2	Required
					2	Basic Linear Algebra	2	1
					2	Statistics	2	Elective/ required (Note 7)
			Total		42			

- Note 1: You can substitute the credits which you have obtained by taking the "Field Research in the English-speaking World" based on shortterm language study abroad or other relevant program, or by taking the "Online English Course I, II & III" based on self-learning for English credits (6 credits) necessary for graduation. Also, there is a Credit Transfer System based on foreign language proficiency tests and language training.
- Note 2: You have to select one language from German, French and Chines
- Note 3: When failing to earn the credit for "Elements of Information Literacy" is allowed to take the other "Information and Data Sciences Subjects".
- Note 4: When failing to earn the credit for "Psychology for Medical Care Workers" is the credit for the subject "Psychology A" or "Psychology B" accepted as that for the information subjects required for graduation (2 credits).
- Note 5: It is required to choose two groups from the subject groups of biology, chemistry, and physics and to earn credit for one subject for each chosen group.
- Note 6: The subjects for which credit is required to be earned are specified in the School of Dentistry. The credit for any subject that is not specified is not accepted as the credit required for graduation.
- Note 7: When failing to earn the credit for "Statistics" is allowed to substitute the credit for another Basic Subjects.

Table of Registration Standards for Specialized Education Subjects, School of Dentistry

<Program of Oral Engineering>

			Minimum	A nui	nber o	f neces	sary cı	edits b	y year	and ser	nester	
ubject type		Class Subject	No. of credits		1		2	:	3	4	1	Note
турс			required	1	2	3	4	5	6	7	8	
	0	Anatomy and Oral Anatomy	2	2								
	0	Tooth Morphology	1			1						
	0	Basic Class of Oral Science	1			1						
	0	Oral Histology	2			2						
	0	Practice on Oral Anatomy I	1			1						
SS	0	Practice on Oral Anatomy II	1				1					
arse	0	Stmatognathic System and Function	2			2						
ပိ	0	Practice on Stmatognathic System and Function	1			1						
ized	0	Physiology and Oral Physiology	2		2							
cial	0	Pharmacology and Dental Pharmacology	2			2						
Spe	0	Microbiology and Oral Microbiology	2			2						
Basic Specialized Courses	0	Pathology and Oral Pathology	2			2						
Ba		Immunology	1			1						
		Dental Health	2			2						
	0	Social Dentistry	1				1					
	Ť	Clinical Medicine	2					2				
	0	Medical Ethics	1			1		_				
	0	Basic Biochemistry	2			2						
	0	Oral Surgery and Anesthesiology I	1					1				
	0	Oral Surgery and Anesthesiology II	1					1				
	0	Endodontology	1				1	1				
	0	Periodontology	1				1					
	_	Team Care for Oral Health	1				1	1				
	0		2					2				
	0	Dentistry for Persons with Disabilities										
	0	Lifestyle-related Dentistry and Geriatric Dentistry	2					2		,		
	0	Laws and Regulations for Dental Technicians (included Social Security System)	1							1		
	0	Quality and Safety Management in Dentistry	1				2	1				
	0	Medical Informatics	2				2					
	_	Curriculum Design of Dental Hygienists and Dental Technicians Education	1						1			
	0	Health Science on Sports Dentistry and Temporomandibular	1					1				
	0	Dental Material	1			1						
	0	Biomaterials	1			1						
	0	Practice on Biomaterial	1			1						
	0	Practice on Applied Biomaterial	1								1	
×	0	Precision Casting Science	2			2						
ırse	0	Practice on Precision Casting Science	1				1					
Cor	0	CAD/CAM System Engineering	1		1							
zeq	0	Medical System Engineering	1					1				
iali	0	Practice of Information System Engineering	1			1						
Specialized Courses	0	Practical Training on Digital Dentistry	1						1			
S	0	Overview of Oral Engineering	2					2				
	0	Medical Equipment	1				1					
	0	Pediatric Dentistry	1					1				
	0	Practice of Pediatric Dentistry	1						1			
	0	Orthodontics	2					2				
	0	Practice of Orthodontics I	1						1			
	0	Practice of Orthodontics II	1						1			
	0	Crown Restoration and Health Engineering I	1		1							
	0	Crown Restoration and Health Engineering II	2			2						
	0	Crown Restoration and Health Engineering III	1				1					
	0	Practice in Crown Restoration and Health Engineering (Inlay)	1			1						
	0	Practice in Crown Restoration and Health Engineering (Crown I)	1				1					
	0	Practice in Crown Restoration and Health Engineering (Crown II)	1				1					
	0	Practice in Crown Restoration and Health Engineering (Bridge I)	1					1				
	0	Practice in Crown Restoration and Health Engineering (Bridge II)	1					1				
	Ť	Practice in Crown Restoration and Health										
	0	Engineering (Facing Crown and Implant	1					1				
1	1	Superstructure I)	I									

