# NEW YORK CITY COLLEGE OF TECHNOLOGY THE CITY UNIVERSITY OF NEW YORK

# COURSE CODE & TITLE: RESD 1107 - INTRODUCTION TO NON-METALLIC DENTAL MATERIALS HYBRID

TERM:Fall 2024DEPARTMENT:RESTORATIVE DENTISTRY

COURSE COORDINATOR	LAURA ANDREESCU – Assistant Professor	
	Phone: (718) 260-5137	
	Email: Landreescu@citytech.cuny.edu	
	Office hours: TBA	
LECTURE INSTRUCTOR:	JULES BALLA, Lecturer	
	Phone: (718) 260-5137	
	Email: jballa@citytech.cuny.edu	
	Office Hours: TBA	

**Office Hours.** Students are encouraged to come by, either individually or in groups, to discuss assignments, clarify class topics or problems, share ideas and concerns, review tests, or address any other matters that might be helpful. Office hours held by faculty are offered explicitly for student use and are an essential part of students' education.

\*RESD 1107 Syllabus revised August 2024 by Prof. L. Andreescu & Prof. J. Balls

<u>COURSE DESCRIPTION</u>: This course introduces the student to infection control procedures and proper safety precautions in the dental laboratory. It will also introduce the students to non-metallic dental materials they will use in the dental laboratory. The inherent characteristics and limitations of dental laboratory materials will be demonstrated, and the student will practice the proper techniques of manipulating the materials in uncomplicated exercises. This groundwork in familiarization with dental materials will facilitate the development of psychomotor skills in subsequent dental technology courses. Students receive extensive training in infection control, which conforms to OSHA, NADL, and ADA guidelines. In addition, this course contains a general education assessment aimed at improving student learning outcomes regarding writing ability.

CLACCOEDITC.	
CLASS CREDITS:	2 credits
CLASS HOURS:	2 lecture hours/per week
NUMBER OF WEEKS:	15 Weeks
CURRICULUM LEVEL:	First semester
PREREQUISITES:	CUNY proficiency in reading, writing and mathematics
REQUIREMENTS:	Standard college and department regulations.

#### **EXAMINATIONS & ASSIGNMENTS:**

Students are responsible for knowing all material covered in reading assignments, handouts, and lecture presentations. Students are responsible for knowing information from reading assignments regardless of whether it was covered during class sessions.

#### **ONLINE & HYBRID COURSES:**

Information related to City Tech hybrid and online education and student workshops are available on the school website. <u>News & Updates - Academic Technologies and Online Learning (AtoL) - iTEC -</u> Learning Modalities

# ONLINE PARTICIPATION:

The lecture sessions, including examinations and course activities/assignments, will be conducted in person, but the course instructional materials are on Brightspace. Students must contribute regularly and complete all assigned work before or on the deadline. Questions should be directed first to the instructor teaching the section and then to the course coordinator if necessary. Check various areas of RESD 1107 Brightspace at least twice a week and complete all assigned work before or on the due date.

#### **TEXTBOOKS:**

Students must acquire required textbooks by the second week of the semester and must read assigned pages and review procedures within the schedule.

- Air Force Pamphlet, Vol. 1 47-103- Dental Laboratory Technology: Basic Sciences, Removable Prosthodontics and Orthodontics. (2005).
- Air Force Pamphlet, Vol. 2. 47-103 Dental Laboratory Technology: Fixed and Special Prosthodontics (2005).
- Philips Science of Dental Materials, (2012), 12<sup>th</sup> edition, Anusavice, K., Shen, C., Rawls, H., Phillip's. Elsevier Publishing, St Louis, Mo.

#### **REFERENCES:**

- Safety Trainer Safelink Corp. Hazard and Infection, Control Video VIDEOS:
- Hazard Communications. National Association of Dental Laboratories, 1989. (VIDEO CASSETTE 1157).
- Infection Control in the Dental Laboratory. National Association of Dental Laboratories, 1988 (VIDEO CASSETTE 818)

#### **COURSE REQUIREMENTS:**

RESD 1107, Introduction to Non-Metallic Dental Materials, is a foundational class; the experience and knowledge gained from this course should allow for making informed decisions in the dental technology field. Activities included in this course help engage the student as a future leader in the profession to evaluate and select materials for proper and safe use in the field.

The course will involve active participation throughout the semester with weekly modules. The student must complete each module work by the end of the module period. The instructor will monitor the progress and provide feedback typically towards the end of the module period or after submissions are complete. If there is a specific question in a posting that was not answered within 48 hours, or there are other questions, please email the instructor, which should be answered within 24 hours. An appointment for an online video conference can also be arranged.

This course is delivered in a hybrid format, where there will be online and in-person course materials and instructions. In addition to in-person presentations and discussions, the course content will be available through the College's Brightspace online learning management system. Announcements will be posted on Brightspace and the listed email account. This is a CUNY email and must be checked regularly at least twice a week. If no email was received from this course, check the settings in the dropdown menu, which can be found by clicking on your name at the top right-hand corner of the Brightspace home page and clicking notifications to double-check that the email account listed is correct.

