

**Oklahoma State University Institute of Technology**  
**Face-to-Face Common Syllabus**  
**Fall 2017**

**WMT 1316 QUARTZ WATCH REPAIR**

Emphasizes the delicate operation of servicing, repairing, testing, and adjusting a modern quartz watch movement. Theory is taught on lubrication, electricity, stepping/servo motors, capacitors, basic circuitry functions, and electronic measurements. Practical classroom exercises focus on movement service, parts handling and lubrication, cleaning techniques, testing equipment, and cell replacement as part of complete watch service.

**Course Purpose:**

The purpose of this course is to prepare the students to diagnose, estimate and repair a quartz watch with delicate dial, hand and calendar mechanism. It teaches the students how to use and read certain equipment which are used to diagnose a quartz watch. It also teaches the students about the basic nomenclature and functionality of calendar mechanism and how to lubricate those. This course also teaches the students how to refinish a watch case and a band.

**Type of Course:** Theory/Lab

**Credit Hours:** 6 ; Total clock hours of theory per semester: 75.83;

Total clock hours of lab per semester: 151.67; Total clock hours of clinical per semester: N/A.

**Class Length:** 1<sup>st</sup> half of the semester

**Class Days and Times:** 7:30-10:55 12:30-3:35 M - F

**Prerequisites:** WMT 1226 External Watch

**Instructor Name:** Ahmed Ashraf

**Instructor Phone:** (918) 293-5180

**Office:** DWRTC # 237

**Instructor Email:** [asif.ashraf@okstate.edu](mailto:asif.ashraf@okstate.edu)

**Contact:** My preferred method of contact is via email. Please allow 24-48 hours to return your correspondence during the normal work week.

**Instructor's Office Hours:** 7:00am-7:30am and 3:30pm-4:00pm

**School Name:** School of Watchmaking

**School Main Phone:** 918-293-5342

**REQUIRED TEXT, REFERENCES, AND MATERIALS**

**Texts:** The Theory of Horology, Swiss Federation of Technical Colleges,  
2940025126

**References:** History and Development of the Quartz Watch by Benjamin Matz, ISBN  
0-9653053-0-9

**Materials:** Textbook, binder, paper, writing utensils, thumb drive, etc.

**Uniform/Tools:** N/A

**Estimated Cost for Materials:** \$ 35

**Estimated Cost for Uniform/Tools:** N/A

**Optional Resources:** N/A

**Upon completion of the course, students should:**

<b>Course Objectives</b>	<b>Assessment of Objectives</b>
Identify the systems and parts of the quartz a watch using correct nomenclature	Quiz and Project (watch Service and part requisition)*
Diagnose and repair watches with quartz movements and mechanical movements utilizing the complication of automatic mechanisms	Project (watch Service and part requisition) and Portfolio*
Diagnose and repair watches with movements utilizing the complication of calendar mechanisms	Final Exam, Project (watch Service and part requisition) and Portfolio*
Identify parts according to manufacturer specific and generic Swiss, American and Japanese nomenclature.	Assignment (watch Service or part requisition)*.
Identify the relevant functional features of watch components complications.	Quiz or Assignment (watch service or part requisition)*.
Assess functionality of watch components and systems to industry standards.	Assignment (watch service or part requisition) and portfolio*.
Evaluate proper lubrication demands within the scope of watchmaking.	Assignment (watch service or part requisition) and portfolio*.
Utilize tribology in watch component and system evaluation.	Assignment (watch service or part requisition) and portfolio*.
Develop a general troubleshooting procedure using scientific methodology to the understanding, repair and modification of watch components and systems (specially quartz watches)	Assignment (watch service or part requisition) and portfolio*.
Select and utilize the proper lubricant and surfactants based upon general lubrication principles and industry expectations.	Assignment (watch service or part requisition) and portfolio*.
Student will identify Brand / Group ownership of individual Brands or sub-Groups.	Assignment and quiz*.
Identify availability of and requirements for parts and tools from Brands / Groups	Assignment and quiz*.
Outline shelf life for parts and supplies.	Assignment and quiz*.
Appraise time expected for repairs	Assignment and quiz*.
Locate, critique and utilize technical documentation for movements	Assignment and quiz*.

Aspects of the course objective assessments may be used in the university's assessment of student learning. If applicable, an asterisk (\*) above indicates this assignment is used in the university assessment program.

*(Please asterisk the assignment above if utilized for the assessment assignment.)*

**COURSE ACTIVITIES**

In this course students will:

(Please list the specific activities in the course)

- Participate in class discussions and activities.
- Grab the Theoretical Concept of Electronic Watches.
- View videos that depict the various concepts.
- Complete the Assignments.
- Compile a portfolio of work produced.
- Take examinations.
- Attend the quizzes.