<Program of Oral Engineering>

c 1:				Minimum	A nui	mber o	f neces	sary cr	edits b	y year	and se	mester	
Subject type			Class Subject	No. of credits		1		2		3		4	Note
туре				required	1	2	3	4	5	6	7	8	
		0	Practice in Crown Restoration and Health Engineering (Facing Crown and Implant Superstructure II)	1					1				
		0	Practice in Crown Restoration and Health Engineering	1								1	
		0	Removable Denture and Health Engineering (Complete Denture)	2		2							
		0	Removable Denture and Health Engineering (Partial Denture)	2			2						
		0	Practice of Removable Denture and Health (Complete Denture)	2				2					
		0	Practice of Removable Denture and Health (Partial Denture)	2				2					
Specialized Education Subjects		0	Practice of Removable Denture and Health (Anaplastology I)	1					1				
iubj	es	0	Practice of Removable Denture and Health (Anaplastology II)	1					1				
Suc	Courses	0	Practice of Removable Denture and Health (Implant Superstructure)	1						1			
catio	ٽ آ	0	Practice of Removable Denture and Health	1								1	
Edu	ızec	0	Esthetic Dentistry	1				1					
ed ]	Specialized	0	Practice on Medical Design and Engineering	1								1	
ializ	Spe	0	Practice of Oral Process Engineering	1								1	
bec		0	Clinical Practice in Oral Health Engineering	13						1	6	6	
S		0	Medical Design Engineering I	1						1			
		0	Medical Design Engineering II	1						1			
		0	Disaster Dentistry and Forensic Odontology	1						1			
		0	Dysphagia Rehabilitation	1					1				
		0	Special Study for Graduation	9						6	2	1	
			Special Course in Rehabilitation Make Up	1					1				
		0	Research Start-Up	1				1					
		0	Biodental English	2					2				
To	otal			113	2	6	29	16	24	15	9	12	

indicates required subjects

# Necessary credits for graduation: 155 credits

Liberal Arts Education Subjects		Specialized Education Subjects	
Peace Science Courses	2 credits	Basic Specialized Courses	23 credits
Basic Courses in University Education	4 credits	Specialized Courses	90 credits
Common subjects			
Area Courses	8 credits		
Foreign Languages			
English	6 credits		
Non-English Foreign Languages	4 credits		
Information and Data sciences Subjects	4 credits		
Health and Sports Courses	2 credits		
Foundation Courses	12 credits		
Liberal Arts Education Subjects	42 credits	Specialized Education Subjects	113 credits

# Academic achievements of Program of Oral Engineering Relationships between the evaluation items and evaluation criteria