The course content will be available in weekly modules that will be visible in the Content menu in the color-shaded area at the top of Brightspace. There will be weekly content in each module. There will be a "Self-assessment" for each module, which will help with studying for the course's examinations. All the presentations, video links documents, and reading assignments must be reviewed before the inperson class session to become familiar with each lecture's material.

# TECHNOLOGY PREREQUISITES FOR ACCESSING COURSE MATERIALS ON BRIGHTSPACE:

Below are the suggested minimum prerequisites for accessing course materials on Brightspace: Have access to and be able to use internet browsers such as Microsoft Edge browser, Firefox, Safari, Google Chrome, or others.

You must use a CUNY email account and be comfortable using it. The College provides an email account to all students.

You need access to a computer with an Internet connection; computers with Internet access are available throughout the College (i.e., Library, Computer Lab G600, and V-217.)

HELPFUL INFORMATION ON HOW TO ACCESS AND NAVIGATE BRIGHTSPACE:

Visit the Student Welcome Center in the Library Building on the first floor to seek assistance with Brightspace setup, password, and access issues.

Visit the student computer lab in the General Building, sixth floor, room G600 and v-217. The phone number for the lab is (718) 254-8565.

Refer to "Student Brightspace" on the NYCCT website. To enter this site:

Access link: Student Brightspace - Academic Technologies and Online Learning (AtoL)

Brightspace tutorial - Brightspace: Student Tutorial

Click on "Quick Links"

Go to "Helpful Links" and click on " Academic Technologies and online Learning (AtoL)."

Click on "Instructional Technology Tutorials and Handouts"

Scroll down and click "Brightspace basics for students."

College provides numerous student Brightspace training sessions throughout the semester.

Use the description of the navigation of the Blackboard site

# TO ACCESS ZOOM MEETINGS:

1. Download the Zoom app: <u>https://zoom.us/</u>

2. Create an account.3. To join meetings: insert the provided meeting number and the password.

# **RESD 1107 BRIGHTSPACE NAVIGATION MENU:**

**COURSE HOME** The Course Home is the first listing on the navigation menu, and it is the location of the announcements, calendar, and faculty information.

**ANNOUNCEMENTS** - will allow communication between the instructor and the student. The student should have clear instructions posted here about each lecture or lab, project, exam, and emergency. Students must check announcements regularly. In asynchronous classes (one that is not offered in real-time), students must check announcements regularly and complete assignments promptly to comply with set deadlines.

**FACULTY INFO & OFFICE HOURS**: Information about the course coordinator and lecture instructors (i.e., phone, email, office location, and office hours). Online classrooms are open 24 hours a day, 7 days a week. So, if a student wants to ask the coordinator/instructor a question, he/she can email or post it on the discussion board at any time. To discuss matters with the entire class, the student should post the question in the designated forum in the Lecture/Lab Discussion section.

<u>CONTENT</u> - The second option on the Brightspace toolbar is the Content Section, which contains the weekly workload or learning modules, course documents, assignments, books, quizzes, and tests. **COURSE DOCUMENTS**: This section includes student resources, such as information about

Brightspace, netiquette, and academic integrity.

# WEEKLY LEARNING MODULES:

This section includes lecture materials for each of the 15 lectures, i.e., PowerPoint presentations, articles, handouts, and videos related to specific lecture topics.

**BOOKS:** Location/links for electronic textbooks, books, and articles.

**CITY TECH LIBRARY:** Research guide and links to the college library.

<u>ASSIGNMENTS</u> – The assignment section on the Brightspace toolbar is the direct link to the area where the assignments are stored—any assignments the instructor posted, and their deadlines can be accessed from here.

<u>**OUIZZES**</u> – This menu item is the direct link to all the tests and quizzes the instructor made available to the students.

The quizzes and tests will be administered using the Respondus Lockdown Browser. Please review the following video to use the browser: <u>LockDown Browser - Student Video - Respondus</u>

LockDown Browser Requirement: This course requires the use of LockDown Browser for online exams. Watch this video to get a basic understanding of LockDown Browser:

https://www.respondus.com/products/lockdown-browser/student-movie.shtml

# **Download Instructions**

- Select the quiz in the course.
- Under Quiz Requirements, you will see "To take this quiz you must use the Respondus LockDown Browser."
- Below, you will see the following: "You can use the button below if you have not already downloaded LockDown Browser." Click the button to go to the download page and then follow the instructions
- Use the link to download the Respondus LockDown Browser to the computer; follow the installation instructions.
- Please return to the Quiz page in Brightspace (it may still be open in another tab) and select the quiz
- Select "Launch LockDown Browser"
- The quiz will now start
- Note: LockDown Browser only needs to be installed once on a computer or device. It will start automatically from that point forward when a quiz requires it.

