University of Zagreb
School of Dental Medicine

Z A G R E B
C R O A T I A

DentEdEvolves Visitation

Part I  School Self Assessment
Part II  Visitors Comments

10-14 November 2001
Information for Visitors

Section 1  
Introduction

1.1. Background  
1.2. The primary functions of the institution  
1.3. Curriculum  
1.4. Problem-Based Learning  

Section 2  
Facilities

2.1. Clinical Facilities  
2.2. Teaching Facilities  
2.3. Teaching Laboratories  
2.4. Research Laboratories  
2.5. Library  

Section 3  
Administration and Organisation

3.1. Clinical/Academic Organisational Structures for School & Hospital  
3.2. Non-Clinical/Academic Administrative Structures  
3.3. Information Technology  

Section 4  
Staff

4.1. Staff  

The Dental Curriculum ( Sections 5 – 16 )

Section 5  
The Biological Sciences

5.1. Biophysics  
5.2. Chemistry  
5.3. Biochemistry  
5.4. Human Biology and Genetics  
5.5. Physiology  
5.6. Orofacial Genetics  

Section 6  
Pre-Clinical Sciences

6.1. Anatomy for Dentists  
6.2. Histology and Embriology  
6.3. Introduction to Dental Studies  
6.4. Tooth Morphology and Dental Anthropology  
6.5. History of Dentistry  
6.6. Dental Diagnostics and Propedeutics  

Section 7  
Para-Clinical Sciences

7.1. Pharmacology  
7.2. Microbiology and Parasitology  
7.3. Pathology  
7.4. Pathological Physiology  
7.5. Clinical Immunology  
7.6. Forensic Dentistry  

Section 8  
Human Diseases

8.1. General and War Surgery  
8.2. Anaesthesiology and Resuscitation  
8.3. General ( Internal) Medicine  
8.4. Infectology  
8.5. Dermatovenerology  
8.6. Neurology
8.7. Psychiatry with Medical Psychology 88
8.8. Ophthalmology 91
8.9. Oncology 93
8.10. Paediatrics 95
8.11. Otorhinolaryngology 97
8.12. Obstetrics and Gynaecology 99

Section 9 Orthodontics and Child Dental Health 101
9.1. Orthodontics 101
9.2. Paedodontics 104

Section 10 Public Dental Health and Prevention 107
10.1. Social Dentistry (Public Health) 107
10.2. Oral Hygiene 110

Section 11 Restorative Dentistry 112
11.1. Dental Pathology 112
11.2. Fixed Prosthodontics 115
11.3. Removable Prosthodontics 118
11.4. Gnathology 121
11.5. Gerodontology 124
11.6. Dental Materials 126
11.7. Dental Implantology 129

Section 12 Periodontology 131
12.1. Periodontology 131

Section 13 Oral Surgery and Radiology 135
13.1 Oral Surgery 135
13.2 Maxillofacial Surgery 137
13.3 Radiology 140

Section 14 Oral Medicine and Oral Pathology 142
14.1 Oral Medicine 142

Section 15 Integrated Patient Care, Dental Emergencies and Special Needs Patients 145

Section 16 Behavioural Sciences 146
16.1 Social Medicine and Epidemiology 146
16.2 Statistics and Informatics 148
16.3 English Language 151
16.4 German Language 153
16.5 Sociology of Dental Profession 155

Section 17 Examinations, Assessments and Competences 157
17.1 Examinations, Assessments and Competencies 157

Section 18 Other Influences 159
18.1 Regional Oral Health Needs 159
18.2 Evidence Based Treatments 159
18.3 Involvement in other University Activities 159
18.4 Recreation and Sport 160
18.5 Students Selection Procedures 160
18.6 Labour Market Perspectives 161

Section 19 Student Affairs 162
19.1 Basic Data from Dental Schools 162
19.2 List of Different Postgraduate Courses 163
19.3 List different auxiliary/technology/other courses and state number
Section 20 Research and Publications

20.1. Publications in Refereed Journals 178
20.2. Invited to participate at Major Conferences 204
20.3. Grants Awarded 205
20.4. Higher Degrees Awarded 205
20.5. International Co-operation 206

Section 21 Quality Development

Quality Development 207

Section 22 All Visitors Comments and Executive Summary 208

Information for Visitors

Name of School: School of Dental Medicine
City: Zagreb
Country: Croatia
Full Legal Name: University of Zagreb
School of Dental Medicine
Dean of School: Prof. Vlado Carek, e-mail: carek@sfzg.hr

Name of Person delegated to act as DENTED contact person:

Name: Prof. Vjekoslav Jerolimov
Position: Vice Dean for International Relations
E-mail: jerolim@sfzg.hr

Date of Visitation

Saturday, 10 November to Wednesday, 14 November 2001

Visitors

Anna-Karen Holm (Chair person) University of Umea
Derry Shanley (Rapporteur) School of Dental Science & Dublin Dental Hospital
Christina Lindh Malmo University
Concha Martinez Complutense University Madrid
Jerome Rotgans University of Aachen

List of names of persons who act as visitors on site visits to other schools

Name: Professor Vjekoslav Jerolimov
Subjects of Expertise: Dental Prosthodontics
E-mail: jerolim@sfzg.hr
Language: English
Section 1  Introduction

1.1 Background

GENERAL DESCRIPTION OF THE SCHOOL OF DENTAL MEDICINE IN ZAGREB

The School of Dental Medicine in Zagreb has been operating in this status since 1962, whereas from 1948 dental studies were part of the Medical School as the Department of Odontology.

The School of Dental Medicine is the only higher education institution and it is one of the member faculties of the University of Zagreb.

“The University of Zagreb (Universitas Studiorum Croatica, Regia Scientiarum Academia, Universitas Studiorum Zagrabiensis, etc) was established based on the several-century long tradition of sciences and education in Croats that started with the Cathedral School in 11th century, and that continued with the Jesuit Public Grammar School, established in 1607, where, as of November 6, 1662 higher education in Philosophy and Theology was taught so that it was granted the name of an Academy (Academia Scientiarum). Following the Charter issued by the Austrian Emperor and Croatian King Leopold I on September 23, 1669, that was adopted and reconfirmed by the Croatian Parliament, the Jesuit Academy was granted university rights and privileges. Therefore the University of Zagreb takes the year of 1669 as the year of its foundation, and November 3 as its University Day.

Following the decision of the Croatian Parliament, the University of Zagreb received three other Faculties – Faculty of Theology, Faculty of Philosophy and Law School, which was officially celebrated on November 19, 1874 when the Croatian Vice-Roy invited the first Chancellor, Matija Mesić, to take up the Chancellor seat.

The University of Zagreb – one of the oldest and largest European universities and original centres of spiritual and intellectual force of the Croatian people – reaching an independent decision on its structure and operation, in accordance with constitutional and legal provisions of the Republic of Croatia that guarantee the autonomy of Croatian universities, adopted its Statutes as its fundamental act” (Statutes of the University of Zagreb, 2001 – introduction to original foundations of the University)

AIMS AND OBJECTIVES OF THE SCHOOL OF DENTAL MEDICINE

The School of Dental Medicine – a higher education institution – has as its primary aim the research and teaching activities in undergraduate courses in education of dentists.

It pursues a special task in the postgraduate course aiming at education of M.Sc. and Ph.D. graduates in dentistry.

Research work within the School of Dental Medicine is carried out through research projects led by main researchers that are financially supported and evaluated by the Ministry of Sciences and Technology based on their acceptance by renowned reviewers. Apart from these projects, research and teaching staff have the possibility to carry out research within international projects with an international component, however, in such a case, financial support for these projects is provided by subjects from abroad.

The School, following its granted legal competences, is obliged to carry out continuous education of dentists. However, in this segment of its activities, it is necessary to discern certain tasks of other subjects appearing in this profession, such as the Croatian Chamber of Dentistry, various associations organized by branches in dentistry, and individuals appearing in this area from the market aspect. (See –

ENVISAGED OVERALL AIM OF SCHOOL OF DENTAL MEDICINE

Harmonize the Curriculum with European courses of study, where it should be taken into consideration that the current course of study is based on three relevant groups in its Curriculum. Those are as follows:

Subjects in basic sciences, with 195 hours or 4.5% of the total Curriculum
Subjects in professional medical sciences, with 1770 or 40.7% of the total Curriculum
Subjects in professional dental sciences, with 2380 hours or 54.7% of the total Curriculum.
DATA ON DURATION OF COURSE OF STUDY, TEACHERS AND STUDENTS

The course in dental studies lasts for five years, 10 semesters, with the total number of teaching hours of 4,470 among which 1463 hours of lectures, 500 hours of seminars and 2507 hours of practical teaching/exercises.

The teaching is carried out within the School and its teaching bases – Dental Clinic of the Clinical Hospital Centre of Zagreb, Clinical Hospital “Sestre milosrdnice” and Clinical Hospital “Dubrava”.

Following the completion of the course, students are granted the title of dentists. A dentist is obliged to do internship lasting for 12 months whereafter he/she takes the State (certification) exam before a special committee of the Croatian Ministry of Health.

Following this, the dentist acquires the right to have a license issued by the Croatian Chamber of Dentistry for performing independent dental practice.

There is an average of 80-90 students per every year at the School.

Teaching activities are carried out by 27 professors as full-time or part-time employees; 30 readers; 37 senior lecturers and 57 members of teaching staff with the status of associate lecturers or research assistants.

Apart from this, the teaching in basic courses in Medicine are carried out research and teaching staff from the Medical School (4.2%) – 10 teachers that are involved in the teaching based on an Agreement on Cooperation between the School of Dental Medicine and Medical School at the University of Zagreb.

Basic data on students

a) Average number of dental students qualifying per year: 104 regular students and 22 failed students who repeat the academic year
b) Average number of dental students admitted to the first year: 90*
c) Length of course in years: 5 years
d) Is there a separate period of vocational training following graduation as a dentist in your country? Yes
e) If yes to d) above, is that organized by the University/Dental School? Dental Clinic and other health institutions.

*Note: For the past four years the School has reduced the number of admitted students

List of Departments at the School and the total number of full-time equivalent clinical academic staff

<table>
<thead>
<tr>
<th>Department</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Dental Anthropology</td>
<td>5</td>
</tr>
<tr>
<td>Department of Dental Pathology</td>
<td>24</td>
</tr>
<tr>
<td>Department of Oral Surgery</td>
<td>11</td>
</tr>
<tr>
<td>Department of Orthodontics</td>
<td>7</td>
</tr>
<tr>
<td>Department of Periodontology</td>
<td>5</td>
</tr>
<tr>
<td>Department of Paedodontics</td>
<td>12</td>
</tr>
<tr>
<td>Department of Prosthodontics</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>88</strong></td>
</tr>
</tbody>
</table>

Number of auxiliaries trained each year

See 19.3

Specialist and Higher degree training courses

List of studies under item 19.2.
**Staff and Resources. Breakdown of staff numbers in Dental School**

a) Heads of Departments 8
b) Senior clinical academic staff 89
c) Senior research/academic staff 95
d) All other clinical teaching staff 3
e) All administrative and secretarial staff 12
f) All nursing and auxiliary staff 44
g) Dental technical laboratory staff 22

**Staff and Resources**

Total number of all staff employed at Dental School: 270

**Staff and Resources: Annual total salary budget for all staff or institution in Euros**

Annual total salary budget of School of Dental Medicine is: 2,290,123.74 Euros
The School of Dental Medicine allocation is: 2,723,690.90 Euros

**Staff and Resources: Approximate ratio of full time staff to part-time staff in supervision of students’ clinical training and training at Institutes**

Employees with 80% of working time should complete 100% of the norm in teaching. The ratio of full-time teaching employees (obligatory) and part-time employees is 3:1.

**Staff and Resources: Average number of hours per week spent by full time senior clinical academic staff in treating patients:**

18

**Number of hours students spend in patient treatment (on average per week):**

a) first year 0
b) second year 0
c) third year 8
d) fourth year 18
e) fifth year 21

**Number of hours students spend in «simulated» patient treatment per week in mannequin or phantom head laboratory**

f) first year 0
g) second year 7
h) third year 6
i) fourth year 3
j) fifth year 1

**Total number of patient visits to the Dental School/Hospital per year by department or clinic**

<table>
<thead>
<tr>
<th>Department</th>
<th>Visits per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Dental Anthropology</td>
<td>5.892</td>
</tr>
<tr>
<td>Department of Dental Pathology</td>
<td>13.559</td>
</tr>
<tr>
<td>Department of Oral Surgery</td>
<td>5.867</td>
</tr>
<tr>
<td>Department of Orthodontics</td>
<td>5.525</td>
</tr>
<tr>
<td>Department of Periodontology</td>
<td>10.250</td>
</tr>
<tr>
<td>Department of Paedodontics</td>
<td>6.892</td>
</tr>
<tr>
<td>Department of Prosthodontics</td>
<td>18.425</td>
</tr>
</tbody>
</table>
1.2. The primary functions of the institution

See 1.1.
### 1.3. Curriculum

**TOTAL CURRICULUM SCHEDULE**

I. YEAR: 885  
II. YEAR: 875  
III. YEAR: 900  
IV. YEAR: 900  
V. YEAR: 900  

<table>
<thead>
<tr>
<th>I. YEAR (2 TERMS)</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBLIGATORY SUBJECTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Human biology with genetics</td>
<td>60</td>
<td>45</td>
<td>105</td>
</tr>
<tr>
<td>2. Biophysics</td>
<td>75</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td>3. Anatomy</td>
<td>90</td>
<td>60</td>
<td>150</td>
</tr>
<tr>
<td>4. Chemistry</td>
<td>90</td>
<td>0</td>
<td>90</td>
</tr>
<tr>
<td>5. Histology and embryology</td>
<td>45</td>
<td>45</td>
<td>90</td>
</tr>
<tr>
<td>6. Total morphology, dental anthropology</td>
<td>0</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>7. Biochemistry</td>
<td>0</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>8. Physiology</td>
<td>0</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>9. Introduction to dentistry</td>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>10. Fitness and health culture</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>390</td>
<td>390</td>
<td>780</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPTIONAL SUBJECTS</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Foreign languages</td>
<td>15</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>2. Sociology in the dental profession</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>3. General and community</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>435</td>
<td>450</td>
<td>885</td>
</tr>
</tbody>
</table>

II. YEAR (2 TERMS)  

<table>
<thead>
<tr>
<th>OBLIGATORY SUBJECTS</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Physiology</td>
<td>90</td>
<td>0</td>
<td>90</td>
</tr>
<tr>
<td>2. Microbiology and parasitology</td>
<td>75</td>
<td>0</td>
<td>75</td>
</tr>
<tr>
<td>3. Pathology</td>
<td>60</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>4. Pathophysiology</td>
<td>0</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>5. Pharmacology</td>
<td>0</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>6. Dental pathology</td>
<td>0</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>7. Removable prostodontics</td>
<td>0</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>8. Fixed prostodontics</td>
<td>0</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>9. Tooth morphology, dental anthropology</td>
<td>60</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>10. Dental materials</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>11. Dental propedeutics and diagnostic</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>12. Statistics and informatics</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>13. Fitness and health culture</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>375</td>
<td>390</td>
<td>765</td>
</tr>
</tbody>
</table>

**OPTIONAL SUBJECTS**
1. Foreign languages  
   15 30 45  
2. Sociology in dental profession  
   30 0 30  
3. Oral hygiene education  
   15 15 80  
435 435 870  

III. YEAR (2 TERMS)  

<table>
<thead>
<tr>
<th>OBLIGATORY SUBJECTS</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pharmacology</td>
<td>45</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>2. Internal medicine</td>
<td>75</td>
<td>60</td>
<td>135</td>
</tr>
<tr>
<td>3. Infectology</td>
<td>0</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>4. General and war surgery</td>
<td>0</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>5. Radiology</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>6. Psychiatry and medical psychology</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>7. Dermatology</td>
<td>45</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>8. Oral surgery</td>
<td>0</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>9. Periodontics</td>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>10. Dental pathology</td>
<td>75</td>
<td>75</td>
<td>150</td>
</tr>
<tr>
<td>11. Removable prosthodontics</td>
<td>60</td>
<td>45</td>
<td>105</td>
</tr>
<tr>
<td>12. Fixed prosthodontics</td>
<td>60</td>
<td>45</td>
<td>105</td>
</tr>
<tr>
<td>13. Orofacial genetics</td>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>14. Pathophysiology</td>
<td>45</td>
<td>0</td>
<td>45</td>
</tr>
</tbody>
</table>

390 390 780  

<table>
<thead>
<tr>
<th>NON OBLIGATORY SUBJECTS</th>
<th>30</th>
<th>30</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fitness and health culture</td>
<td>450</td>
<td>435</td>
<td>885</td>
</tr>
</tbody>
</table>

IV. YEAR (2 TERMS)  

<table>
<thead>
<tr>
<th>OBLIGATORY SUBJECTS</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General and war surgery</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>2. Neurology</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>3. Pediatrics</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>4. Otorinoralyngology</td>
<td>45</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>5. Ophthalmology</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>6. Clinical immunology</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>7. Oncology</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>8. Community medicine and epidemiology</td>
<td>0</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>9. Pedodontics</td>
<td>15</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>10. Orthodontics</td>
<td>15</td>
<td>60</td>
<td>75</td>
</tr>
<tr>
<td>11. Oral medicine</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>12. Periodontics</td>
<td>15</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>13. Dental pathology</td>
<td>75</td>
<td>75</td>
<td>150</td>
</tr>
<tr>
<td>14. Removable prosthodontics</td>
<td>45</td>
<td>45</td>
<td>90</td>
</tr>
<tr>
<td>15. Fixed prosthodontics</td>
<td>45</td>
<td>45</td>
<td>90</td>
</tr>
<tr>
<td>16. Oral surgery</td>
<td>45</td>
<td>45</td>
<td>90</td>
</tr>
</tbody>
</table>

450 435 885  

<table>
<thead>
<tr>
<th>OPTIONAL SUBJECTS</th>
<th>15</th>
<th>15</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Geriatric dentistry</td>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>450</td>
<td>450</td>
<td>900</td>
</tr>
</tbody>
</table>
### V. YEARS (2 TERMS)

#### OBLIGATORY SUBJECTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gnathology</td>
<td>15</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>2. Obstetrics and gynecology</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>3. Forensic dentistry</td>
<td>30</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>4. Anesthesiology</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>5. History of dental medicine</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>6. Dental pathology</td>
<td>60</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>7. Removable prosthodontics</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>8. Fixed prosthodontics</td>
<td>30</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>9. Pedodontics</td>
<td>30</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>10. Orthodontics</td>
<td>30</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>11. Periodontics</td>
<td>60</td>
<td>30</td>
<td>90</td>
</tr>
<tr>
<td>12. Oral medicine</td>
<td>45</td>
<td>30</td>
<td>75</td>
</tr>
<tr>
<td>13. Oral surgery</td>
<td>30</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>14. Maxillofacial surgery</td>
<td>30</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td>435</td>
<td>450</td>
<td>885</td>
</tr>
</tbody>
</table>

#### OPTIONAL SUBJECTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>I</th>
<th>II</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dental implantology</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td>450</td>
<td>450</td>
<td>900</td>
</tr>
</tbody>
</table>
1.4. Problem-Based Learning

Not introduced yet.
We are going to elaborate new curriculum in which PBL will be considered.

Visitors Comments
Section 2 Facilities

2.1. Clinical facilities

1. General

The School of Dental Medicine takes up the area of 3,000 m² which is shared with the Dental Clinic of the Clinical Hospital Centre. Clinical dental teaching is held in the outpatient premises of the School in Gundulićeva Street, and at the dislocated outpatient premises of the Clinical Hospital in Dubrava and Central Dental Clinic in Perkovčeva Street. There are 8 Clinical Departments in Gundulićeva Street.

Department of Periodontology: 7 dental units

Department of Dental Anthropology: 2 dental units, practice room for microscopy with 36 seats

Department of Prosthodontics: 21 dental units

Department of Paedodontics: 14 dental units

- equipment for interventions under sedation
- CEREC II, laser Doppler flowmeter, stereo microscope

Department of Oral Surgery: 3 dental units, operation theatre with two new dental units and a bed for patients.

Department of Oral Pathology: 4 dental units, therapy laser

Department of Dental Pathology: 21 dental units

Department of Orthodontics: 6 dental units

2. Strengths

The School cooperates with the Dental Clinic of the Clinical Hospital Centre. The cooperation is beneficial to the School because the Clinic provides the School with a sufficient number of patients for the students’ practice.

3. Weaknesses

Lack of space is evident. Furthermore, the existing equipment is outdated. Also there is an insufficient number of clinical working places. Another setback is the fact that the School does not participate in the Clinic management thus it cannot exert any influence on the selection of material and instruments used in clinical exercises. Due to the war in Croatia in the past ten years very little money has been invested either in the renovation of the existing facilities or in the purchase of modern ones.

4. Innovations

It is necessary to purchase new dental units. Also the classrooms should be modernized.
2.2. Teaching facilities

1. General

The auditorium of the School of Dental Medicine seats eighty persons. The classroom is equipped with modern audio-visual and multimedia equipment consisting of 3 televisions (72 cm) that are connected as intern cable television, LCD projector for presentation of video and computer material on the wall, a slide projector, an overhead projector and a video player.

In the auditorium there is also a dental unit for the presentation of clinical cases during lectures with the possibility of video presentation.

For the teaching of basic and general medicine courses, large classrooms at three separate premises in the city are also used (at Sestre milosrdnice Hospital, at Medical School – Šalata, at Andrija Štampar School of Public Health), where these courses are held.

2. Strengths

The auditorium is equipped with modern audio-visual and multimedia equipment allowing for contemporary computer and video presentations as well as the direct linking to the Internet. There is a dental unit for patient treatment in the auditorium.

Apart from the auditorium there is a smaller classroom with 20 seats and three seminar rooms with 15 seats each, located at the Department of Dental Anthropology and Department of Orthodontics. The classrooms are used for teaching smaller groups of students or for postgraduate teaching.

3. Weaknesses

Limited number of seminar rooms and a too small auditorium.

2.3. Teaching laboratories

1. General

Pre-clinical Teaching laboratories

There are 30 working places in the laboratory with dental tables. The laboratory is equipped with the phantom head (16 sets) and turbine, micro motor and puster. There is also the audiovisual equipment including 3 TV sets (72 cm) connected as intern cable network for the demonstration of work at the clinic. There is also a slide projector there. In addition, there is an overhead projector in the laboratory.

The laboratory is also used for teaching seminars. Pre-clinical practice also takes place in other Departments within basic courses.
2. **Strengths**

Courses in Dental Anthropology, Dental Pathology, Dental Prosthodontics and Orthodontics take place in the teaching laboratories for dental students in the first, second, third and fourth year of studies.

3. **Weaknesses**

Insufficient space for teaching practical pre-clinical courses in Periodontology and Oral Surgery.

### 2.4. Research Laboratories

1. **General**

Scientific research is carried out in the laboratories of the School for Veterinary Sciences, at Ruđer Bošković Institute, at Medical School, in a Special Purposes Laboratory of the Croatian Water Supply Company, at the Croatian Institute for Geology, in the laboratories of the Fran Mihaljević Hospital and Sestre milosrdnice Hospital and in other similar institutions, in cooperation with their researchers.

2. **Strengths**

Research is carried out at different places which enables the interdisciplinary cooperation.

3. **Weaknesses**

Non-existence of special rooms which would allow for all scientific research to be carried out at the School of Dental Medicine. Therefore, facilities of the Medical School are used where the undergraduate courses are usually held.

### 2.5. Library

**Name:** Divna Sertić, M.Sc.
Maja Kotarski

**E-mail:** sertic@sfzg.hr
kotarski@sfzg.hr

1. **Introduction**

The Library of the School of Dental Medicine is the only library in the Republic of Croatia purchasing, processing, storing and offering for use monographic material and periodical publications written in different languages in the field of dental sciences. It is also a
The Central Dental Library has the library holdings of 3,676 monograph publications, with 2,300 books and 1,376 post-graduate papers and dissertations. The Ministry of Sciences finances the purchase of dental journals, i.e. the total of 51 journals, whereas some 20 publications are provided on the basis of donations or exchanges for the Croatian ASCRO journal. The School finances the subscription to one journal. The Library also stores and offers for use some of the oldest journals from the field of dental sciences, even as old as 50 years. Publications in the English language are the most numerous, as it is the language of Biomedicine, however, the Library also stores journals in German, French, Italian, Spanish, Russian, Slovenian, Macedonian and Serbian language. The collection of journals continuously grows.

The use of the library holdings is free, apart from the charge for the use of the photocopier (for users other than the School staff).

SOURCES OF INFORMATION, INFORMATION SERVICE

Sources of information at the Central Dental Library are: monographs, periodicals, Dental Literature Index (in books, and also: online), computer databases: Medline, through the Central Medical Library and Ovid through the Ruđer Bošković Institute, Internet (Current Contents and SCI), lists of degree papers, postgraduate papers and
dissertations, card catalogue, catalogue of periodicals in other biomedical libraries in Croatia. There are also computerized catalogues with the “Book” Programme purchased from the first public library in Croatia using this way of data processing and updating it every year (we currently have Version 7). We would also like to mention the list of all volumes of journals that we have in the computer database for journals also called “Book” that covers all journals received by the Library since January 1, 1987. Information is provided by the Library staff in direct contact with users, directing them also to sources of information in other libraries and institutions. Information can also be provided over the phone.

LIBRARY STAFF

There are two members of staff in the library: a Graduate Librarian with a Master’s degree and an Assistant Librarian. The Library is open from 8 to 4 from Monday to Friday.

LIBRARY USERS

The Central Dental Library is primarily used by School’s academic staff: professors, senior lecturers, teaching assistants and researchers, students of the School of Dental Medicine, Clinic staff (technicians and nurses) but also students from other schools, institutes and clinics, as well as dentists in private practice, dentists preparing postgraduate papers and dissertations but not employed at the Faculty. Thus the Central Dental Library is an open-type school library.

Some 40 users request the services of the Library daily, which, when multiplied by the number of working days in the year, is not such a small number considering the number of its staff and limited space.

Library staff regularly performs inter-library borrowing of the library holdings with other health institutions in Zagreb, primarily hospitals (Sv. Duh, Kliačeva, etc.) but also outside of Zagreb: photocopied journal articles, postgraduate degree papers and dissertations are sent to Rijeka, Split, Osijek, Sisak, even abroad to Bosnia and Herzegovina, Macedonia and Slovenia.

OTHER ACTIVITIES

Other activities of the Library staff include: active participation in research exhibitions on natural sciences, annual presentation of the School; every spring the Head of the Library holds a seminar for 1st year students on the topic of School Library: Crossroads of Primary, Secondary and Tertiary Information within the course in Introduction to Dental Sciences.

COOPERATION

There is a strong inter-library cooperation with the Library staff of the Central Medical Library that runs the Biomedicine Project in cooperation with the Ministry of Sciences and Technology of the Republic of Croatia. The Project includes expert cooperation and staff training, coordination of the programme in the field of biomedicine and among all members of the Project, donation of computer equipment, etc. At present the most
important issue is the education of librarians in computing and expert book processing following the American principle of catalogization.

**WEAKNESSES**

The main weakness of the Library is a chronic lack of space, however, the construction of a new ten times larger space is currently being planned (the plan and programme are attached). We should also mention inadequate IT facilities, insufficient number of computers that should be primarily offered to students for use. We are still not present on the Internet, but we hope that this task will also be accomplished soon. It is important to stress the insufficient number of textbooks for students, thus old and new publications of books intended for students for learning and preparing of exams in general medicine and special courses are needed, which we try to compensate with a large turnover of degree papers. Periodical publications have been coming in with great delays in the past two years, which is a result of objective circumstances since we received finances for the subscription for journals relatively late. However, we manage to overcome this drawback with the online database and abstracts which we receive by searching Medline, however, we would absolutely need to have a possibility of printing full texts from journals.

**STRENGTHS**

The strength of the Dental Library is a good education of Library users aiming at their successful undergraduate, postgraduate and specialized training. Information provided is fast, timely and efficient as it is done by means of the Dental Literature Index, catalogues and the Internet.

**INNOVATIONS**

Along with the already mentioned plan of construction of new Library, we also plan to connect all online biomedical databases in the Republic of Croatia.
Section 3  Organisational and Administrative Structure

Name: Prof. V. Carek
E-mail: carek@sfzg.hr

3.1. Clinical/Academic Organisational Structures for School & Hospital

School bodies are Dean and School Council.

Expert bodies of the Dean and School Council are: Dean Board, Annual Council, Subject Council, permanent and periodical committees organised by the Rules that are adopted by the School Council at Dean’s proposal.

Dean carries out his work in compliance with the Law, Constitution of the University of Zagreb, Constitution of the School of Dental Medicine and general acts of the University and the School.

Dean is independent in his work within the scope of his competence, and he is responsible to the School Council, Senate, University Rector and Steering Council.

Dean can be elected among teachers of the School with the position of Associate Professor or Professor for the period of two years and he/she can be elected for maximum two consecutive terms.

Dean is assisted in his work by Vice Deans. The number of Vice Deans is determined by the Rules on job structure.

Vice Deans, within their scope of work in the management of the School, fulfil their obligations in first instance.

Dean nominates assistants for activities in specific areas such as:
- scientific, applied and development research
- publication of research and expert journals and teaching materials
- continuous training and cooperation with dental medicine associations
- international cooperation.

Vice Deans and Dean’s Assistants are, by their functions, chairpersons of working bodies: committees and working groups whose task is to study and consider general issues of the organization. They are expected to do research and to teach. They also make proposals for these issues which are finally decided upon by the Dean, School Council or another competent body.

School Council

School Council is an expert council consisting of all Professors, elected representatives of Associate Professors, Assistant Professors, Associates selected for teaching and expert purposes and elected students representatives. Heads of Departments and Heads of Chairs are titular members of the Council.
Apart from competences stipulated by the law, School Council carries out other activities:
- considers and evaluates the results of teaching, research and expert work,
- caters to the development of research-teaching, teaching, research and teaching staff of the School,
- elects expert committees,
- manages procedures concerning Masters and Doctoral degrees
- adopts Rules on undergraduate studies
- proposes programmes of study courses to the Senate of the University of Zagreb
- adopts teaching curriculum
- decides on organization of vocational and research training
- nominates the Student Admission Committee
- decides on invitations extended to visiting scholars

School Council works in sessions and generally gathers once a month.

School Organization

School’s organisational units are:

1 Organisational teaching units:
   - Chairs
   - Clinics
   - Clinical Departments
   - Teaching Bases

2. Organisational research units:
   - Institutes
   - Centre for Dental Medicine Research
   - Laboratories
   - Departments
   - Demonstration Rooms

3. Staff administrative organisational unit: Secretary office

The School Secretary office carries out administrative, technical and other relevant assisting jobs. The work of the Secretary office is managed by the Secretary as an executive body of the Dean, School Council, Dean Board and other competent bodies of the School.

4. Library

Student Representation

Students are widely represented in the work of the School Council and the School committees through their elected representatives. Members of the School Council include elected representatives of all five years of study, and students may also have their representatives in various committees. The School Council has a regular item on its agenda: student issues.
Students are represented at the University by the President of the Student Assembly Branch of the University of Zagreb. He is also a representative in the Student Assembly. Student Assembly of the University of Zagreb has its representative in the University Senate.

3.2. Non-Clinical/Academic Administrative Structures

---
3.3. Information Technology

Dental Multimedia Center (SMC)

Name: Mario Šoljan, M.Sc.
E-mail: marios@sfzg.hr

1. Introduction

Dental Multimedia Center was founded in 1995. as an answer on high demand for new technologies in the process of dental education. Former Photo and Video Department became Stomatological Multimedia Centre or “SMC”, expanding activities on digital photography, digital video and Internet communications.

2. Primary Aims

- development of multimedia applications in dental education
- development of multimedia records in clinical work
- development of multimedia programs in scientific work

3. Main Objectives

- creation of on-line data basis of dental images
- project of tele-dentistry communications
- project of digital studio for production of educational tapes

4. Hours in the Curriculum

- lecture “Visual Media in Dentistry” is presented in Introduction to Dental Studies
- lecture “Visual Media in Forensic Dentistry” is presented in Forensic Dentistry
- lecture “Dentistry on Internet” is planned to be presented soon in the new classroom for informatics

5. Methods of Learning/Teaching

- lectures in animated PowerPoint presentations (LCD projector)
- demonstrations of new appliances for dental imaging (intaoral camera)
- up-to-date lectures and information on web pages of SMC

6. Assessment Methods

7. Strengths

- 18 years of experience in medical and dental imaging
- communication with world leading centres for dental informatics
• enthusiasm of students and younger teachers for new possibilities

8. **Weaknesses**

• poor interest of most teachers for use of new media in teaching process
• lack of motivation for exposing teaching materials on web pages
• small interest for development of basic skills in informatics

9. **Innovations and Best Practices**

• organisation of live video presentations of dental clinical procedures
• development of custom optical constructions for intraoral and 3D records
• project for informatization of School of Dental Medicine

10. **Plans for Future Changes**

    Potential of new multimedia possibilities is great and SMC is going to exploit it according to interest and support of all teaching stuff. It is obvious that we must accept the best of world’s experiences in this field and develop it. Changes are going to be fast and promising for new students.

11. **Visitors Comments**
Section 4  Staff

4.1. Staff

Department of Dental Anthropology

Associate Professors  Brkić, H. D. M. D., Ph. D.  
Kaić, Z., D. M. D., Ph. D.  
Keros, J., D. M. D., Ph. D.

Assistant Professors  Njemirovskij, V., D. M. D., Ph. D.

Teaching Assistants  Galić, J., D. M. D., M. Sc.

Department of Dental Pathology

Professors  Anić, I. D. M. D., Ph. D.  
Prpić-Mehićić, G., D. M. D., Ph. D.  
Šutalo, J., D. M. D., Ph. D.

Associate Professors  Azinović, Z., D. M. D., Ph. D.  
Ciglar, I., D. M. D., Ph. D.

Honorary Associate Professor  Meniga, A. D. M. D., Ph. D.

Assistant Professors  Galić, N., D. M. D., Ph. D.  
Katunarić, M., D. M. D., Ph. D.  
Miletić, I., D. M. D., Ph. D.  
Pavelić, B., D. M. D., Ph. D.  
Prskalo, K., D. M. D., Ph. D.  
Staničić, T., D. M. D., Ph. D.  
Šegović, S., D. M. D., Ph. D.  
Škaljac, G., D. M. D., Ph. D.  
Tarle, Z., D. M. D., Ph. D.

Teaching Assistants  Janković, B., D. M. D., M. Sc.  
Karlović, Z., D. M. D., M. Sc.  
Krmek, S., D. M. D., M. Sc.  

Honorary Teaching Assistant  Ledić, B., D. M. D., M. Sc.

Research Staff  Kokić, N. D. M. D., M. Sc.
Department of Oral Surgery

Professors
Knežević, G., D. M. D., Ph. D.
Kobler, P., D. M. D., Ph. D.

Associate Professors
Grgurević, J., D. M. D., Ph. D.

Assistant Professors
Filipović-Zore, I., D. M. D., Ph. D.
Katanec, D., D. M. D., Ph. D.
Macan, D., D. M. D., Ph. D.

Teaching Assistants
Krmpotić, M., D. M. D., M. Sc.
Kuna, T., D. M. D., M. Sc.
Sušić, M. D. M. D., M. Sc.

Research Staff
Sandev, S., D. M. D.

Department of Oral Medicine

Professors
Cekić-Arambašin, A., D. M. D., Ph. D.

Associate Professors
Mravak-Stipetić, M., D. M. D., Ph. D.

Teaching Assistants
Brozović, S. D. M. D., M. Sc.

Research Staff
Alajbeg, I., D. M. D., M. Sc.

Department of Orthodontics

Professors
Muretić, Ž., D. M. D., Ph. D.
Šlaj, M., D. M. D., Ph. D.
Štefanac-Papić, J., D. M. D., Ph. D.

Associate Professors
Gažić-Čoklica, V., D. M. D., Ph. D.
Lapter, M., D. M. D., Ph. D.
Rajić-Meštirović, S., D. M. D., Ph. D.

Teaching Assistants
Anić-Milošević, S., D. M. D., M. Sc.
Department of Periodontology

Associate Professors  Jorgić-Srdjak, K., D. M. D., Ph. D.
                     Plančak, D., D. M. D., Ph. D.

Senior Teaching Assistants  Ivić-Kardum, M., D. M. D., Ph. D.

Teaching Assistants  Aurer, A., D. M. D., M. Sc.

Department of Paedodontics

Professors  Lulić-Dukuć, O., D. M. D., Ph. D.
            Rajić, Z., D. M. D., Ph. D.
            Škrinjarić, I., D. M. D., Ph. D.

Associate Professors  Radionov, D., D. M. D., Ph. D.

Assistant Professors  Bagić, I., D. M. D., Ph. D.

Senior Teaching Assistant  Glavina, D., D. M. D., Ph. D.

Teaching Assistants  Majstorović, M., D. M. D., M. Sc.
                     Verzak, Ž., D. M. D., M. Sc.

                           Jukić, J., D. M. D., M. Sc.