		Academic achievements		Evaluation criteria	
		Evaluation items	Excellent	Very Good	Good
	(1)	Knowledge and understanding of liberal arts such as humanities and natural science	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
	(2)	The knowledge and understanding on foreign languages and culture	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
	(3)	Knowledge and understanding on principles of medicine	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
ling	(4)	Knowledge and understanding of basic behavior as a dental professional (a dental technician)	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
erstanc	(5)	Knowledge and understanding of social dentistry	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
d Und	(6)	Knowledge and understanding of life science	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
dge an	(7)	Knowledge and understanding of dental materials and biomaterials	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
Knowledge and Understanding	(8)	Knowledge and understanding of diseae prevention, treatment, diagnosis, and medical check-up concerning dentistry and other related studies	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
	(9)	Understanding and knowledge of dental technician (dental technology)	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
	(10)	The knowledge and understanding on related engineering (information processing, CAD/CAM, ME(medical engineering), system engineering, management)	Being able to correctly explain all contents of each subject, and develop them deepening the learning.	Being able to correctly explain all contents of each subject.	Being able to explain almost all contents of each subject.
	(1)	Communication skills as a dental professional (a dental technician)	To attend hands-on training and other exercises with basic knowledge which is learned ahead of time. Also, participate proactively in these activities, intending to further develop studies. In addition, with regard to reports, to be able to consider phenomenon objectively and to have the ability to objectively assess future tasks.	To attend hands-on training with good attitudes. Also, to further develop what students learn in the training based on principles. In addition, to be able to consider phenomena subjectively in reports.	To be able to develop what students learn in hands-on training. Also, to attend these activities with good attitudes. Also, to be able to describe phenomena subjectively.
	(2)	Abilities and skills concerning life science, materials technology, and social dentistry	To attend hands-on training and other exercises with basic knowledge which is learned ahead of time. Also, participate proactively in these activities, intending to further develop studies. In addition, with regard to reports, to be able to consider phenomenon objectively and to have the ability to objectively assess future tasks.	To attend hands-on training with good attitudes. Also, to further develop what students learn in the training based on principles. In addition, to be able to consider phenomena subjectively in reports.	To be able to develop what students learn in hands-on training. Also, to attend these activities with good attitudes. Also, to be able to describe phenomena subjectively.
Abilities and Skills	(3)	The ability skills and attitude related to prevention examination diagnosis treatment of diseases in oral maxillofacial region	To attend hands-on training and other exercises with basic knowledge which is learned ahead of time. Also, participate proactively in these activities, intending to further develop studies. In addition, with regard to reports, to be able to consider phenomenon objectively and to have the ability to objectively assess future tasks.	To attend hands-on training with good attitudes. Also, to further develop what students learn in the training based on principles. In addition, to be able to consider phenomena subjectively in reports.	To be able to develop what students learn in hands-on training. Also, to attend these activities with good attitudes. Also, to be able to describe phenomena subjectively.
	(4)	The capacity and attitude necessary for practicing specialized fields of dental technicians (dental technique) as a dental team	To attend hands-on training and other exercises with basic knowledge which is learned ahead of time. Also, participate proactively in these activities, intending to further develop studies. In addition, with regard to reports, to be able to consider phenomenon objectively and to have the ability to objectively assess future tasks.	To attend hands-on training with good attitudes. Also, to further develop what students learn in the training based on principles. In addition, to be able to consider phenomena subjectively in reports.	To be able to develop what students learn in hands-on training. Also, to attend these activities with good attitudes. Also, to be able to describe phenomena subjectively.
	(5)	The ability and skills to apply related engineering (information processing, CAD/CAM, ME(medical engineering), system engineering, management, biotechnology)	To attend hands-on training and other exercises with basic knowledge which is learned ahead of time. Also, participate proactively in these activities, intending to further develop studies. In addition, with regard to reports, to be able to consider phenomenon objectively and to have the ability to objectively assess future tasks.	To attend hands-on training with good attitudes. Also, to further develop what students learn in the training based on principles. In addition, to be able to consider phenomena subjectively in reports.	To be able to develop what students learn in hands-on training. Also, to attend these activities with good attitudes. Also, to be able to describe phenomena subjectively.
	(1)	Comprehensive learning ability and behavior as a dentist, which is to voluntarily learn over a course of life	As a dental technician, to be able to learn independently, proactively, and continuously.	As a dental technician, to be able to learn independently and proactively.	As a dental technician, to be able to learn independently.
bilities	(2)	The general ability and attitude in related to investigation, diagnosis, treatment and prevention in oral maxillofacial region	Being able to generalize knowledge in related to investigation, diagnosis, treatment and prevention in oral maxillofacial region and make an appropriate action and judgement.	Being able to generalize knowledge in related to investigation, diagnosis, treatment and prevention in oral maxillofacial region and make an appropriate action and judgement.	Being able to generalize knowledge in related to investigation, diagnosis, treatment and prevention in oral* maxillofacial region.
ensive Al	(3)	The comprehensive capacity and attitude necessary for practicing specialized fields of dental technicians (dental technique) as a dental team	Being able to conduct dental techniques thinking of necessary needs and encouraging appropriately based on understanding each professional roles.	Being able to conduct dental techniques encouraging appropriately based on understanding each professional roles.	Being able to conduct dental techniques acknowledging being a member of a team
Comprehensive Abilities	(4)	Comprehensive ability to separate necessary and unnecessary information, summarize and output it	To be able to collect, logically summarize and analyze required data. After that process, to be able to extract problems, consider solutions and present	After collecting, logically summarizing and analyzing information, to be able to output it with speculation.	To be able to output information which are collected and summarized.
	(5)	The general ability necessary to discover the issues on oral engineering and conduct research planning promotion result analysis result presentation	Being able to discover oral engineering issues and plan *promote the research, as well as analyze and present the results.	Being able to discover oral engineering issues and plan *promote the research, as well as present the results.	Being able to plan present the research on oral engineering issues.