Guidelines: When taking an online exam, follow these guidelines:

- [If testing is to occur at a designated location, such as a testing center, add those instructions here.]
- [If applicable] Select a location where you will not be interrupted
- Before starting the test, know how much time is available so that the time can be adequately managed to complete the test.
- Please turn off all mobile devices, phones, etc., and do not have them within reach
- Clear the area of all external materials books, papers, other computers, or devices
- Remain at the desk or workstation for the duration of the test
- LockDown Browser will prevent access to other websites or applications. All questions must be completed and submitted before you can exit the test.

<u>DISCUSSIONS</u> – This section on the toolbar is the link to the Discussion Forums. This forum is where questions and answers may be posted so everyone can benefit since more than one person may have the same question. This is a public forum within the class environment.

<u>CLASSLIST</u> - The classlist section contains the registered people for the course, including the instructor or instructors.

<u>GRADES –</u> The grades section contains the grades for all the various projects and tests during the course's progress.

# COURSE TOOLS:

Online tools for directly accessing the announcements, the blog posts if there are any, the calendar for deadlines, checklists if anyone needs to use them, and groups if there are any group projects.

# **POLICIES:**

# ACADEMIC INTEGRITY

#### **CUNY Policy on Academic Integrity**:

Academic dishonesty is prohibited in The City University of New York. Penalties for academic dishonesty include academic sanctions, such as failing or otherwise reduced grades, and/or disciplinary sanctions, including suspension, or expulsion. Source: NYCCT College Catalog:

http://www.citytech.cuny.edu/academics/academic-catalog.aspx

# NYCCT Academic Integrity:

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Source: NYCCT College Catalog:http://www.citytech.cuny.edu/academics/academic-catalog.aspx

#### **RESTORATIVE DENTISTRY:**

All Restorative Dentistry students must submit completed assignments or projects (in lab or theory) by the assigned due date as stated in the course outline.

Plagiarism in lectures, laboratory assignments, exams, or projects will not be accepted.

Students will not receive a grade if papers, exams, or assignments were done by someone else or completed in ways other than stated in course documentation.

The department will adhere to and follow the Academic Integrity Policy and Procedures as per **NYCCT** & **CUNY Policies**.

Students are responsible for knowing all material covered in reading assignments and handouts for both lecture and laboratory.

Students are responsible for knowing information from reading assignments regardless of whether it has been covered during class sessions or not.

RESD students are responsible for being in class on time and for participation in laboratory demonstrations.

Failure to observe laboratory demonstrations may affect student's performance and contribute to the failure of the course.

# NYCCT REASONABLE ACCOMODATIONS:

Qualified students with disabilities, under applicable federal, state and city laws, seeking reasonable accommodations or academic adjustments must contact the Center for Student

Accessibility for information on City Tech's policies and procedures to obtain such services. Students with questions on eligibility or need for temporary disability services should also contact the Center at : The Center for Student Accessibility, 300 Jay Street room L-237, 718 260-5143,

http://www.citytech.cuny.edu/accessibility/

#### **ATTENDANCE:**

In-class participation and online presence are essential, and failure to review course material promptly may affect the timely completion of assignments and assessments and adversely affect the final grade. **NYCCT Participation: NYCCT College Catalog:** 

# http://www.citytech.cuny.edu/academics/academiccatalog.aspx

#### **RESTORATIVE DENTISTRY PROFESSIONALISM & PARTICIPATION:**

The Department of Restorative Dentistry follows NYCCT, CUNY, and Dental Laboratory Technology industry standards to educate, develop, advance, and guide graduates for workplace readiness.

To complete Restorative Dentistry courses, students must consistently participate and meet deadlines in the course's laboratory and lecture sections.

Students enrolled in the RESD course must meet all course requirements stated in the course syllabus to pass it.

Failure to submit or complete the assignments, tasks, projects, or exams by specified due dates will result in a zero (0) grade and possible failure of the course.

Make-up exams, projects, and assessments will be issued only under extenuating circumstances. If a student requires reasonable accommodations, proper documentation from the Center for Student Accessibility should be submitted to the instructor within a reasonable time to fulfill course requirements before the semester ends.

#### **GRADING:**

Restorative Dentistry courses consist of lecture or lecture and laboratory sections, graded according to the college grading scale.

A student must achieve a passing grade in the laboratory and at least 70% in the lecture sections of the course to receive the minimum passing grade of "C" for the entire course.

Failure to do so confirms that the student has not met the minimum requirements for successful completion of the course and a grade of "D" or "F" will be given.

RESD student is required to repeat any RESD course for which he/she receives a grade below minimum of "C" (a total of 2 attempts allowed).

For courses with laboratory and lecture components, the student needs to repeat both sections, even though the score in one of the sections may have been passing or greater than 70%.

