NEW YORK CITY COLLEGE THE CITY UNIVERSITY OF	E OF TECHNOLOGY DEPARTMENT OF NEW YORK RESTORATIVE DENTISTRY			
COURSE CODE & TITLE:	COURSE CODE & TITLE: RESD <u>2414 Ceramic Practicum</u>			
DEPARTMENT:	RESTORATIVE DENTISTRY			
COURSE COORDINATOR:	PROF. <u>Daniel Alter MSc, MDT, CDT</u> Phone: _718-260-5154_Email: <u>dalter@citytech.cuny.edu</u> Office Hours: Room A601 Day <u>Wed.</u> Hours_7:00am-8:30am; 11:00- <u>11:30am</u> ; 2:00pm-2:30pm			
LECTURE INSTRUCTOR/S:	PROF. <u>Daniel Alter MSc, MDT, CDT</u> Phone: _718-260-5154Email: <u>dalter@citytech.cuny.edu</u> Office Hours: Room A601 Day <u>Wed.</u> Hours_7:00am-8:30am; 11:00- <u>11:30am ; 2:00pm-2:30pm</u>			
LAB INSTRUCTOR/S:	PROF. <u>Daniel Alter MSc, MDT, CDT</u> Phone: _718-260-5154Email: <u>dalter@citytech.cuny.edu</u> Office Hours: Room A601 Day <u>Wed.</u> Hours_7:00am-8:30am; 11:00- <u>11:30am</u> ; 2:00pm-2:30pm			
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 specifically offered for student use and are an important part of student's education.				
RESD <u>2414</u> Syllabus revised	on <u>01/05 2024</u> by <u>Prof. Alter</u>			
COURSE DESCRIPTION:	(as listed in current college catalog) A practical application, at an advanced level, of the techniques and procedures learned in the basic or specialized courses previously studied. Actual impressions are used in all restorations. The course also includes fabrication of CAD/CAM Zirconia.			
CLASS CREDITS:	3 credits			
CLASS HOURS:	2 laboratory sessions - 6 lab hours per week;			
NUMBER OF WEEKS:	15 Weeks			
CURRICULUM LEVEL:	Fourth semester			
PREREQUISITES:	As listed in college catalog, <u>RESD 2314</u>			

REQUIREMENTS: Standard college and department regulations. Proper uniform and conformity to safety regulations.

QUIZZES AND EXAMINATIONS: Students are responsible for knowing all material covered in reading assignments, handouts, lecture and laboratory. Students are responsible for knowing information from reading assignments regardless of whether it has been

	covered during class sessions or not. There will be three examinations that will account for the majority of the lecture score (quiz, midterm and final). In addition to the major exams, there will be quizzes/assessments that will be conducted during each lecture session. They will be based on prior lecture sessions and reading assignments that should be completed prior to current lecture. There will be no make-up examinations.
TEXTBOOKS:	Dental laboratory technology: basic sciences, removable prosthodontics, and orthodontics. (2005). Air Force Pamphlet 47-103, Vol. 1.
	Dental laboratory technology: fixed and special prosthodontics. (2005). Air Force Pamphlet 47-103, Vol. 2.
	Naylor, P., W. (2017). Introduction to metal ceramic technology (3rd ed.). Chicago, IL: Quintessence Publishing Co.
	Yamamoto, M. (1990). Color atlas: basic technique for metal ceramics, an introduction to ceramic techniques. (1st ed.). Tokyo, Japan: Quintessence.
REFERENCES:	Anatomy of Oralfacial Structures, Richard Brand and Donald Isselhard C.V. Mosby Co., St. Louis, Mo.
	Dental Laboratory Technology: Fixed Restorative Techniques, John Sowter D.D.S., North Carolina Press
	Dental Laboratory Manual – Air Force Manual, Dept. of the Air Force, Washington, D.C., 1991 Theory and Practice of Crown and Bridge Prosthodontics, Stanley Tylman D.D.S., C.V. Mosby Co., St. Louis, Mo.
	Science and Technic of the Cast Restoration, George Hollenback D.D.S. C.V. Mosby Co., St. Louis, Mo.
	Crown and Bridge Construction, Jelenko Co. Crown and Bridge Manual, Ney Co.
VIDEOS:	Porcelain Building: Five Surface Domain-Range Build-Up System. talladium, 1987. (VIDEO-CASSET 644). Porcelain Finishing: Staining, Glazing, Corrections & Polishing. Talladium, 1987. (VIDEO- CASSETTE 645).
	 Porcelain Laminate Veneers: Laboratory Procedures, Featuring the Colorlogic Veneer System. Ceramco, 1993. (VIDEO-CASSETTE 1152). Porcelain Veneer. Practical Clinical Courses, 1987. (VIDEOCASSETTE 378).
	Ceramics. University of Iowa College of Dentistry, n.d. 2 videocassettes. (VIDEO-CASSETTE 470)