Students are expected to form the academic foundation required for specialized education, study wide range of subjects regarding human and social sciences and foreign languages, acquire knowledge, and foster an intellectual curiosity and the ability to take action. In addition, they are expected to acquire communication skills, a

													:										E	valuati	on item	ıs				. ~														To
					L .	(1)		(2)		(2)					d Unde			7)	(5	2)	(6	))	(1	0)	(1)	`	(2)		ilities and	l Skills			(5)		(1)					Abilitie		1 /	5)	w
halada d			oe of		Weighte	(1)	Weigh	(2)	Weig	(3)	Weig	(4)	Weighte	(5) : [	Weighte	6) I	Weighte	7)	(8 Weighte	ĺ	(S Weighte		(1 Weighte	,	(1) Weighte	,	(2) Weighte		(3) Weighte	Weig	(4)	w	(5)	Weigh	(1)	Weigh	(2)	Weight	(3)	Weight	(4)	Weighte	(5)	_d
ubject type		dits regi	urse stratio n	emesters	of evaluati n items in the subject	Weighte dvalues o of	e dvalue of evalua io n items	weight dvalue atio of s evalua n item	nte dvalues of evaluation iten	dvalue of evalue n item	ghte dvalu ues of evalu uatio n iten	dvalues atio of evaluat n items	te dvalues s of evaluati	Weighte dvalues o of evaluation	dvalues of evaluatio n items	evaluatio	dvalues of evaluatio	Weighte dvalues of evaluatio n items	dvalues of evaluatio	Weighte dvalues of evaluatio n items	dvalues of evaluatio n items	Weighte dvalues of evaluatio n items	dvalues of evaluatio n items	Weighte dvalues of evaluatio n items	dvalues W of d evaluatio o n items e	Weighte of Ivalues of of calculation in items in	dvalues W of dv evaluatio of n items ev	eighte values f valuatio	dvalues Wei of dval evaluatio of n items eval	ghte dvalues of evaluation in the subjection	ues Weig dvaluatio of ms evalue n iter	ghte dva ues of eva uatio n in ms in t	alues Weigl dvalue aluatio of tems evalue	of evaluation items	s Weigh dvalue tio of s evalua n item:	te dvalue	weight dvalues tio of s evaluat n items	te dvalues s of evaluat tio n items	dvalues tio of evaluat n items	te dvalues s of evaluati tio n items	Weighte dvalues io of	dvalues of evaluation n items	Weighte dvalues	s or
	Peace Science Courses 2	2 Req	uired	3	100	1																																						
	Basic Courses in University Education 4	4 Req	uired	1	100	1																																						
beral Art	Area Courses 8	8 Req	uired	1,2	100	1																																						
ducation		0 Req	uired	1,2			100	1																																				
Subjects	Information and Data Sciences Subjects 4	4 Req	uired	1,2																			100	1																				
	Health and Sports Subjects 2	2 Req	uired	1,2	100	1																																						
	Basic Subjects 1	0 Req	uired	1,2	100	1																																						
	Anatomy and Oral Anatomy 2	2 Req	uired	1											100	1																												
	Tooth Morphology	1 Req	uired	3											100	1																												
	Basic Class of Oral Science	1 Req	uired	3											100	1																												
	Oral Histology 2	2 Req	uired	3											100	1																												
	Practice on Oral Anatomy I	1 Req	uired	3																										10	00 1													
	Practice on Oral Anatomy II	1 Req	uired	4																										10	00 1													1
	Stmatognathic System and Function 2	2 Req	uired	3																	100	1																						
	Practice on Stmatognathic System and Function	1 Req	uired	3																										10	00 1	1												
	Physiology and Oral Physiology 2	2 Req		2											100	1																												T
	Pharmacology and Dental Pharmacology 2	2 Req	uired	3															100	1																								T
	Microbiology and Oral Microbiology 2	2 Req	uired	3											100	1																												
		2 Req		3															100	1																								T
	Immunology 1		ree	3											100	1																												T
	Dental Health 2	, F	ree	4															100	1																								T
	Social Dentistry 1		uired	4									100	1																														
	Clinical Medicine 2	, F	ree	6															100	1																								
	Medical Ethics 1	1 Req		3					10	0 1	ı																																	t
	Basic Biochemistry 2	2 Req		3											100	1																												
	Oral Surgery and Anesthesiology I 1	1 Req		5															100	1																								
pecialized	Oral Surgery and Anesthesiology II	1 Req	<del></del>	5															100	1																								
Education Subjects	Endodontology 1		uired	4															100	1																								t
Buojeets	Periodontology 1	_	uired	4															100	1																								t
	Team Care for Oral Health		uired	5							10	0 1																																
	Dentistry for Persons with Disabilities 2		uired	5							10								100	1																								
	Lifestyle-related Dentistry and Geriatric		uired	5															100	1																								+
	Dentistry Laws and Regulations for Dental Technicians (included Social Security	1 Req		6							10	0 1							100	-																								t
	System) Quality and Safety Management ir	1 Req	uired	5																									100	1														1
	Dentistry Medical Informatics	2 Req		4																			100	1																				t
	Curriculum Design of Dental Hygienist	1 F	ree	6											1										100	1																		1
	and Dental Technicians Educatior  Health Science on Sports Dentistry and Temporomandibular	l Req	uired	5																										10	00 1	1												Ī
	Dental Material	1 Req	uired	3													100	1																										1
	Biomaterials 1		uired	3													100	1																										1
	Practice on Biomaterial	1 Req		3																							100	1																1
	Practice on Applied Biomaterial	1 Req	_	8																										10	00 1	1												Ť
		2 Req		3	1												100	1																										đ
	Practice on Precision Casting Science	1 Req		4																							100	1																†
	CAD/CAM System Engineering		uired	2											+								100	1																				1
	Medical System Engineering	1 Req		5	<u> </u>																		100	1																				+
	Practice of Information Systen	1 Req		3	1				-						+									-									100 1											+