**EVALUATION - GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS:**

Academic Assignments.....	33%
Quizzes.....	33%
Final Exam and Portfolio....	34%
<b>Total</b>	<b>100%</b>

<b>OSUIT Grading Scale</b>
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% & below

\*The student's grade for this assignment will be used in the university's assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student's course grade.

**GRADES WILL BE BASED ON THE QUALITY AND COMPLETION OF THESE TASKS:**

1. Academic Assignments –33%

You will be handed a number of assignments to be completed during the course. As the focus, breadth and scope of each assignment will be different, each assignment will require a different set of specific criteria to be assessed. Therefore, each assignment will be accompanied with

specific grading criteria to be used for that assignment. At the end of the course, all assignment grades are averaged together with equal weight into one percentage grade.

2. Quizzes – 33%

At the end of the course, all quiz grades are averaged together with equal weight into one percentage grade.

There are 3 classifications of quiz:

a. Theoretical

i. This is typically a written quiz consisting of short answer and/or diagrammatic answers. Quizzes typically range from 5-10 questions. Subject matter of each quiz may be anything previously covered in class or in a homework assignment. Each question is worth an even percentage of 100 points unless otherwise specified on the quiz. Theoretical quizzes are graded as an accumulation of points scored per answered question. Quizzes are to be taken individually whether in-class or as take-home quizzes.

b. Practical

i. This is typically a performed exercise consisting of the creation/modification/repair of (an) object(s). As the focus, breadth and scope of each practical quiz will be different, each quiz will require a different set of specific criteria to be assessed. Therefore, each quiz will be accompanied with the specific grading criteria to be used for that assignment. Subject matter of each quiz may be anything previously covered in class or in a homework assignment.

c. Inspection

i. This is intended to pop quiz the student's readiness to perform properly. Typically, an inspection quiz consists of an inspection of one to all of the tools and/or equipment a student has in their charge for proper working order and condition. Inspection quizzes are graded on the 6-point scale. Students must maintain above a 4 in the following range of grades to receive a passing mark:

6	The inspected item(s) are in perfect order and condition.
5	The inspected item(s) are in working order and condition, but show slight signs of cosmetic wear or are dirty.
4	The inspected item(s) are technically in working order and condition, however are showing heavy signs of wear, excessively dirty or disorganized.
3	The inspected item(s) are not technically in working order and condition, however are quite damaged, excessively dirty or disorganized.
2	The inspected item(s) are technically in working order and condition, however are excessively damaged, excessively dirty, disorganized or pieces missing from sets.
1	The inspected item(s) are in non-working order or condition.

3. Final Exam and Portfolio 34%

All components of the Final Exam and the Portfolio will be scored and the grades will be averaged together to comprise 34% of the final grade.

- A. The Final Exam will be comprised of a practical and a theoretical component indicative of the student's expected performance level at the end of this course. The student's expected performance level for this course is comprehensive of this course and all prior program courses. Assessment criteria for the Final Exam will be accompanied with grading criteria specific to the exam.
- B. The Portfolio will be assessed at the end of the course. The Portfolio may also be assessed at the end of each week at the instructor's discretion. Your Portfolio assessment will be based on the following criteria and each assignment completed and returned must be included in the Portfolio.

The portfolio will be utilized for the assessment and presentations to the advisory board of the program

The portfolio will be assessed based upon the following criteria:

<b>Points</b>	<b>Required items</b>	<b>Concepts</b>	<b>Reflection/Critique</b>	<b>Overall Presentation</b>
90-100	All projects are included, presented clearly without any errors.	Items clearly demonstrate that the desired learning outcomes for the term have been achieved. The student has gained a significant understanding of the concepts and applications.	Reflections illustrate the ability to effectively critique work, and to suggest constructive practical alternatives.	Items are clearly introduced, well organized, and creatively displayed, showing connection between items.
80-89	All projects are included, presented clearly with 1-4 errors.	Items clearly demonstrate most of the desired learning outcomes for the term. The student has gained a general understanding of the concepts and applications.	Reflections illustrate the ability to critique work, and to suggest constructive practical alternatives.	Items are introduced and well organized, showing connection between items.
70-79	All required items are included.	Items demonstrate some of the desired learning outcomes for the term. The student has gained some understanding of the concepts and attempts to apply them.	Reflections illustrate an attempt to critique work, and to suggest alternatives.	Items are introduced and somewhat organized, showing some connection between items.
60-69	A significant number of required items are missing.	Items do not demonstrate basic learning outcomes for the term. The student has limited understanding of the concepts.	Reflections illustrate a minimal ability to critique work.	Items are not introduced and lack organization.