Research Staff  Ključarić, D., M. Sc.
                Negovetić-Vranić, D. M. D.

Department of Dental Prosthodontics

Professors  Carek, V., D. M. D., Ph. D.
            Čatović, A., D. M. D., Ph. D.
            Jerolimov, V., D. M. D., Ph. D.
            Valentić-Peruzović, M., D. M. D., Ph. D.

Associate Professors  Baučić, I., D. M. D., Ph. D.
                     Čelebić, A., D. M. D., Ph. D.
                     Lazić, B., D. M. D., Ph. D.
                     Pandurić, J., D. M. D., Ph. D.
                     Živko-Babić, J., D. M. D., Ph. D.

Assistant Professors  Komar, D., D. M. D., Ph. D.
                     Mehulić, K., D. M. D., Ph. D.
                     Stipetić-Ovčariček, J., D. M. D., Ph. D.
                     Vojvodić, D., D. M. D., Ph. D.
Honorary Assistant Professor Seifert, D., D. M. D., Ph. D.

Teaching Assistants
Kraljević, S., D. M. D., M. Sc.
Žabarović, D., D. M. D., M. Sc.

Junior Assistants
Čelić, R., D. M. D., M. Sc.

Research Staff
Alajbeg, I., D. M. D., M. Sc.
Badel, T., D. M. D., M. Sc.
Buković, D., D. M. D., M. Sc.
Dulčić, N., D. M. D., M. Sc.
Ileš, D., D. M. D.
Jerolimov, M., D. M. D.

Visitors Comments
The Dental Curriculum (Sections 5 – 16)

Section 5  The Biological Sciences

5.1.  BIOPHYSICS

Name: Prof. Jasmina Brnjac-Kraljević, Ph.D.
E-mail: kraljevi@mamef.mef.hr

1.  Introduction

The course in Biophysics is held in the first semester of the first year of studies at the School of Dental Medicine, University of Zagreb. Successful participation and acquisition of teaching material is possible under the condition that the student has completely acquired knowledge of natural science courses and mathematics in secondary school.

2.  Primary Aims

The teaching material within the Biophysics course consists of carefully selected chapters in Physics related to dental medicine, either in studying biological processes on the molecular level or for the purpose of understanding physical fundamentals of methods in diagnostics and treatment. The students should also acquire basic knowledge of some issues in physics such as processing of dental materials and making of prosthodontic appliances because they are relevant to dental medicine.

3.  Main Objectives

The students should be introduced to:

- substance structure related to physics and the fundamentals of biological processes;
- fundamentals of different methods of spectroscopy and diagnostic methods related to physics;
- mechanic, electromagnetic and optical phenomena in solid substances and liquids and their application to dental medicine;
- basic principles and techniques of laboratory work;
- adequate evaluation of results;
- accuracy in measuring of certain physical parameters.

4.  Hours in the Curriculum

45 hours of lectures and 30 hours of exercises.

5.  Methods of Learning/Teaching

Lectures are held 3 hours a week with the assistance of modern teaching aids. Students’ attendance is obligatory and it is checked from time to time. Also the students have a
possibility to access web sites of the Department of Physics (http://salata.mef.hr/fizika) where they can find all information concerning the course, as well as selected lecture topics where interactive learning is made available. Exercises are held once a week in groups of 20-25 students. Exercises are obligatory and must be fully attended. All the conditions should be fulfilled in order to take the exam. Exercises cover generally all the fields in Physics which are relevant to dental medicine. All exercises can be found on web sites, thus enabling the students a consultation in advance. Moreover, the students can even carry out some simulations of measuring in advance. All the teachers at the Department have consultation hours so that the students can get the answers to their questions concerning the main topics of the course.

6. Assessment Methods

Students’ practical work is assessed by means of 2 quizes that cover topically linked groups of exercises. The exam consists of a practical part and an oral examination. The practical part of the exam is taken by the students who failed quizes. The final mark is given at the oral examination.

7. Strength

The strength of this course is that it promotes both easier learning and better understanding of other dental courses. The programme can be easily modified. The latest achievements can be implemented.

8. Weaknesses

The course in Biophysics is held in the 1st semester of the 1st year when students have still not adjusted themselves to the ways of learning and work at the School that differs greatly from the methods and ways of work in secondary schools. Since the teaching material itself is rather demanding, particularly considering the fact that students have very different levels of the knowledge acquired in secondary school, successful following of the teaching and acquisition of the course contents creates certain difficulties for the students.

9. Innovations and Best Practices

10. Plans for Future Changes

There are some ideas and plans for improving the quality of teaching, primarily by modernising practical exercises and introducing demonstration as an additional method of teaching to lectures. This would require a purchase of some more sophisticated equipment, e.g. spectrometer, school x-ray device, computers for students, etc.
11. Visitors Comments
5.2. CHEMISTRY

Name: Assoc. Prof. L. Burger, Ph. D.
E-mail:

1. Introduction

In the Chemistry course, as a fundamental discipline, the students should acquire knowledge basic knowledge of chemistry. They are expected to learn procedures and methods relevant to their training for future dentists. In addition, they should learn about the laboratory, i.e. experimental work and its techniques. They should also learn to think and to make judgements in an exactly scientific way.

2. Primary Aims

As a basic course in the 1st year of studies, the Chemistry course should enable dental students to acquire the knowledge in Chemistry which is necessary for better understanding of Biology, but also for their successful participation in courses such as Biochemistry, Physiology, Pharmacology, etc., and clinical courses. These are primarily theoretical basics of Physical and Organic Chemistry but also laboratory, i.e. experimental work and its methods.

3. Main Objectives

The curriculum in the Physical Chemistry includes Bioenergetics with Electrochemistry and Photochemistry, Kinetics with a special review of the kinetics of enzymes, chemical balance and the theory of solutions. The part of the course on Organic Chemistry provides a general overview of Chemistry of organic compounds with as special overview of simple and complex bio-molecules such as carbohydrates, lipids, hormones, amino acids and proteins, nucleic acids, alkaloids and vitamins.

4. Hours in the Curriculum

The total number of hours of the Chemistry Course is 90 with 45 hours of lectures, 30 hours of exercises and 15 hours of seminars. Lectures are divided in an equal number of lectures in Physical and Organic Chemistry. The contents of the exercises (10x 3-hour sessions) should thematically complement lectures, but they also include basics in chemical calculations and preparation of solutions of certain composition as well as some conventional and also some more recent physical and chemical methods of quality and quantity analysis. Seminars (10 x 1.5 hours) precede every exercise and they focus on the theoretical knowledge which was explained in the course of the exercise. It is estimated that students spend an average of app. 150 hours of self-directed learning before taking the exam.

5. Method of Learning and Teaching

The Chemistry course is held in the first semester (15 weeks) of the first year. The teaching combines lectures, seminars and laboratory work. It is natural for the university teaching level to complement a textbook material with some more recent research findings. Lectures are held twice a week (2x1.5 hours). Once a week there is a seminar
(1.5 hours) and there are also 3 hours of laboratory work. All teachers are available for communication and consultations with students by fixed and flexible hours every week.

6. Assessment Methods

In the course of the semester three quizzes are organised where knowledge of the material taught in exercises and seminars is assessed. At the end of the exercises and seminars, a summary quiz is organised for those students who did not take or did not pass the three partial in-course quizzes. Efforts are made to stimulate students to take quizzes in exercises and seminars before taking the final exam. At the final exam, students get seven written questions and have half an hour to make a written draft of their replies. The grades vary- from 1 to 5, 2 being the minimum pass.

7. Strengths

The Curriculum of the Chemistry course for dental students is drafted and carried out by experienced previous and current teachers. At the end of the course the student should have a good general insight in issues relevant to him, as well as a solid basis for further studies. Some 80% of students pass the exam in Chemistry by the end of their 1st year of studies.

8. Weaknesses

Number of hours of the course is somewhat insufficient considering the envisaged curriculum; also the students are overloaded with too many courses in their first year of studies.

9. Innovations and Best Practices

Quizes that were introduced several years ago have proved to be a very good practice.

10. Plans for Future Changes

Certain efforts in the orientation of contents of the lectures and exercises towards dental medicine could be made. Some additional chapters in inorganic and bioinorganic Chemistry might be welcome. Computer-assisted presentations could be introduced to the presentation of more complex structures.

11. Visitors Comments
5.3. BIOCHEMISTRY

Name: Prof. Marko Mesarić, Ph.D.
E-mail: mmesaric@mef.hr

1. Introduction

2. Primary Aims

The aim of medical courses, particularly pre-clinical courses during dental studies, is to introduce the students to the structure and functions of a healthy person's organism. Therefore, the curriculum of Biochemistry is designed to enable an acquisition of knowledge of chemical structure, biochemical changes and energy changes, and the regulation of metabolic processes in the organism of a healthy person. Special emphasis is placed on those developments that are specifically interesting to dentists. Such a curriculum in Biochemistry complements the Physiology course. Apart from this, knowledge acquired through such a curriculum is necessary for an understanding (and treatment) of a wide range of disorders in the oral cavity which are caused by the patho-biochemical processes.

3. Main Objectives

The Chemistry course is focused on the following topics:

- Molecular cell architecture, including amino acids, peptides, proteins, enzymes, carbohydrates, lipids and nucleic acids. Explanation of a three-dimensional structure of proteins and other bio-molecules has greatly contributed to the understanding of molecule basis of life.
- Means of developments of various biochemical processes in cells, their interaction and mechanisms of formation and consumption of energy. This encompasses basic principles of metabolism, metabolism of carbohydrates, lipids, citrate cycle, chain of respiration, metabolism of proteins and amino acids and metabolism of purine and pyrimidine bases.
- Considering the important role of nutrition in maintaining dental health, particular attention is paid to some general principles of nutrition, food composition, vitamins and minerals.
- Overview of the biochemical processes in the oral cavity.
- Control mechanisms of cell processes, hormones and their role in regulation of processes in the organism as a whole.

4. Hours in the Curriculum

Teaching is carried out during the total of 90 hours in the first year of studies (2\textsuperscript{nd} semester) in lecture format and in practical teaching/exercises (45+45).
5. Methods of Learning/Teaching

General topics in Biochemistry are covered by lectures, whereas during practical work, students are introduced to basic methods and analyses in Biochemistry. Some processes that seem to be important to dentists are studied.

6. Assessment Methods

In order to acquire teaching material in the most successful and efficient way, students’ work is continually supervised during Biochemistry exercises. Their work in the laboratory is assessed.

The Biochemistry exam consists of a written test and an oral examination. The test covers the topics which were taught in lectures and were discussed in the theoretical part of exercises. There are some questions regarding the discussed and explained issues from the textbook. Regardless of the result obtained in the written part of the exam, the students can take an oral examination and the final mark in Biochemistry consists of the results achieved in both- the written test and the oral examination.

7. Strengths

8. Weaknesses

Insufficient number of classes since 45 hours of lectures suffice for covering only basic issues on chemical processes in organisms. It would be necessary to pay more attention to biochemical processes in the oral cavity, including the biochemical role of saliva, the oral cavity microbiota (special features of bacterial metabolism which are characteristic for the oral cavity microbiota, considering the impact of their decomposition products on teeth and on the oral cavity) Dental plaque formation and characteristics of dental plaque should be studied more thoroughly. Also, more attention should be paid to chemical processes in the teeth. Although Physiology course has a lot in common with Biochemistry, the teaching is not carried out simultaneously which results in poor cooperation. It is pity that the two courses cannot complement each other.

In addition, since the present dental Curriculum represents a large workload burden for the dental students in their first year of studies, and a pass in Biochemistry exam is not a condition for the enrolment in the second year of studies, the majority of students take the exam a year after having attended lectures, which considerably decreases the effects of the course.

9. Innovations and Best Practices

10. Plans for Future Changes

Plans are related to changes in the Curriculum of the School of Dental Medicine. A bigger number of classes and the implementing of the Biochemistry course later in the course of studies (2nd and 3rd semester) would enable students to follow the course with greater understanding. A better horizontal and vertical linking is necessary. Emphasis
should be placed on seminar teaching which would allow students work in smaller groups. In this way they will work on specific problems and learn about typical examples, which would complement the basic knowledge of Biochemistry in view of biomedical relevance of such examples. Special emphasis should be placed on the processes which are particularly relevant to dentists.

11. Visitors Comments
5.4. HUMAN BIOLOGY WITH GENETICS

Name: Prof. Draško Šerman, Ph.D.
E-mail: sermand@mef.hr

1. Introduction

The Course in Human Biology with Genetics is introduced to the first year of the study (the first and the second semester). Lectures are held at the Department of Biology of Medical School, University of Zagreb, Šalata 3.

2. Primary Aims

The primary aim of the Course is to help the students acquire comprehensive understanding of contemporary knowledge of the fast growing field of Sciences. Special emphasis is placed on the subjects which belong to the field of general and human biology because they are important to dental sciences: biology, cell biology, molecular biology, reproductive biology, developmental biology, classical genetics and elements of human genetics.

3. Main Objectives

To:
- Help students acquire understanding of contemporary biological sciences and molecular biology related to health and disease, in particular the dental health and health of oral cavity.
- Enable students acquire critical thinking and problem solving abilities.
- Help students master the basic experimental skills such as light microscopy and basic laboratory techniques, including work on the experimental laboratory animals.
- Introduce students to elements of analytical laboratory procedures including electrophoretic, cytological, tissue and organ culture, developmental biology, mammalian embryo and foetus; introduction to some basic molecular techniques.
- Start developing sense for human rights in relation to human genome and potentials of new biomedical technologies.
- Understand cell biology, molecular biology, reproductive biology and developmental biology. They are taught in the first year (1st semester) in order to provide a solid basis for the second semester.
- Teach classical genetics, bacterial genetics, human genetics, genetic and epigenetic regulatory mechanisms, genome imprinting and the recombinant DNA technologies.
- Discuss the cell proliferation and its control mechanisms since, in the context of malignant transformation, it is considered to be the major health problem we address in our course. It is related to both oncogenes and tumour suppresser genes.
- Introduce to bioethics in relation to acute ethical issues arising from mammalian developmental biology such as embryonal stem cells, and their potential for cell and tissue replacement therapy.
4. **Hours in the Curriculum**

The course is taught within 105 hours in the first year, dedicating 45 hours to theoretical presentations in lecture format and 60 hours to practical students’ work and exercises in the form of laboratory work and seminar work. The hours of teaching are evenly distributed within the 1\textsuperscript{st} and the 2\textsuperscript{nd} semester. The 1\textsuperscript{st} semester offers 30 hours of presentations and 30 hours of practical laboratory work in cell biology, molecular biology, reproductive biology and developmental biology while the 2\textsuperscript{nd} semester offers to the students presentations in classical genetics, bacterial genetics, human genetics, genetic regulation, imprinting, and practical work in seminars, where students study and report on the selected topics.

5. **Methods of Learning/Teaching**

Students are encouraged to acquire new information and keep growing in their biomedical knowledge and understanding of biological sciences, building further on their high school education in biology. Having rather uneven level of the previously acquired knowledge in high school education, this Course tries to give all the students a very firm foundation, irrespectively of their previous education level or knowledge.

Students’ learning is encouraged and stimulated by the three different ways of teaching: plenary presentations offering basic reviews of major topics, laboratory exercises and practical works with light microscopy within general fields of cell biology, molecular biology and developmental biology, and finally by seminars covering genetic issues.

6. **Assessment Methods**

Assessment is carried out in two different ways:
- informal assessments of the student’s progress that he made during each and every hour of practical work, and during their preparation and public presentation of assigned seminar topics.
- formal assessment at the oral examination which is held at the end of the second semester.

7. **Strengths**

The Course has been developing its profile for many years of teaching in human biology. It has acquired its present profile by a great number of previous teachers who contributed a lot. The course has been continuously growing thus modifying itself by acquiring new educational contents. Efforts have been made to keep up with fast advances in other scientific fields, especially those which are important to human health (and disease). However, this course has always been a separate Course offered to the dental students. The Course is held in lecture format and practical exercises by teachers who themselves have constantly been engaged in original scientific research in the field of cell biology, molecular biology, reproductive biology, genetics and particularly in developmental biology. They have greatly contributed to the development of these fields, especially to the field of developmental biology of mammals.
The Department has always been devoted to scientific research. Special attention has been paid to mammalian developmental biology, and historically experimental developmental biology of mammals hence we keep up with its development, its contemporary explosion in global dimensions and its new potentials. In this way we also face some bioethical dilemmas.

8. Weaknesses

The existing textbooks and handbooks are exceedingly voluminous, and a new generation of more coherent and more appealing handbooks should be produced thus offering better pictorial presentation of life processes related to human biology.

9. Innovations and Best Practices

Introduction of multimedia teaching equipment enables a better and more appealing presentation of some topics, especially that of experiments, or complicated methodologies. It was possible to acquaint students with scientists who made the critical experiments and produced major breakthroughs in life sciences. Lectures have been turned into presentations, using as much as possible a good quality slides: the new ones and the old ones, colour reproductions, transparencies, power point presentations and videos trying to present dynamically the processes in life sciences and human biology, as well as the most recent news and discoveries in biomedicine in a vivid and attractive way.
Handouts were offered at presentations and in practical laboratory work. All the students were provided with the Croatian translation of the Universal Declaration of Human Rights and the Human Genome of UNESCO. An offer for a new education effort in Bioethics was proposed, within the Course, to our students. They were free to choose.

10. Plans for Future Changes

The main priority is to produce a new generation of written materials and textbooks which are more concise and more appealing. They should be well designed and provided with photographs, pictures, graphs and sketches. Apart from multimedia presentations, a high quality slides of new discoveries in life sciences will be offered to the students to make them more actively engaged in the process of knowledge acquisition.
11. Visitors Comments
5.5. PHYSIOLOGY

Name: Assoc. Prof. Ana Andreis, Ph.D.
E-mail:

1. Introduction

The physiology course is held in the first and in the second year (2\textsuperscript{nd} and 3\textsuperscript{rd} semester) of studies.

2. Primary Aims

The students are introduced to all aspects of normal function. They need to understand the functioning of a healthy human body in order to understand the mechanisms of dysfunction or diseases.

3. Main Objectives

Learning and understanding of:

- features of human cells and the maintenance of homeostatic conditions for their functioning;
- physiology of blood, erythrocytes, haemostasis and the basic immunologic role of leukocytes;
- functioning of cardiovascular system;
- physiology of the renal and the respiratory system and their common role in maintaining acid-base balance;
- role of digestive system with emphasis on physiology of the oral cavity;
- hormonal control of metabolic and other functions of human body;
- physiology of excitable cells, generation of membrane potential, mechanisms of generation and transmission of signal, neuromuscular junction and muscle contraction;
- functioning of the somatic vegetative nervous system, including sensory and motor pathways, nervous reflexes, sensory organs and basic cortex functions.

4. Hours in the Curriculum

Summer (2\textsuperscript{nd}) semester: 30 hours of lectures and 30 hours of laboratory practicals.
Winter (3\textsuperscript{rd}) semester: 45 hours of lectures and 45 hours of laboratory practicals.

5. Methods of Learning/Teaching

During the lectures (half of the curriculum), textbook material is complemented by up-to-date knowledge; some of lecture topics are used as the base for laboratory practicals. Ten students do the same practical together, assisted by the teacher who discusses with them topics that are related to their practical work (measuring and calculation of various physiological parameters).
All the students are provided with a continuous consultation with their course teacher.
6. **Assessment Methods**

One or two written short tests and periodical oral examination by which practical and theoretical competence in teaching material related to the practical work is assessed. Satisfactory results in those in-course assessments are a condition for taking the final exam. At the end of the winter (3rd) term, the students take written exams. However, the results of the written paper can be improved if a student displays better knowledge at oral examination.

7. **Strengths**

Teaching students how to have a good grasp of the rules of logic in order to be able to understand the mechanisms of disease by knowing the normal physiological functions. Continuous interaction between students and teachers.

8. **Weaknesses**

Physiology course is introduced too early in dental studies while students are still focusing on taking exams from the 1st year of their studies. Taking an active part in the discussion late in the afternoon is not possible due to the students’ exhaustion. In addition, there is a problem of outdated equipment.

9. **Innovations and Best Practices**

To improve the lectures on complicated topics (nervous and hormonal control of body functions), with the possibility of taking the exam prior to dealing with these topics which would contribute to the final mark as a bonus.

10. **Plans for Future Changes**

Need for better equipment for practical work. Efforts should be made to change the course timetable.

11. **Visitors Comments**
5.6. OROFACIAL GENETICS

Name: Prof. Ilija Škrinjaric, Ph.D.
E-mail: skrinjar@sfzg.hr

1. Introduction

Orofacial genetics as a clinical discipline integrates basic and clinical research to study normal and pathologic variations of human oral and facial structures. It is directed toward diagnosis, treatment and prevention of dental and craniofacial abnormalities. Majority of genetically determined disorders affect the craniofacial region. All chromosomal anomalies, about 50% of disorders with mendelian mode of transmission, and about 25% of multifactorial disorders manifest themselves in this region. The curriculum of orofacial genetics has a role of integration of genetic principles with other clinical dental disciplines to provide comprehensive and interdisciplinary treatment of patients with genetic disorders.

2. Primary Aims

The students are expected to understand:
- the relationship of genetic and environmental factors and basic principles of abnormal craniofacial development.
- the genetic basis of common dental disorders and craniofacial malformations, and basis for the treatment approach, prevention and counselling.

3. Main Objectives

The main objectives of orofacial genetics are to enable dentist:
- to use genetic knowledge in comprehensive care of their patients.
- to identify processes leading to disturbed craniofacial development and to find out measures to diagnose and treat dentofacial abnormalities.
- to identify epidemiological characteristics and natural history of inherited craniofacial defects in population.
- to take part in assessment of the role of inheritance in craniofacial and dental disorders.
- to use genetic knowledge in diagnosis and comprehensive treatment plan and team approach to the patients with craniofacial abnormalities.

4. Hours in Curriculum

15 hours in the third year (6th semester).
The curriculum of Orofacial Genetics includes the following major issues: fundamentals of human genetics, evaluation of the craniofacial region and diagnosis of genetic disorders, genetic abnormalities of tooth size, number and structure, genetic syndromes involving orofacial structures (malformation, dysmetabolic and dysplastic type), genetics of orofacial clefts, genetics of common dental disorders, prevention of craniofacial abnormalities and genetic counselling.
5. **Method of Learning/Teaching**

15 hours of lectures.

6. **Assessment Method**

Credits are awarded after examination (written test and oral examination).

7. **Strengths**

8. **Weaknesses**

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

11. **Visitors Comments**
Section 6  Pre-Clinical Sciences

6.1. ANATOMY FOR DENTISTS

Name: Assoc. Prof. Ivan Vinter, Ph. D.
E-mail: ivinter@mef.hr

1. Introduction

Acquiring basic knowledge on the structure and function of the human body. Special emphasis is placed on the study of anatomic and topographic regions relevant to further education of dental students.

2. Primary Aims

Help students to successfully complete this course through dissections, anatomic preparations, video presentations, continuous, active work with students (assessment) and consultations. The students are expected to be able to apply the acquired knowledge to their further studies (i.e. specialised courses).

3. Main Objectives

Teaching material consists of systematic and topographic anatomy of human body. Special emphasis is placed on the head and neck regions since they are relevant to the education of future dentists. Overall topics are: nomenclature in Anatomy, general structure of the human body, bones, joints, muscles, viscera, topographic and anatomic features of the head and neck regions, respiratory system, cardio-vascular system, urinary and reproductive system, central and peripheral nervous system.

4. Hours in the Curriculum

Independent teaching:

1st year: 1st Semester:
Lectures: 20 hours
Exercises: 10 hours
Seminars: 30 hours

2nd Semester:
Lectures: 20 hours
Exercises: 50 hours
Seminars: 20 hours

5. Method of Learning/Teaching

Lectures, seminars, video presentations, laboratory exercises, laboratory demonstrations, consultations and quizzes.
6. Assessment Methods

Control of all the phases of work in the course of the 1st and 2nd semester by means of weekly quizzes. Written test is a requirement for the oral examination.

7. Strengths

Highly competent teacher, modern laboratory equipment and instruments. Internationally recognised Department of Anatomy “Drago Perović”. Teaching material has been translated and it works well.

8. Weaknesses

A weakness of the course is considered to be a requirement for the students to take the Anatomy exam prior to their enrolment to the 2nd year of study. It is believed that students would learn and benefit more from the Anatomy course if they had an opportunity to take this exam during the extended period of time, for example before the enrolment to the 4th semester.

9. Innovations and Best Practices

Develop research with promising and motivated students. Intensify the use of modern media in teaching and learning processes.

10. Plans for Future Changes

Continued monitoring of students’ progress and their acquisition of teaching material. Increase the use of multimedia. Provide models, specimens and samples for practical laboratory exercises.

11. Visitors Comments
6.2. HISTOLOGY AND EMBRIOLOGY

Name: Prof. Želimir Bradamante, PhD.
E-mail: charlie@mef.hr

<table>
<thead>
<tr>
<th>Semester</th>
<th>Study form</th>
<th>Hours per semester</th>
<th>Hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Lectures</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Practical training</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>2nd</td>
<td>Lectures</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Practical training</td>
<td>30</td>
<td>2</td>
</tr>
</tbody>
</table>

1. Introduction
Histology and Embryology course is held in the course of the first year of studies. It is not further integrated into studies of subsequent courses of the curriculum. The descriptive human embryology (including malformations) is taught. General developmental biology is included in the subject General biology.

2. Primary Aims
This course sets out to teach basic knowledge of the normal functional organization at the cellular, tissue and organic levels, as well as of the thorough knowledge of the microscopic structure of tissues and organs.

3. Main objectives
Correlating structure and function. The relationship between morphology and physiology is the key to understanding the subject. The basic knowledge of embryogenesis and organogenesis is required for the understanding of developmental anomalies.

4. Hours in the Curriculum
   a) "General Histology": lectures (10); practical work (12)
   b) "General Embryology": lectures (5); practical work (4)
   c) "Special Histology" and "Special Embryology": lectures (15); practical work (44)

5. Method of learning/teaching
Individual examination of 70 microscopical (histological) slides with light microscope; drawing (sketching) of specimens. Study of EM micrographs. Each practical session is preceded by a short lecture concerning the slides to be examined.

6. Assessment methods
Oral examination (including microscopy of histological slides) at the end of the second semester.

7. Strengths
Although student groups in practical courses are too large, they allow personal communication, intense instructing (demonstration and answering students’ questions) and close supervision. This interactive personal learning has proved to be very effective.
Video demonstration and practical training (one student per microscope). Course evaluations.

8. Weaknesses
The lectures are poorly attended by students. Too large groups of students (55-60) for the practical work. Due to the relatively low level of students' basic knowledge the course is not well positioned in the curriculum. Insufficient coordination with teaching of other subjects. Unsatisfactory average examination results. The students are not self-directed in their learning. Some staff members plead for more content-oriented and subject-oriented approach.

9. Innovations and Best Practices
Problem based learning and interdisciplinary integration. However, the time available for teaching does not allow for this approach. Textbooks: Yunqueira et al.: "Basic Histology"; Langmans Medical Embryology (Croatian translations); manual for practical work.

10. Plans for changes in the future
Creating more motivation for students of dental medicine. The planned innovations include the possibility to use modern imaging techniques. Efforts will be made to reinforce computer-based learning. Traditional learning and education methods should be modified. Implementing the slides examinations and computer illustrations could be the first step.

11. Visitors Comments
6.3. INTRODUCTION TO DENTAL STUDIES

Name: Prof. Zvonimir Kać, Ph.D.
E-mail: zvonimir.kaic@sfzg.hr

1. Introduction

Since the establishment of the School, the course has existed in a number of different forms within the dental curriculum. However, the main emphasis has always been placed on the introduction to future profession and its position in medicine and in society. A review of development of dental medicine in theoretical and practical direction points out the achievements of dental medicine in Croatia and abroad. An evaluation of oral health condition in Croatia contributes to the awareness of needs in terms of experts and general community in dental medicine.

2. Primary Aims

Principles of education of dentists and foundation of schools of dental studies are demonstrated in retrospective with a comparative overview of the Croatian and international context. The present set up of dental schools, teaching, experts and research work assisted by modern technological aids will pave the way for future studies. The approach to and the use of information are fundamental to acquisition of teaching material aiming at educational, clinical, scientific and practical application. Comparison of major dental problems in Croatia with those in the world will stimulate students to pay particular attention when dealing with specific problems in the course of the studies, which might even be crucial to them when choosing their future specialization. Medical Deontology should be the framework for both - the overall work and life of future dentists.

3. Main Objectives

- Development of health culture, tasks, classification, uniqueness of medicine
- Health culture of primitive populations. Archaic extra-European health cultures. Old Greek and Roman health culture (Asclepius, Hippocrates, Galen)
- Birth of modern health care (baroque, Pierre Fauchard, Enlightenment) Theoretical basis of modern healthcare.
- Definition of dental medicine, place and its position in medicine. Why become a dentist.
- Principles of dental education and foundation of schools of dental studies.
- Modern dental schools, organisation of teaching determined by contemporary development of education, sciences and technological aids.
- Dental information and documentation (educational, clinical, scientific, practical application), visual media and dental medicine.
- Models of computer use in dental medicine.
- Organisation of dental health care of population in the world and in Croatia (primary, secondary and tertiary dental care)
- Major dental problems in Croatia, review of oral health in the world and in Croatia, guidelines of development of dental health services following the recommendation of the World Health Organization.
- Specialist branches in dental medicine and possibilities for their specialisation in Croatia.
- Medical deontology, responsibility of dentists, doctors’ oaths and codex, major responsibilities to patients (Informed consent), oneself and colleagues, to society (Croatian Chamber of Dentistry).

4. Hours in the Curriculum

The course is taught in the 2nd semester (5 hours of lectures and 10 hours of seminar), which amounts to the total of 15 hours.

5. Methods of Learning/Teaching

Lectures make one third of the course and they are the basis for further seminars. Seminars cover issues taught by teachers, i.e. experts in different fields such as “Central Dental Library and Primary, Secondary and Tertiary Information” (taught by Head of School Library), “Visual Media in Dentistry” (taught by Head of Dental Multimedia Centre at the School, dentist), “Models of Computer Use in Dentistry” (taught by Professor of Endodontics), “Dental Information and Documentation” (taught by Senior Lecturer of Dental Pathology), “Deontology of Dentists” (taught by a specialist in Social Dental medicine).

6. Assessment Methods

Upon the completion of the course the students take oral examination.

7. Strengths

The syllabus is oriented towards the basic idea of dental medicine as a practical activity, as a scientific discipline and as an integral part of medicine, or wider, biology. The influence of modern technologies is inevitable in common routine work of a dentist. Therefore it is indispensable that students learn at the beginning of their studies all the possibilities of use of available information and techniques such as taking photographs, scanning, preparation and making of slides aimed at presentation of targeted contents. Internet support and its use will be an inevitable aid in dealing with problems in the course of the studies.

8. Weaknesses

Lack of classroom space and a sufficient number of modern didactic aids is an obstacle for every individual student to independently acquire offered contents following his/her own pace. The existing textbook (“Introduction to Medicine”) is primarily intended for medical students. In preparation of a new edition, certain units for dental students will have to be added, which would ensure the universal character of the textbook and solve the issue of special chapters on dental medicine.
9. **Innovations and Best Practices**

Organise adequate workshops in Central Dental Library and Dental Multimedia Centre, as well as at the computer room. Each student should work independently on one topic of his own choice in this course, which would influence his/her final course grade.

10. **Plans for Future Changes**

Extend the introduced module approach to presentation of seminar topics by a number of topics and participants.

11. **Visitors Comments**

---

### 6.4 TOOTH MORPHOLOGY AND DENTAL ANTHROPOLGY

Name: Prof. Zvonimir Kajić, Ph.D.
E-mail: zvonimir.kaic@sfzg.hr

1. **Introduction**

The study of ontogenetic and philogenetic development of human dental organs, as well as the comparative study with other vertebrates, will be carried out for the purpose of future clinical and research work. In practical exercises the psychomotor skill is going to be acquired in the direction: object – eye – brain – hand.

2. **Primary Aims**

Knowledge of the anatomy of a tooth and its alveolus is at the core of dental studies. After the completion of the course, the student should demonstrate knowledge of morphological features of all types of teeth, permanent and deciduous, which he/she will use in a) tooth identification, b) diagnostics of tooth anomalies, c) treatment procedures on decayed teeth.

3. **Main Objectives**

After the completion of the course, the student should have knowledge of the following:
- Descriptive terms in Dental Anatomy and Anthropology.
- Macroscopic structure of the features of the crown and the root of every permanent and deciduous tooth.
- Macroscopic structure of the characteristics of the endodontic space with particularities related to the tooth arch and the tooth kind.
- Order of eruption of permanent and deciduous teeth, and their resorption.
- Microscopic structure of human permanent and deciduous teeth
- Odontometrics, tooth trends, biological variability, asymmetry of teeth. Radiologic anatomy of the teeth and the jaws
- Genetic influences on tooth development and growth.
- Development of tooth occlusion and articulation.
- Human masticatory system, self-protective features of teeth
- Embryonic development of human teeth
- Comparative odontography (macroscopic and microscopic animal tooth structure)
- Evolutional development of the jaws (carnivores, herbivores, omnivores).

4. Hours in the Curriculum

The course is held in the 1st year (in the 2nd semester- 15 hours of lectures and 30 hours of exercises) and continues throughout the 2nd year (in the 3rd semester- 15 hours of lectures and 45 hours of exercises). The total number of hours is 105.

5. Methods of Learning/Teaching

The theoretical teaching is carried out in lecture format that thematically precede later practical exercises. Practical work is organized for groups of 16 students. There is one teacher or assistant and/or one demonstrator (student in a senior year of study) per six to eight students. The main idea is to classify teeth by drawing in two dimensions, whereas modelling in modelling clay and plaster of Paris is done in three dimensions. Teeth models are made in plaster of Paris in twelve time bigger size. Samples of natural deciduous and permanent teeth as well as their sections in various surfaces are the next step in the work in Teeth Anatomy. Ondotometrics is carried out on the tooth arch casts with the help of sliding caliper. The notification of certain anthropological features of teeth is done according to the Arizona State University method. Histological structure of teeth is made available by the use of light microscopy (native and coloured preparations of permanent and deciduous teeth, deciduous teeth in resorption). The x-ray structure of teeth is carried out with the use of radiography of both the jaws and the teeth (orthopantomograms, lateral skull radiographs, standard intraoral periapical views of the teeth, bite-wing radiographs) on the negatoscope. The embryonic development of dental organ is followed by the processing of histological preparations from the tooth bud to its maturation. The evolution development of jaw is studied based on the Krapina pre-historical man collection kept in the Croatian Museum of Natural Sciences in Zagreb.

6. Assessment Methods

Before every practical exercise, the necessary background knowledge is revised in conversation with students. After that the students have to sketch both- the teeth and dental arches according to a given pattern (model). Carving or modelling of samples of permanent and deciduous teeth is carried out with the model, and is assessed after the
groups have been completed without any models. The result contributes to the final grade. The exam is taken after the completion of the course and it consists of the practical part (a) terminology and teeth nomenclature, b) recognition of permanent and deciduous teeth, c) light microscopy of histological preparations of permanent teeth, deciduous teeth and embryonal development of tooth germ, d) analysis of occlusion and articulation of the teeth in plaster casts of dental arches) and f) theoretical part in an oral examination format with the selection of questions from every teaching unit. At the end of the studies, students can choose one of the offered topics from the Teeth Morphology with Dental Anthropology in order to write their theses.

7. **Strengths**

The course is the first dental practical subject, which generally attracts the majority of students. Sketching, modelling/carving of teeth represents the first individual product that every student keeps. In addition, it offers the possibility for fast development of finger skills of the future dentist in the part of life and studies when this process is the least painful. The existing Internet assistance on the spot in one of the practice laboratories provides the possibility to check the theoretical claims in a short period of time. The possibility to follow the steps in development of tooth from its germ to maturity in one place is very stimulating.

8. **Weaknesses**

Due to the lack of space the existing laboratory for routine and research work by staff and students is inadequate. Internet connection should be established in the central pre-clinical teaching laboratory as well as an internal connection with the Auditorium in order to use the existing advances of modern technology in both places, which is currently not the case.

9. **Innovations and Best Practices**

Since the School of Dental Medicine can't afford purchasing necessary devices, due to its current financial situation, the ultra-structure of the teeth should be researched by means of the equipment at other institutions in Zagreb, based on the principle of guest use. Furthermore, we plan to prepare an appropriate textbook on Dental Anthropology in the Croatian language. We would also, like to put up a web site of the Department of Dental Anthropology as a link to the existing address [www.sfzg.hr](http://www.sfzg.hr), where useful information for all kinds of student will be available, including undergraduate, postgraduate courses and continuous education.