Relation	nships between the evalu	aation	Ittilis	and C	1433 3	uojee	13 01	110g	31 4111 (	01 0	Tai Li	igilico	cring											E-	valuati	on iter	ne																		<del></del>	
													Kı	nowled	lge an	d Und	erstand	ing								on ner	115		Al	oilities	and Sl	kills							Comp	rehen	sive Al	oilities	,			otal eighte
			Type of		_	(1)		(2)	***	(3	3)	(4	4)	(	5)	(	(6)	(	(7)	(	8)		9)	(1	0)	(1	l)	(2	2)	(	3)	(	4)	(5	5)	(	1)		2)		3)	_ \	4)	(5)		values
Subject type	Class Subject	No. of	course egistratio	semester	Weight dvalues	Weight	Weigh te dvalue	es Wei	ighte dva	eighte values	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	dvalues	Weighte	dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte dvalues of	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues	Weighte	Weighte dvalues W	eighte of	aluati
турс			n			dvalues io of	evalua	atio of		aluatio	of	of evaluatio	dvalues of	of evaluation	dvalues of	of evaluati	dvalues o of	of evaluation	dvalues of	of evaluation	dvalues of	of evaluatio	dvalues of	of evaluatio	dvalues of	of evaluatio	dvalues of	of evaluatio	dvalues of	of evaluation	dvalues of	of evaluation	dvalues of	of evaluatio	dvalues of	of evaluatio	dvalues of	evaluatio		evaluatio		evaluatio	dvalues of	evaluatio of	f on	items
					n items in the subject	n items	in the subject	n ite				n items in the subject	evaluatio n items	n items	n items	n items in the subject	n items	n items	evaluatio n items	n items	evaluation n items	n items	evaluatio	n items	evaluatio n items	n items	evaluatio n items	n items	evaluation	n items in the subject	evaluation n items	n items	evaluatio n items	n items	evaluatio	n items in the subject	evaluation	n items in the subject		n items in the subject		n items in the subject	evaluatio n items			the bject
	Practical Training on Digital Dentistry	1 I	Required	6	subject		Subjec		340	ioject		subject		subject		subject		subject		subject		subject		subject		subject		subject		subject		subject		100	1	subject		subject		Subject		subject		subject		100
	Overview of Oral Engineering		Required	5																		100	1																							100
	Medical Equipment	1 I	Required	4																				100	1															ĺ						100
	Pediatric Dentistry	1 I	Required	5																100	1																									100
	Practice of Pediatric Dentistry	1 I	Required	6																												100	1							1						100
	Orthodontics	2 I	Required	5																		100	1																	₩						100
	Practice of Orthodontics I		Required	6																												100	1							—	<u> </u>	<u> </u>				100
	Practice of Orthodontics II Crown Restoration and Health	1 I	Required	6																		100								-		100	1							<del></del>	<u> </u>	<u> </u>	-			100
	Engineering I Crown Restoration and Health	1 I	Required	3																		100	1																$\vdash$	<del></del>	<del></del>		<del></del>			100
	Engineering II Crown Restoration and Health		Required Required	4																		100	1																	$\overline{}$		$\vdash$		+		100
	Engineering III  Practice in Crown Restoration and Health Engineering (July)		Required	3																												100	1													100
	Health Engineering (Inlay)  Practice in Crown Restoration and		Required	4																												100	1									$\vdash$				100