0 No work submitted

Each entry in the portfolio should include the following as necessary:

1. The proficiencies/competencies that the student learns
2. Content
3. A procedure (also drawing if applicable)
4. An image of the completed item
5. A self-assessment of the work
6. A reflection on the project

Daily and/or weekly quizzes, small weekly assignments and similar type projects: Normal return time to student by next class meeting or no later than one (1) week.

Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects: Normal return time to students in one (1) to two (2) weeks.

### **RECOMMENDED STUDENT COMPETENCIES/SKILLS**

PowerPoint, basic computer skills (emails, browsing in YouTube etc)

### **AUTHORIZED TOOLS**

Students are encouraged to use any/all course materials, including books and notes, while participating in classroom activities. Electronic devices are permitted so long as they are utilized for class purposes and not disruptive to other students or detrimental to the student themselves. Students are expected to treat all tools with respect. If a student has not been trained on a piece of equipment, he or she is not authorized to use it. All quizzes and written assignments are to be completed independently; no collaboration with classmates is permitted and any instance of such will be considered academic dishonesty unless class is notified the assignment is to be collaborative.

### **LATE WORK**

No late work will be accepted without prior approval and will be scored as a zero. Work is to be completed within the timeframe communicated. Work completed outside of this parameter is considered late.

### **TESTING**

Loud noises or disruption of classroom is not permitted during quizzes or exams. Disruption to other students or the classroom is not permitted and may result in your removal from the classroom and discontinuation with testing.

Students are expected to complete all quizzes and theory exams both program and certification, independently without the use of any course materials, books or notes. All theory exams will have a time limit to complete the quiz and also a clarification time prior to starting any quiz or exam where any unclear questions can be discussed.

Students are expected to complete all practical exams both program and certification independently without the use of any course materials, books or notes. All practical exams will have a time limit to complete the exam and also a clarification time prior to starting any quiz or exam where any unclear questions can be discussed. The watch or movement is assigned as complete and intended for service, any parts requested or required to complete the service is documented and may affect grading as the repair would incur additional costs in the real world.

**OTHER LAB AND CLASSROOM POLICIES**

*(Indicate any rules/guidelines for your course.)*

**SYLLABUS ATTACHMENT**

View the Syllabus Attachment, which contains other important information, by visiting [http://osuit.edu/center/student\\_syllabus\\_information](http://osuit.edu/center/student_syllabus_information)

<b>Course Schedule</b>			
<b>Course Outline Schedule</b>	<b>Topic</b>	<b>Assignment</b>	<b>Due Date</b>
Week 1	Continue working on quartz watches, quiz on its history and development, revision of Introduction to Basic Electricity, Feedback from the assignments of the last semester	Servicing Calibre 955.122 Quartz Movement, Continuation of Diagnosis of problems/troubleshooting	Due dates daily per assignment
Week 2	Micromechanic project, Quartz Theory, Details of Diagnosis, Theory Test, Refinishing cases	Quizzes on Theory and Diagnosis, Assignment of watch repair with diagnosis, Refinishing Case and Bracelet	Due dates daily per assignment
Week 3	Micromechanic project, Review of Construction of Lavet Motor, Asservicement / Intelligent motor control, Theory Test, Refinishing cases	Quizzes, Refinishing Case and Bracelet, Quartz Watch Repair	Due dates daily per assignment
Week 4	Regulation of Quartz Watch and diagnosis of problem,	Assignments of Quartz Watch Repair and Refinishing	Due dates daily per assignment

	<p>Observation of Rate and other parameters, Refinishing cases</p> <p>Model Test for SAWTA 2 Exam (Timed Exam) and more practice</p>		
Week 5	<p>Diagnosis of Defects and making the adjustments, Theory Test, Concentrating of the Speed of Working, Creating a model of example for refinished case for SAWTA 2 inspection</p> <p>Model Test for SAWTA 2 Exam (Timed Exam) and more practice</p>	Assignments of Quartz Watch Repair and Refinishing	Due dates daily per assignment
Week 6	<p>Model Test for SAWTA 2 Exam (Timed Exam), Discussions about the Exam and Feedbacks, Refinishing cases</p>	Evaluating Performance of the Exam	Due dates daily per assignment
Week 7	<p>Final Exam, Getting ready for the school watch project</p>	Final Exam, Evaluating Performance	Due dates daily per assignment

Schedule is subject to change at instructor discretion.