10. **Plans for Future Changes**

In the 3rd semester, i.e. the second part of the Tooth Morphology with Dental Anthropology course, a part of the teaching material should be taught following the module principle, particularly the material that will directly become the core part of a daily clinical work (endodontics, differences in anatomy of deciduous and permanent teeth, self-protective features of the denture), i.e. together with endodontists, pedodontists, prosthodontists, biochemists, microbiologists...
11. Visitors Comments
6.5. **HISTORY OF DENTISTRY**

Name: Prof. Zvonimir Kajić, Ph.D.
E-mail: zvonimir.kaic@sfzg.hr

1. **Introduction**

The History of Dentistry should create a link between past events and contemporary events in society. Indeed, such a link should also be created between health care and science. The ephemerality of values of a great number of medical and technological solutions should provide a future dentist with a critical attitude which should lead him/her to "continuing education" in the course of his/her professional career. The evaluation of the means and instruments of treatment at a given moment will be far more sensitive if accompanied by the retrospective component of the professional development. Such a procedure of evaluating past events concerning dental medicine will provide a future dentist with an insight into the price of progress in Dental medicine.

2. **Primary Aims**

The aims and objectives of the History of Dentistry in a professional career and in research work of a future dentist are of practical nature. Achievements in dental medicine are described according to the sources and remnants of prehistoric ancient peoples worldwide until the turning point in the 18th century when the era of modern dental medicine started. The evolution of the concept of dental diseases and their treatment is a separate entity. A tumultuous progress which was made in dental disciplines is based on natural sciences and the use of technological advances. Research and education in dental medicine belong to a special group of topics.

3. **Main Objectives**

By the completion of the course, students will have been informed on the following issues:

- Dental medicine of pre-historic and ancient populations who belonged to archaic extra-European cultures.
- Dental medicine of classical Greeks or Romans, Islamic health care.
- Medieval dental medicine, the awakening of natural sciences.
- 18th century, autonomy of dental medicine, Pierre Fauchard, the father of modern dental medicine, people who were leading figures in the progress of dental medicine, e.g. J. Hunter, Ph. Pfaff.
- Research efforts in dental medicine, anatomy of teeth, research on caries and theories of its origin.
- Development of dental education in Croatia and abroad.
- Review of the history of dental medicine in Croatia.
- Issues on dental disciplines (past – present – future in the world and in Croatia)

4. **Hours in the Curriculum**

The course is delivered in the fifth year (9th semester). It includes 5 introductory lectures and 10 seminars - the total of 15 hours.
5. Methods of Learning/Teaching

Lectures represent the basis for the acquisition of seminar topics which are presented by specialist teachers who are representatives of seven established dental disciplines in Croatia. Online visit to the exhibition: Centuries of Natural Science in Croatia: Theory and Application: June 19th – October 31st, 1996, is today possible on http://pubwww.srce.hr/zuh or http://bagan.srce.hr/zuh, or other web sites dedicated to the history of dental activities in the world.

6. Assessment Methods

At the end of the course students take an oral examination.

7. Strengths

The course is held at the end of the dental training when it is possible to purposely connect the past of our profession with all current practical dental disciplines. Module presentation of individual dental branches by leading teachers and representatives of established profession should bring as much light as possible in the expected directions of development, which is also an opportunity to experience history as an integral part of the present and the pledge for the future.

8. Weaknesses

Non-existence of a museum collection at the School of Dental Medicine. Lack of original texts by renowned authors from all over the world which would remind us of the efforts which were made in the evolution of dental medicine.

9. Innovations and Best Practices

Complete the textbook on the history of dental medicine in the Croatian language.

10. Plans for Future Changes

Train students to be able to analyse the original dental texts written in Croatian and those written in a foreign language. The texts should be related to certain problems from the past which still have a strong impact on our present days.

11. Visitors Comments
6.6. DENTAL DIAGNOSTIC AND PROPEDEUTICS

Name: Prof. Pavel Kobler, Ph.D.
E-mail: kobler@sfzg.hr

1. Introduction

This multidisciplinary course was introduced to the dental curriculum in 1997 within the Department of Oral Surgery in order to improve the diagnostics of certain diseases and manifestations in the oral cavity. On the other hand, it was established to ensure an easier transfer of students from the pre-clinical to the clinical part of the studies. Thus the clinical dental subjects as well as lectures were relieved, so that all the improvements could have been introduced to respective dental disciplines.

2. Primary Aims

To:
- introduce the students to all diagnostic methods in dental medicine;
- teach the students how to use diagnostic methods in practice in order to make a correct diagnosis before the initiation of treatment;
- acquire knowledge of all dental medicine branches, instruments, registers, filling materials, impressions, etc., prior to pre-clinical and clinical practice.

3. Main Objectives

- Equipment in dental practice (history and development of dental units and instruments, presentation of phantom head)
- Examination of patients, diagnostics, terminology in diagnostics (in Croatian and in Latin), diagnostic methods.
- Propedeutics in certain dental disciplines: Dental Pathology, Fixed and Removable Prosthodontics, Oral Surgery, Oral Medicine, Periodontology, Child and Preventive Dentistry, Orthodontics.

4. Hours in the Curriculum

The total number of hours of teaching in the second year of studies: 30
Lectures: 15
Seminars: 15

5. Methods of Learning/Teaching

In the 3rd semester teaching is carried out in lecture format. The students are informed about individual dental courses, possibilities of specialization, organization of respective Institutes, equipment, diagnostic methods and terminology in diagnostics. At present, in the course of the 4th semester, teaching is delivered in two large groups in the auditorium in seminar format. The curriculum envisages work in smaller groups in the pre-clinical teaching laboratory. However due to a great number of students on one hand and the non-availability of the pre-clinical laboratory on the other, we are not able to organise classes in such a manner. In the course of the fourth semester students are shown how to carry out the first examination of patients and how to register them; they
are introduced to dental instruments. They are also introduced to dental materials and their use.

6. **Assessment Methods**

The students take an oral examination at the end of the 2nd year of studies.

7. **Strengths**

8. **Weaknesses**

So far it has been difficult to teach in the fourth semester due to the overcrowded groups.

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

11. **Visitors Comments**
Section 7  **Para-Clinical Sciences**

### 7.1. PHARMACOLOGY

Name: Assoc. Prof. Ileana Linčir, Ph.D.
E-mail: rosin@sfzg.hr

1. **Introduction**

The course in Pharmacology is held in the second years of studies in Dental medicine (the fourth summer semester) and continues in the third year (the fifth winter semester). During the course, the student should learn to develop safe and effective drug use in the prevention and therapy in the dental practice. He is expected to show an appropriate understanding of risk/benefit relations in order to reduce the unwanted effect. Besides he should be able to estimate the risk/benefit relations in order to reduce harmful side effects.

2. **Primary Aims**

IProvide students with a core of pharmacological knowledge:
- general principles of pharmacokinetics,
- principles of drug action – pharmacodynamics,
- potential side effects, drug interactions, the use of drugs in pregnancy and lactation and precautions that should be taken with the extreme age groups.

3. **Main Objectives**

On completion of the formal teaching a student should be able to:
- describe the methods of drug absorption, distribution, bio-transformation and excretion;
- understand mechanisms of drug action and interactions;
- critically evaluate pharmacodynamic groups of drugs used in dental practice;
- describe the procedure and choice of drugs in medical emergencies during the dental treatment;
- describe the precautions in the pharmacotherapy of pregnant and lactating women, as well as elderly people;
- correctly write drug prescriptions.

4. **Hours in the Curriculum**

Lectures: 30 hours (1 hour per week)
Seminars: 30 hours (2 hours per week in the 4th semester)
Exercises: 30 hours (2 hours per week in the 5th semester)
Consultation (Office Hours): 1-5 hours depending on students’ needs
5. Methods of Learning/Teaching

Students learn pharmacology in lectures and seminars (general pharmacology and selected parts of special pharmacology important for the pathology and therapy of orodental system), and individual study from pharmacology textbooks for dental students. During practical sessions, students learn the concepts of prescription writing and are introduced to the methods of experimental pharmacology and determination of mechanisms of drug action. In consultations students obtain additional explanations and are given advice on further references.

6. Assessment Methods

Students’ knowledge is assessed during the academic year by means of written exams and at the final examination at the end of the course (at the end of the fifth semester). The final examination consists of two parts: written exam (lasting for 90 min) and the oral examination. The written exam is further divided into two parts: prescription writing (three examples) and a test consisting of 60 questions. Each correct answer brings one point. Students with more than 60% of correct answers in each part have the right to proceed to the oral examination.

7. Strengths

Teaching methods are adjusted to meet the needs of dental students and they are implemented by academically educated experts in this field. The curriculum is complemented by lectures in general pharmacology and selected topics of special pharmacology.

8. Weaknesses

The pharmacology teaching is held too early in the course of studies when students’ full integration with topics in medicine and clinical practice cannot be accomplished.

9. Innovation and Best Practices

Problems in therapy are designed for students in such a way as to motivate them to find the solution to the problem. Students are expected to be able to assess possible side effects and possible failure of the therapy on the basis of available information and under the supervision of the teacher.

10. Plans for Future Changes

The course should be held at least one semester later in the course of study, in small groups. This would require more space and additional teaching staff as well as a sufficient quantity of audiovisual aids and access to Internet terminals, which would require additional financial resources. In addition, at the end of the course of study (in the 5th year) some ten hours of seminars in clinical pharmacology should be introduced.
11. Visitors Comments
7.2. MICROBIOLOGY AND PARASITOLOGY

Name: Prof. Vladimir Presečki, Ph. D.
E-mail:

1. Introduction

The curriculum covers the basic terms and issues encountered in Medical Microbiology: the agent (bacteria, virus, parasite, fungus), host and environment; their interactions and possible consequences (infection, disease, mutagenicity and teratogenicity). The main task of the curriculum is the acquisition of knowledge and skills which are necessary for the understanding of various mechanisms of microorganism activity on the man on one hand, and the possibility for the defence of the host on the other hand.

Particular attention is paid to microbes-how these organisms interact with the human body and how they cause disease. For example, causing the infection of mucous membrane, fluids in the body and specific anatomic areas (e.g. oral cavity). The most common disease agents for humans are presented as well as the immunological response of the attacked host. Various groups of antibiotics, anti-virus preparations, the mechanism of their action (or interaction) and procedures for the determination of the sensitivity of antibiotics are presented.

2. Primary Aims

To introduce the students to basic physical, chemical and biological characteristics of micro-organisms, non-specific and specific host defence mechanisms, possible interaction between micro-organisms, the man and the environment in order to understand the occurrence and development of the clinical manifestations of the disease, and by means of a laboratory diagnostic procedures to discover the agent, the treatment and finally to take appropriate measures to prevent the infectious diseases from spreading.

3. Main Objectives

The students are trained to describe:

- The structure and function of the procariot cell, multiplication and the metabolism of microbes, microbial genetics, control of micro-organisms by physical and chemical agents, antimicrobial chemotherapy.
- Microbial diversity of the human body and the oral cavity.
- Bacteria relevant to dental medicine: aerobic and anaerobic bacteria.
- DNA and RNA viruses relevant to dental medicine.
- Fungi and parasites relevant to dental medicine.
- Virulence, pathogenicity of infection.
- Basics of immunology: antigens, antibodies, chemical mediators, biology of B and T cells, immune system disorders, reactions of antigens and anti-bodies, passive and active protection (vaccination).
- Skin infections, lesions of soft and hard tissues, individual organic systems.
- Oral cavity microbiology: tooth caries, periodontal diseases, alveodental infections, distant infections caused by pathogenic microorganisms from the oral cavity.
Diagnostic laboratory microbiological procedures
Basic facts, profilaxis and ethical aspects of diseases relevant to dental medicine (HIV, virus hepatitis).

4. *Hours in Curriculum*

The teaching of the subject of Microbiology with Parasitology for dental students in the second year of studies (3rd semester) includes 20 hours of lectures, 20 hours of seminars and 35 hours of practical work (exercises). The students have the possibility to consult the teacher in order to obtain assistance and solve problems or clarify issues that might have arisen during learning. Before the exam period, students have a pre-exam microscopy of samples which is a part of the final (practical) exam.

5. *Methods of Learning/Teaching*

6. *Assessment Methods*

The exam consists of two parts - the practical exam and the oral examination:
- practical exam: microscopy of bacteriological stained preparations, reading and interpretation of even samples of serums of patients tested by one of the serological methods (RVK, IH, etc.) and written test (multiple-choice questions with one, two or more correct answers) on viruses relevant to dental medicine; 60% of correct answers is required to pass the exam. When they pass the practical exam, the students can proceed to the oral examination.
- oral examination

7. *Strengths*

8. *Weaknesses*

The Microbiology with Parasitology course is held in the second year of studies when students still have not attended any lectures of Immunology; the knowledge of which, prior to the Microbiology course, would contribute to easier understanding and following of the Microbiology course.

9. *Innovations and Best Practices*

Certain lectures relevant to dental medicine (clinical aspects of Microbiology) should be put on a CD-ROM; exercises should be filmed and played on a video (currently we have a video tape on serological reactions, reactions on complement’s connection, ELISA). We should encourage the students to use audio-visual techniques for course revision along with pre-exam microscopy.

10. *Plans for Future Changes*
It is proposed to transfer the Microbiology course from the 2\textsuperscript{nd} year to the 3\textsuperscript{rd} year of the study (6\textsuperscript{th} semester); see above (4 Weaknesses);
Revision of the Curriculum: emphasis placed on the standard (common) and special protective measures in dental medicine (dental sciences), importance of prionic diseases in people;
Improve the knowledge assessment methods: the practical part of the exam (slides) should be complemented with a written test: 10 questions in each field of Microbiology (bacteriology, virology, mycology and parasitology). The exam should take the form of: a) Terms and definitions, b) Self-assessment of reading material, c) Review questions.

11. Visitors Comments
7.3. **PATHOLOGY**

Name: Assoc. Prof. Ahmed Pirkć, Ph.D.
E-mail: apirkic@sfzg.hr

1. **Introduction**

The course takes place in the first semester of the second year. General Pathology is taught in the first semester, whereas Special Pathology is taught in the second semester.

2. **Primary Aims**

The aim of the course is to introduce the students to pathophysiological and morphological basis of diseases, to their aetiopathogenesis. The emphasis is placed on the clinical-pathomorphological correlation. The role of the pathologist in disease diagnostics is pointed out.

3. **Main Objectives**

General Pathology includes:
- Presentation of causes and mechanisms of cell impairment.
- Ischemic, hypoxic, chemical and virus cell impairment.
- Apoptosis.
- Metabolism disorders
- Disorders in cell growth, differentiation and adaptation.
- Basics of genetic and immunological processes.
- Hematologic disorders.
- Inflammation.
- General oncology.

Special Pathology covers the presentation of the most important diseases of a great number of organ systems. Special emphasis is placed on Oral Pathology.

4. **Hours in the Curriculum**

Total of 120 hours of teaching, with 60 hours per semester, i.e. 90 hours of lectures and 30 hours of exercises/practical teaching and seminars.

5. **Methods of Learning/Teaching**

Lectures take 45 hours, whereas practical teaching and seminars take 15 hours per semester. Lectures are assisted by numerous slides. Recently multimedia computer-assisted teaching has been introduced.

In addition, in the 2nd semester the students spend a week at the Clinical Department of Pathology in groups where they attend an autopsy session. In the laboratory they are introduced to taking and processing tissue and organ samples by using both the traditional and the latest methods (molecular pathology, insitu hybridisation, etc.). In addition, the students are introduced to the diagnostic possibilities of cytopathology.
6. **Assessment Methods**

In-course quizzes and oral examination at the end of the course.

7. **Strengths**

8. **Weaknesses**

Considering the volume of the course the understanding and learning of which requires previous knowledge of basic courses, the course is introduced too early – already in the second year of dental studies so that a productive link-up with clinical courses misses.

9. **Innovations and Best Practices**

Reduction of the number of students in practical teaching and seminars. Computer-assisted teaching.

10. **Plans for Future Changes**

To improve both - theoretical and practical teaching in Oral Pathology.

11. **Visitors Comments**

---

**7.4. PATHOLOGICAL PHYSIOLOGY**

Name: Assoc. Prof. Džemal Pezerović, Ph.D.
E-mail: stjepko.plestina@rebro.mef.hr

1. **Introduction**

The Pathophysiology course for dental students is taught in the 4th and 5th semester of studies. The course is conceived as a link between pre-clinical and clinical subjects. It is closely linked to numerous disciplines which are studied by the students in the course of their dental studies. The aim of the course is to introduce the students to
pathophysiological developments which cause injuries to the structure and functioning of certain systems of organs, and thus to ensure their better and easier understanding of the mechanisms of disease development.

2. **Primary Aims**

- Introduce the dental student to the pathophysiological background of development of a pathological process from the molecule level, through sub-cellular and cellular, to the level of organism. In this way, the student has the possibility to acquire knowledge on pathogenetic phenomena common to many conditions. Efforts are made to develop the students’ integral approach to the pathological process and to the patient, and not only to the manifestation of disease of individual organs.
- Pay special attention to ensuring the understanding of those systemic disorders that are relevant to oral pathology (e.g. pain, inflammation, haemorrhagic diathesis, malignant transformation of the cell, etc.)
- Contribute to the full professional ability of future dentists by explaining disorders in other organ systems that can influence the pathology of oral cavity, or are relevant to the dental practitioner who is going to meet multi-morbid patients.

3. **Main Objectives**

Significance and place of Pathophysiology, basic terms concerning the evaluation of the functional ability and diseases of certain systems of organs and the organism as a whole.

**General Pathophysiology:**
- genetic disorders;
- disorders in the functioning of certain organelles and reaction of cell to injury;
- disorders in energy metabolism;
- disorders of body fluids electrolyte ad acid-base balance;
- cancerogenesis;
- disorders of consciousness;
- mechanisms of sense of pain.

**Disorders in the functioning of individual systems of organs:**
- cardiovascular
- respiratory
- endocrine
- urinary
- gastrointestinal
- hepatobiliary
- hematological
- immunological
- connective and bone tissue
- neurovegetative
4. Hours in the Curriculum

Pathophysiology course is held during 45 hours in the 4th and 5th semester of studies respectively (total of 90 hours). In each semester, there are 15 hours of lectures and 30 hours of seminars and exercises in smaller groups.

5. Methods of Learning/Teaching

Synthetic overviews of major areas in Pathophysiology, general issues, are presented in lectures. Disorders in the functioning of individual organ systems are discussed in seminars, where particular attention is paid to connecting the insights from basic and clinical disciplines with their clinical setting. Exercises consist of the work on experimental models of various pathophysiological problems on small laboratory animals. It also consists of functional and dynamic tests that students run together.

6. Assessment Methods

During the course the level of acquired competence is assessed through quizzes in form of problem based essays. The final exam is oral examination. The students randomly select five questions out of a previously distributed list of questions.

7. Strengths

The aim of the course is well defined and it is presented to students in advance. Also, students are well informed about how much knowledge they need to have to meet the expectations of the course; they know how much knowledge a dentist should possess in order to carry out his job to the best of his abilities.

The teaching stimulates thinking of cause-and-effect connection between the pathophysiological process and the disease manifestation, and it enables students to acquire necessary knowledge related to clinical problems more easily. Not only does it encompass the issues of oral pathology but it also emphasises the integrative approach that provides students with wider understanding of the uniqueness of human body in health and illness.

8. Weaknesses

- Organisational and personnel difficulties created by restrictive policies
- Poor motivation of students to follow and to prepare themselves for the course, since they still have some obligations regarding the previous courses. Also, work in too large seminar groups make the problem-based teaching more difficult, and almost hinders direct presentation of the studied phenomenon on patients

9. Innovations and Best Practices

10. Plan for Future Changes
- Insisting on problem based teaching in smaller groups thus motivating the students to obtain better results. Besides, more effective learning is expected.
- Greater functional relatedness and coordination with other Departments, aiming at a more comprehensive and easier integration of knowledge in core courses (Biochemistry, Physiology) with applicable clinical knowledge.
- Work on additional teaching material with emphasis placed on specific dental subjects.

11. Visitors Comments

---

7.5. CLINICAL IMMUNOLOGY

Name: Prof. Josip Lukač Ph.D.
E-mail:

1. Introduction

Immunology is one of the youngest and most dynamic disciplines that considerably influences the development of many other disciplines in Medicine such as Microbiology, Tissue and Organ Transplantation, Oncology, etc. There is hardly any field in Clinical Medicine that does not involve immunological aspects of diseases either in diagnostics, treatment or both (autoimmune diseases, immunodeficiencies, infectious diseases, hypersensitivity, etc.). Dentists meet most of those aspects in their practice.

2. Primary Aims

To provide the students with:
- basic knowledge of organisation and functioning of the immunity system;
- basic knowledge of immunological aspects of the diseases of the oral cavity;

To introduce students to laboratory methods of immunological diagnostics and its connection to the clinical work.

3. Main Objectives;
- Congenital and acquired immunity, immunological response – humoral and cellular;
- Immunological tolerance;
- Transplantation tolerance;
- Autoimmunity, immunodeficiencies, hypersensitivity and their oral manifestations
- Immunity to viruses, bacteria, fungi and parasites, immunology of infections of the oral cavity;
- Immunobiology of the dental plaque, periodontitis, caries;
- Immunology of malignant tumours;
- Immunological laboratory tests;

4. Hours in the Curriculum

25 hours of lectures, 5 hours of exercises.

5. Methods of Learning/Teaching

Lectures, slides, introduction to laboratory immunological methods in exercise classes.

6. Assessment Methods

Oral examination at the end of the academic year with thorough assessment of knowledge covering the entire course topics.

7. Strengths

Immunology has made its way almost in all medical disciplines and knowledge of its basic aspects and clinical aspects helps in the diagnostics and differential diagnostics of oral diseases.

8. Weaknesses

Insufficient contact with students due to their irregular attendance at lectures, not enough practical work during exercise classes.

9. Innovations

More contemporary presentations of the contents of the subject should be provided with the support of LCD. Besidas, discussions with students during lectures should be encouraged.

10. Plans for Future Changes

Teaching exercise classes in smaller groups for easier introduction to laboratory immunological methods. Stimulation of research through students’ essays and theses.

11. Visitors Comments
7.6. FORENSIC DENTISTRY

Name: Prof. Hrvoje Brkić, Ph.D.
E-mail: brkic@sfzg.hr

1. Introduction

In this course students are introduced to the basics of Forensic Dentistry which will be needed in their dental practice. The students study techniques of identification of human body, i.e. the importance of dental documentation in determining identity. Emphasis is placed on the new techniques, such as DNA analysis of the teeth tissues and PCR technique. They are also introduced to the qualification of trauma of the stomatognathic system and to the application of law in case of dentists’ malpractices.

2. Primary Aims

- The students are introduced to basic procedures in identification of a human body based on hereditary and acquired dental characteristics.
- Introduction to the effects of law in dental practice (in the Republic of Croatia)

3. Main Objectives

- dental identification of a human body
- isolation of DNA from dental tissues
- analysis of bite on human body
- qualifying of injuries to stomatognathic system
- pointing out dentists’ malpractice and neglect that can jeopardise patients’ health
- application of law in the Republic of Croatia in cases of dentists’ malpractices.

4. Hours in the Curriculum

The course includes the total of 30 hours in the 9th semester. There are fifteen hours of lectures and fifteen hours of exercises. The students attend part of the classes (2+2) at the Department of Forensic Medicine and Criminology within the Medical School of the University of Zagreb.
5. **Methods of Learning/Teaching**

An academic lecture hour lasts for 45 minutes. The teacher’s lecture lasts for about 35-40 minutes whereas the rest of the time is left to students for questions and discussion, as well as for the registering the class attendance. Exercise classes are organised in block classes (90-minute) for groups of 15 to 18 students. Every exercise consists of short introduction (15 minutes) whereas for the rest of the time students work independently on their tasks under the supervision of their teacher. Teaching aids used by the teacher are: slides, transparencies, LCD and video presentation.

6. **Assessment Methods**

The examination consists of an oral examination. The students are expected to give the answers to questions which are written on a slip of paper.

7. **Strengths**

Reducing groups of students in exercise classes as well as making Teacher’s lecture non-obligatory for students to attend.

8. **Weaknesses**

The most important is the lack of a genuine laboratory work.

9. **Innovations and Best Practices**

Offer the possibility of research for students in the field of Forensic Dentistry.

10. **Plans for Future Changes**

11. **Visitors Comments**
Section 8  Human Diseases

8.1. GENERAL AND WAR SURGERY

Name: Prof. Aljoša Matejčić, Ph.D.
E-mail:

1. Introduction

Undergraduate students are introduced to general and war surgery in the third dental year. The course takes place in their third and fourth year of training (6th and 7th semester). This complex and demanding course is designed in such a way to meet students’ needs. So far, such a difficult task has been accomplished due to a long tradition of the Department in conjunction with well-planned exercises. The curriculum includes lectures, exercises and seminars in: General Surgery, its general and its special part, War Surgery and Neurosurgery.

2. Primary Aims

To develop knowledge and understanding of surgical diseases and manifestations as well as injuries that can have a direct or indirect influence on health and the treatment of the oral cavity and the denture. The diagnostic and clinical skills required to carry out surgical procedures.

3. Main Objectives

By the end of the course dental students are expected to:
- demonstrate sufficient knowledge on general surgery. At the final exam they should have theoretical and practical knowledge on:
  - asepsis and antisepsis;
  - systemic response of body to trauma, physiology and treatment of shock;
  - wounds: pathophysiology, division, healing, surgical treatment;
  - surgical infections and principles of treatment, antimicrobial treatment;
  - basic surgical techniques and surgical material and instruments;
  - emergencies in surgery and neurosurgery;
  - basics of neurosurgery and neurotrauma;
  - selected chapters on traumatology and plastic surgery;
  - selected chapters on thoracic and cardio-vascular surgery;
  - selected chapters on abdominal and oncological surgery.

4. Hours in Curriculum

The third year course (6th semester) comprises 30x1 hour lectures and 30x1 hours of exercises and seminars. The fourth year course (7th semester) comprises 15x1 hours of lectures and 15x1 hours of exercises.
5. Methods of Learning/Teaching

Lectures are held with the assistance of multimedia in the large lecture room in the afternoon hours. In the morning, seminars are held with smaller groups of students, as well as exercises in indication visits format. There is also a presentation of cases at hospital wards.

6. Assessment Methods

Continued assessment of knowledge and progress in seminar work. Evaluation of knowledge in the final exam of the year (oral examination in summer and autumn exam period).

7. Strengths

Long experience in teaching Surgery course adjusted to match dental students’ needs resulted in a collection of teaching material, mimeographed lecture notes in General and War Surgery. A textbook on surgery for dentists is currently being published.

8. Weaknesses

Indication visits and presentation of cases in the hospital “on the bed” demand a small number of students in groups, which is, at present, impossible to organize.

9. Innovations and Best Practices

Publishing a textbook on surgery for dental students.

10. Plans for Future Changes

Smaller groups of students in seminar and exercise classes. Improve lectures from the technical point of view.

11. Visitors Comments
8.2. ANAESTHESIOLOGY AND RESUSCITATION

Name: Prof. Ino Husedžinović, Ph.D.
E-mail: kka@kbd.hr

1. Introduction

The course in Anaesthesiology for dental students is expected to meet the needs of clinical practice therefore it should be more focused on the assessment of possible risks. Besides it should be focused on the assessment of a patient. A fair knowledge of the sedation techniques and of analgesia is becoming increasingly important. Emphasis is also placed on the resuscitation procedures and on the intensive medicine. Therefore, it is necessary to point out the following issues: fundamentals of general and local anaesthesia, theory of dental anaesthesia, the fundamentals of intensive care (vasoactive drugs) and new approaches to resuscitation of patients. Considering the specificity of the subject, it is difficult to determine exactly what is the “right measure” of education dedicated to the dental students.

2. Primary Aims

The primary aim is to provide the students with theoretical and practical knowledge of the fundamentals of general and local anaesthesia. The students are trained to make an early diagnosis of the cardiac arrest. Furthermore, they are provided with the knowledge of means of application of differential drugs, pharmacology and resuscitation procedures. Also recognition and treatment of allergic and toxic reactions is learned by the students.

3. Main Objectives

Students should acquire knowledge of:
- importance of physiology, pharmacology, premedication;
- basics of general and local anaesthetics;
- periooperative care for patients during surgery;
- basic knowledge of pharmacology (anxyolithics, anaesthetics, analgetics, antiemetics, inotrope drugs, antihistaminics, corticosteroids, etc.);
- techniques of local dental anaesthesia;
- recognition of the cardio-respiratory arrest;
- recognition of allergic and toxic reactions;
- introduction of peripheral vein cannula, and basic knowledge of introduction of central vein cannula by using crystalloid or colloidal solutions;
- clinical evaluation of patients and their monitoring during general anaesthesia;
- new trends and procedures in resuscitation.

4. Hours in the Curriculum
The curriculum includes two parts: practical work in form of seminars and exercises in groups of 8-10 students and the theoretical work. The combination of the two amounts to 10-12 hours per student.

5. Methods of Learning/Teaching

The practical part of the course is carried out with the assistance of a model and it consists of the procedures of cardio-pulmonary resuscitation (external heart massage, maintenance of respiratory path free, methods of artificial ventilation). The students are expected to learn the following issues:
- placing of peripheral and central vein catheters;
- intensive treatment: organisation, monitoring, methods;
- dental anaesthesia;
- dealing with anxiety, stress and syncope in dental intervention;
- principles and complications of general and local anaesthesia;
- introduction to the risk groups of patients (hypertensics, pregnant women) and procedures in children and disabled individuals.

6. Assessment Methods

Students have to take an oral examination at the completion of the 9th semester.

7. Strengths

- lectures in small groups
- use of model

8. Weaknesses

It is difficult to precisely pin down the necessary knowledge that dental students should have in the field of Anaesthesiology.

9. Innovations and Best Practices

10. Plans for Future Changes

- write a new textbook for the dental students
- introduce a written assessment of knowledge
- provide more models for demonstration and exercises
- more active work with patients (out-patient interventions on children) and high-risk patients (hypertensics and pregnant women)
- knowledge of pharmacology of recent drugs for sedation, anaesthesia, analgesia, support to cardiovascular system
- knowledge of procedures of medicaments and electric defibrillation
- more intensive practical work in the intensive care unit

11. Visitors Comments
8.3. GENERAL (Internal) MEDICINE

Name: Prof. Krešimir Birtić, Ph.D.
E-mail:

1. Introduction

The curriculum of the Internal Medicine course covers clinical and theoretical aspects. Emphasis is placed on the dental patients’ problems.

2. Primary Aims

In a more general sense, the course aims at developing an integral way of thinking that will enable students, and subsequently the dentists, to make a difference between important and unimportant issues in the course of making diagnosis. This task can’t be accomplished without having some knowledge from the bordering scientific disciplines. Therefore, attention must be paid to the study of Neurology, Dermatology, Surgery, Ophtamology, Otorhinolaryngology, Pathology and Physiology. Thus interest in scientific observation is developed with students. They have also become more interested in data processing and research. Ethical principles should never be neglected since they should be implemented in the foundations of the future dentists’ work.

3. Main Objectives

To introduce students to the newest approaches to aetiology, diagnosis, differential diagnosis and treatment of internal diseases. Apart from lectures, this course requires work on patients, demonstration, audio-visual projections and full engagement on the part of lecturers and exercise teachers. It is of utmost importance that the students adopt appropriate “dental” attitudes towards dental treatment of cardiopaths, respiratory patients, patients with dialysis, patients with coagulation disorders and endocrine and gastro-endocrine patients.

In the course of Internal medicine course the students are taught the following issues:

- Introduction to the basics of Propedeutics (anamnesis, physical examination, interpretation of lab test results, differential diagnosis).
- The most common cardiovascular diseases (surgical considerations).
- Introduction to respiratory diseases by their frequency.
- Gastrointestinal diseases (especially those related to oral pathology).
- Urogenital diseases,
- Haematology with emphasis on coagulation disorders
- Endocrinology with special review of metabolism of calcium and related diseases.
- Emergencies in Internal Medicine such as poisoning, environmentally related diseases, snake and insect bites.

4. Hours in the Curriculum

5. Methods of Learning/Teaching
Students have:

a) Lectures including patient demonstrations, slides, teaching filmed material and audio recordings (e.g. of heart murmur)
b) Exercises where students individually check their acquired knowledge.

6. Assessment Methods

Upon the completion of the course, students take an exam consisting of two parts: practical and theoretical.

7. Strengths

8. Weaknesses

9. Innovations and Best Practices

10. Plans for Future Changes

Writing a textbook on Internal Medicine for dental students.

11. Visitors Comments
8.4. INFECTOLOGY

Name: Prof. Ivan Beus, M.D., Ph.D.
E-mail: bfm@bfm.hr

1. Introduction

Infectious diseases is introduced into the curriculum in the 3\textsuperscript{rd} year (6\textsuperscript{th} semester) of undergraduate dental studies. It gives an overview of infectious diseases with special emphasis placed on diseases transmitted by blood and saliva and also on diseases with clinical manifestations in the oral cavity. Furthermore, special emphasis is placed on prevention from possible infection on the part of both dental staff and patients.

2. Primary Aims

The primary aims of this course are to introduce students to the fundamentals of aetiology, epidemiology, treatment and prevention of infectious diseases with otherwise healthy but immunologically compromised individuals.

3. Main Topics

- aetiopathogenesis of infectious diseases;
- clinical symptomatology and diagnostics of infectious diseases;
- immunoprophylaxis;
- HIV infection / AIDS;
- viral hepatitis;
- herpes virus infections;
- intestinal infectious diseases;
- infectious diseases of the central nervous system;
- sepsis and septic shock with special emphasis on otogenic sources of diseases;
- differential diagnosis of fever of the unknown origin;
- anginas;
- infectious diseases with rash;

4. Hours in the Curriculum

Lectures: 24 hours
Seminars and Exercises: 36 hours.

5. Methods of Learning/Teaching

Lectures assisted by OHP, slides projector, LCD; exercises and seminars with presentation of patients and visits to clinical wards and exercises in wards.
6. **Assessment Methods**

Oral examination upon the completion of the course in infectology.

7. **Strengths**

Lectures are compatible with clinical part of the programme thus aiming at the best possible introduction of the students to the fundamentals of infectology.

8. **Weaknesses**

None

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

11. **Visitors Comments**
8.5. DERMATOVENEROLOGY

Name: Prof. Mirna Šitum, Ph. D.
E-mail:

1. Introduction

Dermatovenerology for dentists introduces the students to some basic problems of skin diseases and sexually transmitted diseases, the knowledge of which may be useful in their future dental practice. Special attention is paid to the diseases and the lesions of the mucous membranes of the oral cavity and of the skin of the face and head. The majority of teaching is carried out at bedsites. The course acquaints students with the basic theoretical and practical principles of allergology. The students learn how to differentiate benign forms of both skin lesions and oral lesions from malignant ones. The students are also trained how to treat such lesions. They are informed on the use of different methods in dermatological departments. Besides, they learn about some techniques such as punch biopsy, excisional biopsy and cryotherapy. So, the primary aim of the course is to provide the students with basic knowledge of dermatovenerology and to familiarise them with therapeutic approaches. Also they are explained how to make differential diagnosis.

2. Primary Aims

- to gain basic theoretical and practical knowledge of dermatovenerology
- to provide a comprehensive patient care in acute and chronic diseases of skin and oral mucosa
- to learn how to take dermatological medical history, how to carry out physical examination and how to determine dermatological status.

3. Main Objectives

4. Hours in the Curriculum

The course includes (per year): 15 hours of lectures and 30 hours of practical training.

5. Methods of Learning/Teaching

Bed teaching, exercises and lectures.

6. Assessment Methods

The knowledge of the students is tested by an oral final examination. It consists of an assessment of skin and sexually transmitted diseases (examination of patients and/or photographs), as well as of theoretical questions.
7. **Strengths**

Students can observe serious skin diseases in patients who are hospitalised. Moreover, they can also observe different treatments. They are expected to watch dermatosurgical operations. They are also instructed how to carry out allergological testing and phototherapy.

8. **Weaknesses**

- too many students in a group;
- the auditorium is overcrowded with the students
- technical equipment is out of date.

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

- to engage one more dermatovenerologist in teaching;
- to form more groups with a smaller number of the students in a group;
- to redecorate and modernise the auditorium.

11. **Visitors Comments**
8.6. **NEUROLOGY**
Name: Prof. Vida Demarin, Ph.D.
E-mail:

1. **Introduction**

Neurology course is delivered in the fourth dental year (7th and 8th semester). The course explains the relevance of neuroanatomy and neurophysiology to the understanding of neurological disorders. During the course the students learn the basics of epidemiology, aetiology, pathogenesis, clinical picture, diagnostics, treatment and forecast of neurological disorders:
- cerebrovascular diseases;
- consciousness disorders and epileptic disorders;
- disorders of movement and extrapyramidal diseases;
- demyelination diseases;
- brain tumours;
- inflammation of central nervous system;
- pain syndromes;
- neurodegenerative diseases;
- dementia;
- headaches;
- neuromuscular diseases;
- peripheral nervous system diseases.

Particular attention is paid to neurological disorders that are particularly interesting to dentists, i.e. pathological disorders of cranial nerves, head and neck pain syndrome, neurological disorders affecting the head, face, mastication and swallowing, as well as neurological disorders that dentists may encounter in their everyday practice.