	Health Engineering (Crown I)  Practice in Crown Restoration and																															-	•													
	Health Engineering (Crown II)  Practice in Crown Restoration and	1 I	Required	4																												100	1						-	<del>                                     </del>				_		100
	Health Engineering (Bridge I)	1 I	Required	5																												100	1							<u> </u>		<u> </u>		$\vdash$	4	100
	Practice in Crown Restoration and Health Engineering (Bridge II)	1 I	Required	5																												100	1							<u> </u>						100
	Practice in Crown Restoration and Health Engineering (Facing Crown and Implant Superstructure I)	1 I	Required	5																												100	1													100
	Practice in Crown Restoration and Health Engineering (Facing Crown and Implant Superstructure II)	1 I	Required	5																												100	1													100
Specialized Education	Practice in Crown Restoration and Health Engineering	1 I	Required	8																												100	1													100
Subjects	Removable Denture and Health Engineering (Complete Denture)	2 I	Required	2																		100	1																	ĺ				.		100
	Removable Denture and Health Engineering (Partial Denture)	2 I	Required	3																		100	1																	1						100
	Practice of Removable Denture and Health (Complete Denture)	2 I	Required	4																												100	1							l						100
	Practice of Removable Denture and Health (Partial Denture)	2 I	Required	4																												100	1							1						100
	Practice of Removable Denture and	1 I	Required	5																												100	1							1						100
	Health (Anaplastology I)  Practice of Removable Denture and		Required	5																												100	1													100
	Health (Anaplastology II)  Practice of Removable Denture and																																													
	Health (Implant Superstructure)	1 I	Required	6																												100	1							<u> </u>		<u> </u>				100
	Practice of Removable Denture and Health	1 I	Required	8																												100	1							<del></del>		<u> </u>				100
	Esthetic Dentistry Practice on Medical Design and	1 I	Required	4																100	1																			<u> </u>		<u> </u>				100
	Engineering	1 I	Required	8																																		50	1	50	1	<u> </u>		$\overline{}$		100
	Practice of Oral Process Engineering Clinical Practice in Oral Health	1 I	Required Required	6-8																												30	1					50 35	1	50 35	1					100
	Engineering Medical Design Engineering I		Required	6																												30	1			50	1	33	-		1	50	1	-+		100
	Medical Design Engineering II		Required	6																																50	1					50	1			100
	Disaster Dentistry and Forensic Odontology		Required	6										100	1																															100
	Dysphagia Rehabilitation	1 I	Required	5																100	1																			<u> </u>						100
	Special Study for Graduation Special Course in Rehabilitation Make	9 I	Required Free	6-8																																40	1			<del></del>		30	1	30		100
	Up	1	elective	5																										100										<del></del>		<u> </u>				100
	Research Start-Up	1 I	Required	4			70		1																	20	1			100	1											<u> </u>				100
	Biodental English	2 I	Required	5	1		70	)	1					I				1		l		I		i		30	1	l		1		1				İ		1		ı	1	1		. 17		100