#### **COLLEGE GRADING SCALE:**

А	= 93-100%	C + = 77-79.9%
A- =	90-92.9%	C = 70-76.9%
B+ =	87-89.9%	D = 60-69.9%
В	= 83-86.9%	F = 59.9% and below $B = 80-82.9%$

# SATISFACTORY PROGRESS:

Students are expected to maintain 2.0 G.P.A. or higher in all classes. Students who's cumulative G.P.A. fall below the minimum 2.0 G.P.A. will be placed on academic alert or academic probation by the College.

Students on academic probation may be subject to attempted credit restrictions, affecting their progress in registering for courses needed for a semester.

Failure to raise cumulative G.P.A. to the appropriate level could result in dismissal from the college. Any students receiving a grade of "D" or "F" in a RESD course will be required to repeat that course. RESD course may only be repeated once requiring the full duration and fulfillment of all requirements of the lecture and laboratory sections of the course.

Failure to satisfactorily complete a repeated RESD course will be considered a failure to maintain satisfactory progress in the major and will result in dismissal from the major.

# **PROFESSIONALISM & ETHICS:**

Since dentistry carries a high degree of responsibility, mature, professional, and ethical conduct is always expected of all students (lecture and laboratory sessions, hybrid and online sessions, externship sites, professional events/seminars.) Unprofessional behavior that shows inattentiveness and disrespect for others will be considered during grading. Points may be deducted at the discretion of any faculty member, regardless of what course is in session. Students will conduct themselves in a professional manner. No offensive language or any other misconduct will be allowed.

Netiquette: Online Etiquette-Students will conduct their online posts and replies with respect for others, which include courtesy, dignity, and appropriate language at all times.

Inappropriate behavior in online settings will not be tolerated and will negatively affect a student's grade. All faculty members will be addressed by their proper title.

Students are required to use proper dental terminology when discussing dental prostheses.

Students are not permitted to do other students' work, although assistance and teamwork are strongly encouraged.

Students should plan to attend all department events and professional development seminars in which an invitation is extended. Students are strongly encouraged to attend events, professional development seminars, and meetings sponsored by the department to elevate their knowledge, skills, and understanding of the profession.

Department offices and stock rooms contain sensitive and personal information, classroom materials, supplies and equipment, and should be used for official use only. Students and unofficial personnel should not be allowed in the department offices unless to fulfill official business.

# COURSE LEARNING OUTCOMES:

Upon successful completion of this course, the student will be able to:

- 1. Identify and describe the materials, equipment, and procedures for infection control in dental laboratory settings.
- 2. Analyze the ethical, legal, and regulatory considerations related to bloodborne diseases.
- 3. Identify and describe hazards in the dental laboratory environment and the proper safety precautions regarding chemical, lab materials, and equipment use and handling.
- 4. Distinguish the physical, chemical, and mechanical properties of dental materials.
- 5. Describe the structure of matter, including transitions from one state of matter to another, interatomic bonds, and atomic arrangement.
- 6. Identify the investments and gypsum products used in the laboratory, their setting reactions, and the factors that affect their setting time, expansion, and compressive strength.
- 7. Demonstrate familiarity with dental waxes, porcelains, impression materials and composites, including ingredients, characteristics, chemical nature, reaction, and considerations that affect their handling.
- 8. Differentiate the uses of various finishing instruments, such as burs, stones, rubber wheels, cones, and points.
- 9. Solve Temperature: Fahrenheit to Celsius, Length: metric to inch, Weights: grams to ounces conversions and vice versa.
- 10. Demonstrate knowledge in identifying various types of dental restorations.

# **GENERAL EDUCATION LEARNING GOALS:**

**Writing** – Students will write a report (formal, graded assignment), based on the lecture presentations and reading assignments included in the course schedule.

**Reading** – Students will be required to read the literature on the topics covered during the lectures, including the textbooks and any other additional reading materials, as presented in the RESD 1107 course schedule, and the handout prepared and covered during lecture to help students with writing the report. **Oral communication** – Students will be required to develop a professional vocabulary utilizing

appropriate dental terms in communicating with fellow students and instructors.

# COURSE ASSESSMENT OF GENERAL EDUCATION STUDENT LEARNING OUTCOMES:

The instructor will evaluate the students' achievement of the learning outcome by:

1. Review – students' abilities to follow instructions for completing all lecture assignments by regularly evaluating them and providing students with feedback to improve their learning abilities.

2. In-person and online written examinations and assignments, such as: quiz, midterm, final examinations containing multiple choice answers, and completion of the written report. Additionally, there will be a graded self-assessment assignment. All must be completed and meet the datelines.

# **COURSE EXAMINATIONS and ASSIGNMENTS:**

# **EXAMINATIONS:**

QUIZ (week # 5)	15 points
MIDTERM (week # 8)	20 points

FINAL (week # 15)	40 points
ONLINE ASSIGNMENTS:	
WRITTEN REPORT (week # 14)	10 points
PROFESSIONAL SELF-ASSESSMENT	
PARTICIPATION	10 Points
FOR 8 COMPETENCIES (week # 14)	5 points
TOTAL LECTURE GRADE	100 points
Extra Credit Report_(Optional)	up to 10 Points

aa

\*Students must achieve a passing grade of at least 70% in the lecture section to pass this course. \*\*OPTIONAL: Extra-credit Assessment – online, on Blackboard multiple choice answers test, total obtainable credit is 5 points and is due week # 14.