2. **Primary Aims**

Basic understanding of the functioning of neuromuscular system in health and in diseases.
Making of anamnesis.
Carrying out neurological clinical examination.
Approaching patients suffering from neurological diseases.
Diagnostics and treatment methods in neurology.
Special attention should be paid to neurological disorders that dentists may encounter in their daily practice.

3. **Main Objectives**

To teach students:
- neuroanatomic and neurophysiological basis of neurological disorders
- functioning and disorder of cranial nerves;
- functioning and disorders of sensory system;
- functioning and disorders of motor system;
- epileptic and consciousness disorders;
- cerebrovascular disorders (TIA and stroke);
- classification, clinical picture, diagnostics and treatment of dementia;
- classification, clinical picture, diagnostics and treatment of headaches;
- syndromes of headache, backache and neck pain;
- emergencies in neurology;
- diagnostic methods in neurology (electro-physiology, ultrasound, radiology, contrast, CT, MRI, MRA).

4. Hours in the Curriculum

5. Methods of Learning/Teaching

The course consists of 15 hours of lectures and 15 hours of exercises. At the beginning of the exercises students are shown a video tape with a complete clinical neurological examination. After that, in smaller groups with their own tutors showing neurological patients, students take anamnesis independently and determine clinical status, whereas the tutor discusses with students the aetiopathogenesis, differential diagnosis, possibilities of diagnostics and treatment. In addition, prognosis for every patient is discussed.

6. Assessment Methods

At the end of the course, the students take a written exam (multiple-choice questions test with only one correct answer), which is followed by an oral examination. The final grade at the exam is the average of the grades received at the written and oral examination respectively. During exercise classes, students must take three quizzes with their tutor, and a pass in those quizzes is a condition for taking the final exam (written test).

7. Strengths

Balanced ratio between theoretical lectures and practical exercises; ensured contact with patients under tutors' supervision.

8. Weaknesses

Insufficient interest on the part of some students for this course; sometimes too large number of students attending exercises at the same time, which renders the flow of exercises more difficult.

9. Innovations and Best Practices

10. Plans for Future Changes

Introduce novelties concerning the technical aspect of teaching provided by computer technology. Introduce seminars for additional 15 hours of teaching a year where students would, in small groups, demonstrate certain neurological disorder under the tutor's supervision. In addition, dental students are expected to discuss the treatment of a given disorder.

11. Visitors Comments
8.7. PSYCHIATRY WITH MEDICAL PSYCHOLOGY

Name: Prof. Vlatko Thaller, M.D., Ph.D.
E-mail: vlatko.thaller@zg.tel.hr

1. Introduction

The course is held in the 3rd year of studies. The curriculum is focused on more important mental disorders, particularly those relevant to dental practice.

2. Primary Aims

Primary aims of the course are:
- to introduce normal and pathological psychological functions;
- to provide the students with knowledge of selecting basic methods of approach to people with mental disorders.
- to train the students how to apply the acquired knowledge in their dental practice.

3. **Main Objectives/Topics**

- aetiology, epidemiology, clinical radiography, basic methods of diagnostics and treatment of psychological disorders;
- reaction to stress, acute or chronic physical disease, post-traumatic stress disorder (PTSD), pain, anxiety, depression;
- addiction to alcohol and illegal drugs with particular stress on risk groups for HIV and hepatitis infection;
- motivation of patients to cooperate;
- emergencies;
- specific psychological methods in dental practice.

4. **Hours in the Curriculum**

The total number of hours in psychiatry and medical psychology in the present curriculum is 30, that is 15 hours of lectures on psychiatric theory and 15 hours of exercises with presentation of clinical patients.

5. **Methods of Learning/Teaching**

Theoretical teaching material is taught in lectures with the presentation of cases. Teaching also includes exercises where students work in small groups in the direct contact with patients. They are expected to use all their theoretical knowledge to practise making of their own standpoints. Also, they practice making of right judgements and recommendations.

6. **Assessment Methods**

The acquired competence of theory is assessed at an oral examination. Besides, skills in practical work with a psychiatric patient as well as students' ability to make their own judgements and recommendations are assessed.

7. **Strengths**

The strength of the course is reflected in the planning of its contents in a way that students acquire theoretical knowledge in the field of Psychiatry with Medical Psychology. They also learn the practical skills necessary for their future work with psychiatric patients in dental practice. Based on their free will the students can write the thesis on the topic in this course. Later on they may enrol in a postgraduate course and obtain the title of Master of Sciences.

8. **Weaknesses**
Insufficient background knowledge on the functioning of the central nervous system and clinical manifestations of brain lesions with various aetiologies.
Insufficient number of hours necessary for the acquisition of theoretical knowledge and skills necessary for a confident approach to patients suffering from emotional difficulties, anxiety, behaviour disorder, pain compulsory disorder and their motivation to cooperate.

9. Innovations and Best Practices

10. Plans for Future Changes

11. Visitors Comments
8.8. OPHTALMOLOGY

Name: Prof. Zdravko Mandić, M.D., Ph.D.
E-mail: zdravko.mandic@zg.tel.hr

1. Introduction:

The course gives an overview of clinical ophthalmology. Emphasis is placed on the diseases which are more common in patients with dental or paranasal pathology. The theoretical part of course helps students to understand the anatomy and the main characteristics of ophthalmic diseases. The practical part of course allows experience at examining patients. Moreover, it provides the students with knowledge which enables them to recognise major ophthalmic symptoms and their consequences.

2. Primary Aims:

- To develop the understanding of ophthalmic diseases.
- To point out the coincidence of dental and ophthalmic pathology.
- To recognise the emergencies in ophthalmology.
- To teach the student how to examine the eye.
- To enable the student to recognise the main signs and symptoms of ophthalmic pathology.

3. Main Objectives:

- To measure visual acuity and assess refraction.
- To recognise the symptoms of common infections of eye - differential diagnose of red eye.
- To understand the mechanism of ocular infection and to point out the importance of dental infections.
- To discuss the most common causes of the loss of sight.
- To understand the basic principles of ocular trauma.
- To give the student a review of systemic diseases affecting eye.
- To be familiar with operative and conservative treatment of ocular pathology.

4. Hours in the Curriculum:

Total 30 hours (1 semester- half year): 15 hours of lectures and 15 hours of exercises with the direct contact with the patient.

5. Method of Learning/Teaching:

The ophthalmic course is divided in two parts:
- the first part is a set of interactive lectures with LCD projector and video presentation of different patients and ocular operations;
- the second part is a set of practical exercises. This session involves small groups (10 students) teaching under the supervision of the mentor. It gives an opportunity to learn practical skills and see the typical ophthalmic pathology in real setting.

6. Assessments Methods:

All students have to take an oral examination (theory) through 3 questions.

7. Strengths:

The course is jointly organised by two consultants of the School of Dental Medicine who are medically qualified and are Heads of Ophthalmic clinical departments. Thus, the students can see a large number of ophthalmic diseases in vivo. Excellent photo documentation, video tapes with different ophthalmic operations and computer assisted lectures increase the quality of presentation.

8. Weaknesses:

No major weaknesses.

9. Innovations and best Practices:

To improve the quality of presentations: 3D presentations and multimedia presentations.

10. Plans for Future Changes:

- to purchase better equipment for practical exercises - for example biomicroscope.
- to prepare a digital atlas for the practical part of the course.

11. Visitors Comments:
8.9. **ONCOLOGY**

Name: Prof. Zvonko Kusić, M.D., Ph.D.  
E-mail: zvonko.kusic@zg.tel.hr

1. **Introduction**

The Oncology course for dental practitioners is held in the 4th year of studies at the School of Dental Medicine. The students are required to have basic knowledge in clinical medicine.

2. **Primary Aims**

During the course special emphasis is placed on epidemiology, prevention, diagnostics at an early stage of the disease, modalities of treatment, palliative care, psychological aspects of treating malignant diseases, practical skills and diagnostic procedures aimed at acquiring basic knowledge in Oncology.

3. **Main Objectives**

Understanding of basic principles of multidisciplinary approach to malignant diseases.

4. **Hours in the Curriculum**

The course is held in the winter semester (1 hour of lectures a week, that is 15 weeks in an academic year) and in the summer semester (15 hours of exercises).

5. **Methods of Learning/Teaching**

The didactic part of the Oncology course consists of theoretical lectures on respective chapters in the science of Oncology, whereas the practical part of the course is carried out with the demonstrations of patients and direct introduction of students to the space and equipment of a modern centre of Oncology.

6. **Assessment Methods**

Exams can be taken during the entire academic year, on every working day by appointment, and the maximum number of students taking exam per day is 4. The exam consists only of an oral examination. However, it is preceded by a practical part consisting of presentation of an oncological patient.

7. **Strengths**

Teaching of the Oncology course is carried out by renowned experts in various fields of the science of Oncology, which ensures a high quality of teaching with the introduction of students to the latest world breaks through in various fields.
8. **Weaknesses**

It is rarely that we can demonstrate a recently diagnosed oncological patient to students, since most of our patients either have already been treated or have undergone some form of treatment.

9. **Innovations**

In the next academic year (2001/2002), lectures and seminars will be held in the renovated classroom with the assistance of modern methods of presentation (computer-assisted presentations, video presentations, etc.).

10. **Plans for Future Changes**

Hopefully, one or two new teaching assistants will be engaged in teaching.

11. **Visitors Comments**
8.10. PAEDIATRICS

Name: Prof. Tomislav Franjo Hajnžić, M.D., Ph.D.
E-mail:

1. Introduction

Paediatrics for dentists is a clinical part of the studies at the School of Dental Medicine at the University of Zagreb. The course is held in the 4th year of studies (7th semester). In lectures and clinical exercises, the students are introduced to the basics of Paediatrics—learning on the growth, development, childcare and diseases that occur in childhood.

2. Primary Aims

The primary aim is to:
- understand the normal growth and development of a child;
- learn the basics of a physical examination;
- understand the most common disorders and diseases of children that can be treated. It is of utmost importance to understand the above mentioned issues from the dentist’s point of view.

3. Main Objectives

Students are introduced to:
- the basics of Paediatrics—growth and development throughout the prenatal and postnatal period, from newborn to adolescent age;
- physiology and importance of natural nutrition and nutrition that is considered to be a more balanced diet
- hereditary and co-natal diseases;
- disorders and diseases of neonatal and infancy period;
- disorders of gastrointestinal system, deficient nutrition, vitamins;
- cardiovascular diseases; paediatric nephrology;
- haematologic and oncological diseases;
- diseases of the nervous system; poisoning and children trauma;
- endocrine disorders;
- principles of social, adolescent and preventive paediatrics.

4. Hours in the Curriculum

During one semester there are 15 hours of lectures (1 hour a week) and 15 hours of clinical exercises (1 hour a week).

5. Methods of Learning/Teaching

Lectures are held on the topics listed above under Main Objectives with the demonstration of patients. In clinical exercises, students communicate verbally and directly with patients. They learn how to determine the current physical status. They are introduced to anamnesis. They practise carrying out clinical and laboratory tests and treatments.
6. **Assessment Methods**

The students are assessed: at an oral examination which takes place at the end of the semester, after the practical treatment and examination of a patient.

7. **Strengths**

Students acquire basic knowledge of Paediatrics at the Clinic for Paediatrics which has a long tradition of working with both medical and dental students, where all sub-specialities in fields of child diseases are developed.

8. **Weaknesses**

During a relatively short course in Paediatrics for Dentists, relatively short time period spent at the Clinic for Paediatrics, i.e. the relatively small number of hours spent in lectures and exercises, it is possible to demonstrate practically only a smaller part of the comprehensive clinical variety of paediatric problems.

9. **Innovations and Best Practices**

As for the clinical course in Paediatrics for Dentists, the current curriculum is adjusted to the acquisition of the knowledge at the School of Dental Medicine in such a way that a graduate is provided with a good quality dental observation and treatment of children between the ages of 1-18 under such circumstances. This curriculum is going to be improved, modernised and adjusted to the curriculum of our School.

10. **Plans for Future Changes**

We are planning to relate to other clinical courses in a better way. Of course, we are planning to relate to those courses that have similar medical and specialist problems. Specific, partial integration of curricula from more dental sub-specialities into general Paediatrics is possible. Such an approach, apart from our aspiration and a good will to achieve it, requires the fulfilment of the following conditions: purchase of modern medical and didactic equipment; more space; additional training of teaching staff.

11. **Visitors Comments**
8.11. **OTORHINOLARINGOLOGY**

Name: Prof. Livije Kalogjera, Ph.D.
E-mail:

1. **Introduction**

Otorhinolaryngology, a discipline in medicine dealing with the study of diseases of the ear, nose and throat, due to the anatomical closeness to the area of concern, and because of the neural ties that lead to the symptoms common for both areas, is particularly important to dental students. Otorhinolaryngology deals with conservative and surgical treatment of the diseases of the ear, nose and throat. Moreover, it also deals with treatments of the oral cavity diseases, which sometimes leads to inevitable cooperation between otorhinolaryngologists and dentists, in both the conservative and the surgical treatment. The course of otorhinolaryngology should provide dental students with a basic overview of the profession. Special attention should be paid to common diseases and symptoms that are shared by the two disciplines. Otorhinolaryngology course takes place in 4th year (7th semester) of dental studies.

2. **Primary Aims:**

To teach:-

- Basics of otorhinolaryngological examination by means of frontal lamp and speculum.
- Basic interventions- to treat patients with acute respiratory insufficiency in emergencies.
- Procedures related to the differential diagnosis, since it is often difficult to differentiate clinically, or otherwise, common dental diseases and diseases belonging to the field of otorhinolaryngology.

3. **Main Objectives**

Dental students are expected to study the following:

- Prophylaxis, diagnosis and treatment of sinonasal diseases, especially those of odontogenic aetiology.
- Diagnostics, prophylaxis and treatment of allergies in otorhinolaryngology.
- Pathophysiology of the diseases of the lymphatic system of the pharynx.
- Basics of the oral cavity and salivary glands oncology.
- Infection development of the teeth, oral cavity and pharynx and its complications.
- Impact of diseases of the temporomandibular joint on the otological symptoms and the syndrome of facial pain.
- Basics of audiovestibulological diagnostics.
- Possibilities of endoscopic diagnostics and surgery in otorhinolaryngology.
- Basic principles of voice and speech production, especially from the point of view of dental medicine.

4. **Hours in the Curriculum**

Curriculum includes 15 hours of practical exercises and 30 hours of lectures.
5. Methods of Learning/Teaching

Lectures are held before a large group of students, covering selected chapters in otorhinolaryngology relevant to dental medicine. Practical exercises are carried out in smaller groups of students where they practise taking anamnesis as well as the technique of examination by means of frontal lamp. The exercises also include video presentations of endoscopic findings of particular otorhinolaryngological diagnoses and endoscopic and microsurgical procedures. Some students can observe surgeries that are carried out in the operation theatre. Besides, they can take part in clinical rounds.

6. Assessment Methods

Oral examination at the end of the semester consists of theoretical questions, generally of one question from Otology, Rhinology and Pharyngolaryngology. The students get a list of exam questions. Practical work is assessed in the course of exercises (practical sessions).

7. Strengths

Possibility to demonstrate pathology and surgery of the head and neck region thanks to endoscopic and microsurgical video presentation of selected pathology; introduction of sophisticated methods of diagnostics in audiovestibulology diagnosis.

8. Weaknesses

There are too many students per group thus preventing them from practising skills in an appropriate way. Also, the existing number of exercises is too small.

9. Innovations and Best Practices

10. Plans for Future Changes

Introduction of computer equipment for interactive learning of head and neck anatomy. It may also be helpful to recognition of pathology.


8.12. OBSTETRICS AND GYNAECOLOGY

Name: Prof. Branko Hodek, Ph.D.
E-mail:

1. Introduction

The teaching material is divided in selected chapters in order for students to receive basic information on the most common gynaecological diseases, as well as pregnancy, delivery and puerperium.

2. Primary Aims

- Stimulate students’ interest and understanding of gynaecological diseases as well as the physiology and pathology of pregnancy and puerperium to the extent necessary for every dentist to successfully monitor such patients.
- Enable students to recognise symptoms of certain gynaecological diseases on the basis of both, the anamnesis and disorders.
- Train the students to teach their patients (future mothers) on correct procedures in the treatment of pregnant women.

3. Main Objectives

Obstetrics
- Introduction to the physiology of pregnancy, mechanism of normal delivery and physiology of a normal puerperium.
- Introduction to the most common causes for high-risk pregnancies and deliveries.
- Prenatal, perinatal and postnatal care with the special emphasis on the role of dentists in the above mentioned care(s).

Gynaecology
- Basics of endocrine developments in respective phases in woman’s life.
- Inflammatory diseases.
- Sexually transmitted diseases.
- Basics of gynaecological oncology (prevention, symptomatology, diagnostics and treatment).

4. Hours in the Curriculum

15 hours of lectures along with the non-compulsory practical work (visit to a delivery room and observation of delivery accompanied by a tutor).

5. Methods of Learning/Teaching
Lectures in which different teaching aids and materials are used, i.e. slides, demonstrations on phantom (head). Also, the most commonly used instruments are demonstrated.

6. Assessment Methods

Knowledge from the block course in Obstetrics and Gynaecology is assessed by means of an oral examination with the scale of grades from 2 to 5 for pass, and 1 for fail.

7. Strengths

Lectures are taught by the Head of the Department who is an expert in the field of Obstetrics and Gynaecology and has experience in teaching undergraduate and postgraduate students, which provides them with the possibility to acquire the best possible knowledge.

8. Weaknesses

It is necessary to make the non-compulsory practical part of the course compulsory because it would generate greater interest in students and their communication with the tutor would be more direct.

9. Innovations and Best Practices

The practical work in the delivery room would make the contact between students and parturient as well as tutors possible, so that students could reinforce their knowledge on normal and pathological delivery in real time.

10. Plans for Future Changes

- From the didactic point of view, the theoretical teaching, i.e. lectures, should be replaced by seminars.
- Involvement of the largest possible number of students in the, so far, non-compulsory practical work in the delivery room.

11. Visitors Comments
Section 9  Orthodontics and Child Dental Health

9.1. ORTHODONTICS

Name: Prof. Želimir Muretić, Ph.D.,
E-mail: muretic@sfzg.hr

1. Introduction

The course in Orthodontics is taught in the 4th and 5th year of studies (for 4 semesters). The teaching is carried out in lectures, seminars, pre-clinical and clinical exercises. Students are obliged to take two quizzes and the final exam in Orthodontics.

2. Primary Aims

The purpose of the teaching is to train a young dentist to diagnose an already formed orthodontic anomaly. Besides, he is expected to estimate its expression and the need for treatment. Furthermore, he is expected to timely see negative aetiological factors and with preventive action and smaller interceptive treatment remove or attenuate their effect upon the normal craniofacial development.

3. Main Objectives

- to learn in detail about the growth and development of the craniofacial system and dentition;
- to recognise aetiological factors;
- to acquire methods of clinical examination;
- to acquire gnathometric, odontometric, cephalometric, photogrametric, radiocephfalometric and x-ray diagnostic procedures;
- to identify the diagnosis of orthodontic anomaly;
- to estimate the optimal timing for initiation of orthodontic treatment;
- to learn basic principles of biomechanics and action of used forces in the biological medium;
- to acquire the technique of fabrication, and thus learn the basic forms of removable orthodontic appliances;
- to learn the principle of removable and fixed intraoral and extraoral appliances;
- to understand the role of Orthodontics in the interdisciplinary cooperation.

4. Hours in the Curriculum

The total number of hours of teaching in various forms is 165 throughout 2 years, i.e. 4 semesters.
In the 7th semester (4th year) students have 15 hours of lectures that cover the definition of Orthodontics, aetiology, genesis and complete diagnostics.
In the 8th semester they have 15 hours of lectures on biomechanics, symptomatology of all diagnoses, treatment with removable and fixed appliances.
Along with lectures, students attend 45 hours of pre-clinical exercises where the fabrication of basic forms of removable orthodontic appliances is taught. In the 9th semester (5th dental year) the teaching is carried out in 30 hours of seminars and clinical exercises where all diagnostic procedures and observation of patients are practiced. In the 10th semester students spend 60 hours in shift classes. The course is a combination of seminar teaching where they are demonstrated the symptomatology of anomalies, and clinical exercises where they participate in the treatment of current cases.

5. Methods of Learning/Teaching

Lectures are assisted with slides projections, Power Point presentations and some animations. Along with verbal communication, seminars often include video presentations, computer-assisted presentations and practical work on plaster casts. Pre-clinical exercises are carried out in the laboratory on plaster casts. Clinical exercises with smaller groups of students are carried out by the teacher on duty. Students actively participate in clinical orthodontics. Students are informed on the available literature in the Croatian language. Moreover, they also have at their disposal a library with a large number of classic textbooks on orthodontics in foreign languages and the 5 most eminent world periodicals. Lately, some of the basic teaching theoretical units have been stored at the School’s central computer system and have thus been made available to students in the computer room intended for electronic communication.

6. Assessment Methods

At the end of the 8th semester, students take a written quiz in pre-clinical Orthodontics. Before starting the 9th semester, students take a quiz in introductory subjects as a condition to attend clinical exercises and seminars. At the end of the course, a final examination is taken covering the entire course material with the scale of grades from 1 (fail) to 5 (excellent).

7. Strengths

Well organized seminars with smaller groups of students that provide good basic knowledge for further engagement in clinical exercises.

8. Weaknesses

To large number of students in limited space. Groups with 16-18 students make the seminar (seminar room with 10 seats). It is particularly difficult to organize the clinical part of the teaching (out-patient unit with 6 chairs). Hardly possible individual communication between the teacher and the student. Insufficient number of modern teaching aids.

9. Innovations and Best Practices

10. Plans for Future Changes

To introduce the PBL method
To reinforce the electronic system of teaching aids
11. Visitors Comments
9.2. **PAEDODONTICS**

Name: Prof. Zdravko Rajić, Ph.D.
E-mail: zdravko.rajic@sfzg.hr

1. **Introduction**

The course in Paedodontics takes place in the fourth year of dental training. Undergraduate students attend lectures. They are introduced to the following topics: the growth and development of children, specific behaviour, development of orofacial structures and specificities of pathology, pathogenesis and treatment. Students have to pass a written quiz they want to take an active part in clinical exercises in the eight semester when the treatment of children starts. In the tenth semester, the students attend the pre-examination final 8-day course consisting of practical teaching and seminars.

2. **Primary Aims**

The student on graduation should be able to recognise and treat the oral health needs of an average child in a sympathetic and preventively oriented manner. He is expected to:

- Identify the difference between treating deciduous and new permanent teeth, compared to finished growth and development
- Recognise the importance of psychological preparation of children for oral procedures.

3. **Main Objectives**

The student should understand:

- Specific features of child dental medicine.
- Prevention in child dental medicine.
- Anatomic-physiological specific features of the typical child.

He should be able to:

- Identify the problems related to caries epidemiology, pulp therapy and tooth trauma.

4. **Hours in the Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Lectures</th>
<th>Exercises</th>
<th>Seminars</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII</td>
<td>15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VIII</td>
<td>30</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>IX</td>
<td>30</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>0</td>
<td>50</td>
<td>15</td>
</tr>
</tbody>
</table>

5. **Method of Learning /Teaching**

This course consists of lectures, seminars and clinical exercises. The students visit outpatient facilities for children with special needs; they participate in the promotion of
health in kindergartens and elementary schools as well as in the dental health prevention. They carry out clinical exercises supervised by a clinical teacher.

6. **Assessment Methods**

- a written quiz exam prior to work on patients;
- exam at the end of the course of study in a practical shift where students’ work is evaluated for the week;
- final exam including a practical plan of treatment, reading of radiograms and oral examination covering the entire child dentistry issues.

7. **Strengths**

The programme is based on an active participation of students in the teaching – from diagnosis, over treatment planning to its implementation.

8. **Weaknesses**

Since it is not always possible to provide the students with patients-children due to timing problems since patients themselves have school obligations, it is necessary to ensure as much afternoon work as possible, i.e. adjust the working hours to patients’ availability.

9. **Innovations**

- student work in special child public health care facilities and facilities for children with special needs

10. **Plans for Future Changes**

Since there are three separate courses taught at the Paedodontics Department and Department due to its scientific and expert development: Social Dentistry, Oral Hygiene and Genetics, these should be divided into separate departments in order to ensure their further development and new staffing. I suggest the establishment of the following Sections within the Paedodontics Department:

1. Paedodontics Section
2. Section of Social Dentistry and Epidemiology
3. Section of Preventive Dentistry and Oral Hygiene
4. Genetics Section – it should be linked to the clinical hospital, thus beds for lying patients and a genetic laboratory would be ensured.

All Departments could be headed by the current course director, but new younger staff and adequate space should be ensured.
11. Visitors Comments
Section 10 Public Dental Health and Prevention

10.1. SOCIAL DENTISTRY (Public Health)

Name: Prof. Zdravko Rajić, Ph.D.
E-mail: zdravko.rajic@sfzg.hr

1. Introduction

In future, dental medicine will take a completely different attitude towards public health policies from medicine. It has been shown in countries with best oral health indicators that prophylactic measures should dominate the field of dental medicine. Moreover, it has been proved that, if such mechanism works well, it is easy to separate basic services which are to be taken care of by the society, from non-obligatory services which fall upon individuals.

2. Primary Aims

- implementation of modern medicine knowledge and dental medicine knowledge in health care (preventive, diagnostic and therapeutic procedures)
- achievement of efficient and economical health care by improving health and preventing diseases within the limits of social, economic, cultural and political circumstances.

3. Main Objectives

- teach students how to interpret developments in the area of health, not only by biological but also by sociological laws in the generation of conditions and diseases;
- discuss social conditions in which people live and work, since they are important for proper understanding and explanation of many changes of health care in the area;
- discuss the organization of human community, kind of work and working conditions, culture and tradition, education degree, economic situation and advances in technology;
- understand social conditions for health;
- know economics of health, calculation of prices, health book-keeping;
- discuss health insurance, health care legislation, organization of health activity;
- discuss measures and activities in dental health care;
- discuss standard norms;
- know the principles of approach to planning and evaluation of dental care, know how to pursue oral health policies;
- ensure expert supervision, cooperation with international organizations
- know how to plan and implement health education and preventive measures;
- know how to identify problems;
- know how to set aims, how to select strategies;
- discuss epidemiology,
- introduce the issue of documentation to dental medicine;
- practise writing reports;
- dental vocational organization – the chamber

4. Hours in the Curriculum

Current hours in the curriculum:  
1\textsuperscript{st} semester: 15 hours of lectures, 0 hours of seminars

2\textsuperscript{nd} semester: 15 hours of lectures, 0 hours of seminars

Proposal for improvement:  
1\textsuperscript{st} semester: 35 hours of lectures and 15 hours of seminars

2\textsuperscript{nd} semester: 35 hours of lectures and 15 hours of seminars

5. Method of Learning/Teaching

- lectures, seminars (prepared by students), problem-based discussion, visits to public health institutions
  Participants in teaching:
  - WHO Liaison Officer in Croatia
  - Chairman of the Chamber of Dentistry
  - Manager of the Municipal Institute for Public Health
  - Head of Croatian Red Cross
  - Assistant Minister of Health of the Republic of Croatia for Legal Issues
  - Manager of the Dental Polyclinic of Zagreb.

6. Assessment Methods

Exams: essay writing (grades: fail =1, pass from 2-5)

7. Strengths

Preparation of students to identify early problems of public health care and means of their resolution. At the beginning of their course of study they are actually introduced to the work they are going to carry out.

8. Weaknesses

The course is taught in the first year of studies when students still have no knowledge of dental procedures, thus some parts of the curriculum (e.g. planning) are introduced too early.

9. Innovations

Problem-based learning.

10. Plans for Future Changes
Reinforce a problem-based learning, which would require additional hours of teaching. The solution to the problem would be the establishment of a separate Department. Since there is a lack of space, this doesn’t seem to be feasible. However, the space can be obtained through contracts with cooperating institutions. Furthermore, it would also be necessary to employ younger assistants. A Centre for Improving Dental Health should be established as a referral centre of the Ministry of Health since Head of the Paedodontics Department is also head teacher in the Social Dentistry Course and the Chairman of the Dentistry Committee of the Croatian Ministry of Health. He is also the author and coordinator of the New National Program for Prevention of Caries and Improvement of Child Oral Health.

Increase hours in curriculum to 35 hours of lectures and 15 hours of seminars.

11. Visitors Comments
10.2. ORAL HYGIENE

Name: Prof. Zdravko Rajić, Ph.D.
E-mail: zdravko.rajic@sfzg.hr

1. Introduction

This programme is devoted to the importance of oral hygiene. It also points out a need for maintaining a regular, adequate and meticulous personal oral hygiene, which is much more than just brushing the teeth. Moreover, it is one of the most important factors in maintaining good oral health.

2. Primary Aims

The aim of the course is to identify the link between oral hygiene and the generation of most common dental diseases – caries and periodontopathy.

3. Main Objectives

Students should become aware of the fact that dental education and oral hygiene are daily tasks carried out by dentists. Besides, they should learn that every dental disease has its own means of maintenance of hygiene.

4. Hours in the Curriculum

30 hours of lectures throughout two semesters (15 hours of lectures per each semester)

5. Methods of Learning/Teaching

Lectures, demonstration, visiting expert lecturers: prosthodontists, oral pathologists, surgeons, periodontologists, orthodontists, manufacturers of oral hygiene items and marketing experts.

6. Assessment Methods

Upon the completion of the course, students take an exam. They are expected to write an essay on different oral hygiene topics.

7. Strengths

A coordinator organizes lectures in such a way that Professors from Departments of Orthodontics, Dental Pathology, Fixed and Mobile Prosthodontics, Oral Diseases, Periodontology are invited to teach. Besides, Head of out-patient facilities for children with special needs is included into teaching process. Marketing experts demonstrate different approaches of manufacturers to advertising in promotion of oral hygiene products. Students visit a factory of oral hygiene products where they are demonstrated the production technology. Lectures are held and organized by the Professor. In addition, Professors from other departments come and give lectures on different topics thus contributing to a better quality of the course.
8. Weaknesses

Lack of practical exercises where students would learn the following:-

- how to carry out oral hygiene tests on patients;
- how to motivate patients;
- how to carry out the removal of tartar;
- how to make a plan for carrying out the oral hygiene measures.

9. Innovations

10. Plans for Future Change

The Oral Hygiene course and the Preventive Dentistry course should be integrated into a single Section Department of Preventive Dentistry and Oral Hygiene. Also, more exercises should be implemented into the programme. More experts should be engaged in teaching. Adequate space should be provided for. In this way students would acquire practical skills which they can later use in order to treat their patients more easily and more effectively

11. Visitors Comments
Section 11  Restorative Dentistry

11.1  DENTAL PATHOLOGY

Name: Prof. Jozo Šutalo, Ph.D.
E-mail: sutalo@sfzg.hr

1. Introduction

The Dental Pathology course includes the following disciplines: Tooth Anomalies, Cariology, Propedeutics and Restorative Dentistry, Materials for Hard Dental Tissues, Endodontics and Dental Trauma in Adults. The Dental Pathology course introduces the students to the above mentioned fields. Particular emphasis is placed on the measures of prevention, aetiopathology and treatment procedures.

2. Primary Aims

The main aims of the course are to:

- introduce students to basic principles in aetiology and pathology of tooth anomalies;
- introduce students to basic principles in aetiology and pathology of dental caries;
- introduce students to basic principles in aetiology and pathology of diseases of dental pulp;
- introduce students to basic principles of restorative procedures;
- introduce students to basic characteristics of materials which are used for filling of hard dental tissues;
- introduce students to basic principles in aetiology and pathology of dental trauma.

3. Main Objectives

To acquire knowledge of:

- complex aetiological factors that lead to development of dental anomalies;
- complex physical and chemical and bacterial factors responsible for the incidence of caries;
- pathological developments in caries;
- physical, chemical, biological and toxicological features of materials for the restoration of hard dental tissues;
- skill in restorative and operative procedures in tooth treatment;
- emergencies and patients’ risk conditions.

4. Hours in the Curriculum

The course of Restorative Dentistry is held throughout seven semesters with the total of 560 hours of teaching. 4th semester: 15 weeks: 1 hour of lectures, 1 hour of seminar, 3 hours of exercises, total of 75 hours
5th semester: 15 weeks: 2 hours of lectures, 1 hour of seminar, 3 hours of exercises, total of 90 hours
6th semester: 15 weeks: 1 hour of lectures, 1 hour of seminar; 3 hours of exercises, total of 75 hours
7th semester: 15 weeks: 1 hour of lectures, 4 hours of exercises, total of 75 hours
8th semester: 15 weeks: 5 hours of seminars, 6 hours of exercises, total of 95 hours
9th semester: 15 weeks: 6 hours of exercises, total of 75 hours
10th semester: 2 weeks, 6 hours of exercises, total of 75 hours

5. Methods of Learning/Teaching

The course consists of lectures, seminar work with smaller groups of students and practical work consisting of pre-clinical and clinical part. Lectures are held by Professors, Associate Professors and Assistant Professors. Seminars, pre-clinical and clinical exercises are held by Professors and Associate Professors, Assistant Professors and Assistant Teachers who are specialists in Dental Pathology and Endodontics.

Lectures and seminar work deal with biological, aetiopathogenetic, pathological, diagnostic and treatment aspects of dental caries, physical and chemical as well as toxicological aspect of materials for hard dental tissues reconstruction.

Seminar work is carried out in smaller groups where students take an active part in presentation of selected topics.

Theoretical teaching is carried out with the assistance of slides, videotapes and digital technology.

The pre-clinical part of practical exercises is held in the 4th and 5th semester and it is divided into two parts. In the first part, which includes the pathohistology of dental caries, students observe developments in enamel and dentin by means of microscope, whereas in the second part, preparation of cavities according to classical Black's principles is carried out on phantom heads, as well as the preparation of adhesive cavity where special emphasis is placed on biological principles of dental tissue treatment. Also, a rational approach to creating cavity is ensured. Students carry out accepted techniques of filling in cavities and finishing treatment, under the supervision of their Instructors.

Clinical exercises take place in 6th, 7th, 8th, 9th and 10th semester on patients. Every student is obliged to carry out the following average rate in exercises:
15 fillings of class I, 35 fillings of (MO, OD, MOD) class II, 15 fillings of class III, 5-10 fillings of class IV and 15 fillings of class V.

Time commitment for dental students to this programme (lectures, seminar work, pre-clinical and clinical exercises) is 322.

6. Assessment Methods

Apart from the matriculation book the student also has a control booklet where lectures, seminar topics, pre-clinical and clinical work are registered.

Evaluation of acquired knowledge is obligatory upon the completion of every teaching unit and it is assessed by means of compulsory quizzes signed either by the instructor or the teacher. At the end of the semester, students take a quiz on the overall teaching material covered in the semester, which is also noted in matriculation book.

Final exam is taken after the completion of the last clinical exercises session. It consists of a practical task which is usually carried out on patients, and of an oral examination with teachers as examiners. Grades from clinical credits and those from oral examination are added up and divided by two. The final grade is noted in the matriculation book.
7. **Strengths**

Pre-clinical practical work is carried out on the phantom head with a denture. Students use modern technology which provides a solid foundation for education and work with patients. Clinical work is always carried out on patients. Students are continuously supervised by their instructors and by the teachers who are specialists in Restorative Dentistry.

8. **Weaknesses**

Too many students per instructor or per teacher
Lack of modern materials for restorative procedures
Outdated equipment that hinders full work efficiency

9. **Innovations and Best Practices**

They are necessary for the achievement of best possible effectiveness in education. Highly motivated teachers can make efforts to meet the needs of talented students.

10. **Plans for Future Changes**

Modern well-equipped classroom.
Renovation of pre-clinical teaching laboratory.
Renovation of clinical dental equipment
Reduction of number of students per group
Maximum involvement of students in active analysis of all work procedures.

11. **Visitors Comments**
11.2. FIXED PROSTHODONTICS

Name: Assoc. Prof. Ivo Baučić, Ph.D.
E-mail: baucic@sfzg.hr

1. Introduction

The Fixed Prosthodontics course introduces the students to the technological and clinical procedures in the treatment of damaged and/or lost teeth in various kinds of posts and cores, crowns and bridges as well as veneers and inlays, onlays and overlays that are used as means of treatment for fixing of the damaged stomatognathic system from various aspects.

Pre-clinical teaching takes place in the 4th and 5th semester, whereas the clinical teaching takes place in the course of the 6th, 7th, 8th, 9th and 10th semester. All stages of the teaching process are carried out by students under the supervision of teachers, assistants and Professors who are also specialists in Prosthodontics.

2. Primary Aims

The primary aim of the course is to enable students to acquire basic knowledge which is needed for successful treatment of patients with damaged or lost teeth by means of onlays, crowns and bridges in general dental practice.

3. Main Objectives

- to teach students to recognise the proper indication for post and cores, crowns and/or bridges;
- to enable students to carry out independently all clinical phases from the first visit to the permanent cementation of crowns and bridges;
- to enable students to repair damaged fixed prosthodontic appliance directly in the patient’s mouth;
- to discuss the periodontologic aspect of fixed prosthodontic therapy and the importance of maintenance of crowns and bridges;
- to discuss the measures of oral hygiene.