# Curriculum Map of Program of Oral Engineering

Academic achievements		1st grade	2nd	grade	3rd	grade	4th gra	de
	1							
Evaluation items	1st semester	2nd semester	3rd semester	4th semester	5th semester	6th semester	7th semester	8th semester
	(©) Basic Courses in University Education (©)	Area Courses (	Peace Science Courses					
Knowledge and understanding of liberal	(©) Area Courses (©)	Foreign Language Subjects						
arts such as humanities and natural	(©) Foreign Language Subjects (©)	) Information and Data Sciences Subjects						
science		) information and Bata Sciences Subjects						
	(◎) Information and Data Sciences Subjects							
	(©) Health and Sports Subjects (©)	Health and Sports Subjects			(©) Biodental English			
The knowledge and understanding on								
foreign languages and culture								
			Medical Ethics					
Knowledge and understanding on								
principles of medicine								
							Laws and Regulations for Dental Technicians (included Social	
Knowledge and understanding of basic					(©) Team Care for Oral Health	(©	Security System)	
behavior as a dental professional (a dental								
technician)								
Knowledge and understanding of social				(©) Social Dentistry		(©) Disaster Dentistry and Forensic Odontology		
dentistry								
ndin	(©) Anatomy and Oral Anatomy (©)	Physiology and Oral Physiology (	Basic Class of Oral Science					
sta	(C)	) I hystology and Otal I hystology						
der			O) Tooth Morphology					
5 Knowledge and understanding of life			Oral Histology					
science		(	Microbiology and Oral Microbiology					
80			Δ) Immunology		<u> </u>	·   · · ·		
ied					·			
NO NO		(	Basic Biochemistry					
¥		[	Dental Material					
Knowledge and understanding of dental		(	Biomaterials					
materials and biomaterials			Precision Casting Science		<del></del>			
		<u> </u>				<u> </u>		
			Pharmacology and Dental Pharmacology	(®) Endodontology	(®) Oral Surgery and Anesthesiology I			
		[	Dathology and Oral Pathology	(©) Periodontology	(©) Oral Surgery and Anesthesiology II			
Knowledge and understanding of diseae		(	△) Dental Health	(©) Esthetic Dentistry	(©) Dentistry for Persons with Disabilities			
prevention, treatment, diagnosis, and				(-)				
medical check-up concerning dentistry and	1				(©) Lifestyle-related Dentistry and Geriatric Dentistry			
other related studies					(©) Pediatric Dentistry			
					(©) Dysphagia Rehabilitation			
					(Δ) Clinical Medicine			
Understanding and knowledge of dental			Stmatognathic System and Function	(®) Crown Restoration and Health Engineering III	(®) Overview of Oral Engineering			
technician (dental technology)	(0)	Removable Denture and Health Engineering (Complete Denture)	Crown Restoration and Health Engineering II		(©) Orthodontics			
teenmenn (dental teenolology)		(	(Partial Denture)					
The knowledge and understanding on	(a) p : (1) .		, , , , , , , , , , , , , , , , , , , ,	(A) M E IV C	(8) W E 10 . E 1 .			
related engineering (information	(◎) Basic Subjects (◎)	Basic Subjects		(®) Medical Informatics	(©) Medical System Engineering			
processing, CAD/CAM, ME(medical	(©)	) CAD/CAM System Engineering		(®) Medical Equipment				
engineering), system engineering,		<u></u>						
management)								
					(©) Biodental English	Curriculum Design of Dental Hygienists and Dental Technicians		
Communication skills as a dental					(@) Diocental English	Education		
professional (a dental technician)								
		(	Practice on Biomaterial	(©) Practice on Precision Casting Science				
Abilities and skills concerning life			-/					
science, materials technology, and social dentistry								
dentistry								
The ability • skills and attitude related to				(®) Research Start-Up	(©) Quality and Safety Management in Dentistry			
prevention • examination • diagnosis •					······································			
v treatment of diseases in oral •					(△) Special Course in Rehabilitation Make Up			
maxillofacial region								
S P								
ä			Practice on Oral Anatomy I	(©) Practice on Oral Anatomy II	(©) Health Science on Sports Dentistry and Temporomandibular	- I		Practice on Applied Biomaterial
iii iii		(	Practice on Stmatognathic System and Function	(©) Practice in Crown Restoration and Health Engineering (Crown I	<ul> <li>Practice in Crown Restoration and Health Engineering (Bridge I</li> </ul>	(i) Practice of Orthodontics I		Practice in Crown Restoration and Health Engineering