# **GUIDANCE AND INFORMATION ABOUT RESD 1107 GRADING:**

- Participation will be based on alertness in class, participation in class discussions, and on-time completion of course assignments.
- The final grade will be computed 100% of lecture grade, as follows:
- Each student's performance will be assigned a conventional letter grade.
- Unsatisfactory completion of the lecture of the course will constitute an unsatisfactory grade of the course.
- Any students receiving a grade of "D" or "F" in a RESD 1107 courses will be required to repeat that course.
- RESD 1107 course may only be repeated once, requiring the entire duration and fulfillment of all requirements of the lecture and laboratory sections of the course.
- Failure to satisfactorily complete a repeated RESD 1107 course will be considered a failure to maintain satisfactory progress in the major and will result in dismissal from the major.
- Students are responsible for knowing all material covered in class presentations, reading assignments, and handouts, regardless of whether it has been covered during class sessions.

# TOPICS FOR EXAMINATIONS (ALL EXAMS ARE IN-PERSON):

#### QUIZ:

Infection Control & Laboratory Safety Historical use of dental materials Standards for dental material Structure of Matter

# MIDTERM:

Physical and chemical properties of solids Mechanical properties of dental materials Weights and measures Biocompatibility

<u>FINAL:</u> Impression Materials Gypsum products and investments Dental Waxes and Polymers Dental Ceramics Abrasive materials Separating materials, acids, wetting agents, gases, other chemicals

# **ONLINE COURSE ASSIGNMENTS:**

The Written Report and Professional Self-Assessment assignments will be conducted online in Brightspace, and they are due during week # 14 of the semester (check your class schedule and datelines). Online assessments submitted after the due dates will receive a 0 (zero) grade. If there are extenuating circumstances and arrangements are made prior to the deadline, exceptions may be made at the instructor's discretion.

WRITTEN REPORT: The report is a formally graded assignment based on the course materials. The purpose of the RESD 1107 Written Report is to develop students' writing skills and to meet the goals for General Education Student Learning Outcomes, as presented in the grading rubric for the report.

# Instructions for the written report and grading rubric:

- Students will be instructed on how to prepare to write the report. In addition, the instructor will provide some resources on aiding in writing an academic paper using the course materials as the subject matter necessary for developing the report.
- The instructor will provide students with handout instructions for the written report. •
- The report should be typed in APA 7 Style •
- APA 7 Style Guide -•
- How to Cite in APA Format (7th edition) | Guide & Generator •
- APA Style (7th Edition) Purdue OWL® Purdue University •
- The report should be at least three (3) pages long, not including the cover page and bibliography
- One-inch margins on the sides, top and bottom •
- Use Times or Times New Roman 12 pt. font •
- Double-space the text of the paper •
- Use left-justified text, which will have a ragged right edge •
- Indent the first word of each paragraph 1/2" •
- Indent block quotes 1." •
- The last page should contain the Works Cited lists; use a 1/2" indent for all lines after the first line of each source.
- Check for spelling and grammar. •
- The due date for submitting the Written Report is during the last session before the final examination, and it must be submitted on Brightspace.

#### **GRADING RUBRIC FOR GENERAL EDUCATION RESD 1107 WRITTEN REPORT**

# **Information Literacy Rubric**

Performance Indicator	Surpasses Criterion 20	Meets Criterion 15	Approaching Criterion 10	Does Not Meet Criterion 5	%
Understands and addresses the scope and objectives of a manageable re- search topic	Defines the scope and objectives of a manageable research topic in a concrete and focused manner.	Begins to define the scope and ob- jectives of the research topic in a fo- cused manner.	Defines scope and objectives of the research topic in a broad, narrow, or vague manner.	Has difficulty identifying the scope and objectives of the research topic.	20
Identify credible and relevant sources	Able to identify all relevant and credible sources (know the difference between primary and secondary sources; identify peer reviewed journals; choose the best evidence).	Able to identify most relevant and credible sources but not all (few dis- crepancies with identifying primary and secondary sources, peer re- viewed journals and choosing the best evidence).	Able to identify some relevant and credible sources but not all (many discrepancies with identifying pri- mary and secondary sources, peer re- viewed journals and choosing the best evidence).	Does not identify differences be- tween sources, does not select the best evidence available.	20
Use information effectively to accom- plish specific purpose, and present in- formation in a clear and meaningful way	Communicates, organizes and synthe-sizes information from sources to fully achieve a specific purpose, with clarity and depth.	Communicates, organizes and syn- thesizes information from sources. Intended purpose is achieved.	Communicates and organizes infor- mation from sources. The infor- mation is not yet synthesized, so the intended purpose is not fully achieved.	Communicates information from sources. The information is frag- mented and/or used inappropriately (misquoted, taken out of context, or incorrectly paraphrased, etc.), so the intended purpose is not achieved.	20
Cite sources in an appropriate style	Correctly provides in-text citations and reference list in a discipline- specific style.	Provides in-text citations and refer- ence list in a discipline-specific style, but with few errors.	Provides in-text citations and refer- ence, but with many errors or in a style not discipline-specific.	Does not cite any information sources used in assignment.	20
Incorporates ideas of others in an ethical manner; summarizing, para- phrasing and quoting are correct and appropriate	Applies principles of academic integrity in the use of information – all sources are quoted, paraphrased and cited cor- rectly and appropriately.	Cites most sources correctly when quoting and paraphrasing; uses quoted material sparingly and appro- priately.	Cites some (but not all) sources cor- rectly when quoting and paraphras- ing, but employs excessive use of quoted material.	Plagiarizes the work of others: uses quoted material excessively and/or does not use in-text or bibliographic citations.	20