4. Hours in the Curriculum

Pre-clinic
4th semester: 15 hours of lectures, 30 hours of exercises
5th semester: 15 hours of lectures, 45 hours of exercises

Clinic
6th semester: 15 hours of lectures, 30 hours of exercises
7th semester: 15 hours of lectures, 30 hours of exercises
8th semester: 45 hours of exercises
9th semester: 30 hours of exercises
10th semester: in shifts – 30 hours of exercises

5. Methods of Learning/Teaching
- demonstrations and individual practice on typodont models of upper and lower jaws placed on phantom head in preclinical teaching laboratory;
- demonstrations in fixed dental laboratory;
- lectures;
- clinical demonstration;
- clinical exercises with patients;
- video and computer-assisted presentations.

6. Assessment Methods

- control of work phases in preclinical exercises;
- quiz when passing from preclinical to clinical exercises;
- control of work phases in clinical exercises;
- final oral examination.

7. Strengths

- clinical exercises are taught by teachers who are specialists in Prosthodontics. The teachers should also have a long lasting teaching and clinical experience in this specific branch of dental medicine.
- research work and international experience of the teaching staff enables a good view of the profession. Also, it enables making comparisons with other schools all over the world.
- number of teaching hours.

8. Weaknesses

- insufficient clinical cases in certain fields of Fixed Prosthodontics (i.e. all-ceramic systems, ceromers, and fiber reinforced composites)
- outdated equipment for clinical work, particularly dental units.

9. Innovations and Best Practices

- to publish scientific articles following the research which was done in cooperation with talented students;
- to publish mimeographed course materials in clinical fixed prosthodontics.

10. Plans for Future Changes

- to publish a textbook in Fixed Prosthodontics;
- to develop student research;
- to stimulate active participation of teachers in congresses abroad;
- to stimulate publication of papers in international journals;
- to link with counterpart schools and scientific institutions abroad.

11. Visitors Comments
11.3. REMOVABLE PROSTHODONTICS

Name: Prof. Vlado Carek, Ph.D.
E-mail: carek@sfzg.hr

1. Introduction

Removable Prosthodontics curriculum introduces the students to different kinds of options available for restoration of partly dentate, and edentulous adult patients on an acceptable and appropriate biological and functional basis. Efforts are made to rehabilitate all functions of the stomatognathic system. In the course of the curriculum, the ability to analyse and choose the best possible treatment for every clinical case is stimulated.

Special clinical sessions take place in the pre-clinical (4th and 5th semester) phase and in the clinical phase (6th, 7th, 8th, 9th and 10th semester) under the supervision of the teacher, a specialist prosthodontist. Each stage of work is supervised and assessed by the teacher.

2. Primary Aims

The primary aim is to provide the student with basic knowledge so that he could successfully rehabilitate either partially dentate patients or edentulous patients in general dental practice.

3. Main Objectives

The student is expected to:
- Analyse partially dentate patients or edentulous patients, and plan the appropriate prosthodontic restoration.
- Construct partial, complete or immediate dentures.
- Advise the patients on the usage and maintenance of removable appliance(prostheses), as well as on their oral hygiene.
- Repair and reline removable prostheses.
- Have knowledge and skill of taking impressions and making of master cast.
- Communicate with the dental technologist and write a suitable prescription.

4. Hours in the Curriculum

Pre-clinic

2nd year: 15 hours of seminar, 30 hours of exercises (4th semester)
3rd year: 15 hours of lectures, 45 hours of exercises (5th semester)

Clinic

3rd year: 10 hours of lectures, 5 hours of seminar, 30 hours of exercises (6th semester)
4th year: 15 hours of lectures, 75 hours of exercises (7th + 8th semester)
5th year: 10 hours of seminars, 50 hours of exercises (9th + 10th semester)

5. Methods of Learning/Teaching
- supervised laboratory exercises (pre-clinic)
- demonstration in dental laboratory
- lectures
- seminars in small groups
- supervised clinical exercises
- case-based learning
- PBL
- video

6. Assessment Methods

- supervision of stages of pre-clinic exercises
- exam after pre-clinical exercises – condition for clinical exercises
- supervision of clinical protocol stages in clinical exercises
- final oral examination

7. Strengths

- high quality of teachers;
- clinical exercises are taught by teachers who are specialists in Prosthodontics;
- renowned teachers, top specialist practitioners;
- research and teachers’ international experience;
- number of hours of clinical teaching.

8. Weaknesses

- separation of Removable from Fixed Prosthodontics in clinical teaching
- insufficient number of suitable clinical cases in certain fields of Removable Prosthodontics (e.g. immediate and partial prostheses)

9. Innovations

- research and publications done jointly with talented students
- gradual strengthening of the role of multimedia
- gradual integration of Fixed and Removable Prosthodontics in clinical teaching

10. Plans for Future Changes

- integrate the didactic process with other dental specialities
- reinforce clinical teaching
- reinforce the role of multimedia
- develop research by students
- carry out a part of the course in specialist institutions outside the School
- stimulate junior teaching staff to visits abroad.

11. Visitors Comments
11.4. GNATHOLOGY

Name: Prof. Melita Valentić-Peruzović, Ph.D.
E-mail: melita.valentic-peruzovic@sfzg.hr

1. Introduction

The course is taught in lecture format in the 5th year of studies, i.e. in the 9th semester, whereas classes are organised in shifts in the 10th semester with smaller groups of 16 students. In lectures, the students are introduced to already familiar terms of occlusion morphology, but they are now presented in a dynamic and functional relation to other components of the stomatognathic system. Particular attention is paid to a neuromuscular basis of mobility of the stomatognathic system and to the influence of occlusion determinants on the jaw relations. The second part of the course covers temporomandibular dysfunctions, clinical function analysis and TMD treatment. In seminar work, clinical function analysis is carried out according to students’ diagnostic files (questionnaire).

2. Primary Aims

Introduction to the knowledge of complex relations among components in the stomatognathic system at rest as well as during function.
Acquisition of the above mentioned knowledge.
Application of the above mentioned knowledge to all dental procedures (reconstruction of a part of occlusal surface on the entire tooth).
Occlusal diagnostics and treatment planning of occlusal disorders, based on the fundamental principles of obtaining and maintenance of occlusal harmony.

3. Main Objectives

- Introduction to functional anatomy and biomechanics of the masticatory system;
- Functional neuroanatomy and physiology of the masticatory system;
- Development of occlusion and dentition;
- Mechanics and mandibular movements;
- Criteria for optimal functional occlusion;
- Determinants of occlusal morphology;

- Aetiology and recognition of functional disturbances of the masticatory system;
- Treatment of functional disturbances of the masticatory system;
- Occlusal treatment.

4. Hours in the Curriculum
15 hours of lectures in the 9th semester and 15 hours of seminar and discussion groups (in shifts) in 10th semester. No special clinical practice.

5. Methods of Learning/Teaching

- lectures
- seminars, discussion groups, individual self-evaluation and questionnaire filling with previous demonstration and control of registering measured parameters, laboratory and clinical demonstration (integrated in the course of Prosthodontics).

6. Assessment Methods

Final exam: oral examination (individual approach)

7. Strengths

Understanding of the specificity of the stomatognathic system as one entity Monitoring of interaction of individual factors in different fields of Dental Medicine (Prosthodontics, Periodontology, Orthodontics, Dental and Oral Diseases, Oral Surgery). Linking the existing knowledge in such a way that it can encompass a wide variety of issues into a unity that will have integrity of its own. Also, it will obtain optimal functionality with the least disadvantageous consequences.

Introducing the theory of articulators and mounting casts in the articulator. Clinical work with articulated during practical work in Prosthodontics. Demonstration of contemporary diagnostic methods such as EMG, gnathosony and computer-assisted axiography since they are combined in the TMD diagnostics.

8. Weaknesses

Too many traditional types of lectures and theoretical work (seminars).
Lack of practical work on models and in the articulator.
Lack of space for individual practical work—technique of waxing and model analysis in articulator, as well as selective grinding.
Lack of financial support for materials that are used in non-clinical work.

9. Innovations and Best Practices

Since the introduction of the course in Gnathology, the seriousness and reputation of occlusion in dental medicine has been gradually increasing. Thus efforts are made to emphasise the importance of appropriate occlusion morphology and jaw relations both interdisciplinarily and in the course of practical work in other subjects. Students make occlusal diagnosis and functional analysis on each other. Thus, they learn to recognise the signs and the symptoms of TMD. Preparation of a digital textbook on Gnathology on the Internet for students and discussion groups.
We encourage the students to do research and write their theses on the given topic.

10. Plans for Future Changes

To improve students’ practical work on practice models;
To use some contemporary education models methods – AV and simulation of occlusal disorders, self-directed education assisted by the Internet
To assess practical knowledge by written test before taking oral examination.

11. Visitors Comments
11.5  GERODONTOLOGY

Name:  Prof. Adnan Ćatović, Ph.D.
E-mail: catovic@sfzg.hr

1. Introduction

The Gerodontontology course covers the following issues: aims and objectives; physiology of ageing, medical aspects of ageing; neurological problems in old age; pharmacotherapy in old age; teeth alterations, caries and changes in the pulp; changes in the oral mucosa; oral surgery; fixed prosthodontic treatment, changes in the periodontium and treatment of periodontal diseases; removable prosthodontic treatment; retention of removable prosthodontic appliances in the old age patients.

2. Primary Aims

The basic aim is to provide the student with basic knowledge in order to ensure a successful rehabilitation of old age patients in general prosthetics.

3. Main Objectives

- train the students for prostodontic rehabilitation of elderly patients;
- teach the students how to instruct patients on usage and maintenance of removable prostheses;
- teach the students how to instruct the patients on keeping hygiene of their dentures;
- introduce the students to the basic principles of aetiology and pathology of tooth caries;
- introduce the students to basic features of dental materials;
- introduce the students to neurological problems in old age, to changes in the oral mucosa;
- train the students for reactivation of retention of removable prostodontic appliances with elderly patients;
- discuss the pharmacotherapy in the old age.

4. Hours in the Curriculum

4th year: 10 lectures, 5 seminars (8th semester)

5. Methods of Learning/Teaching

In lectures and seminars, biological, aetiopathogenic, pathological and diagnostic aspects related to the old age are studied. Different treatments and therapies are discussed. Theoretical teaching is carried out with the assistance of slides and digital technology.

6. Assessment Methods
Apart from the immatriculation book, the student also has a control booklet in which he/she notes the lectures and seminar topics. Final exam is taken in a quiz format (test).

7. **Strengths**
   - high quality teachers
   - top specialist practitioners
   - research work and teachers with rich international experience
   - comprehensive introduction to specific features of the elderly population.

8. **Weaknesses**
   - insufficient practical and clinical introduction to problems

9. **Innovations and Best Practices**

   They are necessary for achieving the best possible effectiveness both in education and in forming of a modern dentist. Gradual strengthening of the role of multimedia. Change to teaching in shifts with visits to the old people's homes.

10. **Plans for Future Changes**
    - introduce clinical teaching
    - strengthen the role of multimedia
    - develop student's research
    - carry out a part of teaching outside the School (old people's homes)
    - learn about experiences in schools abroad.

11. **Visitors Comments**
11.6. DENTAL MATERIALS

Name: Prof. Vjekoslav Jerolimov, Ph.D., F.A.D.M.
E-mail: jerolim@sfz.hr

1. Introduction

The Dental Materials course deals with different kinds of dental materials. Also, it provides the students with knowledge of their technological and clinical application. In the course of this subject, the student’s ability to analyse and choose the best material for every technological and clinical task is stimulated. Theoretical teaching of the Dental Materials course takes place in lecture format and in seminars in the 3rd and 4th semester, with the participation of teachers from various disciplines (Applied Chemistry, Fixed and Removable Prosthodontics, Dental Pathology, Orthodontics, Child Dentistry, Oral and Maxillofacial Surgery). Clinical part is integrated into pre-clinical exercises in Removable and Fixed Prosthodontics (4th and 5th semester), Dental Pathology (4th semester) and Orthodontics (8th semester). Some clinical aspects of the use of dental materials are also complemented within the courses in clinical dental subjects.

2. Primary Aims

The primary aim of this course is to teach students how to make the right choice of dental materials in order to ensure good oral health, good function and patient satisfaction. Students are expected to manage and apply dental materials after they have acquired knowledge on their physical, chemical and biological features.

3. Main Objectives

The student should know:
- Physical, chemical and biological features of materials.
- How to use materials in dental laboratory.
- Procedures in a dental laboratory.
- Materials and technologies in clinical application.
- Possible concomitant (unwanted) effects of materials in patients and in dental staff.
- General features of the materials so that he can help the patient to make the right decision.

4. Hours in the Curriculum

Independent teaching:

2nd year: 15 hours of lectures, 30 hours of seminars (3rd and 4th semester)

Integrated teaching in other courses:

2nd year: pre-clinical exercises in Removable Prosthodontics and Fixed Prosthodontics (4th and 5th semester) and Dental Pathology (4th semester)
4th year: pre-clinical exercises in Orthodontics (8th semester)
5. **Methods of Learning/Teaching**
   - supervised laboratory exercises (pre-clinic)
   - demonstration in dental laboratory
   - lectures
   - seminars in small groups
   - clinical demonstrations
   - supervised clinical exercises
   - PBL
   - video

6. **Assessment Methods**
   - assessment during work phases in pre-clinic
   - exam after pre-clinical exercises
   - final oral examination

7. **Strengths**
   - high quality of teachers
   - integration of teaching with dental laboratory and clinical teaching
   - research production and teachers’ international experience

8. **Weaknesses**
   - insufficient quality control in the part of integrated teaching

9. **Innovations**
   - research and publications with talented students
   - gradual strengthening of the role of multimedia
   - better activity and knowledge in this field than before

10. **Plans for Future Changes**
    - integrate the didactic process with other dental specialities
    - reinforce clinical teaching
    - reinforce the role of multimedia
    - stimulate students’ research

11. **Visitors Comments**
11.7. DENTAL IMPLANTOLOGY

Name: Prof. Goran Knežević, Ph.D.
E-mail: knezevic@sfzg.hr

1. Introduction

The course in Dental Implantology is a part of the Reconstructed curriculum and from the organisational point of view it belongs to the Department of Oral Surgery of the Zagreb School of Dental Sciences. The Head is a specialist in Oral Surgery and a Professor at the School, whereas the teaching is carried out by a team of teachers, Professors of Oral Surgery, Professors of Fixed and Removable Prosthodontics and the Professors of Periodontology. The course is held in the 9th semester.

2. Primary Aims

The primary aim of the course is to introduce students to basic principles of contemporary Dental Implantology particularly to those that will help them make right judgements concerning indications, contraindications and choice of a possible implant and prosthodontic appliances.

3. Basic Objectives

Throughout the course, the students should acquire of the issues:
- historical review of development of Dental Implantology;
- general terms in Implantology;
- experiment models, indications and contraindications for application of dental implants;
- classification of the jaw atrophies, intradental and transdental implants
- equipment and implantology systems;
- osseointegration, preparation of patients and terms for various surgical and prosthodontic phases;
- surgical procedure of implant placing;
- presentation of cases from practice;
- materials in Dental Implantology;
- occlusion and gnathological aspects of Dental Implantology;
- removable and fixed prosthodontic suprastructure;
- maintenance of implants, peri-implant diseases;
- regeneration of bones and stimulation of regeneration of bones.

4. Hours in the Curriculum

The course consists of 15 hours (1 hour per week) in the 9th semester of the studies. The teaching is carried out in lecture format. The students are expected to discuss the issues.
5. **Methods of Learning/Teaching**

The teaching material is prepared from the texts that have just been submitted for publishing. The textbook *Basics of Dental Implantology* by Goran Knežević et al, based on worldwide accepted insights and exclusively on the documentation from our own case reports, has been subsidized by the Ministry of Sciences and Technology and it should come out by the end of the year 2001.

6. **Assessment Methods**

Teaching material is assessed by all lecturers taking part in the teaching of the course. The Head Teacher drafts the alphabetical list of students. He also makes a draft of the examination schedule for each examiner at the end of the course.

7. **Strengths**

8. **Weaknesses**

Since the teachers at the School generally believe that Dental Implantology belongs to the field of specialist activities of Oral Surgery and Prosthodontics, and that the teaching can be carried out only by trained specialists, it seems that the course is well designed and that students receive enough information. The students are referred to adequate literature. In this way they can acquire necessary knowledge which will be applied to their future polyvalent dental practice. The only weakness of the course is the existing form of teaching in lecture format.

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

Introduction of seminar work. The students’ active participation in practicing individual implantological procedures.

11. **Visitors Comments**
**Section 12  Periodontology**

12.1. PERIODONTOLOGY

Name: Prof. Ksenija Jorgić-Srdjak, Ph.D.
E-mail: srdjak@sfzg.hr

1. Introduction

The periodontal curriculum is aimed at teaching the student to accept and understand the theoretical basis of a periodontal disease, its treatment plan and its importance to both the oral environment and general systemic health. It includes the anatomy and histology of periodontal tissues, their biology, pathology, treatment modalities and the impact on the organism as a whole.

Periodontology is taught during 5 semesters, starting in the 3\(^{rd}\) year with anatomical and histological features of periodontal tissues, continuing during 4\(^{th}\) year with etiology, pathogenesis and pathology of periodontal diseases. In the last year the curriculum includes seminars focusing mainly on surgical procedures and different approaches in periodontal surgery.

The lecturers of periodontology are also included in the teaching of the courses named Dental propedeutics, Oral hygiene and Gerontodentistry.

2. Primary Aims

The primary aim of the curriculum is to enable the students to see periodontology as an integral part of overall patient care. Learning periodontology either in lecture format or in the clinical setting leads to students’ gaining enough self-confidence which they need to have in order to get a qualified approach to their future profession.

3. Main Objectives

The main objectives of the programme are based on a professional approach, comprising of a well documented and known assessment of a patient, careful examination, diagnosis, prognosis and treatment of each periodontally compromised individual.

At the end of the fifth year the student should be able to:
- describe and assess healthy and diseased periodontal tissues;
- describe the role of microorganisms, host response and systemic factors in the development of periodontal diseases;
- assess and diagnose an individual periodontal situation;
- document and prepare individual treatment plan for each of a great number of different periodontal pathologies;
- describe and carry out the initial (cause-related) periodontal treatment, as well as supportive periodontal treatment;

4. Hours in the Curriculum

3\(^{rd}\) year – 15 hours
4\(^{th}\) year – 45 hours
5\(^{th}\) year – 75 hours
Almost 70% of the time is dedicated to independent work on periodontal patients, under supervision of periodontologists. The rest of the curriculum is divided in theoretical lectures and seminars.

5. Methods of Learning/Teaching

The current periodontal curriculum spans over 5 semesters, starting in the second half of the 3rd year. First semester of periodontology is dedicated to anatomy, histology and special features of periodontal tissues. Second semester curriculum comprises etiology, pathology and pathogenesis of periodontal diseases, including different approaches to the subject. Third semester of periodontology is dedicated to hygienic procedures and initial manual instrumentation features and characteristics. Students perform hand instrumentation procedures on ball models and extracted human tooth covered with red nail polish. The emphasis is placed on the technique and proper use of instruments. Between the third and the fourth semester students have to write a paper aimed at assessment of knowledge of anatomy and theoretical knowledge of initial periodontal treatment. The fourth semester of periodontology is mainly devoted to clinical implementations of cause-related treatment which are performed under supervision. In addition, there are the seminars covering the topics of periodontal surgery. Clinical training is supervised by a periodontologists. There is one teacher per 7 to 8 students. Each lecture is followed by completion of an individual check list by the clinician supervising the students’ work. In the final semester periodontology consists of one week of clinical work, during which the students provide individual patients with the necessary treatment. Periodontal surgery is performed during the week, with students either watching or assisting, very rarely carrying out the surgery by themselves, this option being reserved only for the most motivated and skilled students, based on the assessment of the periodontologist under whose supervision the work is done.

6. Assessment Methods

In every exercise class a student’s activity in the practical work on patients is registered so that all students would carry out the necessary activities concerning the process of diagnostics and treatment of oral diseases. A quiz precedes the practical work. It consists of written exam and oral examination. The exam consists of three parts. In practical part a student gets a patient with a periodontal disease. He independently makes the diagnosis, and makes a prognosis for the diagnostic procedure. He makes notes, which then he/she has to explain to the examiner. Finally, the theoretical part of the exam follows consisting of the assessment of knowledge of different periodontology issues.

7. Strengths

The main strength is a great enthusiasm on the part of the staff and dedication to their work, their strivings to improve the quality of learning. Careful preparation of each lecture is an asset, the greatest emphasis is placed on the third semester when the students learn by means of slide presentation and direct access to online periodontal sites. The fourth semester is equally important because students are faced with the patients who are carefully selected to represent a periodontal pathology. Thus, the students are able to perform and pursue different treatment modalities. Each group of students writes an anonymous essay commenting on the programme of the Department.
8. **Weaknesses**

The weakness is the inability to perform the planned programme, especially in the fourth semester, since there are difficulties in patient selection and in obtaining their acceptance. The competency assessments in the fourth semester are greatly dependent upon patient resources. There is an evident lack of hygienists. Also, it is almost impossible to perform surgical procedures.

9. **Innovations and Best Practices**

In 1994 the total periodontology curriculum increased from 90 to 135 hours, by inclusion of preclinical work. The next generation (school year 2001/2002) of students will experience a change in the programme, in which the basic oral hygiene features will be included. The whole curriculum will therefore be shifted to a later level, thus enabling students to accept more data later in the curriculum. The students are able to obtain each lecture in an electronic format, since the data can be e-mailed to every student who has an interest in periodontal issues a few days before the lecture is held.

10. **Plans for Future Changes**

Since there is no satisfactory literature for students, it was decided that Jan Lindhe’s textbook “Clinical Periodontology and Implant Dentistry” would be translated and accepted as an official textbook of the School. There are plans to set up a web page on which all of the topics, lectures, and projects of the Department will be accessible for the students to take part and suggest changes. Furthermore, in future each student is expected to carry out a minor surgery.
11. Visitors Comments
Section 13 Oral Surgery and Radiology

13.1 ORAL SURGERY

Name: Prof. Pavel Kobler, Ph. D.
E-mail: kobler@sfzg.hr

1. Introduction

Oral Surgery is introduced into the curriculum in the 6th semester with lectures. The course continues throughout the 4th and 5th years (10th semester). For the first time students are introduced to the course in the 3rd and 4th semester within the interdisciplinary course in Dental Diagnostics and Propedeutics. In the 6th semester, along with lectures, students attend seminar and pre-clinical classes on local anaesthesia and tooth extraction.

2. Primary Aims

- train future dentists to make the diagnosis for patients with pathological changes and pains in oral cavity, as well as teach on all possibilities of differential diagnostics;
- teach students to use local anaesthesia;
- train students to extract tooth and introduce them to all the methods of treatment in the field of oral surgery, particularly those concerning odontogenic inflammation.

3. Main Objectives

- taking anamnesis, methods of clinical and radiological examination, writing of anamnesis;
- local anaesthesia (various techniques, general and local complications);
- tooth extraction (indication and contraindication, instruments, techniques, complication during and after extraction);
- oral surgical operations: apicectomy, alveolectomy, pre-prosthetic surgery, etc.;
- inflammation of hard and soft tissues of the head and neck, particularly inflammation of odontogenic aetiology;
- cysts on the jaws and surrounding soft tissues – aetiology, clinical imaging, diagnostics and surgical treatment;
- diseases of the temporomandibular joint
- pain in the region of mouth, jaws and face;
- precancerosis, aetiology of oral cavity cancer and early discovery of oral cavity cancer;
- diseases of salivary glands;
- surgical prosthetics.
4. **Hours in the Curriculum**

Total hours in the 3rd, 4th, 5th year of study: 210
Lectures: 45
Seminars – pre-clinic: 15
Exercises: 150 (4th year: 60, 5th year: 90)

5. **Methods of Learning/Teaching**

After the introductory lectures in the 3rd year of the studies (6th semester), the students are demonstrated the methods of local anaesthesia, instruments for tooth extraction, position of the therapist at extraction, holding of dental forceps and lever as well as techniques of tooth extraction, in form of seminars. The curriculum envisages seminars work as pre-clinical workshops on phantom heads. However, we are currently not able to do organize it in that manner. In the 4th year of studies, emphasis is placed on clinical exercises – giving local anaesthesia and tooth extraction, whereas in the 5th year, exercises are held in the polyclinical part of the clinical hospital so that students have the opportunity to get acquainted with the rest of the clinical pathology. Also, they are expected to assist their teachers who carry out oral surgery.

6. **Assessment Methods**

Before engaging in clinical work (at the end of the 6th semester), students take a quiz in local anaesthesia, teeth extraction and complications. After the completion of the course in Oral Surgery, students take an oral examination consisting of the practical and theoretical part.

7. **Strengths**

8. **Weaknesses**

Insufficient number of phantom heads for pre-clinical teaching and still too large groups of students in exercise classes (8-12).

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

11. **Visitors Comments**
13.2. **MAXILLOFACIAL SURGERY**

Name: Assis. Prof. Vedran Uglešić, M.D., Ph.D.
E-mail: uglesic@hotmail.com

1. **Introduction**

Maxillofacial surgery is introduced into the curriculum in the 5th year of the dental undergraduate study. Dental students previously acquire basics in surgery in shift classes in General Surgery in the third and fourth year of study, as well as theoretical knowledge and skills in Oral Surgery in the third and fourth year of the study.

2. **Primary Aims**

In the course of the shift classes in Maxillofacial Surgery students must acquire the basics of clinical examination, diagnostic procedures and principles of treatment of facial injuries and maxillary and mandibular injuries. They are provided with the knowledge of facial deformities, of maxillary and mandibular deformities, of inflammatory processes in the maxillofacial region and of lip and palate splits. They are also introduced to the relevance of early diagnosis of malignant tumours, their treatment and to basic principles of plastic reconstructive surgery in the head and neck region.

3. **Main Objectives**

The students learn the following issues:

- history taking and clinical status;
- basic principles of asepsis;
- providing first aid with injuries in the maxillofacial region;
- acute and chronic odontogenic inflammatory processes;
- odontogenic cysts;
- injuries of the soft tissues of the face;
- injuries of the soft tissues of the jaws;
- dental trauma;
- facial bone fractures;
- tumours in the maxillofacial region;
- basic principles of plastic and reconstructive surgery;
- prosthodontic rehabilitation of oncological patients;
- split lip and split palate;
- deformities of the face;
- deformities of the jaws;
- diseases of the temporo-mandibular joint;
- non-tumour diseases of salivary glands.

For the above-mentioned issues students must know the basics of epidemiology, pathophysiology, diagnostics, treatment and prevention.
4. Hours in the Curriculum

Students have 60 hours of lectures in the fifth year (the 9th semester) and 60 hours of practical teaching/exercises in the 10th semester.

5. Method of Learning/Teaching

In the course of the 9th semester the students attend lectures and acquire theoretical knowledge of traumatology, oncology, inflammatory processes in the maxillofacial region, deformities, split lip, split palate and basic principles in plastic reconstructive surgery.

Practical teaching takes place in the exodontic clinic, in the clinic for dentoalveolar surgery, in the consultant clinic, in the operating theatre and on ward in the course of the 10th semester. The students take medical history and clinical status of hospitalised patients in wards. They are divided into small groups. Besides, they are supervised by a teaching assistant. In the course of the shift teaching they follow up patients in pre-operative and post-operative processes. At the clinic for dentoalveolar surgery they are engaged in the diagnostic procedures and management of patients referred for routine dentoalveolar surgery (i.e. impacted teeth, periapical surgery and dentoalveolar surgery). They assist in less demanding surgery. In the consultant clinics the students get an insight into a whole range of maxillofacial pathology concerning diagnostics, treatment and follow up (maxillofacial trauma, malignancy, congenital and dentoalveolar anomalies, TMJ pathology). In the operating theatre they watch major operating procedures. On ward they follow the patients’ postoperative treatment. Following the morning ward visit, students are organized in smaller groups and assigned to the clinical ward, polyclinical part or surgery tract. Each group of students spends one week in exercises classes.

6. Assessment Methods

In the course of shift classes (at clinical wards) students take notes on daily activities and write them down in their control booklets. In the course of exercises, they visit all working sites: ward, polyclinical part, out-patient unit, surgery tract. The final exam is an oral examination. The students can take it only if they have attended lectures and exercises.

7. Strengths

Having acquired theoretical knowledge in lectures, the students get involved in daily work at the ward, in out-patient units and in the operating theatre through exercises. It is made possible for them to follow patients in pre-operative and post-operative care from minor surgeries to major oncological operations and reconstructions. They also learn about some basic principles of surgical technique by assisting operations.
8. **Weaknesses**

Too large groups of students. Lack of space.

9. **Innovations and Best Practices**

Computer-assisted simulations of those operations that students did not have any opportunity to see during their shift classes.

10. **Plans for Future Changes**

11. **Visitors Comments**
13.3. RADIOLOGY

Name: Prof. Miljenko Marotti, Ph.D.
E-mail: marotti@sfzg.hr

1. **Introduction**

Institute for Diagnostic and Intervention Radiology is a part of the School of Dental Medicine and Medical School at the University of Zagreb. The course is taught in the second year (3rd and 4th semester). It provides students with knowledge of General Radiology and Special Radiology for dentists.

2. **Primary Aims**

The curriculum provides the student with theoretical and practical knowledge of Dental Radiology and theoretical knowledge of General Radiology.

3. **Main Objectives**

The main objective is to enable students to:
   a. understand basic laws concerning the physical phenomenon involved in producing x-rays; principles of radiological protection, radiation encumbrance in case of dental x-ray methods, basic knowledge of radiographic equipment;
   b. be able to read radiograms and carry out radiographic tests;
   c. know algorithms of general diagnostic procedures;
   d. understand radiographs;
   e. know basics of radiographic anatomy of the maxilla and the mandible;
   f. interpret the pathological conditions of teeth and maxillofacial region;
   g. understand diagnostic methods of ultrasound, computer tomography and magnetic resonance;
   h. understand various dental techniques, compare strengths and weaknesses of various methods.

4. **Hours in the Curriculum**

3rd semester, General Radiology: 15 hours of lectures, 15 hours of seminars and exercises

4th semester, Dental Radiology: 15 hours of lectures, 15 hours of seminars and exercises

5. **Methods of Learning/Teaching**

Lectures, exercises, seminars.

6. **Assessment Methods**
Oral examination at the end of the 4th semester.

7. **Strengths**

8. **Weaknesses**

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

To publish a textbook.
To introduce modern visual equipment to teaching.
To establish electronic library of didactic cases (CD film collection).

11. **Visitors Comments**
Section 14  Oral Medicine and Oral Pathology

14.1. ORAL MEDICINE

Name: Prof Ana Čekić-Arambašin, PhD.
E-mail: cekic@sfzg.hr

1. Introduction

The course in Oral Medicine consists of teaching students to understand the theoretical background of the diseases of the oral mucous membranes, the diseases of the salivary glands. In addition, one of the primary aims of the course is to develop in students an understanding of oral pathological symptoms, practical diagnostics and treatment, prevention and relevance of oral diseases in relation to oral health and systemic health.

Thus, the course encompasses the knowledge of anatomic, histological and biological characteristics of the oral mucous membrane and sub-mucous structures, relevance of systemic and local factors in the aetiology of diseases of the oral mucous membrane.

The course in Oral Medicine is delivered throughout four semesters, starting in the fourth year of training as theoretical teaching in lecture format and lasting continuously until the end of the fifth year of training, in both theoretical and practical form of seminars and practical work (exercises).

Oral Medicine lectures are included in the study of the following subjects: Dental Propedeutics, Oral Hygiene and Gerontodontistry.

2. Primary Aims

To train dental students for practical clinical work on patients with oral diseases.

To teach local and systemic manifestations and their treatment, based on knowledge acquired on: the role of oral mucosa in the functioning of the stomatognathic system.

To acquire contemporary knowledge on diseases of oral mucosa.

To point out the possibilities of diagnostics and treatment.

To revise the knowledge of General Medicine and Dental Medicine in order to apply it to Oral Medicine.

To describe the relationship between oral and systemic diseases.

In this way, Oral Medicine is given its importance as a dental discipline. Moreover, its relevance to oral health is pointed out.

3. Main Objectives

The course is based on training on clinical procedures, learning by collecting data on the patient, thorough examination and documentation in making diagnosis and treatment of oral diseases. Main objectives of the course are as follows:

- to teach symptomatology procedure of diagnosing oral diseases using knowledge from basic and clinical medical subjects, based on anamnesis and clinical picture;
- to teach students about clinical pathological manifestations in oral mucosa compared to aetiological factors of diseases;
- to teach the interpretation of pathohistological, cytological, microbiological, immunological, bio-chemical, radiological and other lab results;
- to teach the relation between systemic diseases and oral health by introducing students with oral symptoms and clinical findings in case of genetic, cardio-vascular, respiratory, hematologic, gastrointestinal, nutritional, renal, endocrine, immunological, neurological and psychological disorders;
- to discuss specific mechanisms of protection of oral mucosa;
- to teach students to understand specificities of diseases at young and old age.
- to recognise the difference between the clinical manifestations of pre-cancerous oral diseases and malignant lesions;
- to recognise paraneo-plastic symptoms in the mouth;
- to point out the difference of clinical manifestations of salivary gland diseases;
- to recognise infectious diseases of the oral mucosa such as fungal, viral and particularly HIV, hepatitis and bacterial diseases;
- to recognise immunological disorders with oral manifestation (allergies, systemic autoimmune diseases, paraproteinemia and amyloidosis, vasculitis, immunodeficiency – AIDS);
- to recognise the importance of mucocutaneous autoimmunodefficiencies in oral mucosa such as recurrent aphthaous ulceration, lichen ruber, bullous oral lesions;
- to understand the relevance of the symptoms of pain, burning and dryness of oral mucosa;
- to understand the role of prevention;
- to understand social relevance of oral diseases;
- to learn basic treatment procedures of different oral diseases.

4. Hours in the Curriculum

4th year: 30 hours
5th year: 90 hours

The teaching in the 5th year is 70% practical. It is carried out throughout clinical work on patients. Besides, students take active parts in seminars.

5. Methods of Learning/Teaching

The teaching in the course of Oral Medicine is carried out throughout four semesters, starting in the 4th year of dental studies. In the 4th year it includes 30 hours of lectures per semester. Lectures are continued in the first semester of the 5th year of study with 15 hours, when clinical exercises (practical work) also start with 30 hours and are continued in the second semester of the 5th year during 30 hours of teaching in shifts. The quiz is taken at the end of the theoretical teaching at the end of the 4th year, before the start of clinical exercises on the patient. The exam follows after the completed 5th year of studies. Lectures are taught by Professors and by Assistant Professors. Clinical exercises are taught by assistant teachers, Assistant Professors and Professors. Unless they are specialists in Oral Medicine, assistant teachers teach along with a specialist. During the
2-hour clinical teaching, 8-10 patients are demonstrated and worked on with one group of students, appointed patients or emergency cases of oral mucosa diseases. Exercises are carried out through practical individual students' approach to patients. Supervised by their teachers, students carry out the diagnostic procedures of taking anamnesis, carrying out clinical examination, oral tests, interpretation of lab findings, taking microbiological, cytological and biopsy samples, and treatment of oral diseases.

6. **Assessment methods**

In every exercise class a student's activity in the practical work on patients is registered so that all students would carry out the necessary activities concerning the process of diagnostics and treatment of oral diseases. A quiz precedes the practical work. It consists of written exam and oral examination. The exam consists of three parts. In practical part a student gets a patient with a disease of oral mucosa. He independently makes the diagnosis, and makes a prognosis for the diagnostic procedure. He makes notes, which then he/she has to explain to the examiner. Finally, the theoretical part of the exam follows consisting of the assessment of knowledge of different oral medicine issues.

7. **Strengths**

- individual work of the student and the teacher.
- individual student's work on patients.
- large number of various clinical cases in the course of practical work.
- the timetable enables to monitor patients every week in the 9th semester and every day in the 10th semester.
- there is a reference laboratory for differential microbiological and cytological diagnostics.
- students are encouraged to take part in scientific work.

8. **Weaknesses**

- laboratory diagnostics is dislocated;
- large groups of students in clinical exercises;
- limited space working conditions in clinical exercises;
- each student does not have his/her own working place;
- lack of modern equipment necessary for diagnostics of oral diseases;
- lack of drugs that could be used in relation to oral mucosa.

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

- currently working on a new textbook for students;
- Lynch’s book *Burkit’s Oral Medicine* is to be translated. It is going to be used as an additional textbook;
- purchase of equipment for diagnostics in Oral Medicine.

11. **Visitors Comments**
Section 15  Integrated Patient Care, Dental Emergencies and Special Needs Patient


Visitors Comments

Section 16  Behavioural Sciences
16.1. **SOCIAL MEDICINE AND EPIDEMIOLOGY**

Name: Prof. Zvonko Šošić, Ph.D.
E-mail:

1. **Introduction**

The course in Social Medicine and Epidemiology, taught to dental students in the 8th semester during 30 hours, was established by reorganization of the course in “Hygiene, Epidemiology and Social Medicine” that used to be taught until 1995 in the same semester during 45 hours.