The capacity and attitude necessary for		(	Practice in Crown Restoration and Health Engineering (Inlay)	Practice in Crown Restoration and Health Engineering (Crown	Practice in Crown Restoration and Health Engineering (Bridge	(©) Practice of Orthodontics II	a	Practice of Removable Denture and Health
practicing specialized fields of dental				(O) III	Practice in Crown Restoration and Health Engineering (Facing	- Practice of Removable Denture and Health (Implant		
technicians (dental technique) as a dental				(©) Practice of Removable Denture and Health (Complete Denture)	Crown and Implant Superstructure I)	(a) Superstructure)		(2) Clinical Practice in Oral Health Engineering
team				(©) Practice of Removable Denture and Health (Partial Denture)	Crown and Implant Superstructure I) Practice in Crown Restoration and Health Engineering (Facing	(©) Clinical Practice in Oral Health Engineering		
	[			20 Demaie and Maidr (Farial Desirite)	Crown and Implant Superstructure II)	- The regime rings of the second regime rings of		
					(©) Practice of Removable Denture and Health (Anaplastology I)			
	<u> </u>				(©) Practice of Removable Denture and Health (Anaplastology II)			
The ability and skills to apply related		(	Practice of Information System Engineering	<u> </u>		(©) Practical Training on Digital Dentistry		
engineering (information processing,	<del> </del>							
CAD/CAM, ME(medical engineering),								
system engineering, management,								
biotechnology)	<u>                                     </u>			<u>                                     </u>	1 1	<u>                                     </u>		
Committee to 1 122						(©) Medical Design Engineering I (©	) Special Study for Graduation (0	Special Study for Graduation
Comprehensive learning ability and behavior as a dentist, which is to					· · · · · · · · · · · · · · · · · · ·	(©) Medical Design Engineering II	N	
voluntarily learn over a course of life					· <del> </del> · · ·   · · · · · · · · · · · · · · ·			
						(©) Special Study for Graduation		
The general ability and attitude in related						(©) Clinical Practice in Oral Health Engineering (©	Clinical Practice in Oral Health Engineering (6	Practice on Medical Design and Engineering
to investigation, diagnosis, treatment and								Practice of Oral Process Engineering
prevention in oral • maxillofacial region				<u>                                     </u>	<u> </u>			Clinical Practice in Oral Health Engineering
8	+ +		+	+ +	+ +		(C	S) Chinical Practice in Oral Fleatin Engineering
[4]						(©) Clinical Practice in Oral Health Engineering (©	Clinical Practice in Oral Health Engineering (6	Practice on Medical Design and Engineering
The comprehensive capacity and attitude	<u> </u>							) - ractice on security Besign and Engineering
onecessary for practicing specialized fields								Practice of Oral Process Engineering
of dental technicians (dental technique) as	· [							-/
a dental team								(a) Clinical Practice in Oral Health Engineering
adu								
Comprehensive ability to separate						(◎) Medical Design Engineering I (◎	) Special Study for Graduation (0	D) Special Study for Graduation
necessary and unnecessary information,						(©) Medical Design Engineering II		
summarize and output it						(©) Special Study for Graduation		
	+ +		+	+ +	+ +			
The general ability necessary to discover						(◎) Special Study for Graduation (◎	Special Study for Graduation (6)	Special Study for Graduation
the issues on oral engineering and conduct					·			
research planning • promotion • result								
analysis · result presentation								
	(Ex	x) Liberal Arts Education Subjects	Basic Specialized Courses	Specialized Courses		(©) Required (O	) Elective/required (A	△) Free elective
							-	

# Program member list of Program of Oral Engineering

04/01/2020

Mail : Please add "@hiroshima-u.ac.jp"

Name	Position	Laboratory name	Mail
KAKU MASATO	Professor	Anatomy and Functional Restorations	mkaku
SHIMOE SAIJI	Associate Professor	Anatomy and Functional Restorations	shimoe
MURAYAMA TAKESHI	Professor	Medical System Engineering	murayatk
MINE YUICHI	Lecturer	Medical System Engineering	mine
NIKAWA HIROKI	Professor	Oral Biology & Engineering	hirocky
TAJI TSUYOSHI	Associate Professor	Oral Biology & Engineering	taji
SASAHARA HISAKO	Lecturer	Oral Biology & Engineering	his-his-kes