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

- 1. 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.
- 2. Plagiarism in lecture or laboratory assignments, exams or projects will not be accepted. Student 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 and follow the Academic Integrity Policy and Procedures as per NYCCT & CUNY Policies.
- 3. 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.
- 4. 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

NYCCT Attendance & Lateness

Attendance and class participation are essential and excessive absences may affect the final grade. Courses with laboratory, clinical or field work may have specific attendance policies. Source: NYCCT College Catalog: http://www.citytech.cuny.edu/academics/academic-catalog.aspx

Restorative Dentistry Professionalism & Participation

The Department of Restorative Dentistry follows NYCCT, CUNY and Dental Laboratory Technology industry standards in order to educate, develop, advance and guide future dental technology professionals, preparing graduates for workplace readiness. In order to successfully complete Restorative Dentistry courses, students must consistently participate in classes and meet deadlines as stated in course syllabus.

- It is strongly advised that students are present for all classes during the semester including 30 laboratories and 15 lectures.
- Classes will begin promptly at the scheduled time.
- Students enrolled in RESD course must meet all course requirements as stated in course syllabus in order to pass it. Failure to submit or complete the assignments, tasks, projects or exams by specified due dates, place and time will result in a zero (0) grade and possible failure of the course.
- Make-up exams, projects, assessments will not be issued. If student requires reasonable accommodations, proper documentation from the Center for Student Accessibility should be submitted to the instructor within reasonable time to fulfill course requirements before semester ends.
- The students are required to observe course instructor's demonstrations and complete all fabrication tasks under course instructor's supervision. Laboratory demonstrations are usually conducted at the beginning of the session and cannot be redone for the convenience of the student who arrives late, walks out of the classroom, or is absent.
- When student is given instructor's permission to leave the class, the student must return to class in a reasonable time.

GRADING

Restorative Dentistry courses include didactic or didactic and laboratory sections which are graded accordingly. In didactic and laboratory sessions, the final grades will be computed based on grading included in course syllabus. Most courses are graded based on 60% of the laboratory and 40% of the lecture grades. Student must achieve a passing grade of at least 70% in the laboratory and at least 70% in the lecture sections of the course in order to receive the minimum passing grade of "C" for the entire course. Failure to meet the minimum of 70% average in either component of the course and a grade of "D" or "F" will be given based on student's performance in the failing section of the course. RESD student is required to repeat any RESD course for which he/she receives a grade below minimum of "C". For courses with laboratory and lecture components, the student needs to repeat both, the lecture and the laboratory sections, even though the score in one of the sections may have been greater than 70%.

College grading scale

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

SATISFACTORY PROGRESS

Students are expected to maintain 2.0 G.P.A. or higher in all classes. Students whose 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 which can affect progress in taking all 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 courses 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 practice of dentistry carries with it a high degree of responsibility, a mature, professional, and ethical conduct is expected of all students at all times (lecture & laboratory sessions, hybrid & online sessions, externship sites, professional events/seminars, etc.). Unprofessional behavior that shows inattentiveness and disrespect for others will be taken into consideration during the grading process. Points may be deducted at the discretion of any faculty member regardless of what course is in session. This includes incidents in the hallways, by lockers, or anywhere on NYCCT campus. Students will conduct themselves in a professional manner. No horseplay, offensive language, shouting or any other misconduct will be allowed.
- 2. 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 of any kind in online settings will not be tolerated and will negatively affect student's grade.
- 3. All faculty members will be addressed by their proper title.
- 4. Students are required to use proper dental terminology when discussing dental prosthesis.
- 5. Students are to have all required instruments and supplies when attending laboratory sessions.
- 6. Students are not permitted to do other students' work although assistance and teamwork are strongly encouraged.
- 7. All electronic devices must be turned off during all RESD classes unless otherwise specified by the instructor.
- 8. Each RESD student will be assigned a locker in the beginning of each semester and will vacate the locker by the last day of the semester. If the locker is not returned back in clean condition by the end of the semester, the locker will be broken by CLT. The student will not receive another locker the next semester.
- 9. Students should make arrangements 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 field of study.
- 10. 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.