In this course students are provided with basic public health views on dental medicine with the emphasis on the population approach in dental care. In addition, preventive measures and the influence of the way of life on the population’s health are also pointed out.

2. **Primary Aims**

To train students to participate in a comprehensive process of health care. To achieve such an aim, students need to acquire holistic medical knowledge and skills in everyday dental practice. They need to have such knowledge, abilities, skills and attitudes that would allow them to understand the influence of factors of physical and social environment upon the population’s health. Also, students need to acquire knowledge and skills needed for the health condition assessment of the population. Furthermore, students are expected to recognize priority health problems in order to be able to plan, prepare and carry out the intervention program. Particular emphasis is placed on preventive aspects of both health care and social components of health problems in order to enable good communication and cooperation with population.

3. **Main Objectives**

- Assessment of population’s health condition (1 hour of lecture).
- The concept of health, health care and health service (1 hour of lecture, 2 hours of seminar).
- Communication with patients and health education (1 hour of lecture, 2 hours of seminar).
- Basic ethic principles (specificities in public health), doctors’ oaths and moral codices (1 hour of lectures, 2 hours of seminar).
- Basics of organisation of health services and health economics (1 hour of lecture).
- Socio-medical problems of elderly population (2 hours of seminar, 2 hours of exercises).
- Epidemiological observation and research, kinds of epidemiological studies (1 hour of lecture).
- Epidemic diseases; hospital infections, hygiene at work sites, principles of antisepsis and sepsis; disinfection and sterilisation (2 hours of seminar and 4 hours of exercises).
- The concept of risk factors and causes; principles of preventive medicine and health intervention (1 hour of lecture, 2 hours of seminar).
- Environment and health, optimal environment (1 hour of lectures).
- Water and health, Food and health (1 hour of lecture).
- Sustainable development, safeguarding natural resources, hygienic removal of waste (1 hour of lectures).

4. Hours in the Curriculum

30 hours

5. Methods of Learning/Teaching

Lectures, seminars, exercises (three sessions in the field)

6. Assessment Methods

Assessment: written test followed by oral examination

7. Strengths

Field visits, practical work, a desperate need for more knowledge

8. Weaknesses

Only 30 hours of teaching

9. Innovations and Best Practices

10. Plans for Future Changes

11. Visitors Comments
16.2. STATISTICS AND INFORMATICS

Name: Prof. Davor Ivanković, M.D., Ph.D.
E-mail: ivankovic@sfzg.hr

1. Introduction

The main concern of the course is the application of statistical tools to analysis of data in research and practice of dental medicine as well as the use of personal computers in order to organise data, to obtain information by Internet and to use statistical software packages. Emphasis is placed on the methods of collection, description and analysis of data. An important part of the course is devoted to hypothesis testing and evaluation on the basis of experimental and observational studies results. Multivariate data analysis and examples of research trials conducted on the School of Dental medicine are highlighted. Software for doctor’s office is demonstrated. Its advantages and disadvantages are discussed.

2. Primary Aims

- To provide the student with basic skills in designing, conducting and analysing clinical trials, medical surveys and epidemiological studies
- To teach the student how to use an “easy to use” database management system, statistical software packages and Internet.

3. Main Objectives

The student is expected to demonstrate:
- basic knowledge of statistical methods;
- ability to use personal computers for data preparing;
- appropriate exploitation of a statistical software package;
- capability of proper interpretation of results;
- the ability to search the Internet for medical information;

4. Hours in the Curriculum

There are 20 hours of lectures and 10 hours of practical (out of which 8 in a computer laboratory)

5. Methods of Learning/Teaching

Fundamentals are given through interactive lectures. Most practicals are carried out in a computer laboratory, the others are auditive exercises.

6. Assessment Methods

Oral examination and practical work on simple problems assess students’ knowledge and skills.

7. Strengths
Teaching and working on practical and research problems in dental medicine. Using PC in a computer laboratory.

8. **Weaknesses**

A small number of hours devoted to statistics and informatics makes it difficult to provide sufficient knowledge, understanding and skill in the field. The small capacity of computer laboratory disables efficient skill development. Continuous evaluation of learning/teaching impact is hardly possible.

9. **Innovations and Best Practices**

Teaching hours should be doubled with lectures/practicals ratio 1 : 2 (20 hours lectures and 40 hours practical)

10. **Innovations and Best Practices**
11. Visitors Comments
16.3. **ENGLISH LANGUAGE**

Name: Lidija Štefić, M.Sc., Senior Lecturer  
E-mail: lidija.stefic@zg.tel.hr

1. **Introduction**

The course in English Language begins in the first year of studies/the 1\textsuperscript{st} and the 2\textsuperscript{nd} semester) and continues in the second year of studies(the 3\textsuperscript{rd} and the 4\textsuperscript{th} semester). The knowledge of the English language is indispensable for understanding medical and dental journals, textbooks, manuals, instructions and other sources in English. Also, the English language is used in communication between dentists and patients in dental clinics and practices as well as for communication of participants at the international congresses, conferences or symposia. Naturally, it is also used by scholarship grantees during their stay abroad. Therefore, the curriculum of the English language teaching is composed in a way as to teach the specific language, i.e. English for Specific Purpose. This course is not a course in spoken English. Despite this, the use of English for communication purposes is not neglected. Apart from the Lexical Approach to language, grammar chapters are also revised.

2. **Primary Aims**

- acquisition of language competence in order to ensure the reading and understanding of specialist, dentist texts written in English in various specialist journals, textbooks, manuals, instructions, etc.
- acquisition of language competence necessary for the writing of case reports, curricula vitae, summaries, and other texts used in dental medicine as well as in communication with colleagues and patients.
- communication in everyday situations.

3. **Main objectives**

- knowledge of basic specialist vocabulary.
- acquisition of correct pronunciation of words derived from classical languages.
- acquisition of meanings of prefixes and suffixes.
- independent writing of summaries and articles, CVs.
- development of the ability to hold presentations at symposia.
- achieving communication and interaction in English.

4. **Hours in the Curriculum:**

1\textsuperscript{st} year: 15 hours of lectures, 30 hours of exercises.  
2\textsuperscript{nd} year: 15 hours of lectures, 30 hours of exercises.

5. **Methods of Learning/Teaching**
- Reading and comprehension
- Listening and comprehension
- Writing summaries, essays
- Simulation of conferences, congresses, presentations on a given topic
- Interviewing patients
- Watching films in original
- Guided discussions
- Role-play

6. Assessment Methods

- Active participation throughout the course, (written) test and oral examination at the end of every academic year. In the course of the second year students write an essay.

7. Strengths

8. Weaknesses

9. Innovations and Best Practices

10. Plans for Future Changes

- modernisation of English teaching by using new media, e.g. computers
- smaller number of students in groups
- increased number of hours of English speaking exercises.

11. Visitors Comments
16.4. GERMAN LANGUAGE

Name: Branka Krauth
E-mail:

1. Introduction

The course in German Language is one of the elective subjects that students choose in the 1st and 2nd year of studies and it is continued throughout 4 semesters. The course is intended for students who learned German during their previous education and it is assumed that they have already acquired basics in grammar and vocabulary of the German language, having sufficient knowledge to follow the course in German for specific purpose (GSP) language. Knowledge of GSP is necessary for the understanding of dental texts, reading of literature, and development of language proficiency necessary for oral and written interpretation of a written text.

2. Primary Aims

- Stimulate the students to speak aiming at their awareness of other purposes of the language, at their use of general knowledge on GSP.
- Develop the ability to draw conclusions and to express oneself, as well as to use the acquired vocabulary.
- Develop the ability and habit to use grammar books, dictionaries and other manuals containing language information.

3. Main Objectives

Revision of specific grammatical, phonetic, syntactic, semantic structures of the German for specific purpose. Vocabulary teaching is based on work on selected texts followed by various exercises. This is complemented thematically with basic terms in anatomy, cytology, histology and system of organs, osteology – the orofacial system, the musculoskeletal system, the circulatory and lymphatic system, the digestive system with the emphasis on the oral cavity. Furthermore, within the field of dental medicine terms from the field of dental morphology, development of teeth, fixed braces, dental caries prevention, dental practice and orthodontics are exploited. The selected topics of the course are issues from other courses in the 1st and 2nd year of studies.

4. Hours in the Curriculum

Total: 90 hours
Lectures: 60 hours
Seminars: 30 hours

1st year: lectures: 30 hours, seminars: 15 hours
2nd year: lectures: 30 hours, seminars: 15 hours

5. Methods of Learning/Teaching
- Comprehension, reading, listening, written and oral interpretation, interaction, communication, writing summaries, watching films, discussion.

6. **Assessment Methods**

- Active participation throughout the course where the teacher assumes the role of the supervisor.
- Exams (oral examination and written exam) at the end of the 1\(^{st}\) and the 2\(^{nd}\) year of studies.

7. **Strengths**

Small groups of students allowing for active participation of every individual.

8. **Weaknesses**

- Teaching of the course only in the 1\(^{st}\) and 2\(^{nd}\) year of studies as an elective course.
- Insufficient number of hours.

9. **Innovations and Best Practices**

10. **Plans for Future Changes**

- writing a textbook and a specialist(dental) dictionary;
- introduction of audio-visual aids.

11. **Visitors Comments**
16.5. SOCIOLOGY OF DENTAL PROFESSION

NAME: Assist. Prof. Gordana Cerjan-Letica, M.A., Ph.D.
Email: gletica@voyager.hr

1. Introduction

The Behavioural Sciences course (Sociology of Dental Profession) is held in the first year of the study (the first and the second semester) as a 30 week course (Sociology of Dental Profession I) and continues in the second year (the 3rd semester) as a 15 week course (Sociology of Dental Profession II). The course(s) introduce sociological, deontological and ethical issues relevant to profession of dental medicine. Both courses are elective, and the first course in not prerequisite for the second one.

2. Primary Aims

to understand the social, social psychological, cultural, political and economic context of health and the health profession; to provide a stimulating and relevant sociological backgroung for students planning career in dental medicine.

3. Main Objectives

• To understand the interrelation of society, health and health care;
• To understand the persistent patterns of health behaviour;
• To consider the organization of the health professions and health facilities, particularly those in dental medicine;
• An understanding of dental profession as organization - formal and informal;
• To confront students with moral matters and ethical issues in making professional decisions;
• To encourage students to develop critical thinking and reading skills.

4. Hours in the Curriculum

30 hours over 30 weeks in the first year of studies (the 1st and the 2nd semester) and 30 hours over 15 weeks in the second year of studies (the 3rd semester).

5. Methods of Learning/Teaching

A course is delivered in a combination of lecture format and seminars (50%:50%) and weekly consultations (2 hours a week). A range of media is used (video, slides) to facilitate the teaching learning process.

6. Assessment Methods

Oral examinations have had a long tradition in a behavioral sciences because face to face discussion allows personal characteristics and intellectual abilities to be explored to
a degree unavailable in other forms of examination. Students' participation in seminar presentation and discussion is added to the overall assessment grade with the contribution of 25%.

7. **Strengths**

There is sufficient curriculum time although the schedule is not optimal - the lesson and seminar sessions are held late in the evenings after the students’ intensive class load during the day.

Work in 2 seminar groups allows the teaching process to adapt more easily to individual differences among students. The students are supported to propose and select the topics for their seminar presentation. Student-oriented teaching process is the strongest strength to course credit.

Some students have an easy going attitude towards the sociology course, however it is readily sought after by majority of students.

8. **Weaknesses**

The lack of professional exposure during the early stages of the degree course forms the strongest setback to the sociology course, as well as shortage of relevant readings and textbooks in the Croatian language.

9. **Innovations and Best Practices**

A range of teaching methods (lecture, seminar, weekly consultations).

10. **Plans for Future Changes**

- “Sociologisation” of other fields of the curriculum (reinforcement of the sociological approach as to provide students with the tools with which to make sense of their future professional experiences);
- use of the advances in computer aided learning.

11. **Visitors Comments**
Section 17 Examinations, Assessments and Competences

17.1. Introduction

School of Dental Medicine at the University of Zagreb awards the degree of Doctor of Dental Medicine to students graduating from this School. Licence for independent practice is issued by the Croatian Chamber of Dentistry to those Doctors of Dental Medicine who have completed one year of vocational training and passed the state exam at the Ministry of Health. The state exam is taken before a nominated committee that holds the practical part of the exam, theoretical part in form of a test, and a special part related to the knowledge of the Constitution of the Republic of Croatia and Health Care Act. Doctors of Dental Medicine are obliged to renew this licence every six years in compliance with the Rules on the contents, deadlines and procedure of continuous training and assessment of the competences of Doctors of Dental Medicine.

17.2. Examinations and Assessments

Constitution of the School of Dental Medicine and Rules on undergraduate study course stipulate that students’ competences are to be checked and assessed during the entire academic year, whereas the final grade is obtained at an exam.

The exam is held by the course teacher, and in case of an interdisciplinary course, the exam is held by one of the teachers who taught the course in his/her field of work.

The exam is taken by all enrolled subjects, core subjects and/or elective subjects, and it can be taken by students who have previously met all prescribed requirements of the course. Exams are generally open to public, with the exception of practical exams in Anatomy, General Pathology, Pathological Anatomy, Forensic Medicine and all clinical courses that include a practical part in their exam. Exam is either an oral examination only or both oral examination and written(test). They can be either theoretical or theoretical and practical. Written tests or essays and oral examination make one whole and are assessed by one grade. The exam grade is based on the overall student’s work during certain course and his competences are assessed at the exam. The grade is given by the teacher and is made known publicly. The student has the right to take an exam three times, whereas the forth time it must be taken before a Teachers Committee, and if he/she does not pass the exam before this Committee, they have to enrol the given course once again next year. If the following academic year the student fails to pass a given exam in his/her fourth attempt, they lose the right to further study at this School.

17.3. Exam periods and schedules

Exam periods can be regular and extraordinary. Regular exam periods are as follows: winter, summer and autumn exam periods. A regular exam period generally lasts for four weeks. Extraordinary exam periods are determined according to the Rules of Study and are announced at the beginning of the academic year. A period of two weeks is required as a minimum period between repeated exams in regular exam periods, whereas in extraordinary exam periods it is at least 30 days. Fail grade is called insufficient (1), and it is not registered in the immatriculation booklet. Pass grades are: sufficient (2), good (3), very good (4) and excellent (5).
17.4. Degree Final Exam

Degree final exam leads to the award of the degree of Doctor of Dental Medicine. Degree final exam can be taken by students who:
- studied for the past four semesters at this School
- met core subjects and elective subjects requirements
- passed all proscribed exams.

Degree essay is assessed by Teachers Committee, and members of this Committee must have the status of at least a Teaching Assistant. Means of procedure and the assessment of the degree essay is regulated by special Rules.

At a formal graduation ceremony students are awarded their diploma written in the Croatian language and written in the Latin language with solemn Hippocratic oath.
Visitors Comments
Section 18 – Other Influences

18.1. Regional Oral Health Needs

For some well-known reasons, the Republic of Croatia has had a long tradition of dental health care. Dental health care has been established in Croatia for a long time. Today dental health care is generally based on the approach that people themselves should take care of their dental health, thus the prevailing approach is that dental health care should be provided within private practices. This concerns the primary health care, whereas the secondary and tertiary dental care are provided in polyclinics and clinics. Due to the transition process, transformation took place in a way that in primary dental health care contracts have been signed with dental medical staff where income is generally dominated by dentists’ earnings since they mostly make it at a free market. Institutions in poly-clinical and clinical activities earn their income at the free market on the basis of offer and demand. However, the majority of income comes from health insurance funds based on a solidarity principle.

18.2. Evidence Based Treatments

Dental health care in the Republic of Croatia, particularly in some local areas, cannot be assessed as successful. This is due to some particular reasons that we do not wish to use as an excuse. However, certain progress is being made. First of all, the Republic of Croatia has, unfortunately, still not been integrated into the European Union and its GDP standards are not in accordance with the European standards. In addition, it does not have sufficient GDP funds for health care. Secondly, it is necessary to point out that, although there is a number of unemployed dentists in Croatia since there is a lack of money in the GDP to increase their number within the dental health care system, figures indicate to a need for an increased number of dentists in order to provide adequate dental health care standards.

18.3. Involvement and Other University Activities

Based on the Curriculum, dental students are obliged to acquire knowledge and skills of basic medical sciences, specialised medical sciences. Moreover, they need to acquire knowledge of specialised dental sciences. They have to meet the needs of the core courses and electives in a ten-semester course of study. The dental students are not limited within the range of highly specialised knowledge and skills. In the course of their studies they attend lectures of Sociology (related to health). Furthermore, they learn foreign languages and they actively participate in sports through games organised within the University of Zagreb in the bio-medical field. The games are called Humania ade. Dental students, medical students, veterinary students and the students of pharmaceutical and bio-technical sciences take an active part in the games.

18.4. Recreation and Sport

Name: Irena Bagarić

The School considers it important that students have opportunities to spend time, outside of study periods, on other activities. Students of the Dental School in their first two years have an obligatory one hour participation in Physical Education activities of their choice,
which later on becomes an option for the students. These activities include volleyball, soccer, basketball, table tennis, tennis, ice skating, and recreational mountain climbing. Some students of the School of Dental Medicine are the members of different sport teams. Besides, they represent the School of Dental Medicine at the University Championships in different sport activities. The recreational and sporting facilities in Zagreb are excellent and in general students avail of them. The level of intensity of dental course however is a significant disadvantage in this respect.

18.5. Student Selection Procedures

All the applicants for admission who have graduated from a four-year secondary school and those who have had at least two years of classes in Biology, Physics and Chemistry are allowed to apply for the course of study in dental sciences. Applicants must also obtain certificates of their psycho-physical abilities from an orthopaedist and an ophtamologist, after which they can file an application and proceed to an entrance procedure.

The entrance procedure includes (maximum score: 1000 points):
- evaluation of results from secondary school: grade point average (the final examination is included in conjunction with grades in Biology, Chemistry and Physics I (maximum score: 280 points),
- assessment of special abilities and inclinations for dental studies. They can be assessed as either pass or fail. Failure in this respect eliminates all applicants from further competition in the entrance procedure (maximum score: 170 points)
- entrance exam: written test in Biology, Physics and Chemistry, based on Curriculum for 1st, 2nd, 3rd and 4th grade of Grammar School (maximum score: 530 points),
- evaluation of special achievements on the basis of results achieved in competitions in natural sciences (1st to 3rd place in national or international competitions in Biology, Physics or Chemistry), status of a sportsperson of the 1st or 2nd category, and participation in the entrance procedure the previous school year with scored points sufficient to pass the entrance threshold (maximum score 20 points).
18.6. Labour Market Perspectives

Undoubtedly, there is a need for more dentists and other lower-level dental staff. Unfortunately, this need is limited by available state funds and its possibilities, i.e. the possibilities of the community.

Although it may sound immodest, the School of Dental Medicine with its entire staff estimates that soon there will be a shortage of human resources if economic and other conditions improve in the Republic of Croatia. At present our country is still burdened by the heavy load of the Homeland War and de-mining processes. It seems that such a state of affairs is likely to linger for another ten years.

Visitors Comments
Section 19  Student Affairs

19.1.  Basic Data from Dental Schools

Student Representatives

President of Student Union Branch: Miss Ana Malčić

- 5th year and undergraduate ABD: Miss Ana Malčić, Miss Vida Kokot, Deputy
- 4th year: Mr Mladen Božić, Miss Katarina Borković, Deputy
- 3rd year: Miss Katarina Zjača, Miss Mirela Veselinović, Deputy
- 2nd year: Mr Pavle Picek, Miss Petra Vugrin, Deputy
- 1st year: Mr Branislav Stojkić, Miss Matea Štibrić, Deputy

Student Information

1. Average number of dental students graduating per year: 130
2. Average number of dental students admitted in the first year: 100
3. Length of course: 5 years
4. Vocational training/internship – 1 year of vocational training following the graduation
5. After their graduation the newly qualified dentists can enroll the program of continuous training of dentists (See section 19.3)

19.1.3. Breakdown of Student Numbers in Undergraduate Course

<table>
<thead>
<tr>
<th>Year of Study</th>
<th>Rep. of Croatia</th>
<th>Other Countries</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>1st year</td>
<td>37</td>
<td>83</td>
<td>14</td>
</tr>
<tr>
<td>2nd year</td>
<td>43</td>
<td>84</td>
<td>5</td>
</tr>
<tr>
<td>3rd year</td>
<td>42</td>
<td>78</td>
<td>15</td>
</tr>
<tr>
<td>4th year</td>
<td>48</td>
<td>98</td>
<td>4</td>
</tr>
<tr>
<td>5th year</td>
<td>38</td>
<td>84</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>208</td>
<td>427</td>
<td>47</td>
</tr>
</tbody>
</table>
19.2. List of Different Postgraduate Courses

Name: Prof. Jadranka Keros, Ph. D.
E-mail: keros@sfzg.hr

GENERAL

The Zagreb University School of Dental Medicine provides a wide range of postgraduate courses organised as academic postgraduate studies. The teaching of postgraduate academic studies for the attainment of the academic degree of Master of Science is organised through mandatory courses and electives for a period of two years at least, preparing the students for the presentation of the Master's thesis. Postgraduate academic studies can be enrolled by candidates who have completed an appropriate undergraduate academic programme. The academic degree of Doctor of Science can be obtained through doctoral studies and/or on the basis of the attained Master's degree, scientific articles published in periodical with international reviews and active involvement in research project.

Each master's and doctoral degree thesis is discussed and assessed by Ethical Committee of the School. If the proposed thesis complies with the standard ethical principles as stated in the Code of Dental Ethics and Deontology of the Croatian Association of Dental Surgeons, and the Helsinki Declaration of World Health Organisation, the thesis is submitted for evaluation to the Council of the School. Positively evaluated paper is then submitted to the University Council.

The evaluation of teachings is done through an anonymous questionnaire. Once the questionnaire is completed by more than 30 students, the transparency of the results is ensured by making them available to the public through the web pages for postgraduate studies. Web address: hht/www.sfzg.hr/

Primary aims, main objectives, hours in curriculum, methods of teaching/learning and assessment methods are explained in pages 4 - 24.

STRENGTHS

The main feature of these postgraduate studies is that they nearly conform to the requirements of the European System of Credit Transfer (ECTS) and the European Union of Dental Specialists, resulting in the international mobility of students and teachers, harmonisation of the course loads, quality of teaching and accreditation of programmes by other European countries. Accordingly, the study is organised in three credit groups: the first two groups are related to structured teaching, whereas the third credit group is related to extra-curricular research activities.

STRATEGIC PLANNING

Development of postgraduate professional studies, that are the consecutive part of the residency training for particular field of professional advancement

Increasing use, where appropriate, modern methods of learning including more problem based exercises, and self-directed learning with new methods of assessment and examination based on competency which should facilitate life-long learning. More integration of disciplines.

Playing more active role in international programmes and co-operation, and encouraging the academic staff to be more active in quality development and participation in national and international meetings, seminars and courses.

Continuing evaluation of staff and curriculum by students.
In accordance with the Croatian University Reform that advocates adjustment to the European academic standards based on easily recognisable and parallel academic levels (both undergraduate and postgraduate), we strive, as far as it is possible in the present financial situation, to co-ordinate our teaching process with other European programmes and teaching curricula in dentistry. We have therefore introduced the scoring criteria of the European Credit Transfer System (ECTS) enabling the mobility of our students and teachers as well as better collaboration with other European countries. Quality will be additionally assured by adjustment to the Quality Monitoring System (QMS), i.e. Teaching Quality Assessment (TQA).
POSTGRADUATE STUDIES

1. DESCRIPTION
The purpose of postgraduate scientific studies is to acquire the Master of Science and Doctor of Science academic degrees in the branch of biomedicine and health - the field of dentistry. During the study courses the postgraduate students are acquainted with fundamentals of scientific methodology and specific subjects concerning dentistry, medicine and health. In this way they gain knowledge and basic skills needed in further scientific activity and independent scientific work.

2. ACADEMIC DEGREES
By completion of postgraduate scientific master degree studies and by defending the master's degree thesis the academic degree of Master of Science (M.Sc.) is acquired in the scientific branch of biomedicine and health - the field of dentistry.

By completion of doctoral studies and by defending doctoral thesis the academic degree of Doctor of Science (sc. d.) is acquired in the scientific branch of biomedicine and health - the field of dentistry.

3. EDUCATIONAL INSTITUTION
Zagreb University School of Dental Medicine

4. MANAGEMENT
The assistant dean for science and postgraduate studies acts as head of postgraduate studies and is assisted by members of Scientific and Postgraduate Studies Committee with two-year term of office.

5. NUMBER OF STUDENTS
The number of students required to organise postgraduate courses is at least 30. The optimal number of students is between 50 and 60.

6. ADMINISTRATION OFFICE ADDRESS
Postgraduate studies administration, 10000 Zagreb, Petrinjska 34.
Phone/fax: ++(385 1) 481 94 34
Web address: http://www.sfzg.hr/

ENROLMENT REQUIREMENTS

1. ENROLMENT
Invitation for enrolment into the first postgraduate studies academic year is announced in "Vjesnik" newspaper every year in October. Enrolment of students into higher academic year is from 1st to 30th September.
2. ENROLMENT REQUIREMENTS

A) Postgraduate studies for master's degree

1. Diploma of the University School of Dental Medicine or some other University School in biomedical field, and satisfying the conditions set by the Statute of the Zagreb University, the Statute of the Zagreb University School of Medicine, and Statutory Provisions Concerning Postgraduate Scientific Studies at the Zagreb University School of Dental Medicine.

2. Achievement in undergraduate courses should be excellent or very good, the average value of marks in Croatia at least 3.51, or in the school system marks ranging from 5 to 10 (or A-D) the average should be at least 7.51. Only exceptionally, the candidates with average mark grade lower than 3.51 may be enrolled provided they submit written recommendation of university teachers from the university school at which they have graduated.

3. Knowledge of at least one foreign language spoken world-wide.

4. Basic skills in PC operation (Windows, Web, e-mail).

B) Doctoral degree studies

The students who have defended their master's thesis as part of doctoral degree studies enrol into the third academic year. They obtain 20 points for their master's degree thesis and the remaining 40 points are required on the basis of their scientific activities.

The candidates enrolling into the doctoral degree studies upon completion of Master of Science degree should have at least one paper published in a magazine quoted by CC or SCI, or should be collaborators in a scientific research project.

The candidate gains 30 points for master's thesis.

3. APPLICATION AND OTHER DOCUMENTS

A) Master's degree studies

1. Application for enrolment into postgraduate studies stating the place of residence.

2. Diploma of graduate studies.

3. List of marks for courses in graduate studies.

4. Certificate about knowledge of one foreign language spoken world-wide (issued by the authorised institution).

5. Birth certificate, certificate of citizenship.

B) Doctoral degree studies

6. Application for acquiring doctoral degree

7. Diploma of graduate studies at the University School of Dental Medicine

8. Master's degree diploma

9. A copy of master's thesis

10. Certificate on specialist exam

11. Curriculum vitae

12. List and excerpts of published papers

13. Participation in a research project

14. List of reference literature the candidate is about to refer to

15. Description of research study and its accordance with ethical principles.
The required documents should be in their original form or photocopies with notarial seal.

ORGANISATION OF STUDIES

1. DURATION OF STUDIES

Master's degree studies last two academic years.

Doctoral degree studies last three academic years.

Upon completion of master's degree studies the doctoral degree studies last one additional year (two semesters).

2. ORGANISATION OF STUDIES AND ACQUISITION OF POINTS (ECTS)

The teaching process is co-ordinated with and additionally adjusted to the programme of instruction and teaching curricula for postgraduate scientific studies in dentistry, and also with the World Declaration on High Level Education.

The postgraduate studies are constantly being co-ordinated with the European Credit Transfer System (ECTS), the role of which is to enable the international mobility of students and teachers and to recognise the scoring criteria for teaching curricula in European countries. Therefore the studies contain three groups of teaching subjects.

The first credit group comprises the subjects considered as basic to biomedical science and scientific work; these are taught during the first academic year of postgraduate studies.

The students gain 30 points (80 teaching classes) per semester, or 60 points (160 teaching classes) per complete first academic year of postgraduate studies. The subjects make 50% of the total number of teaching classes in master's degree studies, and 40% of the total number of teaching classes in doctoral degree studies.

In the first academic year the student decides about her/his specific field of study, the tutor, and master's degree thesis. The thesis should be accepted by the relevant committee not later than the enrolment into the third semester.

The master's degree thesis is submitted in specifically designed form. The Council of the University School of Dental Medicine accepts the thesis and the tutor, and it appoints a committee in charge of assessment of thesis. Following their positive assessment the Council accepts the master's degree thesis.

The second credit group comprises of the teaching subjects concerned with specific topics in dentistry and medicine that should enable the student in gaining theoretical understanding of scientific problems. These subjects satisfy the contents of most master's or doctoral degree theses and are considered as support in selection of topics.

The students gain 60 or 63 points, including tutor consultations for the second academic year, whereas the selection of subjects depends on master's or doctoral degree thesis. The third semester provides 30 points for specific subjects only, while the fourth semester relates to tutor consultations as primary contents, and, if necessary, one or two specific subjects may be included that are essential to research needed to write the master's or doctoral thesis. As agreed with the tutor, tutorials may take the entire fourth semester.

In the third academic year the students of doctoral studies take (write in) 60 points from the first or second group of study subjects together with tutorials. Most of the courses have to be in direct reference with the doctoral thesis and methodology. If necessary, the student may gain credit from subjects taken and examinations passed at other Zagreb University Schools or other Universities in Croatia and abroad.
The selection of professional courses facilitates systemic list of master's scientific fields and subjects with names of teachers and tutors for given fields that the students receive at enrolment to postgraduate or doctoral studies. The tutor, or mentor, helps the student in choosing appropriate courses.

The third credit group comprises of extra-curricular scientific and professional activities (e.g. lectures in science, participation in scientific seminars, symposia etc., publication of scientific papers, etc.).

Advanced scientific and professional training is not made possible only through teaching courses; therefore each student must collect at least 40 points during the two-year master's studies and additional 60 points until completion of the doctoral studies.

The sequence of courses and examinations is presented in the chapter on study organisation. The master's degree courses (the first academic year of doctoral studies) need to be taken during three academic years.

3. COURSES IN SCIENTIFIC POSTGRADUATE STUDIES OF OTHER BIOMEDICAL FIELDS

Discussions are in course between representatives of biomedical fields of other university schools that would make it possible for the postgraduate students at the University School of Dental Medicine to take a number of courses (and give exams) essential to elaboration of master's and doctoral theses, particularly those that are not to a sufficient degree included in instructional curricula of their basic university schools. At the same time, the postgraduate students of other biomedical university schools in Croatia will be able to take courses at the Zagreb University School of Dental Medicine.

4. SCORING SYSTEM

The scoring system is based on coefficients of teaching courses assigned to individual subjects. The number of points, or score, is defined on the basis of time needed to complete curricular programme and on the basis of its quality. According to ECTS (European Credit Transfer System), the score for one academic year is 60 points (30 points per semester).

In scientific postgraduate studies at the Zagreb University School of Dental Medicine the value of teaching classes expressed in points, or credit system, for all three groups of subjects is identical, i.e. it is 0.375 points per one teaching class.

5. TYPES OF CLASSES

The basic types of classes are: lectures, seminars and practical classes. Seminars may account for 50% of total curricular requirements. Practical work, or clinical practice, may include practical classes, demonstration classes, participation in experiments etc. The students' obligation is to participate in at least 80% of the teaching classes and their participation is strictly recorded.

6. LANGUAGE OF TEACHING

Teaching classes are held in Croatian. Foreign teachers may give their lectures in the English language.
7. EXAMINATIONS

Examinations may be written and oral. They are taken within one year following completion of teaching classes and are organised in agreement with teachers of individual subjects. If during teaching classes changes are introduced into the contents of the teaching subjects, the examination is taken as agreed with the head teacher for the given subject.

8. DEFENDING MASTER'S AND DOCTORAL THESES

Defending master's and doctoral theses is the final act in postgraduate university scientific studies.

The candidate submits three copies of her/his paper in unbound form. The University School Council appoints a committee for the assessment of master's or doctoral thesis upon proposal of the University School Scientific and Postgraduate Studies Board.

Based on positive assessment of the Committee the Council approves of defence and appoints the Doctoral Committee.

The defence of master's or doctoral thesis, or oral examination, is public while the dean of University School determines where and when the examination will take place.

9. TEACHERS AND COLLABORATORS

The head teachers for individual subjects are members of scientific and teaching staff of the University School of Dental Medicine and eminent professionals; they also come from other university schools and scientific institutions in the Republic of Croatia. As regards the scientific level required by University Provisions, the head teachers of individual subjects need to be at least scientific collaborators.

10. TESTING SATISFACTION OF THE TEACHING PROGRAMME

The evaluation of teaching programme satisfaction is performed at random intervals through anonymous surveys. When more than 30 % of the students submit a filled in questionnaire, the evaluation results are considered public.

11. COMPARABILITY WITH OTHER COUNTRIES TEACHING PROGRAMMES

The teaching programme is in its organisation, content and scoring system similar to doctoral (Ph.D.) studies in a number of European countries. The introduction of ECTS further contributes to getting closer to integration into European university and other high level education programmes.
RESOURCES AND COSTS

1. FACILITIES AND EQUIPMENT

Due to their multidisciplinary character the courses of postgraduate scientific studies are carried out in different locations. These are: facilities of the Zagreb University School of Dental Medicine, "Sestre milosrdnice" Clinical Hospital, clinical facilities of the Zagreb University School of Medicine, and National University Library.

2. STUDY FEES AND EXPENDITURES

The fee of postgraduate studies is defined on the basis of "Decision on fees for education, obtaining scientific degrees, recognition of other diplomas, and other services provided by the Zagreb University School of Dental Medicine".

If the price changes, the students regularly enrolled in the second or third academic year pay the fee valid at their enrolment into the first academic year. If the student discontinued or prolonged her/his studies, the most recent fee as determined by the University School of Dental Medicine is to be paid.

CURRICULAR SEQUENCE AND REQUIREMENTS

<table>
<thead>
<tr>
<th>ORGANISED TEACHING COURSES (the 1st and 2nd groups of subjects)</th>
<th>EXTRA-CURRICULAR ACTIVITIES (the 3rd group of subjects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASTER'S DEGREE STUDIES</td>
<td>During a two-year master's degree studies one third of the points (40) should relate to the third group of teaching subjects</td>
</tr>
<tr>
<td>1st academic year: 60 points for the first group of teaching subjects (methodological subjects) 2nd academic year: 60 points for the second group of teaching subjects (dental and medical subjects)</td>
<td></td>
</tr>
<tr>
<td>DOCTORAL DEGREE STUDIES</td>
<td>During doctoral studies one third of the points (60) should relate to the third group of teaching subjects</td>
</tr>
<tr>
<td>1st and 2nd academic years are the same as in master's degree studies 3rd academic year: 60 points for the second group of teaching subjects - topics concerned with elaboration of doctoral thesis and consultations with thesis advisor (tutorials)</td>
<td></td>
</tr>
<tr>
<td>DOCTORAL STUDIES AFTER OBTAINING MASTER'S DEGREE</td>
<td>A defended master's degree thesis receives 20 points specifically relating to doctoral studies</td>
</tr>
<tr>
<td>3rd academic year: 60 points for the first and/or second group of teaching subjects</td>
<td></td>
</tr>
</tbody>
</table>
STUDENTS ENROLMENT IN POSTGRADUATE STUDIES

![Bar chart showing students enrolment in postgraduate studies from 1998/1999 to 2000/01.](chart.png)

MASTER'S THESES AND DOCTORAL THESES (1995 - 2001)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Master's thesis (M.Sc.)</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>10</td>
<td>21</td>
<td>28</td>
<td>85</td>
</tr>
<tr>
<td>Doctoral thesis (Ph.D.)</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>29</td>
</tr>
</tbody>
</table>

University of Zagreb
School of Dental Medicine
Postgraduate Scientific Studies
Petrinjska 34, 10000 Zagreb
Tel: ++385 / 1 / 48 194 34
Fax: ++
# QUESTIONNAIRE - CURRICULAR QUALITY ASSESSMENT

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Teaching subject the (^{1}\text{st}) credit group</th>
<th>Programme breadth</th>
<th>Topical quality</th>
<th>Teaching material</th>
<th>Teaching quality</th>
<th>Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>B001</td>
<td>Medical statistics</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
<tr>
<td>B002</td>
<td>Scientific information, sources, availability and browsing</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
<tr>
<td>B003</td>
<td>Medical informatics</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
<tr>
<td>B004</td>
<td>Composing a scientific paper</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
<tr>
<td>B005</td>
<td>Biomorphologic research in dentistry</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
<tr>
<td>B006</td>
<td>Molecular biology research methods in investigation of the osseous system</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
<tr>
<td>B007</td>
<td>Ethics in biomedical research</td>
<td>OPTIMAL</td>
<td>TOO BROAD</td>
<td>INSUFFICIENT</td>
<td>UNDERGRADUATE</td>
<td>TOO EASY</td>
</tr>
</tbody>
</table>
19.3. List different auxiliary / technology / other courses and state number who qualified per year

Auxiliary / technology courses:

a) dental nurses 0  
b) technicians 0  
c) hygienists 0  
d) dental therapists 0  
e) other expanded duty auxiliaries 0

The study course for senior dental technician is organised periodically. Other groups are educated at other health schools and educational institutions.

