

Appended Form 1

Specifications for Major Program

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

Program name (Japanese)	
(English)	Program of Oral Engineering
1	Degree to be obtained: Bachelor of Oral Health Sciences

2 Overview

The Program for 2. 87.22 TmTBDC3BDC BT0.00 BD2HnoenHram foJ-0.0

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 achievement	Evaluation 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)

○ 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.

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.

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.

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

<Program of Oral Engineering>

	2		2	Elective/ required
	2	Introduction to University Education	2	Required
	2	Introductory Seminar for First-Year Students	2	Required
	2	General Health and Oral Sciences I	2	Required
	2	General Health and Oral Sciences II	2	Required
	4	From Courses in Arts and Humanities / Social Sciences		Elective/ required
		Communication Basic I	1	
		Communication Basic II	1	
		Communication IA	1	
		Communication IB	1	
		Communication IIA	1	
		Communication IIB	1	
	4	From Basic Languages Subjects		Elective/ required (Note 2)
	2	Elements of Information Literacy	2	Required (Note 3)
	2			Elective/ required
	2	Psychology for Medical Care Workers	2	Required (Note 4)
	2	Development of International Collaboration in Medical Science	2	Required
		Foundation biology for life science(Note 6)	2	
		Cell Science	2	
		Anatomy for Understanding Human Being I	1	
		Anatomy for Understanding Human Being II	1	
		General Chemistry	2	
		Foundation physics for life science (Note 6)	2	
		Fundamental Physics I	2	
	2	Basic Calculus or Foundation Mathematics for Life science (Note 6)	2	
	2	Basic Linear Algebra	2	
	2	Statistics	2	Elective/ required (Note 7)
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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. (English proficiency test score: 50/60/70/80/90/100)

Note 2 : You have to select one language from German, French and Chinese

Note 3 :

Note 4 :

Note 5 :

Note 6 :

Note 7 : When failing to earn the credit for "Statistics" is allowed to substitute the credit for another Basic Subjects.

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
Knowledge and Understanding	(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.
	(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.
	(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.
	(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.
	(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.
	(8) Knowledge and understanding of disease 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.
Abilities and Skills	(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.
	(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.
Comprehensive Abilities	(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.
	(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.
	(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
	(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.

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Curriculum Map of Program of Oral Engineering



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