(Modified from AAC&U VALUE Rubric)

# PROFESSIONAL SELF-ASSESSMENT FOR 8 COMPETENCIES:

This assessment aims to get first-year students focused and ready to start thinking about their academic and professional careers. Students will be provided with instructions and materials for completing this assessment. In addition, the instructor will arrange a workshop with the college Professional Developmental Center for students during one of the lecture sessions. The date will be announced once the arrangements are made.

Students will be asked to evaluate their development level and what measures they can take to improve the following eight competencies:

- Critical thinking/Problem solving
- Oral/Written Communications
- Technical Application
- Teamwork/Collaboration
- Leadership
- Career Management
- Professionalism/Work Ethic
- Global Intercultural Fluency

# RESD 1107 – INTRODUCTION TO NON-METALLIC DENTAL MATERIALS (Tentative Schedule subject to change)

SESSION	LECTURE TOPICS	READING ASSIGNMENTS
SESSION 1	<ol> <li>Introduction to RESD 1107 course</li> <li>Infection control &amp; Laboratory Safety</li> </ol>	<ol> <li>RESD 1107 course syllabus</li> <li>Air Force Pamphlet Vol. I Chapter 1, pg. 28-38</li> <li>Air Force Pamphlet Vol. II, Chapter 9</li> <li>Science of Dental Materials 12th ed. Chapter 1</li> <li>Lecture # 1 a &amp; 1 b - Infection Control &amp; Laboratory Safety presentations</li> </ol>
SESSION 2	<ol> <li>Historical use of dental materials</li> <li>Standards for dental material</li> </ol>	<ol> <li>Science of Dental Materials 12th ed. Chapter 1 (pg. 166, table 8-4) &amp; Chapter 2</li> <li>Lecture # 2 - Historical use of dental materials &amp; Standards for dental materials presentation</li> </ol>
SESSION 3	<ol> <li>Structure of Matter</li> <li>Physical and chemical properties of solids</li> </ol>	<ol> <li>Lecture # 3 – Structure of Matter presentation</li> <li>Science of Dental Materials 12<sup>th</sup> ed. Chapter 3</li> <li>Lecture # 4 - Physical and chemical properties of solids &amp; Weights and measures presentation</li> </ol>
SESSION 4	1.Weights and measures 2. Review for Quiz	<ol> <li>Air Force Pamphlet Vol. II Chapter 8</li> <li>Lecture # 4 - Physical and chemical properties of solids &amp; Weights and measures presentation</li> <li>Complete the online review for quiz</li> </ol>
SESSION 5	QUIZ - 15 points In-person	Topics:         1.Infection control & Laboratory       Safety         2.Historical use of dental materials         3.Standards for dental material         4.Structure of Matter
SESSION 6	Mechanical properties of dental materials	<ol> <li>Science of Dental Materials 12th ed. Chapter 4</li> <li>Lecture # 5 - Mechanical properties of dental materials presentation</li> </ol>
SESSION 7	1. Biocompatibility         2. Review for Midterm	<ol> <li>Science of Dental Materials 12th ed. Chapter 7</li> <li>Lecture # 6 – Biocompatibility presentation</li> <li>Complete the online review for midterm</li> </ol>