Life-long Training
Prof. Melita Valentić-Peruzović, Ph.D.
e-mail: valent@sfzg.hr

Apart from postgraduate dental studies, various life-long training courses for dental practitioners are taught at the Zagreb University School of Dental Medicine. Courses are taught in several different forms: theoretical, theoretical and practical or practical. Considering the facilities and teachers involved in such a form of life-long training, some courses are held at the School whereas some are organised in combination with guest lecturers or commercial participants that provide information on new materials and techniques outside of the Dental School facilities.

All life-long training courses are approved and evaluated by the Chamber of Dentistry that issues work licences and keeps score for life-long training courses attendance.

19.4. Student Counselling Services

Traditionally, dental students have the possibility to be in continuous contact with specialized services in their undergraduate course. They also have the possibility to continually consult teaching staff in various departments, as well as the Vice Dean for Teaching and Vice Dean for Sciences in case they show particular interests. The School continually pursues the policy of active stimulation of successful students so that fee-paying students are granted exemption from payment of school fees if they achieve adequate results, whereas 10% of the best performing students in the final year register with the Ministry of Sciences and Technology, which gives them the right to priority in employment.

Visitors Comments
Section 20  Research and Publications

Name:  Prof. Jadranka Keros, Ph. D.
E-mail: keros@sfzg.hr

GENERAL

Our competent leaders have been producing significant results from their research since the establishment of the Zagreb University School of Dental Medicine in 1948.

With its historical background and current endeavours, they continuously take a leadership role in Croatian dentistry and submit a number of research-based papers, not only in the field of dentistry but also in the field of medical science.

Scientific research work includes: basic research, research and development and applied research. The Zagreb University School of Dental Medicine is involved in all of the above mentioned research activities resulting in a considerable number of approved projects from 1990 to 2001.

A considerable level of collaborative research is evident between individual dental staff and colleagues from other medical Departments (Histology and Embryology, Physiology, Microbiology, Pathomorphology, Immunology, etc.), and non-medical institutions (Physics, Chemistry, Mechanics, Electrical Engineering, etc.).

The majority of research projects is financed by the Ministry of Science and Technology of the Republic of Croatia. The Ministry also subsidised two interdisciplinary biomechanical projects on long-term research that unites four projects offered by various research institutions in Croatia.

PhD students, researchers, and graduates have opportunity to present their research achievements to the Society of the Zagreb University School of Dental Medicine or at other academic meetings and conferences world-wide.

The main research bases are:

♦ “Ruđer Bošković” Institute disposes of the state-of-the-art equipment and highly trained experts engaged in basic research in the field of physics, chemistry, biochemistry, molecular biology. They have established a close co-operation with alike research institutes world-wide.

♦ Laboratory for Mineralised Tissues is one of the leading scientific units of the Medical School which provide the science in the rapidly growing field of molecular medicine and especially in studying the bone regeneration process in periodontology and oral surgery (dental implants). In collaboration with the Department of Orthopaedic Surgery, bone morphogenetic proteins (BMPs) have been characterised in laboratory and preclinical trials.

♦ Laboratory for Applied Mechanics, Faculty of Mechanical Engineering and Naval Architecture is a special laboratory for research of effects of technical appliances on the human body and vice versa. Three interdisciplinary approaches have been developed: biomechanics, medical technology (biotechnology) and biomaterial study. The biomaterial study deals with research of biologically appropriate, artificial materials which complete or replace biological materials. In dental medicine, both biomechanics and material and biomaterial mechanics are widely employed. Particularly important is the study of transfer of forces in the orofacial region and their effects on the tooth and its supporting structures.

♦ Laboratories of the “Sestre milosrdnice” Clinical Hospital have exquisite equipment that enables interdisciplinary approach to various dental issues. Among them we should point out the Pathohistological Laboratory, Microbiological Laboratory and Biochemical Laboratory.

♦ Department of Forensic Medicine of the Zagreb University School of Medicine has especially trained staff and equipment for genetic research (DNA). They conducted numerous forensic expertise, particularly identifications of Homeland War victims in which findings of dental forensics were frequently decisive.
STRENGTHS

The presented surveys show that in the last five years, most of the teaching staff of the Zagreb University School of Dental Medicine was engaged in a fair number of research projects. All the projects are within the primary field of interest of modern dentistry and correspond with other research projects taken in Europe.

Research projects, individual scientific and professional engagement and participation at distinguished scientific meetings resulted in a large number of professional and research-based papers with more than a half of them published in relevant journals in the English language.

The engagement of our forensic experts in the research project on “Dental identification of Homeland War victims in the Republic of Croatia” should be stressed out in particular. For its volume and interdisciplinary approach, it can be considered a unique research project on large-scale military and civilian war victims in the region. The collaboration of many expert teams from abroad was invaluable for the project success.

Due to their limited and inadequate facilities, the research bases are scattered around. Such dislocation often interferes with their timing and efficiency. However, the dislocation could sometimes turn to an advantage rather than a drawback. The case is that the research funds are distributed among all beneficiaries of the University of Zagreb in the biomedical field (medicine, dentistry, veterinary medicine, pharmacology). Individual researchers and scientific institutions are therefore referred to a close co-operation resulting in many successfully performed projects that rarely an institution could accomplish on its own.

WEAKNESSES

Insufficient funds are considered the major cause for not accepting some more demanding research projects.

The number of international research projects taken at the Zagreb University School of Dental Medicine is rather small, but gradual acceptance of globalisation principles should result in our closer collaboration in that kind of scientific and professional engagement.

STRATEGIC PLANNING

♦ Improve co-operation with other biomedical University Schools in Croatia and abroad
♦ Further improvement of research bases
♦ Improve quality by encouraging academic staff to participate in all kinds of local and international meetings
♦ Take benefit from consultations with European experts on improving the quality of research programmes and grants.
20.1. Publications in refereed journals

General

The number of scientific papers published in widely read international journals is one of the best indicators of the scientific output. From 1995 to 2001, authors affiliated to the Zagreb University School of Dental Medicine published 413 papers in journals covered by Current Contents. Among them, there are papers published in co-authorship with foreign researchers, mainly from the UK, Germany and Japan. The most productive fields are Prosthodontics and Dental Pathology.

Acta Stomatologica Croatica

Prof. dr. Goran Knežević
Editor-in Chief
E-mail: knezevic@sfzg.hr

The Acta Stomatologica Croatica periodical has been regularly published for thirty-five years in continuation to the publishing activities of dental profession that was initiated in Croatia in the thirties by Professor Juraj Kallay, Ph.D. in Dental Herald and Periodontosis, and by Academic Ivo Čupar in Folia Stomatologica. Later on, the activities were taken over by Professor Zdenko Njemirovskij, Ph.D. who was the spiritus movens of Acta Stomatologica Croatica from 1966 to its third issue in 1989 when, unfortunately, his obituary was also published in the periodical. This is the only professional and research periodical in the Republic of Croatia that has been estimated by competent University institutions as of special interest for Croatian dentistry.

The periodical is quoted by Index to Dental Literature MEDLARS-MEDLINE, Biological Abstracts, BIOSIS and Referativny Žurnal. Moreover, it is listed in the Ulrich's International Periodicals Directory. The periodical is financed from the Croatian Ministry of Science and technology funds, subscriptions, membership fees of the Croatian Society of Dentistry, Zagreb University School of Dental Medicine budget and other sources. The Acta Stomatologica Croatica periodical has been an important factor in the presentation of dental sciences and profession in Croatia; it has been of great assistance for the advancement of the research and teaching staff at the University School of Dental Medicine in Zagreb through its exchange with several dozen periodical throughout the world. It managed to introduce Croatian dentistry to international dental readership.

The survival of this periodical is primarily due to the research and teaching staff of the Zagreb University School of Dental Medicine for their scientific and expert as well as material support without which it would have certainly closed down long ago.
PUBLICATIONS IN REFEREED JOURNALS (1995-2001)

Research publications from three bases: NSK- (NUL-National and University Library) CC-Current Contents and MEDLINE

DEPARTMENT OF PROSTHODONTICS

Representative: Prof. V. Jerolimov, Ph.D.
e-mail: jerolim@sfzg.hr

1995


1996


1997


1998


1999


2000


TEXTBOOKS PUBLISHED BY STAFF


DEPARTMENT OF DENTAL PATHOLOGY

Representative: Prof. J. Šutalo, Ph.D.
e-mail: sutalo@sfzg.hr

1995


1996


1997


1998


1999


2000


DEPARTMENT OF PAEDODONTICS

Representative: Prof. Z. Rajić, Ph.D.
e-mail: rajic@sfzg.hr

1995


1996


1998


1999


2000


2001


CHAPTERS IN BOOKS

DEPARTMENT OF ORAL SURGERY
Representative: Prof. P. Kobler, Ph.D.
e:mail: kobler@sfzg.hr

1995

1996

1997


1998


1999


2000


TEXTBOOKS PUBLISHED BY STAFF


CHAPTERS IN BOOKS

Kobler P. Oral surgery in diagnostic and propedeutics in dentistry, school of dental medicine, University of Zagreb, 1996.

DEPARTMENT OF ORTHODONTICS

Representative: Prof. Ž. Muretić, Ph.D.
e-mail: muretic@sfzg.hr

1995


1996


1997


1998


1999


2000


DEPARTMENT OF DENTAL ANTHROPOLOGY

Representative: Prof. Z. Kaić, PH.D.
e-mail: kaic@sfzg.hr

1995


1996


1997


1998


1999


2000


2001

TEXTBOOKS PUBLISHED BY STAFF


CHAPTERS IN BOOKS


DEPARTMENT OF ORAL MEDICINE

Representative: Prof. A. Cekić-Arambašin, Ph.D.
e-mail: cekic@sfzg.hr

1995


1996


1997


1998


1999


2000


2001


CHAPTERS IN BOOKS

DEPARTMENT OF PERIODONTOLOGY
Representative: Prof. K. Jorgić-Srdjak, Ph.D.
e-mail: srdljak@sfzg.hr

1995


1996


1998


1999


2000


2001

TEXTBOOKS PUBLISHED BY STAFF

The Department of Periodontology uses "Clinical Periodontology and Implant Dentistry", edited by Jan Lindhe, Niklaus P. Lang and Thorkild Karring as the official textbook. The next spring semester will see the Croatian edition as the official textbook for the subject.

PUBLICATIONS, TEXTBOOKS AND CHAPTERS (1995 - 2001)

<table>
<thead>
<tr>
<th>Department</th>
<th>Publications</th>
<th>Textbooks</th>
<th>Chapters</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prosthodontics</td>
<td>142</td>
<td>1</td>
<td>-</td>
<td>143</td>
</tr>
<tr>
<td>Dental pathology</td>
<td>75</td>
<td>-</td>
<td>-</td>
<td>75</td>
</tr>
<tr>
<td>Periodontology</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>20</td>
</tr>
<tr>
<td>Oral medicine</td>
<td>20</td>
<td>1</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Orthodontics</td>
<td>35</td>
<td>-</td>
<td>-</td>
<td>35</td>
</tr>
<tr>
<td>Paedodontology</td>
<td>47</td>
<td>-</td>
<td>1</td>
<td>48</td>
</tr>
<tr>
<td>Oral surgery</td>
<td>37</td>
<td>1</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Dental anthropology</td>
<td>37</td>
<td>1</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>413</strong></td>
<td><strong>4</strong></td>
<td><strong>7</strong></td>
<td><strong>424</strong></td>
</tr>
</tbody>
</table>
20.2. Invited to participate at major conferences

Hyperparathyroidism Joux Lesions DS Research Seminars Oregon Health Sciences University 20th June 1995.
Croatian Dental Association DS Research Seminars Oregon Health Sciences University 20th June 1995.
Dentistry in Croatia DS Research Seminars Oregon Health Sciences University 20th June 1995.
3rd International Dental Meeting of the Central European Countries, Portorož 1997, Slovenia
Identifering av offer i massgravar i det forna Jugoslavien. Odontologisk Rikksamma, Geteborg, October 1999.
First Dental Congress of the Bulgarien dentist, "Root Canal Treatment", Sophia, 1999, Bulgaria
10th biennial Congress of the European Society of Endodontology, "Retreatment of the endodontically treated teeth", Zagreb, 1999, Croatia
Dental Laser Congress, Laser in dentistry, Budapest 2000, Hungary
Endodontics 2000, ljubljana, Slovenia
Dental Progress 2000, "The thin line between endodontic retreatment and endosurgery", Vienna, Austria 01-02. Dec 2000
Dental meeting, "Endodontic treatment, why, when and how", Plovdiv 2000, Bulgaria
Odontological identification of human remains from mass graves in Croatia. 9th International Meeting on Forensic Medicine Alpe Adria Pannonia, Udine / Italy 18-20 May, 2000.
4th International Dental Meeting of the Central European Countries, "Laser in Endodontics", Portoroz 2000, Slovenia
Identification of human remains by dental findings. 10th International Meeting on Forensic Medicine, Alpe Adria Pannonia Opatija /Croatia 23-26 May,2001.
5th International Dental Meeting of the Central European Countries, "Led diode light curing equipment", "Laser in endodontics" Portorož 2000, Slovenia
First Dental Congress of Bosnia and Herzegivina, 17-20th Oct 2001, "Motorised, hand instrumentation or non-instrumental technology (NIT) in modern Endodontics", Sarajevo, BiH
Dental Congress of the Bulgarian dentist; "Motorised endodontics "Bucharest 2001, Romania
### 20.3. Grants awarded to staff of the Zagreb University
#### School of Dental Medicine (>1000 Eur) 1995 – 2001

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Project Description</th>
<th>Project Manager</th>
<th>Annual grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>065001</td>
<td>Study of specific nasal hyperreactions</td>
<td>Prof. L. Kalogjera, Ph.D.</td>
<td>30,000 HRK = 3,931.18 EUR</td>
</tr>
<tr>
<td>065002</td>
<td>Mechanism of insulin resistance</td>
<td>J. Roša, Ph.D.</td>
<td>30,000 HRK = 3,931.18 EUR</td>
</tr>
<tr>
<td>065004</td>
<td>Dental identification of Homeland War victims</td>
<td>Prof. H. Brkić, Ph.D.</td>
<td>45,000 HRK = 5,897.77 EUR</td>
</tr>
<tr>
<td>065005</td>
<td>Experimental and clinical endodontics</td>
<td>Prof. I. Anić, Ph.D.</td>
<td>115,000 HRK = 15,072.08 EUR</td>
</tr>
<tr>
<td>065006</td>
<td>Dental trauma in children</td>
<td>Prof. I. Škrinjarić, Ph.D.</td>
<td>180,000 HRK = 23,591.01 EUR</td>
</tr>
<tr>
<td>065007</td>
<td>Materials applied to hard dental tissues</td>
<td>Prof. J. Šutalo, Ph.D.</td>
<td>200,000 HRK = 26,212.32 EUR</td>
</tr>
<tr>
<td>065008</td>
<td>Oral medicine in geriatric age</td>
<td>Prof. A. Cekić-Arambašin, Ph.D.</td>
<td>30,000 HRK = 3,931.18 EUR</td>
</tr>
<tr>
<td>065010</td>
<td>Occlusion and craniomandibular dysfunction</td>
<td>Prof. K. Kraljević, Ph.D.</td>
<td>80,000 HRK = 10,484.93 EUR</td>
</tr>
<tr>
<td>065011</td>
<td>Carioprotective effects of topical fluorides</td>
<td>K. Rošin Gret, Ph.D.</td>
<td>45,000 HRK = 5,987.77 EUR</td>
</tr>
<tr>
<td>065012</td>
<td>Study of constituent materials and biologic basis for dental work</td>
<td>Prof. A. Čatović, Ph.D.</td>
<td>55,000 HRK = 7,208.39 EUR</td>
</tr>
<tr>
<td>065001</td>
<td>Prosthodontic materials</td>
<td>Prof. J. Živko-Babić, Ph.D.</td>
<td>30,000 HRK = 3,931.18 EUR</td>
</tr>
<tr>
<td>065010</td>
<td>Prevalence of early caries in children</td>
<td>Prof. O. Lulić-Dokić, Ph.D.</td>
<td>36,000 HRK = 4,718.22 EUR</td>
</tr>
<tr>
<td>065013</td>
<td>Morphometric analysis of the craniofacial system</td>
<td>Prof. Ž. Muretić, Ph.D.</td>
<td>67,000 HRK = 8,781.13 EUR</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>112,450.85 EUR</strong></td>
</tr>
</tbody>
</table>

### 20.4. Higher Degrees Awarded

---
20.5. International Co-operation

Prof. Želimir Muretić, PhD
e-mail: muretic@sfzg.hr

At the level of dental science and profession there were two projects between the University of Mainz and the University of Zagreb, registered with our University and involving the Departments of Prosthodontics and Orthodontics. Other international co-operation involves numerous individual contacts at the level of Chairs and teaching staff in all dental departments and institutes. Thus there are continuous connections with university centres across Europe, and world-wide, such as Berlin, Hamburg, Münster, Freinurg, Munich, Graz, Vienna, Cardiff, Zurich, Ljubljana, Skopje, San Diego, Pennsylvania, New York, Tokyo, Sarajevo and Mostar. The Cupertino mainly consists of exchange of staff, organisation of scientific and professional seminars and publishing of joint publications. It is important to point out that Croatian Dental Society Convention, that takes place every four years, as well as scientific professional events at the level of specialist associations, bear international importance as they gather many speakers from all over the world.

Apart from the above-described international Co-operation, the Department for International Co-operation of the University of Zagreb, the Ministry of Science and Technology of the Republic of Croatia, as well as certain embassies in Croatia, regularly inform our School on possibilities of international Co-operation at various levels, from postgraduate courses, scholarship competitions, award competitions, student conventions, etc. Last year such opportunities were offered from numerous university centres from Germany, Switzerland, Italy, Spain, Slovenia, USA, Iran, England, Czech Republic, Norway and Romania. Chairs of all institutions, heads of the departments and the Dental Students Association have been regularly informed about all received information by the Assistant Dean for International Co-operation. However, the response on part of our candidates – teachers and students, has for unknown reasons been lacking.

Visitors Comments
Section 21 Quality Development

Introduction

Quality development is an integral part of a continuous improvement programme. All the component parts of the curriculum, i.e. the staff, the course content and the student progress contribute to continuous evaluation, which is a basis for quality development. The staff and authorities of the School of Dental Medicine are aware not only of the need of constant self-evaluation but also of improvements and changes that should take place in educational curriculum. The Dean of the School and the School Senate have decided to design a new educational curriculum thus including the School in the system of ECTS. Training programmes, both clinical and didactic, will be modified to take account of the changing needs of community. In addition Continuing Education and Training for Staff should be modified to ensure experts of high intellectual quality. Gradual implementing of modifications could be done.

The plans concern:

1. further improvement of teaching, preclinical and clinical facilities, modernizing of equipment, reinforcing computer assisted teaching and the use of multimedia
2. still more integration of disciplines and comprehensive dental care, which should allow students to benefit more from the curriculum
3. continuing the evaluation of staff and curriculum by students. Course content should be continuously monitored by student and staff questionnaire. Recommendations issued by these groups will be considered at dental studies committee meetings and will be adopted in subsequent years.
4. finding better, unified (standardised) methods of assessment and examinations
5. playing more active role in international programmes and cooperation, concerning undergraduate and postgraduate education.
6. making efforts to comply both the undergraduate and postgraduate curriculum with a ECTS system
7. encouraging the academic staff to be more active in quality development
8. continuing participation in meetings, seminars and courses nationally and internationally
   consulting with European experts on improving the quality of teaching
Visitors Comments

Section 22 Visitors Comments and Executive Summary

All Visitors Comments follow in Part II
DentEdEvolves Visitation

Part II Visitors Comments

10-14 November 2001
DentEdEvolves Visit
School of Dental Medicine

Zagreb, Croatia
November 20th – 24th 2001

Introductory Visitors Comments (also please see the Executive Summary in Section 22 at the end of this Report as well as comments at the end of most sections)

At the outset the Visitors wish to thank the School for their warm reception, and compliment those who put together this document in preparation for the DentEd visit. The Dean and the School made every possible effort to put all the information the Visitors required at our disposal, and every effort was made to show us things as they are without exaggeration or omission. The presentation of documents was one of the most complete the visitors have had the pleasure and privilege with which to work.

The Visitors made a summary presentation on the final day of the visit and the PowerPoint slide headings will be found on the Appendix at the end of this report.

The Visitors found that all staff and students were keen to achieve the highest standards, and there was a strong sense of wishing to do what is best for the School, patients and students in Zagreb. **It is however vital for the School to identify a Mission Statement in respect of education, research and patient care.** Implicit in that is the need for the School to have a clear definition of what kind of oral health professional or professionals is or are most appropriate for Croatia, in order to decide future educational priorities and precise educational objectives. These in turn must have outcomes that are seen to be achieved and monitored. The self-assessment report is an excellent basis from which to make real progress in strategic planning and in the implementation of continuous quality improvement strategies that are realistically attainable within difficult constraints in a rapidly emerging and still rather unpredictable economy.

The Visitors were seriously concerned about the number of students that greatly exceeded the facilities that were available. Especially clinical units were very cramped and two thirds the size of recommended minimum space per dental cubicle. The Visitors were of the view that the space available could only accommodate about 40 students per annum.

The Visitors were also concerned about the application of universal cross-infection control principles that were not adequately applied in many of the clinics. The major consequences of inadequacies in this area, Hepatitis A, B, C and HIV infection are just some examples of the consequences for patients and the dental team.

The Visitors commended the post-qualification vocational year and thought this was exemplary for other countries in Europe although its structure might be more strategically designed to maximise the benefits especially in respect of clinical treatment.
1.3 The Curriculum

Visitors Comments

A central recommendation is the identification of clearly defined outcome expectations. In other words, what is a student expected to be able to do on completion of his or her training? There seemed to be some ambiguity as to clinical competences. The Visitors suggest that particular attention might be given to the Clinical Competences set out as guidelines by the European Union’s Advisory Committee on the Training of Dental Practitioners. This will be found on the DentEd web site under RESOURCES at www.dented.org.

The curriculum in the School of Dental Medicine is too crowded, with excessive and irrelevant detail. Many subject areas are taught as if learning ceases on graduation when the emphasis should be on learning how to learn and preparing for a lifetime of learning. There is too much reliance on memorising and teaching and insufficient emphasis on learning and problem-solving.

Beside the need to avoid excessive detail there is a need to avoid duplication, which is inevitable in the present approach. This problem is by no means unique to Zagreb. Changes required should inevitably result in a reduction in time in the basic, biological and medical sciences although these are critical elements of a modern dental school’s programme. The knowledge base of the medical sciences doubles every two years so it is impossible to teach everything to students. Instead it would be much better if students were taught how to keep abreast of new discoveries with special reference to the use of information and communication technology. This applies especially to Section 8 Human Diseases.

The Visitors would encourage the maximum participation and protection of students in giving feedback from their learning process and to have their input on curriculum planning and implementation. Student feedback is a critical component of a modern educational approach.

The present curriculum is mainly structured around subject matters and disciplines. This means that each department can formulate the teaching/learning objectives independently and make changes as they wish, as long as it remains within the overall frame of the curriculum. The great number of disciplines involved and this discipline-structured approach is limiting the possibilities for change and for an integrated structuring and managing of the overall curriculum.

The Visitors strongly advise that a Curriculum Committee with the strong endorsement of the Dean and Heads of Department should develop a problem-orientated approach with emphasis on fundamental essential principles and elimination of detail that is detrimental to the learning process. This Committee should report to the Dean and have significant influence. The Visitors suggest that the Committee should include all levels of teachers. One of the functions of this Curriculum Committee would be to integrate the curriculum in order to change the present divergent departmental independent curriculum planning.

There must be greater emphasis on student responsibility and less on examination and assessment. Assessments should be reduced but their validity, reliability and consistency improved.
The structure of such a Curriculum Committee might include:
- The School Members at all levels with emphasis on the future
- Students
- Administrators

The responsibilities of the Curriculum Committee should include:
- Review of curriculum
- Content
- Sequencing
- Scheduling
- Quality assessment

The concept of teaching and learning at the School of Dental Medicine is teacher-centered. There is certain awareness that problem-based learning could have some advantages for education. Whilst the visitors commended the principles of problem-based learning (PBL) and two of their schools actually apply this approach, they urge caution in looking at PBL as a panacea. Visitors suggest not to introducing problem-based learning until its cognitive background is fully understood. Starting with case-based learning and a successive change towards problem-oriented learning parallel to adequate training of staff towards the concept of student-centered learning might be a valuable suggestion. Structured staff development must be applied before undertaking such a fundamental change in education, particularly if medical educators are not prepared to participate in these developments. The Visitors also would draw the attention of educators to the implications in respect of assessment methods in a PBL curriculum.

The visitors recommend that the curriculum committee should look at the curriculum from three different angles for further development:
1) Educational
2) Content
3) Administrational / organizational

1) Educational
Educational science demonstrates various successful models for improvement. Examples of these models are:
- student centered instead of teacher oriented
- problem orientated or at least task-based learning with limited contact hours instead of factual learning
- providing variety in learning modes and materials
- implementation of a quality management system
- frequent feedback
- self evaluation

2) Content
The following critical areas in the curriculum need to be considered for further improvement in respect of the curriculum content:
- the amount of technical laboratory work to be done by students especially in the area of prosthetic dentistry and tooth morphology seems excessive;
- scientific training should be strengthened in the curriculum (e.g. a course on "scientific writing and critical thinking" and include a learning objective “to participate in a research project”;


- integration within the curriculum at two levels
- medical and clinical dental subjects
- basic science and dental subjects
- earlier start with pre-clinical and clinical dental subjects

3) Organization
There is an enormous problem for students with the different locations of the education in a very busy city. There are periods of significant time-wasting and black holes in the daily schedules that should be addressed. The separate approach of specialist areas may be contributing to these difficulties, and there may be possibilities found in reducing student travel in curricular reform despite the difficult physical factors that impinge.

On top of these local matters there are the usual sequencing and integration of the subject material. The Visitors believe that there is much to be done in this area even in the present difficult circumstances.

*More time for student reflection and recreation is seriously needed in this School in order to promote the traditions of third level education and promote critical thinkers rather than passive learners.*
SECTION 2: FACILITIES

2.1. Clinical facilities
2.2. Teaching facilities
2.3. Laboratory facilities

Visitors Comments

The main clinical facility is characterized by an area of only 3,000 m² housing 8 clinical departments with a total of 78 treatment units of various brands. There is an out-patient operating theatre with 3 units for training undergraduate students. These facilities are housed in a labyrinth of buildings at various levels in unexpected “nooks and crannies” without any recognisable plan:

1. There is no “Central Polyclinic” were patients can arrive, receive emergency treatment where they might be given a preliminary indication of an integrated treatment before going to the student or specialist department.
2. There is no suitable central area for patients from where a patient might be assigned to the one or another department, to the one or the other student or professional dentist. Neither is there a patient record tracing system or clear visible receptions to receive patients at their initial contact with the hospital or the departments.
3. There is a mix of clinical facilities for under- and postgraduate training and offices – mostly with “integrated” treatment units – for staff as well.
4. Important facilities, such as the (one and only) oral hygiene instruction and exercise Centre in the Periodontal Department have to be used as an office.

The property also houses the Central X-ray Unit, the central Manikin training unit, the Central Technical Laboratory, the Orthodontic Laboratory, the Library, the Multi-Media Centre, the Dean’s Office and the Canteen.

The Visitors found these facilities not alone insufficient but also totally unsuitable for refurbishment, and strongly recommend that a strategic plan be put in place for a purpose built modern facility of about 7,000 square metres to house the training of about 50 undergraduates, some postgraduates and auxiliary personnel.

Starting from the assumption that at least 10 m² should be available for each clinical unit (approx. 6 m² is currently available) the present training capacity of the 78 units for undergraduate training is calculated to be no more than about 40 students per annum. In other words, the current intake of students is more than two times greater than this facility can accommodate.

The clinical units that are available are seriously outdated. Modern ergonomic four-handed treatment is impossible. The units are not suited for left-handed clinicians. Besides that, currently acceptable cross-infection avoiding measures cannot be established in the present circumstances. The creation of a sense of patient privacy is impossible, adding further to difficulties in the psycho-social elements of caring for people.

Teaching laboratories are narrow not allowing adequate ergonomic training nor preparing for efficient transfer of student’s clinical skills into the real situation.
Within the facility of the School of Dental Medicine the auditorium is small – but with a lot of ingenious improvisation – equipped with all audio-visual aids and a dental demonstration unit. The auditorium has a capacity of only 80 in a school that has an intake of 120 students per annum. This means in effect that full classes have to be taken in other buildings.

Only 4 seminar rooms for small group teaching are available. Teaching basic and general medicine topics are dislocated at three separate premises. So students have to travel around spending their time inefficiently.

There is no space for self-study.

Visitors compliment staff for their loyalty and enthusiasm to keep the School of Dental Medicine running as optimally as possible despite all of these problems.

The Visitors are very confident in recommending completely new facilities rather than refurbishment of a building that has the following shortcomings:

1. The space is totally inadequate and inefficient
2. There are too many separate buildings
3. Different floor levels present impossible logistical difficulties
4. Safety in patient care is seriously threatened. A cardiac arrest would present major problems in these surroundings and conditions
5. If refurbishment is carried out, the facilities will still be unacceptable in the context of EU standards
6. The opportunity must be seized to invest now and save financial investment in the short long-term
7. The Visitors are unable to offer solutions to the funding but perhaps consideration might be given to foundation or international funding opportunities

It is important to emphasize that the Visitors are much aware of the financial constraints in Croatia. The need for better and more extensive facilities must be viewed within the context of the financial circumstances that prevail.

One immediate action that would help the situation would be to reduce the number of student admissions to one third of the current intake.

The visiting team did note that much of the equipment was more than twenty to thirty years old. The present budget is seriously deficient to provide necessary resources for the replacement of existing equipment and the implementation of new technology, especially in the area of ICT. It is important that adequate resources must be identified that will allow for significant purchases of new equipment in order to maintain and improve the quality of education, patient services and research activities. Financial plans should include long-term replacement budgeting and realistic assessment of what will be required to maintain minimum standards at least in an EU context.
2.5. Library

Inadequate resources seriously compromise the Library. The Library is only open from 08:00 –16:00 Monday to Friday. There is a shortage of spaces for the population of School of Dental Medicine’s students. The Visitors noted a range of current journals. The number of texts was inevitably limited by the size of the library. The Visitors were advised that students avail of the spectacular national library, which is some distance away. This is surely not acceptable in a modern university and a long-term plan needs to be considered to obviate this complication for students.

*It is very important that plans to move to a more spacious area are supported and taken in the context of observations made about a completely new facility. The Visitors are only too well aware of the hazards of suggesting ambitious development plans and undermining more modest planned spending. Should that be the result of our recommendations this DentEd visit would have been in vain.*
SECTION 3. ORGANIZATIONAL AND ADMINISTRATIVE STRUCTURES

Visitors Comments

It is difficult to comment with confidence on the decision-making structures within the School of Dental Medicine and especially the issue of responsibility for financial control. This is a central issue in effective management of change and the Visitors recommend that the School, in-so-far as is possible, have greater devolved decision-making responsibilities. A School of Dental Medicine is unique because of its patient care services, applied clinical research and heavy administrative load. Also it is required to pay particular attention to the needs of the community, priorities in health care and provision of a wide range of specialist services not otherwise available, as well as caring for those patients with special needs such as the medically compromised and socially disadvantaged groups in society. The Visitors refer to our recommendations about a Mission Statement jointly authored and agreed by the University, the Departments of Health and Education and the School of Dental Medicine as the primary focus.

It would be useful to diminish the hierarchical communication structures between departments as well as other organisational units. More fruitful collaboration can be found on a non-hierarchical basis in such area as Microsoft, as well as other businesses and academic institutions.

The Visitors strongly recommend that a strategic financial plan be developed for the future and this must be consistent with the Mission Statement and priorities. All of this should be transparent. The School of Dental Medicine must be given greater freedom in its own financial controls and development, if it is to be more innovative in increasing its income. This is very common in universities throughout Europe. It is understood that there may be scepticism about business and enterprise in the private sector. Nevertheless business has many useful initiatives from which universities could benefit if sensitively and appropriately applied.

Mission statement and primary aims and objectives

The visitors would encourage a more clearly defined comprehensive mission statement agreed by all departments in respect of the School of Dental Medicine with three primary and inter-related functions.

- Education
- Research
- Patient care

The Visitors recommend a working group that should include young staff and students to report to the Dean on a clear Mission Statement. There should be co-ownership between Ministries of Health and Education and the University, because a School of Dental Medicine teaching institution is unique in the University. The Mission Statement should embrace influences from colleagues and society. A mission statement will have serious budgetary implications and these must be openly addressed by all stake-holders.
The working group suggested should refer to other European models in setting out a brief and succinct Mission Statement that should be agreed on consensus and supported by all.

In the context of this mission statement there will be clearly defined aims and objectives which should not alone be stated, they should be achieved and also transparently measured in respect of outcome. It is clear that resource limitations require a careful consideration as to what can actually be achieved in each of these primary functions and it would be of considerable benefit that once agreement is reached, all should appreciate and share responsibility for upholding the mission statement.

The Visitors strongly recommend that a strategic financial plan be developed for the future and this must be consistent with the Mission Statement and priorities. All of this should be transparent. The School of Dental Medicine must be given greater freedom in its own financial controls and development, if it is to be more innovative in increasing its income. This is very common in universities throughout Europe. It is understood that there may be scepticism about business and enterprise in the private sector. Nevertheless business has many useful initiatives from which universities could benefit if sensitively and appropriately applied.

Mission statement and primary aims and objectives

The visitors would encourage a more clearly defined comprehensive mission statement agreed by all departments in respect of the School of Dental Medicine with three primary and inter-related functions.

- Education
- Research
- Patient care

The Visitors recommend a working group that should include young staff and students - to report to the Dean on a clear Mission Statement. There should be co-ownership between Ministries of Health and Education and the University, because a School of Dental Medicine teaching institution is unique in the University. The Mission Statement should embrace influences from colleagues and society. A mission statement will have serious budgetary implications and these must be openly addressed by all stake-holders.

The working group suggested should refer to other European models in setting out a brief and succinct Mission Statement that should be agreed on consensus and supported by all.

In the context of this mission statement there will be clearly defined aims and objectives which should not alone be stated, they should be achieved and also transparently measured in respect of outcome. It is clear that resource limitations require a careful consideration as to what can actually be achieved in each of these primary functions and it would be of considerable benefit that once agreement is reached, all should appreciate and share responsibility for upholding the mission statement.
3.3 Information Technology

Visitors Comments

There is a serious and growing need for information and communication technology especially if dental students are to be properly trained for modern dental practice and - more importantly- the need to be competent to retrieve information as an integral component of life-long education.

The Visitors were very impressed with the Multi-Media Centre (SMC) and the ideas that were put forward by an enthusiastic director of the unit. All schools would envy such an intellectual resource and commend his vision for support and development. In this respect, Zagreb is probably in a better position than most to take leadership in this area. The Visitors wish to record their appreciation for the enormous support they received not to mention the extraordinary achievement of completing a CD ROM to record the visit process.

The physical facilities for this Centre is welcome but again, the Visitors point out the importance of the widespread availability of ICT working stations for staff and students in this day and age. A new facility will address this concern. The case for a central server is not alone important but also critical to the development of a centralized system of student records, not to mention the growing use of ICT in education and educational reform. It is also of critical importance to consider the development of an integrated electronic patient records system.

The Visitors noted discussions on digitized radiography and such a development, which the Visitors strongly commend for future development, would also require a central server.

It was noted that the students had their own web site with the support of this center.
SECTION 4. STAFF

Visitors Comments

In the School of Dental Medicine, Visitors found very committed staff of all positions, from teaching assistants to full professors.

Staff’s total number is 94 (fte). So, teacher/staff-ratio is approx. 1:4.5 (~ 94:450) and therefore supra-optimal.

There is not a fixed ratio between full professors and associate professors in the different departments. This is because there are fixed requirements to reach each position, so everyone in a department acquiring each level might have access to the corresponding post.

All staff is teaching students and sharing their time to treat patients. Differences were found between time spent by staff in the one or the other department, depending on the number of patients that are treated by each of them. This causes differences in the time that (particularly) junior staff can devote to research, and results in frustration in those of them, who have to treat many patients. Since for promotion only research is considered, a solution to balance these differences amongst departments should be taken into account.

An additional problem for some members of the junior staff relates to the fact that some of them are only paid for teaching students (not by the Dental Clinic). Since there are plans to reduce the number of students in the coming years, the situation of these teachers might become difficult. Only full professors are allowed by the Government to work in private practice, which is regarded as unfair by the junior staff.