DRESS, SUPPLIES & TEXTBOOKS

- 1. Laboratory smocks (lab coats) with Restorative Dentistry Department emblem must be worn at all times in the laboratory. Emblems are to be attached to the left breast pocket. Smocks must be clean and kept completely buttoned or tied when worn. Failure to wear smocks will necessitate students being barred from laboratory and marked absent.
- 2. Closed-toe shoes are required while working in the laboratory.
- 3. No hats/caps of any type are to be worn in the laboratories. (*Except for religious reasons*)
- 4. Students must purchase and have in their possession the required tools, supplies, PPE and textbooks by the 2nd week of scheduled classes. A list of all course materials will be available in the department's main office or in CLT's office. All personal tools should be clearly labeled with student's name.
- 5. Students should acquire required textbooks for each course and are expected to read assigned pages and review procedures *prior* to attending lecture and laboratory classes. The list of required textbooks will be listed in all course syllabi.
- 6. RESD students are responsible for their belongings at all times. Restorative Dentistry Department does not take responsibility for left over items.

HEALTH & SAFETY

1. No eating, drinking or smoking is permitted in laboratories or classrooms.

- 2. No electronic devices (i.e. phones, headphones, computers or tablets) will be permitted in the laboratories or classrooms unless requested for classroom use by the instructor.
- 3. No outerwear, shopping bags, attaché cases, luggage etc., are permitted in laboratories.
- 4. Bunsen burners when lit are a potential danger. Bunsen burners must be turned off when you leave your bench. Long hair and hair spray are flammable items. Pay particular attention to any Bunsen burner flame. Do not lean over the open flame.
- 5. Chucks must be securely placed onto bench engine shaft to avoid chuck flying off when engine is turned on.
- 6. Boiling water can result in serious burns. Extra caution should be taken when boiling out or using boiling water.
- 7. Burnout furnaces and porcelain furnaces are potentially dangerous. Tongs should be used when picking up hot casting rings or ceramic work.
- 8. Students with long hair must wear a hairnet or tie back their long hair to prevent accidental burning from Bunsen burners or other serious accidents. Hair can easily get caught in hand piece or lathe.
- 9. Safety eye glasses must be worn by all occupants of the laboratory while any procedures are being conducted that produce dust or airborne particles. Safety eye glasses with side shields may be obtained from a hardware store. They are essential to the students' safety.
- 10. Eye protection measures should be taken when working with curing lights, lasers, and heating or melting metal.
- 11. Proper mask (N95) should be worn when grinding metals, ceramics, and acrylics or when using materials creating dust.
- 12. Students not enrolled in a RESD course, from this and other departments, will not be permitted to visit during laboratory sessions.
- 13. Students will not use any equipment until demonstrated by the instructor.

CLEANLINESS

- 1. Students must have a plastic place mat to protect bench top during laboratory sessions.
- 2. Students are required to clean-up working areas and equipment at the conclusion of any procedure. Timely clean-up is important to prepare the area for the next student and ensure equipment remains in working order. Especially important is that stone or investment is not allowed to harden in the sinks, in the mixing bowls or in contact with the equipment.
- 3. Each student is required to leave work station spotless by removing all debris, papers, wax, plaster, etc. from drawers, work station tops and floors in the immediate vicinity of the seat before leaving.
- 4. Each student is assigned responsibility for maintaining the cleanliness of an area used in common by all members of the class.
- 5. Equipment such as duplicating flasks, articulators or any other equipment that belongs to the department and is used by the student during the laboratory session or during the entire semester must be returned clean and in good working condition otherwise the student is financially responsible for repaying broken or missing equipment, and hold may be placed throughout CUNY system for registration to any courses until the payment is made.
- 6. 5% of final grades will be deducted in each course for student who will not adhere to neatness, cleanliness and safety measures in the classroom.