SESSION 8	MIDTERM - 20 points - In-person	Topics:         1. Physical and chemical properties of solids         2. Mechanical properties of dental materials         3. Weights and measures         4. Biocompatibility         1. Air Force Pamphet Vol. I, Section
SESSION 9	Impression Materials	<ul> <li>2D, pg. 52-55</li> <li>2. Science of Dental Materials, 12th ed. Chapter 8 pg. 151-181</li> <li>3. Lecture # 7 Impression Materials presentation</li> </ul>
SESSION 10	Gypsum Materials	<ol> <li>Air Force Pamphlet Vol.1, Section 2B, pg. 39-47</li> <li>Science of Dental Materials 12th ed. Chapter 9 pg.182-193 and Chapter 10 pg. 201-229</li> <li>Lecture # 8 Gypsum Products and Investments presentation</li> </ol>
SESSION 11	Dental Waxes and Dental Polymers	<ol> <li>Air Force Pamphlet Vol 1. Pg. 48-52 and Section 2E, pg. 56-59</li> <li>Science of Dental Materials 12th ed. Chapter 6, pg. 194-200, and Chapter 10</li> <li>Lecture # 9 Dental Waxes &amp; Dental Polymers presentation</li> </ol>
SESSION 12	Dental Ceramics	<ol> <li>Air Force Pamphlet Vol. 1 pg. 80-84</li> <li>Science of Dental Materials 12th ed. Chapter 18, pg.418-473</li> <li>Lecture # 10 Porcelain in Dentistry Dental Lithium disilicate (milled and pressed) &amp; Dental Zirconia presentation</li> </ol>
SESSION 13	<ol> <li>Abrasive materials</li> <li>Separating materials, acids, wetting agents, gases, other chemicals</li> <li>Review for FINAL EXAM</li> <li><b>RESD 1107 Written Report is due online</b></li> </ol>	<ol> <li>Air Force Pamphlet Vol. 1 pg. 84-93 and 89-90</li> <li>Science of Dental Materials 12th ed. Chapter 11, pg. 137-138, 231-252</li> <li>Lecture # 11 Abrasive Materials</li> <li>Lecture # 12 Separating materials, acids, wetting agents, gases, other chemicals presentation</li> <li>Complete the online review for final</li> </ol>
SESSION 14	<ul> <li>3. Professional Self-assessment is due online</li> <li>4. Extra-credit assessment due online</li> </ul>	<ol> <li>2. RESD 1107 Written Report is due online – 15 points</li> <li>3. Professional Self-Assessment is due online – 5 points</li> <li>4. Extra-credit assessment due online</li> </ol>
SESSION 15	FINAL - 40 points In-person	<ol> <li>Impression Materials</li> <li>Gypsum Materials</li> <li>Dental Waxes and Dental Polymers</li> <li>Dental Ceramics</li> </ol>

	5. Abrasive materials and separating materials, acids, wetting agents, gases, other chemicals

# **RESD 1107 LECTURE COURSE OUTLINE**

# **1. Introduction to RESD 1107 course and Infection Control and Laboratory Safety, and Historical Use of Dental Materials - two lecture sessions**

A. CONDITIONS: Presented lectures and discussions on infection control and laboratory safety. B. PERFORMANCE: The student should be able to:

- Identify the Infection Control Protocols for Dental Settings, in general and specifically for COVID 19 pandemic
- Identify the proper use of PPE.
- Identify the steps of disinfecting materials coming from the dental office (which were in contact with the patient's mouth)
- Identify the OSHA and ADA protocols and recommendations for laboratory safety.
- Identify the pioneers in the industry and their discoveries.
- Identify the different steps in the evolution of dental materials.
- C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 2. Historical Use of Dental Materials and Standards for Dental Materials – two lecture sessions

A. CONDITIONS: Presented lectures and discussions on the historical use of dental materials and standards for dental materials.

B. PERFORMANCE: The student should be able to:

- Identify the evolution of dental materials.
- Identify the key figures and pioneers in the dental field.
- Identify the process of developing standards for dental materials.
- Describe different processes in the formation of matter.
- Describe the different stages in the formation of matter.
- Describe the different elements in the composition of matter.

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 3. States of Matter and Physical and Chemical Properties of Solids, two lecture sessions

A. CONDITIONS: Presented lectures and discussions on states of matter and physical and chemical properties of solids.

B. PERFORMANCE: The student should be able to:

- Describe the different states of matter and their characteristics.
- Describe different types of chemical bonds.
- Describe the factors that influence the transformation of matter from gas to liquid to solid.
- Describe the internal structure of matter in different states.
- Identify the physical properties of solids.
- Identify the chemical properties of solids.

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 4. Weights and Measures and Review for Quiz, two lecture sessions

A. CONDITIONS: Presented lectures and discussions on weights and measures.

B. PERFORMANCE: The student should be able to:

- Understand how to use the weight and measurement units
- Understand the different equipment for measure

- To know how to calculate different ratios
- Perform calculations related to temperature conversions, metric to imperial measurements,

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session.

# 5. QUIZ - 15 points, in-person, one lecture session

A. CONDITIONS: presented lectures and discussions on course topics presented up to the quiz date. B. PERFORMANCE: The student should be able to complete the examination based on the topics covered during the lecture sessions and reading assignments.

# Topics:

Infection Control & Laboratory Safety

Historical use of dental materials

Standards for Dental

Material Structure of Matter

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of the examination

# 6. Mechanical Properties of Dental Materials, two lecture sessions

A. CONDITIONS: Presented lectures and discussions on the mechanical properties of dental materials. B. PERFORMANCE: The student should be able to:

- Describe dental material's mechanical properties, such as brittleness, compressive strength, ductility, elastic modulus, fatigue limit, flexural modulus, flexural strength, fracture toughness, hardness, impact strength, malleability, percent elongation, Poisson's ratio, proportional limit, shear modulus, shear strength, tensile strength, torsional strength, yield strength, and Young's modulus.
- Understand how the strain and stress forces affect the mechanical properties of dental materials.
- Describe the criteria for selection of restorative materials based on their properties
- C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session.