Great commitment was observed also among the medical school staff teaching medical and basic sciences. Although Visitors noticed that there is a good relationship between the medical departments and the School of Dental Medicine, Visitors think that a better co-operation between them is needed in order to better define the dental students learning needs of basic sciences and medicine.
Section 5:

The Biological Sciences

5.1 Biophysics
5.2 Chemistry
5.3 Biochemistry
5.4 Human Biology with genetics
5.5 Physiology
5.6 Orofacial genetics

Visitors Comments

Visitors did not meet any staff in charge of the courses included in this section.

Although these courses are designed for dental students, the objectives and time devoted to most of them seem to be excessive in a 5-year dental curriculum. During the meeting with Visitors, students also stated that a substantial amount of contents included in these courses had already been studied prior to enter University. However, in the report, teachers complain that too few hours are scheduled for these subjects and that they have not really time to include in their syllabus many aspects related to the oral cavity. More coordination between the departments in charge of basic sciences and the dental departments is apparently necessary in order to examine the relevance and need of the basic science objectives and contents and to orientate them towards the necessities of dental students. The basic aspects of physiological processes taking place in the oral cavity should form an important body of knowledge in them, whilst now they seem to be just overviewed.

The establishment of a clear definition on the kind of oral health professional that would be most appropriate for the needs of the country will clarify the objectives that the biological sciences must have in the dental curriculum. A deep knowledge of these sciences is of course desirable, but since time is limited, their contents must be balanced in the frame of the total oral health curriculum.

Some basic sciences teachers mention in the report that a horizontal and vertical integration of these courses in the curriculum would help to adjust their contents to the real needs of dental students. The introduction of the subject “Orofacial genetics”, in a way that integrates genetic knowledge in comprehensive care of patients, should be regarded as a good example of the desirable integration between basic and clinical sciences.
SECTION 6: PRE-CLINICAL SCIENCES

6.1 Anatomy for dentists

Visitors comments
The course in anatomy is well adapted to the needs of the dental students. The teacher seems very committed with a continuous strive for change and innovation.

6.2 Histology and embryology

Visitors Comments
The course seems to be well planned (the problems with the large student groups are commented upon elsewhere). Like for other subjects within medicine, a better integration into the oral health curriculum is recommended and that an educational methodology of problem oriented learning is employed.

6.3 Introduction to Dental Studies

Visitors Comments
The course provide the students with a historical perspective that is important and valuable. The Visitors consider that such a course could well be given an all dental schools as an introduction.

6.4 Tooth Morphology and Dental Anthropology

Visitors Comments
The main objectives of this course are clearly stated. However, as it is a very excessive course the Visitors recommend a reduction in exercise hours.

6.5 History of dentistry

Visitors Comments
This course have great similarities with the course “Introduction to Dental Studies” given in the first year. As the number of courses in the curriculum is excessive, it might be considered to reduce this course to seminars and discussions in the last year.

6.6 Dental diagnostics and propedeutics

Visitors Comments
This course was introduced in 1997 and is given in the 3rd semester. Because the diagnostic procedure is closely related to examination of patients in the clinic, the Visitors suggest that the content of this course should be integrated into the clinical courses later in the curriculum.
SECTION 7: PARA-CLINICAL SCIENCES

7.1. Pharmacology

Visitors Comments
Visitors were impressed with the high quality and commitment of the staff of Pharmacology in charge of dental students. Pharmacology is taught to dental students in a dental and practical oriented way and should be regarded as an example of basic teaching oriented to the dental needs. This course is focused on the acquisition of basic principles of Pharmacology and, very specially, to the learning of treatment selection and procedure in medical practical situations that can occur in the dental practice.

As stated in the report, the learning of this subject would greatly benefit from an extension of some of its aspects to the final year of the curriculum, thus allowing its coordination with topics of the medical and clinical practice. This is also applicable to, for instance, General Pathology and Clinical Immunology. This last is now placed in the 4th year, but some basic principles could be introduced earlier, helping the understanding of other subjects (i.e. Microbiology).

7.2. Microbiology and parasitology

The microbiological basis of oral health and disease together with the increasingly complex nature of new bacterial and viral infections and prion contamination make this a subject of fundamental importance for the dentist. As for all para-clinical courses the Visitors advocate an integration of learning with Dental Medicine and especially a realistic appreciation of what a newly graduating dentist requires in order to protect his or her patient under treatment. The Visitors recommend that the course in microbiology should be specifically tailored for the needs of a dentist and the avoidance of detail that rapidly becomes out of date. Microbiology should be fully integrated with the oral health curriculum and an educational methodology of problem orientated learning be employed with an emphasis on fundamental principles and learning how to cope with the exponential growth of knowledge taking advantage of new information and communication technologies. Please note the recommendations in respect of overall curriculum and a suggested "Curriculum Committee" above.
Visitors comments

Visitors did not meet with any staff in charge of these courses, but appreciate the efforts made in order to give the students a sound basis in pathology and immunology for their studies and education in Dental Medicine. The Visitors did not explore the detail of these courses. However it is recommended that these subjects should be more integrated into the oral health curriculum and that an educational methodology of problem orientated learning be employed with an emphasis on fundamental principles and learning how to cope with the exponential growth of knowledge in the sciences taking advantage of new information and communication technologies. The currently existent (or planned) coordination amongst some of these courses and the clinical ones, as between Oral Medicine and Oral Pathology or Pathological Physiology and Biochemistry/Physiology is greatly appreciated by the Visitors.

As stated earlier, the learning of some of these subjects would greatly benefit from an extension to the final year of the curriculum, thus allowing coordination with topics of the medical and clinical practice. This is applicable to, for instance General Pathology and Clinical Immunology. This last is now placed in the 4th year, but some basic principles could be introduced earlier, helping the understanding of other subjects (i.e. Microbiology).

Please note the recommendations in respect of overall curriculum and a suggested “Curriculum Committee” above.

- **Forensic dentistry**

Visitors Comments

Visitors were shown the facilities of the Department of Forensic Dentistry. Of special interest was the visit to the laboratory of DNA identification, mainly used for the identification of the War victims. This laboratory is extremely well equipped with up to date appliances. The Visitors encourage that these facilities are also used for research by the staff of the School of Dental Medicine and dental under- and postgraduate students.
SECTION 8: HUMAN DISEASES

8.3 General Medicine

Visitors Comments

The study of the subjects broadly covered by the term "Human Diseases" (i.e. General Medicine, General Surgery and their related subjects) are divided into several segments with much duplication and excessive and sometimes irrelevant detail. The dentist must have a sound basis in General Medicine in order to provide a more holistic approach to patient care. Few will dispute that principle. However, the question must be raised as to the level of detail that is necessary in order to have a dentist competent in these areas as they might apply to his or her daily activities. Whilst the principles of understanding the implications of systemic diseases as they would impinge on oral health and disease and vice versa are fully accepted, there is a limit as to what can be achieved in a five year training period. These subjects cannot be taught to a level of detail that compromises the time required to train a dentist to be competent in the routine elements of primary dental care.

Another important observation relates to the methods of education and training in human diseases. There are no apparent educational objectives as to what should be expected of a graduate on completion of the course and no outcome measurements.

These serious reservations about excessive detail from a team of Visitors mainly from EU-type training programmes must not be interpreted to imply that these subjects are unimportant to the dentist. The opposite is the case. For these reasons The Visitors strongly recommend that the emphasis should be placed on the fundamental principles of clinical competences that need to be maintained over a lifetime of professional practice, cardio-pulmonary resuscitation being just one important example.

The visitors appreciate the efforts made in order to give the students a sound basis for their studies and education in the human disease. However, if this programme in Dental Medicine is to be allowed approach the system of education in the European Union there needs to be a radical restructuring of the medical sciences for students of Dental Medicine and focusing on outcome analysis. The Visitors strongly advise that these subjects should be more integrated with the oral health care curriculum and that an educational methodology of problem orientated learning be employed with an emphasis on fundamental principles and learning how to cope with the exponential growth of knowledge in the medical sciences taking advantage of new information and communication technologies.
8.1 General and war surgery
8.2 Anesthesiology and resuscitation
  8.4 Infectology
  8.5 Dermatovenerology
  8.6 Neurology
8.7 Psychiatry with Medical Psychology
  8.8 Ophtalmology
  8.9 Oncology
  8.10 Paediatrics
8.11 Otorhinolaryngology
8.12 Obstetrics and gynaecology

Visitors Comments

Please refer to comments in respect of 8.3

SECTION 9: ORTHODONTICS AND CHILD DENTAL HEALTH

9.1 Orthodontics

Visitors Comments
The course has clear aims and objectives. The programme is not really
directed towards students gaining competence but is more orientated towards
the philosophy of orthodontics being mainly the domain of specialists, which is
in agreement with how orthodontics is taught in most European schools. This
seemed one of the best-endowed clinics although suffering from lack of
suitable space in which to operate properly.

No screening method for case selection and input of patients and no
informatics coding of patients appears to be in use at any level - see Global
congress Report from the Prague DentEdEvolve meeting (4.2).

There is no indication on the need of orthodontic treatment in Croatia. This is
a serious deficiency that this Department could address for Government
agencies, and the Visitors recommend such an initiative for consideration. A
national survey could be useful in planning services and manpower at both
public health and private level and leadership in this would come from the
Department, which has considerable potential.

There might be more emphasis on integration with the Departments of Public
Dental Health and Prevention and Paedodontics.
9.2 Paedodontics

Visitors Comments

The aim and objectives of this course are not quite clearly stated. The students seem to treat a number of children in ages 5 to 15, but there were obvious timing problems. It is recommended that all efforts be made to overcome these problems, to give the students an opportunity to provide a full course of treatment including treatment planning, treatment, preventive measures, instructions and advice about prevention and follow-up, to get a more comprehensive approach to the care of children.

More problem related teaching and learning should be facilitated and a more integrated and systematic collaboration with other courses, in particular with orthodontics. The lack of radiographic equipment in the department is a problem.

The department is complimented for their innovation to introduce the students to treatment of children with special needs and for student’s participation in promotion of oral health in kindergartens etc.

SECTION 10: DENTAL PUBLIC HEALTH AND PREVENTION

10.1 Social dentistry (Public health)

Visitors Comments

See section 10.2

10.2 Oral Hygiene

Visitors comments

There is an extreme awareness of the importance of prophylactic measures to be educated in the Croatic population from the early age on, and its relation to public dental health. This is expressed by the enthusiastic initiative to establish the New National Program for Prevention of Caries and Improvement of Child Oral Health.

Given the background of limited financial resources in the National Health System the Visitors endorse that the students are introduced to public dental health topics and oral hygiene procedures as early as possible in the curriculum: They should not only be taught but also learn and be stimulated in optima forma.

The Visitors were surprised that this course is an optional programme for students. It should be compulsory and integrated in all facets of clinical and
preventive dentistry. The Visitors recommend combining efforts particularly with Department of Paedodontics, Periodontology and the Department of Social Dentistry to maximise resources and in order to reduce the study-load of students.

The Visitors recommend that the joint collaborative effort recommended in respect of Paedodontics and this Department should include innovations in respect of treating and educating students in the care of persons with special needs. This would be helpful for the growing reputation of the School of Dental Medicine.
SECTION 11: RESTORATIVE DENTISTRY

11.1 Dental Pathology

Visitors Comments
The Visitors feel that Dental Pathology, Fixed and Removable Prosthodontics and Gnathology should all be merged into one area of Restorative Dentistry closely linked to Periodontology and Oral Hygiene in an integrated fashion in order to promote holistic and integrated patient care.

Students in general appreciate what they learn in this part of the curriculum and the attitude and dedication of the teachers towards teaching is commendable. There is an open attitude from the teachers with regard to the subject matter.

The most severe limitation is the facilities that already have been commented upon.

The Visitors noted classical Black cavities in the manikins shown and wondered whether the students were instructed in this more conservative approach to cavity preparation in times of increasing use of adhesive restorative materials. The number of students observed carrying out treatment was too small to provide any real insight in the treatments provided and any comments are seriously compromised by the amount of patient care seen to be provided by students.

Holistic comprehensive treatment planning and decision-making could be better developed. It is strongly recommended to pay more attention to a scientific approach of treatment planning and decision making by documenting all steps in data gathering and pro's and con's of different treatment options for each patient in a much more structured way. Such a plan should form the basis for communication between The School, student and patient and between departments involved in patient care.

The visitors are of the opinion that there is an urgent need for a good central patient record keeping system in the school, serving the various clinical departments, including radiography.

The total time available for dental pathology (or conservative dentistry) is probably very inadequate given the actual time that students are able to work in clinical cubicles. This is a serious matter. It is recommended that students start earlier in the programme (3 - 4th semester) with their pre-clinical exercises.

The scientific training of students in this context should be better developed. A start could be to require written reports on the basis of a thorough critical appraisal of the literature (review) in the light of the patient treatment requirements.
The use of rubber dam was noted and commended. It is recommended to introduce it in all relevant aspects of restorative treatment.

Dental ergonomics and the theory and practice of four-handed dentistry should be addressed more in practice theory.

Again the absence of holistic care was apparent, despite high standards of restorative dental surgery. The students in the clinic did not seemed to know the patients in the chairs, who were treated by staff while the students played a more passive role. It seemed that students did not have an opportunity to provide a full course of treatment, but rather treated individual patients on a once off basis. This is a problem.

Co-operation with the Dental Clinic of the Clinical Hospital in Dubrava and the Central Dental Clinic in Perkovčeva Street to recruit patients is seen as an important measure to expose students to as much dental diseases as possible.

11.2 Fixed prosthodontics

Visitors Comments

The Visitors noted the difficulty in finding patients for dental students because the cost of treatment in the dental school was the same as in practice and patients did not come for fixed prosthodontic care because of this. Those patients whom we met all seemed to have been treated by staff and it was apparent that students played a passive role.

11.3 Removable prosthodontics

Visitors Comments

Most of the remarks above are applicable also for the field of removable prosthodontics. Again we observed high standards of prosthetic care and students were much more involved in this area. For the future of the dental profession it is considered crucial to strengthen the academic skills and attitude of the students.

11.4 Gnathology

Visitors Comments

The time in the Curriculum is 30 hours of seminars and discussions and no clinical training is performed. The Visitors recommend the subject to be integrated with Fixed and Removable Prosthodontics and Oral Surgery, which
would make it easier for the students to understand the significance of occlusal disturbances in relation to function.
11.5 Gerodontology

Visitors Comments

The Visitors suggest this should not be seen as an optional course. It is a critical component of modern dental education.

11.6. Dental Materials

Visitors Comments

The primary aim of this course is well stated and the subject is integrated in relevant areas.

11.7. Dental implantology

Visitors Comments

The course in Dental Implantology is well planned and given in the right time of the curriculum. The teacher seems to be enthusiastic and very competent. The Visitors recommend number of hours to be extended, as implantology is a treatment alternative that probably will be considered even more in the future.

SECTION 12: PERIODONTOLOGY AND ORAL MUCOUS DISEASES

Visitors Comments

The Department of Periodontology suffered the same physical limitations as the other clinical departments. This however should not detract from the commitment and dedication of the staff who worked in the department. The educational objectives were well defined current and seen to be achieved. They were logical with emphasis on primary periodontal care.

The visitors were impressed with the enthusiasm and commitment of staff and the leader Professor Prof. Ksenija Jorgić-Srdjak. The visitors noted the self-assessment document and found no reason to disagree with its contents in respect of Periodontology.

The visitors believed that the lack of integration between departments and lack of integrated patient care was to the detriment of the students overall appreciation of periodontology and its fundamental importance in comprehensive patient care.
It might be useful if students and both junior and senior staff were to get together to discuss and decide upon a strategic development policy that would improve the use of personal and physical resources. It is important that students should have an opportunity to bring patients through treatment from start to finish and be allowed to treat all facets of oral care in an integrated manner rather than the current segregated approach.

The Department would benefit from a re-thinking of its daily activities. A systematic scheduling approach was needed. This should give due concern to the primary aims of the department, research, patient care and student education. These must be given appropriate emphasis rather than allowing an unpredictable intake of patients dictate priorities on a daily basis.

There are far too many students for the facilities that are available. Perhaps the dental unit and office in this clinic could be put to better and more efficient use, especially with such limited clinical resources available in the area.

The assessment method based on a *viva voce* examination from pre-selected topics had been carefully planned and a considerable effort was spent on ensuring fairness. Nevertheless it was thought that the assessment approach should be reviewed and that a team of experts in assessment methods might be very helpful in this but also in all other departments in the school to promote reliability, validity and consistency in the assessment approach. It also seemed that too much staff and student time was devoted to assessment.

These comments should not detract from the compliments about the Head of this department and her staff. Any school would be fortunate to have such staff who had dedication and a willingness to listen to other's point of view.

**SECTION 13: ORAL SURGERY AND RADIOLOGY**

**13.1 Oral Surgery**

**Visitors Comments**

The education in oral surgery seems to have an appropriate place in the curriculum running from the 3rd to the 5th year. The education gives the student a sound basis to perform oral surgery as GDPs. The Visitors were impressed by the spacious and well equipped Department of Oral Surgery at the Clinical Hospital in Dubrava. The department is also well integrated with the departments of maxillo-facial surgery, prosthodontics, orthodontics and medical radiology at the same hospital. A broad register of diseases in the maxillo-facial region is treated and gives the students a great opportunity to get insight, to perform tooth extractions and to assist during operations. The Visitors recommend that all students will be given opportunities to work at this
department and also that the clinical part of prosthodontics in the 5th year can be performed in Dubrava.

Once again the Visitors would prefer to place emphasis on an integrated approach to curricular design and refer the reader to the Executive Summary of the Visitors at the end of the document in Section 22.

13.2 Maxillofacial Surgery

Visitors Comments

See comments under section 13.1. The amount of hours for lectures and practical teaching within maxillo-facial surgery can be reduced as dentists are not allowed to work as maxillo-facial surgeons.

13.3 Radiology

Visitors Comments

Although the dental specialties at the Clinical Hospital in Dubrava have access to good radiographic equipment, the limited amount of x-ray equipments in the School in Gundulićeva Street make it impossible for the students to reach the main objectives within the subject of oral radiology. The Visitors strongly recommend that the students should get the possibility to learn how to perform intra-oral radiographic examinations and interpret the resulting radiographs in relation to the clinical examination of the patient. In addition, they should also learn how to use radiography as a diagnostic method when examining the patients for caries, periodontitis and other diseases within the oral cavity.

SECTION 14: ORAL MEDICINE AND ORAL PATHOLOGY

14.1 Oral Medicine

Visitors Comments

Visitors found that the staff of the department was very committed and ambitious. The visitors were impressed with the potential in this department and commend their commitment. Although reduced space physically limits their clinical work, students see many patients per year. Staff complained about the distance to the cytological and the microbiological laboratory, so students have difficulties to learn the interpretation of their diagnostic probs. A
laboratory for preparation and diagnostics within or in direct vicinity of the Department of Oral Medicine would facilitate the understanding of the role of biopsies for the students. The concept of the dentist as an oral physician could be led from this interesting department.

The Visitors were told about the good relationship between the Department of Oral Medicine and the medical departments, such as Clinical Immunology, Pathology and others.

SECTION 15: INTEGRATED PATIENT CARE, DENTAL EMERGENCIES AND SPECIAL NEEDS PATIENTS

Visitors Comments

Integrated patient care is not on the agenda to implement in the curriculum. Every department is “collecting” patients for its own needs and therefore competing with the others. This concept also results in unfair working conditions for staff (see section 4).

In consequence of this situation, emergencies are received and treated by each department individually. It is even possible that patients waiting for emergency treatment can shorten their waiting time by visiting another department. Location of departments’ receptions, all at higher levels as ground level, seems to be of great disadvantage; long stairs have to be climbed (no lifts are available).

The need for integrated patient care and training students to treat patients with special needs seems to be recognised explicitly by the Paedodontic Department.

Analysis of the time schedules shows that there is available for clinical training in

- the VIIth and VIIIth semester: only 8.5 hours weekly (4 h dental pathology, 1.5 h fixed prosthodontics, 1.5 h removable prosthodontics and 1.5 h oral surgery) and
- the IXth and Xth semester: only 9 hours weekly (1.5 h dental pathology, 1.5 h periodontology, 1.5 h paedodontics, 1.5 h fixed prosthodontics, 1.5 h removable prosthodontics and 1.5 h oral surgery)

within a semester of approx. 16 weeks (from 1 Sep - 15 Jan and 15 Feb - 15 Jun respectively).

Under these circumstances and the condition of the facilities (particularly lack of space) the Visitors refer to their advice that Prosthodontics, Dental Pathology and other related areas be integrated.
SECTION 16: BEHAVIOURAL SCIENCES

16.1 Social Medicine and Epidemiology

16.5 Sociology of Dental Profession

Visitors Comments

There is increasing emphasis on the need to increase the amount of teaching and practical application of the behavioural sciences in the curriculum. This is an area in which there are significant cultural differences ranging which needs to be taken into consideration and where there are significant regional variations. The safe and compassionate care of patients is fundamental to dentistry and Dental Medicine and the Visitors believed that more attention might be given to this very important discipline and try to implement practical classes as opposed to lectures and theoretical approaches. The behavioural sciences should apply throughout the clinical departments, so that in addition to the biological and technological elements of holistic patient care, the school should also incorporate much more of the psycho-social influences on health gain, disease and the care of patients. The School of Dental Medicine in Zagreb, unfortunately like the vast majority of dental schools throughout the world lacks sufficient emphasis and perhaps even appreciation of the importance of behavioural sciences and their importance in promoting the highest levels of professional behaviour in the future cohort of practicing dentists. This of course is integrated with the fundamental ethical and moral principles as well as the more defined areas of jurisprudence.

The course in social medicine and epidemiology includes the clinical most important topic “hygiene” which should be scheduled before practical training starts (actually in the 6th semester), and repeated on a regular base.

16.2 Statistics and informatics

Visitors Comments

The Visitors are very concerned about the challenge to all dental Schools in this respect. The Visitors strongly suggest that the University invest in training, hardware and software programmes in order to keep abreast of the rapid developments that are taking place in order ensure that Zagreb does not fall behind in the whole area of information and communication technology. Already there is a great resource in the Multi-Media Center and this needs further support and development. Clearly this is an enviable strength and might be channeled towards the centralization of patient and student records in a central server. The Visitors suggest that a strategic plan be adopted to promote greater ICT Competence in students (and staff).
16.3. Languages: English, German

Visitors Comments

The Visitors were impressed by the fact that a great majority of the students speak very good English. This is important as English has become the major scientific language and without it there is a great barrier to studying the recent literature and publishing. The language courses (which are not optional) bridge towards scientific and social international contacts and stimulates academic attitudes. The Visitors commend the employment of an English teacher at the School.

SECTION 17: EXAMINATIONS, ASSESSMENTS AND COMPETENCES

17.4 Degree Final Exam

Visitors General Comments

The teachers of the School of Dental Medicine are well aware of their responsibility for the quality of their teaching: A dense network of summative assessment is woven into the curriculum. Most of the formats are orals, sometimes essay formatted tests and written “quizzes” (MCQ-tests).

Exam periods are as clearly defined as options to repeat after failing: The main examination periods are 15 Jan - 15 Feb and 15 Jun - 15 Jul. In these periods at least 2 weeks time must be scheduled before any retest is allowed to be taken. In all other periods this is 1 month.

The regulation that three retests can be taken until – for the fourth time – a final test must be taken from a “Teachers Committee” avoiding enrolment for the past year, again seems a very fair one.

Visitors welcome openness of the examinations to the public, which may also be understood as an expression of highly valid examinations. Reliability, although, might be a problem.

Nevertheless, formative formatted examinations are strongly advised to implement, particularly successively during transition from teacher- towards student-oriented learning concepts: Visitors advise the development of a network of formative assessment leading to some summative examinations in a high variety of formats.

It might be an idea to invite such people as Professor Madeleine Rohlin and Dr. Michael Minogue to hold a faculty seminar on assessment method and of course there are other experts in the field. The Visitors also draw the attention of the staff to the recent report on
SECTION 19: STUDENTS AFFAIRS

Visitors Comments

The students constitute a great intellectual potential at this school. They are dedicated to the field of their study, they are open to new ideas and insights, approaches and discussions, eager to learn and develop contact with fellow students from other dental schools. They are very proud of their school and loyal to their teachers.

The Visitors were most impressed with the students who met them, although there was a small number and it was apparent that these were the most talented. Indeed they were most impressive and very intelligent.

There is a very strong feeling among the students that there is an excessive amount of time demanded of them, with insufficient time for other activities. The Visitors agree. Scheduling is a problem with time wasted in the middle of the day due to the separation between buildings. It emerged that a student’s day went from 08:00 – 19:00 per day (sometimes with an inordinate amount of time wasted in traveling to another centre that could take more than 30 minutes).

The students were happy with the format of their assessment, despite the serious reservations expressed by The Visitors in this respect. Nevertheless the students would prefer if the amount of assessment were to be reduced in time. Students in discussion did not feel they were passive learners in the clinical subjects but this was the case in the pre-clinical, para-clinical and human disease areas.

The Visitors reached the conclusion that the only solution to the crowding was a reduction in the number of students by one third to 40 and to seek to build a 7,000 square metre building for an annual intake of 50 students.

The students were concerned that they were introduced to patient care too late in the curriculum and the Visitors would support this observation although the solution is limited by space available in the clinic.

There was concern that students did not gain the same level of competence as in other dental schools and the reasons for this are probably related to poor facilities, overcrowding as well as an excessive emphasis on the medical subjects.

Practice management and financial management in dental practice were areas that need to be developed.
There was concern that students did not have an opportunity to be involved in a continuum of patient care. This was also observed by the Visitors. Students did not have any experience of integrated patient care. This must be a serious discrepancy.

Some made the point that there was some uncertainty as to what was expected of them upon qualifications and although it was known that the examinations were very testing in this area the Visitors thought there was a good example in the department of Pharmacology. This should not be interpreted as Pharmacology being unique. There were others but this department and its wise leadership was very inspirational.

There was concern about their competence in clinical dentistry

There is no barrier between teachers and students and this is to be commended as exemplary and a very positive reflection on the teaching staff

The contact with colleagues from outside of Croatia, however, seems to be limited since there are no possibilities of student exchange at the moment. Nevertheless, there is the possibility of collaborating with the fellow students from European Dental Student Association (EDSA), where students are welcomed and encouraged to develop dialogue and exchange of ideas with their colleagues in other parts of Europe.

The students were of the view that there could be greater coordination with and between the subjects in the curriculum

The Visitors met and were enormously impressed with student leaders and the magazine they produced and their web site. They interviewed the Visitors and asked searching and extremely relevant questions on the future of dentistry.

SECTION 20: RESEARCH AND PUBLICATIONS
(For the past 36 months)

Visitors comments

The information provided in the self-study report concerning research is extensive and the school is to be complimented on the emphasis placed on research outcome.

The contributions in textbooks and handbooks are original contributions from the Dental School, but also translations by The School members of first class international textbooks. These contributions are mainly for teaching purposes.

The Visitors were very conscious of the conditions and competing demands on the members of the School in Zagreb but nevertheless the future of any academic institution will be strongly influenced by the quality and quantity of
publications in refereed scientific journals. This will need more emphasis on publishing in international refereed journals. The majority of the Senior Staff members have spent a period abroad during their careers and have contact with international researchers. Efforts should be given to maintain these contacts and increase collaboration to obtain outside funding. Collaboration with other research teams could also stimulate experimentally based research. Perhaps consideration might be given to establishing a coherent strategic plan of development and investing in sending young talented staff to have training in scientific methods in order to compliment existing efforts, which are to be strongly commended. As one senior staff member wisely said: “Research must not be considered a consumer of funds rather a driving engine for most disciplines”.
SECTION 22:

Executive Summary of Visitors Findings

The Visitors wish to express their gratitude for the warm reception and gracious hospitality given to them by the Dean and Staff of the School of Dental Medicine.

The Visitors comments must not be interpreted as being negative. The Visitors respect and admiration for what is accomplished meant that the Visitors felt that this school could bear and benefit from constructive criticism. Indeed if the school were weak the Visitors might have been more circumspect in making these comments.

The achievements in the School of Dental Medicine are impressive particularly when one recognizes the circumstances that have previously prevailed. Economic and political upheaval in Croatia and a rapidly changing set of influences additional to the explosion in knowledge that affects all universities and Dental Medicine faculties throughout the world have been major challenges to this school.

There are detailed comments in each section of the Report. In a five day visit it is not possible to review all elements of the curriculum, least of all get involved in the detail of individual departments and their range of individual programmes. Inevitably there will be some misunderstandings and the Visitors apologise in advance for our shortcomings as Visitors. It was not the Visitors intention to attempt to compare the School in Zagreb with other dental schools but inevitably their own background and special areas of interest influence Visitors views.

Throughout the visit the Visitors were at pains to explain that they had no legal status, were not inspecting the School of Dental Medicine nor was there any element of an accreditation process involved. Visitors were there to comment on the self-assessment, debate issues as equals and make recommendations that were entirely for the school.

If there is one comment that would summarise the Visitors opinion it is that the curriculum is too crowded with excessive detail and too little emphasis on learning and acquiring the skills to become life long learners. In other words there was a perception that some of the educators in Zagreb believed they could teach the students everything they needed to know in the five-year programme and the Visitors considered this unrealistic.

The Visitors commended, for further analysis by the School, the guidelines on student competences set out by the Advisory Committee on the Training of Dental Practitioners as a useful set of educational objectives. It was apparent from the aims and objectives that there would be merit in revising some of the educational aims and objectives of other schools visited whose reports are available at www.dented.org.
The Visitors stressed that on completion of the School of Dental Medicine’s training programme the new dentists were only at the beginning of a lifetime of learning and this needs to be impressed not alone upon the students but also on educators. Dentists were likely to spend their time in the care of patients’ oral and dental tissues in the context of comprehensive patient care. It was desirable that they should also have a broadly based medical understanding. However, realistically a five-year training programme would not allow those general medical competences that are gained by the medical students. The Visitors were concerned that theoretical training in the medical sciences would not confer the essential competence required of a dentist in life support, despite all of the time devoted to the medical sciences. Also the point was made that skills gained, unless frequently used in day-to-day practice, will not necessarily be retained.

A balance needs to be struck and agreed by The School and students as to what can and should be learned by students and what specific competences need to be acquired and then reliably, consistently and validly assessed. The Visitors noted that there had been ongoing change and while this is commended, such change might be implemented on a five-year basis without it being perceived that the curriculum was taking different directions every year or two.

If the curriculum were to be adapted to become similar to those based on Dental Medicine in the European Union it would require further emphasis on dental clinical competences as set out by EU Advisory Committee. We have made clear our concerns in respect of the urgent need for a new building.

The Visitors were greatly honoured and impressed with meeting the Rector. The Visitors were reassured with his commitment to support the School of Dental Medicine in acquiring purpose built premises and his acknowledgement of the need for a more effective decision-making arrangement, to suit the particular needs of a dental teaching hospital. He also assured the Visitors that this was a priority in the University and that he would ensure that his successor was fully aware of these issues.

A Power Point presentation delivered on behalf of the Visitors was presented by Professor Anna-Karin Holm. This summarises the main findings and will be available from: dshanley@dental.tcd.ie. The headings for this presentation in Word format are appended to this document as Appendix 1.
Appendix A

DentEd Visitors Opinions on their visit to Zagreb
November 14th 2001

School of Dental Medicine

- Has enormous personal and intellectual resources
- It is working in cramped and overcrowded conditions
- While there are problems it is in a very good position to become a reference centre for other EU Associate Countries in the future
- Its curriculum is fragmented without sufficient integration
- The Visitors recommend a significant reduction in the details required of students in their learning

Major Recommendation

- For this reason the Visitors do not agree with the refurbishment of existing facilities.
- Rather, the Visitors strongly believe that the only economically viable and realistic solution is to provide a 7,000 square metre purpose-built new facility that will provide the clinical, educational and research facilities that are appropriate to modern dental education and patient care.

General Comments

- The introduction of patient treatment is late in comparison with present trends in oral health education
- Lectures and exercises are predominant in the curriculum.
- Non-clinical dental teaching occupies an excessive portion of the students’ education.

Facilities

Major Concern

- In the present set of physical and equipping conditions, the School of Dental Medicine in Zagreb could not be expected to reach standards found in the European Union. This is entirely related to the unacceptable physical conditions in which patients are treated, students are educated and staff must work in research and in the provision of clinical care.
**Student Numbers**
There needs to be an urgent decision to reduce student intake by more than half.
There is great logic in having a single strong dental school in Croatia – a centre of international excellence.
Dentistry or Stomatology must be recognised for the differences in clinical training to other faculties.
A purpose built building of 7,000 square metres will accommodate no more than 50 undergraduates.
Croatia needs a better distribution of dentists…it also needs auxiliaries.

**Equipment:**
School needs significant re-equipping.
There must be an analysis of existing sterilization facilities and procedures.
Create a strategy for long-term equipment maintenance and replacement.
Visitors’ Report will place a heavy emphasis on the need for funding in order to maintain the viability of the dental school.

**Library**
Needs replacement.
Should be a central and much used facility by all students.
Needs to have more Information and communication technology ICT.
Commendable under the present circumstances.
Part of proposed new facility.

**Information and Communication Technology**

**Research**
Compliment The School on Publications.
But mainly in Croatian Journals.
Research laboratories were not apparent to Visitors.
Develop a strategy for research activities.
Visitors are unsure as how to advise the School at this time.
Research will ultimately give the school its international reputation and standing.

---therefore has very strategic implications---
**Organisation & Decision-making Structures**
The School of Dental Medicine has unique needs that differ from other faculties (patient care, health care and applied research). Decision-making structures are transparent and democratic but could be more efficient for the future development of the School. Institute greater independence in order to manage its own financial circumstances and allow for innovative developments. Consider examples from business.

**Mission Statement**
Primary functions

- **Education**
- **Research**
- **Patient care**

Recommend a group - including young staff and students - to report to the Dean on a clear mission statement.

**Staff**
Great intellectual resources in Zagreb staff
The most important resource is human intelligence

- **Promote critical thinking**
- **Make strategic use of Human Resources (HR)**
- **Develop a reward system for effective better motivated staff**
- **Continue to rationalise duties on a long term constructive strategy**
- **Need to promote and implement pedagogical research and scholarship in the school**

**Non-Senior Staff**

These are the future of the School
A more equitable distribution of duties
Protected time for Research and Scholarship
Need to reduce patient load whilst protecting salary
There is a need to provide a better salary system in order to keep staff by making income competitive with what they could earn in private practice (the School must continue to attract staff of highest calibre)
More exchange with other centres of excellence
Protection of time devoted to research and Scholarship time will guarantee the School’s future

**Patient Issues**
Student patient treatment costs in the school must be subsidised (part-payment)
The reasons for this approach needs to be explained and promoted as necessary
Staff treatment loads needs to be reduced
Visitors concerned about treatment load of non-senior staff
The School must be a Centre of excellence
- Primary care for students
- Referred patients for Staff

**Curriculum**

**Important note**

Strive to promote a dental/oral problem-oriented approach to education
This, inevitably, will lead to a reduction in the time devoted to the biological and medical subjects but not to their elimination or down-grading

The Visitors recommend the use of a problem-oriented approach to help students learn the relevant fundamental principles

**Pharmacology - Exemplary**

PBL is good but it may be difficult to implement

**The Biological Sciences**

There is a need to relate these more to oral health issues
A problem-oriented approach needs to be considered
The level of details ought to be reduced and prioritised

**Pre-clinical Sciences**

**Para-clinical Sciences**

**Human Diseases**

Must be in balance with the dental competences expected
Does not imply a lack of appreciation of their fundamental importance.
Need to specify what is expected of the students.
Remember the limitations of the mind
They must be life-long learners

The Visitor strongly advocate the establishment of a Curriculum Committee

**Structure:**
- **Staff at all levels**
- **Students**
- **Administrators**

**Responsibilities:**
- **Review of curriculum,**
- **Content**
- **Sequencing**
- **Scheduling**
- **Continuous review and Quality Assessment**
- **Updating**

**What Do You Need?**
To have a clear definition of what kind of oral health professional is most appropriate for Croatia would be very constructive in helping to decide future...
educational priorities and precise objectives - this must be an integral part of the Mission Statement (include auxiliaries)

General Comments
Strengthen the emphasis and awareness of the importance of integrated holistic patient care
Visitors are concerned about the application of universal cross-infection control principles
Noted contamination between patients

Suggestions
Put greater emphasis on the development of clinical competences in the clinical departments
Might consider the clinical competences in the EU
Ask curriculum committee to devise methods of measuring student competences
www.dented.org - see section on resources

Student Affairs
Visitors advocate a student-centred education
Emphasis on learning rather than teaching
Small group teaching/learning if possible
More time for thought and reflection
Mentoring?
Impressed with Student Reps and “Sonda”
European Dental Student Association (EDSA)
University education implies independent and critical thinking
To disagree is not a sin - to question a teacher is positive, preferably based on science

Important Considerations
Process of Learning
Stimulation to learn
Communicate outcome expectations to students and teachers
Measure outcome
Assessment methods must be studied
—Valid, reliable and consistent

Conditions of Educators
Reduce student intake to less than half in present circumstances
Ensure there are no salary implications – clinical
Their schedule is not sufficiently well organised in order to maximise the use of both staff and student time