RESD 2414 GENERAL EDUCATION STUDENT LEARNING OUTCOMES:

Upon successful completion of the course each student should be able to:

- 1. **Recognize** esthetic differences in teeth cross-culturally.
- 2. **Learn** appropriate mathematical and geometric equations with regards to the Golden rule of Proportions
- 3. **Present** an oral presentation regarding a research topic to the classroom peers.
- 4. **Converse** using discipline specific vocabulary accurately.
- 5. **Read** and interpret professional scholarly journals

RESD 2414 ASSESSMENT OF GENERAL EDUCATION STUDENT LEARNING OUTCOMES:

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

- 1. Giving multiple choice exams periodically throughout the semester.
- 2. Evaluate practical exams with emphasis on the student's ability to communicate.
- 3. Evaluate comprehension through manual dexterity projects in the Laboratory.
- 4. Evaluate lab work utilizing rubrics.
- 5. Evaluate oral presentation on quality and content.

RESD_2414_____ COURSE LEARNING OUTCOMES:

Upon successful completion of the course each student should be able to:

- 1. **Apply** the principles learned in the basic courses to practical cases.
- 2. **Carry** a Dentist's impression forward from master cast to a completed case ready for insertion by the dentist.
- 3. **Recognize** imperfections in the impression.
- 4. **Write** or **discuss** possible solutions to problems which may occur during fabrication of the prosthesis.
- 5. **Produce** a finished prosthesis at a level acceptable to a commercial laboratory.
- 6 **Fabricate** various prosthesis (porcelain fused to metal, alumina crown, and zirconia crown)
- 7. **Know** all the different CAD systems and their uses
- 8. Display a **knowledge** and use of acceptable health, safety and infection control procedures.

<u>RESD 2414</u>	ASSESSMENT & GRADING
LECTURE	40%
LABORATORY	60%
*TOTA	AL - FINAL GRADE 100%

* Additional projects may be available

* Participation will be based on alertness in class, participation in class discussion, and homework.

* Final grade will be computed on the basis of 60% of laboratory grade and 40% of lecture grade. Each individual's performance will be assigned a conventional letter grade.

* Unsatisfactory completion of laboratory or lecture of the course will constitute unsatisfactory grade of the course.

* Any students receiving a grade of "D" or "F" in a RESD courses 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.

NYCCT LETTER GRADE SCALE:

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

RESD_2414 LECTURE ASSESSMENT CRITERIA

Lecture 40% of total course grade

Quiz	10%
Midterm	15%
Final	15%

*<u>TOTAL – LECTURE</u> 100%

OPTIONAL: _____% extra credit

* Student must achieve a passing grade of at least 70% in the lecture section to pass the class

RESD_2414___LAB ASSESSMENT CRITERIA

Laboratory Projects 60% of total course grade

Project 1 Model and Dies	15 %
Project 2 Diagnostic Wax-Up	30 %
Project 3 Ceramic Build Up	30 %
Project 4 Final Contouring	15 %
Project 5 Final glazing, staining & cleanliness	10 %

*TOTAL – LAB	100%
OPTIO	NAL:% extra credit
* Student must achieve a passing grade of at least 70% in the lab section	on to pass the class

RESD ____2414____ LECTURE SCHEDULE (Tentative Schedule, subject to change)