# 7. Biocompatibility and Review for Midterm, two lecture sessions

A. CONDITIONS: Presented lectures and discussions on the biocompatibility properties of dental materials.

B. PERFORMANCE: The student should be able to:

- Define what is the biocompatibility property of dental materials.
- Understand the adverse effects of exposure to dental materials.
- Describe the safety measures for protecting the dental technicians and patients.
- Describe some of the allergic reactions.
- Occupational hazards for dental personnel.
- Define the clinical guidelines for selecting biocompatible materials.

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 8. MIDTERM – 20 points, in-person, one lecture session

A. CONDITIONS: Presented lectures and discussions on course topics until the midterm date.

B. PERFORMANCE: The student should be able to complete the examination based on the topics covered during the lecture sessions and reading assignments.

# **Topics**:

Physical and chemical properties of solids

Mechanical properties of dental materials

Weights and measures

Biocompatibility

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of the examination

# 9. Impression Materials, two lecture sessions

A. CONDITIONS: Presented lectures and discussions on impression materials.

B. PERFORMANCE: The student should be able to:

- Identify the classification of impression materials.
- Understand the properties and uses of elastomeric impression materials.

- Understand the process of making impressions with elastomeric materials.
- Describe the hydrocolloid materials.
- Describe the hard/brittle impression materials and their uses.

# C.EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 10. Gypsum Materials, two lecture sessions

#### A. CONDITIONS: Presented lectures and discussions on gypsum materials.

B. PERFORMANCE: The student should be able to:

- Identify the different types and properties of gypsum materials.
- Identify the proper use of gypsum materials.
- Describe the different types of gypsum stones and investments.
- Identify the different types of investments and their uses.
- Identify the steps of investing and the lost wax technique.
- Identify the proprieties of dental investments and how the thermal expansion affects the casting.

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 11. Dental Waxes and Dental Polymers, two lecture sessions

A. CONDITIONS: Given lectures and discussions on dental waxes and dental polymers.

B. PERFORMANCE: The student should be able to:

- Identify different types of waxes and their uses.
- Explain the classification of dental waxes.
- Understand the waxes' properties.
- Identify different types of dental polymers and their uses.
- Explain the classification of dental polymers.
- Understand the properties of dental polymers.
- C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# 12. Dental Ceramics, two lecture sessions

A. CONDITIONS: Given lectures and discussions on dental ceramics.

B. PERFORMANCE: The student should be able to:

- Identity different types of porcelains and their applications.
- Identify different proprieties of dental porcelains.
- Identify the process of bonding the porcelains to different substructures.
- Identify different types of dental ceramics.
- Understand the properties of dental ceramics.
- Understand the difference between milled ceramics and pressed ceramics.
- C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

# **13.** Abrasive Materials and Separating Materials, Acids, Wetting Agents, Gases, Other Chemicals two lecture sessions

A. CONDITIONS: Presented lectures and discussions on abrasive materials and separating materials, acids, wetting agents, gases, and other chemicals.

B. PERFORMANCE: The student should be able to:

- Identify the different abrasive materials and their properties.
- Describe the composition of abrasive materials.
- Describe different purposes for abrasive materials.
- Describe the lab equipment used.
- Describe the properties and classification of separating materials, acids, wetting agents, gases, and other chemicals.
- Describe the different purposes for separating materials, acids, wetting agents, gases, and other chemicals.
- Describe the safe use of separating materials, acids, wetting agents, gases, and other chemicals.

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session

14. Review for final examination and dateline for online assignments: RESD 1107 Written Report, Professional Self-Assessment and Extra-credit assessment, two lecture sessions.

A. CONDITIONS: Given lectures and discussions on topics for the final examination and instructions for online assignments.

B. PERFORMANCE: The student should be able to:

- Completed online, the RESD 1107 Written Report
- Completed online, the Professional Self-Assessment
- If necessary, completed online, the extra-credit assessment

C. EXTENT & CRITERIA: With at least 70% accuracy at the end of the lecture session

#### 15. FINAL EXAMINATION - 40 points, in-person, 1 lecture session.

A. CONDITIONS: Presented lectures and discussions on course topics presented up to the date of the final examination.

B. PERFORMANCE: The student should be able to complete the examination based on the topics covered during the lecture sessions and reading assignments.

#### **Topics:**

Impression Materials Gypsum Materials Dental Waxes and Dental Polymers Dental Ceramics Abrasive materials separating materials acids wetting agents, gases, other chemicals C. EXTENT & CRITERIA: With at least 70% accuracy at the end of one lecture session