Lecture	Tuesdays	Торіс	Reading Assignment	
1	1/30	ASSIGNMENT OF CASES, READING DOCTORS PRESCRIPTION,	Reading/Project/Assessment, etc.: AFP 47- 103 Vol II p14,28-39 AFP 47-103 Vol I p39-47	
-		DISINFECTING IMPRESSIONS AND OTHER MATERIAL GIVEN WITH CASE		
2	2/6	EVALUATING CASES AND CHOSING OPTIMAL RESTORATION. OPTIONS FOR RESTORATION (ALL PORCELAIN, PFM, CAD/CAM)	Reading/Project/Assessment, etc.: Look back at all your notes from 214 and 314. Be familiar with the different options.	
3	2/13	ALL PORCELAIN (jackets and laminates):	Reading/Project/Assessment, etc.: AFP 47- 103 Vol II 174-187	
4	2/20	PORCELAIN FUSED TO METAL	Reading/Project/Assessment, etc.: AFP 47- 103 Vol II p131-136,172 Naylor p119-198, Yamamoto (all of it)	
5	2/27	QUIZ	Cumulative	
6	3/5	CAD/CAM systems and applications	Reading/Project/Assessment, etc.: CERAC MANUEL; FREE ONLINE http://td.sirona.com/pdf/5956458.pdf & LAVA by 3M	
7	3/12	SIRONA CERAC INLAB SCANNER AND SOFTWARE	CERAC MANUEL; FREE ONLINE http://td.sirona.com/pdf/5956458.pdf	
8	3/19	MIDTERM	Cumulative	
9	3/26	PORCELAIN BUILD-UP AND FIRING	AFP 47-103 Vol II p138-151 Naylor p152-165 Yamamoto p83-87	
10	4/2	ESTHETIC CHARCTERISITCS WITH POSTERIOR TEETH	Reading/Project/Assessment, etc.: Yamamoto p 83-96	
11	4/9	ESTHETIC CHARCTERISITCS WITH ANTERIOR TEETH	Yamamoto p 13-82	
12	4/16	CONTOURING, STAINING AND GLAZING	Reading/Project/Assessment, etc.: Naylor p 171-198	
Spring Break	4/22- 4/30	No Classes		
13	5/7	Topic:	Due Date:	
14	5/14	Review for Final	Reading/Project/Assessment, etc.:	
15	5/21	FINAL	Cumulative	

• We may have a guest speaker through-out the semester so the dates may have to be adjusted.

RESD _2414___ LECTURE COURSE OUTLINE

Lecture 1: ASSIGNMENT OF CASES, READING DOCTORS PRESCRIPTION, DISINFECTING IMPRESSIONS AND OTHER MATERIAL GIVEN WITH CASE, POURING OF IMPRESSIONS, PINNING, TRIM. (one lecture hour)

A. CONDITIONS: Given a lecture and discussion using

Power Point slides, visual aids and reading assignments on the terminology, impression materials, and outline of clinical and laboratory procedures, for ceramic restorations.

- B. PERFORMANCE: The students will be expected to:
 - Be able to understand and follow dentists Prescriptions and be knowledgeable enough in restorative options to consult when desired for optimal outcome for the patient, including infection control procedures.
 - Name the various materials used in ceramic restoration fabrication procedures.
 - Identify acceptable criteria for accepting impressions and models for ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy.

Lecture 2: EVALUATING CASES AND CHOSING OPTIMAL RESTORATION. OPTIONS FOR RESTORATION (ALL PORCELAIN, PFM, CAD/CAM) (one lecture hour)

A. ALL PORCELAIN (jacket crowns & laminates)

- 1. Feldspatic
 - a. platinum foil
 - b. refractory
- 2. pressed ceramics
- B. PORCELAIN FUSED TO METAL
 - 1. single units- to long span bridges
 - 2. pros & cons

C. CAD/CAM SYSTEMS

- 1. Nobel Biocare
- 2. Sirona, Cerec
- 3. Sensable
- 4. Lava
- 5. 3Shape

A. CONDITIONS: Given a lecture and discussion using

Power Point slides, visual aids and reading assignments on the terminology, impression materials, and outline of clinical and laboratory procedures, for ceramic restorations.

B. PERFORMANCE: The students will be expected to:

- Describe the clinical and laboratory procedures for fabricating ceramic restorations to include porcelain fused to metal (both precious and non-precious metal), porcelain jacket crowns, porcelain butt margins and porcelain laminates, including computer aided design and manufacturing.
- Name the various materials used in ceramic restoration fabrication procedures.
- Identify acceptable criteria for accepting impressions and models for ceramic restoration

construction.

EXTENT & CRITERIA: With at least 70% accuracy.

Lecture 3: ALL PORCELAIN (jackets and laminates) (one lecture hour)

A. Platinum foil technique

- 1. adapting
- 2. burnishing
- 3. tinners joint
- 4. wrap-around
- 5. Refractory Model
- 6. Marginal integrity
- 7. application
- 8. removal
- 9. final adjustment on stone model

Pressed Ceramics

- 1. Marginal integrity
- 2. Lucite reinforced
- 3. waxing
- 4. divesting
- 5. finishing
- 6. Staining and glazing

A. CONDITIONS: Given a lecture and discussion using

Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for all ceramic restorations.

- B. PERFORMANCE: The students will be expected to:
 - Describe the clinical and laboratory procedures for fabricating all ceramic restorations to include porcelain baked on foil or refractory which would yield porcelain jacket crowns, porcelain butt margins and porcelain laminates.
 - Name the various materials used in all ceramic restoration fabrication procedures.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy.

Lecture 4: PORCELAIN FUSED TO METAL (one lecture hour)

- A. Design of substructure
 - 1. utilization of diagnostic wax-ups and silicone matrix's
 - 2. designed with support in mind
 - 3. designing for success and avoiding failures
 - 4. failures and breakdowns, why?
 - 5. casting problems

B. Build-up of porcelain

- 1. conventional build-up (cervical, opacious, dentin, enamel)
- 2. Internal characterization utilizing modifiers and/or stains
- 3. Final glazing

- A. CONDITIONS: Given a lecture and discussion using Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for porcelain fused to metal restorations.
- B. PERFORMANCE: The students will be expected to:
 - Describe the clinical and laboratory procedures for fabricating PFM restorations to include porcelain substructure and support.
 - Name the various materials used in PFM ceramic restoration fabrication procedures.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture hour 5: Quiz during lecture Hour

Lecture 6: . CAD/CAM SYSTEMS AND APPLICATIONS (one lecture hour)

- 1. Nobel Biocare
- 2. Sirona, Cerec
- 3. Sensable
- 4. Lava
- 5. Open or closed system
- 6. 6 IN lab milling or milling centers
- A. CONDITIONS: Given a lecture and discussion using Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for computer aided designs and computer aided manufacturing restorations.
- B. PERFORMANCE: The students will be expected to:
 - Describe the different CAD/CAM manufacturers and the systems they have.
 - Name the various systems used in CAD/CAM ceramic restoration fabrication procedures.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture 7: DIGITAL DENTISTRY- SCANNER AND SOFTWARE. (one lecture hour);

- Sirona manual http://td.sirona.com/pdf/5956458.pdf
- 1. Scanner
- 2. Information relay to software
- 3. Designing a milled restorations
- 4. Designing single coping (full contour), three unit bridge
- A. CONDITIONS: Given a lecture and discussion using Power Point slides, demonstration of software use, visual aids and reading assignments on the terminology, and laboratory procedures, for computer aided designs and computer aided manufacturing restorations.
- B. PERFORMANCE: The students will be expected to:
 - Identify acceptable criteria for accepting impressions and models for all CAD/CAM restoration.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture 8: MIDTERM - ONE LECTURE HOUR

Lecture 9: PORCELAIN BUILD-UP AND FIRING; Air Force Manual, Vol III, pp. 122-135 INCLUDING VENEERING OF ALUMINA OR ZIRCONIA SUB-STRUCTURES (one lecture hour)

A. METHODS OF BUILDING PORCELAIN

- 1. mixtures
- 2. application
- 3. condensing
- 4. porcelain properties

B. METHODS OF FIRING

- 1. oven temperature and operation
- 2. firing temperatures and cycles
- 3. firing cycles and time
- 4. thermal and physical properties of porcelain
- A. CONDITIONS: Given a lecture and discussion using Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for properly building up porcelain.
- B. PERFORMANCE: The students will be expected to:
 - Know the different techniques of how to build up porcelain.
 - Understand how internal modifiers and stains produce desired results.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture 10: ESTHETIC CHARCTERISITCS WITH POSTERIOR TEETH (one lecture hour)

- 1. Interior buccal corridor
- 2. Occlusal table and width
- 3. Occlusal landmarks and characteristic
- 4. Occlusal stains
- A. CONDITIONS: Given a lecture and discussion using Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for properly building up posterior teeth.
- B. PERFORMANCE: The students will be expected to:
 - Know the different techniques of how to build up and contour posterior teeth to an optimal result.
 - Understand how internal modifiers and stains produce desired results.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture 11: ESTHETIC CHARCTERISTICS WITH ANTERIOR TEETH (one lecture hour)

- A. Golden rule of proportions
- B. Line angles
- C. Long axis of teeth and their tilt
- A. CONDITIONS: Given a lecture and discussion using Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for properly building up anterior teeth.
- B. PERFORMANCE: The students will be expected to:
 - Know the different techniques of how to build up and contour anterior teeth to an optimal result.
 - Understand how internal modifiers and stains produce desired results.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture 12: CONTOURING, STAINING AND GLAZING; Air Force Manual Vol III, pp. 137-143(one lecture hour)

A. METHODS OF CONTOURING

- 1. use of hand piece
- 2. use of various wheels and discs
- 3. use of non-contaminating abrasives
- 4. anatomical shape and contours

B. METHODS OF STAINING - Jelenko, pp. 10-9, 10

- 1. applying stains
- 2. firing stained porcelain
- 3. shading and color blending

C. METHODS OF GLAZING - Waltke, pp. 1-20

- 1. glaze application
- 2. firing of glaze
- 3. use of rubber discs and wheels

A. CONDITIONS: Given a lecture and discussion using Power Point slides, visual aids and reading assignments on the terminology, and laboratory procedures, for properly contouring and glazing ceramic crowns.

- B. PERFORMANCE: The students will be expected to:
 - Know the different techniques of how to contour anterior and posterior teeth for an optimal result.
 - Understand how proper contours and glazes produce desired results.
 - Identify acceptable criteria for accepting impressions and models for all ceramic restoration construction.

EXTENT & CRITERIA: With at least 70% accuracy

Lecture 13: Open question answers and RG review

Lecture 14: Final Review

Lecture 15: FINAL EXAM - ONE LECTURE HOUR (During last lecture session).

RESD_2414____LABORATORY SCHEDULE

(Tentative Schedule, subject to change)

Lab # Topic

- 2-5. Project 1
- 6. GRADING Project 1 (Model and Dies), <u>15</u>%
- 7-9. Project 2
- 10. GRADING Project 2 (Diagnostic Wax-up), <u>30</u>%
- 11-21. Project 3
- 21. GRADING Project 3 (Ceramic Build-UP), <u>30</u>%
- 21-27. Project 4
- 27. GRADING Project 4 (Final Contouring), <u>15</u>%
- 27-29. Project 5
- 29. GRADING Project 5 (Glazing and cleaning case), <u>10</u>%

RESD _2414____ LABORATORY OUTCOMES ASSESSMENT EVALUATION SHEET Spring 2021 NAME_____

Models/Articulation....5pts.

Bubble free models: 2

Proper model alignment:2 Accuracy of final trim:1

Pinning/cutting dies.....5 pts.

Pin position: 1 Accurate cut: 2 Ease of die removal:1 Integrity of seat on die: 1

Trimming dies....5 pts.

Proper gross trim: 2 Accuracy of final trim: 3

Diagnostic Wax-up......30 pts.

Overall neatness: 8 Contours: 10 Embrasures: 4 Axial Inclinations: 4 Occlusal clearance and design: 4

Contouring: 10 Embrasures: 5 Occlusal Integrity: 5 Incisal blend: 10

CONTOURIGN, FINISHING......20 pts.

Contouring, contacts, anatomy: 15 Applying glaze and stain: 5

NEATNESS AND CLEANLINESS OF FINAL RESTORATIONS, MODELS AND WORK

EVALUATION & GRADING:

Laboratory	Projects	60%	:
2	./		

100%:____

TOTAL

* A STUDENT MUST ACHIEVE A MINIMUM PASSING GRADE OF AT LEAST 70% IN THEORY AS WELL AS LAB WORK TO FULFILL THE REQUIREMENTS OF THIS COURSE.