

## **WESTERN UNIVERSITY PIANO TECHNOLOGY COURSE STRUCTURE 2025**

### **REGULATION I**

- a. Students will gain an understanding of upright piano construction, the action and its ratios, and the skills required to prepare an upright piano to perform at its optimal level. This course includes theory and practical application
- b. Topics include: nomenclature of upright action, regulation tools, assessment and preparation of upright pianos for regulation, action geometry, key leveling, regulation of action parts, action friction, lubricants, damper regulation, and pedal regulation.
- c. Students will gain an understanding of how to maintain an ergonomically designed work space, posture, and awareness of hearing acuity and protection.

### **REGULATION II**

- a. This course will focus on developing the skills required to prepare a grand piano for optimal performance. This course includes both theory and practical application.
- b. Topics include: nomenclature of grand action, assessment of project instruments, preparation of grand action for regulation, continuation and expansion of concepts used in REGULATION I including key leveling, regulation of action parts, damper regulation, pedal regulation, key weighting, key bedding, and introduction to action geometry.

### **REPAIRS, UPGRADES, AND REPLACEMENT I**

- a. This course will focus on repairs and replacement of the mechanical workings of the upright piano, and will combine theory with practical application.
- b. The student will gain an understanding of basic woodworking skills, shop safety, and the use of hand tools for simple repairs.
- c. Topics include: action assessment and preparation, keyboard repair (keys, ivories, and bushings), center pinning, replacement and installation of damaged action parts, hammer shank replacement, Metric & Imperial Measures, using a digital micrometer, steel & bass string replacement, splicing of bass strings, pedal repair, and preparation for regulation.

### **REPAIRS, UPGRADES, AND REPLACEMENT II**

- a. This course is a continuation of the theory and techniques of REPAIRS I, with focus on repairs and replacement of the mechanical workings of the grand piano; students will combine theory with practical application.
- b. Topics include: string scaling and design, bass string winding, keyboard review, repair, and replacement (ivory, bushing and backcheck), cabinet repair including polyester, installation of new dampers, action geometry, installation of new action parts, and preparation for regulation.

## PIANO TUNING I

- a. Students will gain an understanding of the theory and practical skills required in the process of adjusting the tension on the strings of the piano. This course combines theory and practical application.
- b. Topics include: an introduction to the fundamental concepts and requirements for tuning a piano, introduction to tuning tools, friction & torque, pin setting, string setting, tuning of unisons and octaves, circles of 4ths and 5ths, tempered circles of 4ths and 5ths, widened and narrowed intervals, introduction of temperament, refinement of temperament, treble tuning, bass tuning, and tuning the entire piano.
- c. Students will gain an understanding of how to maintain an ergonomically designed work space, posture, and awareness of hearing acuity and protection.

## PIANO TUNING II

- a. Students will continue to develop and refine the practical skills required to tune a piano to its optimal performance level through a combination of theory and practical application.
- b. Topics include: tuning pin setting, string setting, techniques for adjusting the temperament for different pianos, refined tests for treble and bass tuning, octave stretching, methods for increased speed, use of mutes, and voicing.
- c. Introduction to historical tunings and ETDs (electronic tuning devices)

## INTONATION I

- a. This course focuses on the theory and practical skills required to control the tonal qualities of the piano.
- b. Topics include: piano hammer design and manufacturing methods, tonal quality of hammers, analysis of hammers, hammer shaping, carding and fitting hammers to strings for best tonal results. This course combines theory and practice.
- c. Global piano construction over the years with differences and influences on tone.
- d. Concert & listening lab analyzing piano tone with written critiques.

## INTONATION II

- a. This course develops and refines the voicing skills required to prepare a piano hammer and string to enhance the optimum tonal qualities of the instrument.
- b. Topics covered include hammer selections, voicing (preparation of hammers, use of tools, voicing for different types of hammers, and result of different methods and techniques) and analysis of piano sound.

## WORKSHOPS

### 1. BUSINESS ASPECTS

- a. This workshop will focus on the business aspect of the piano technician's work with close consultation from experienced technician sole proprietors.
- b. Topics include establishing a business model, advertising, collaboration and networking with colleagues and industry partners.

### 2. ERGONOMICS AND AUDIOLOGY

- a. This workshop will focus on creating an ergonomically efficient workspace, establishing and maintaining a healthy dynamic posture, and the importance of hearing awareness and protection. Outside professionals will provide expertise and guidance.

### 3. HYBRID AND REPRODUCING PIANOS

- a. This workshop will review the latest developments in piano technology and electronics.
- b. Lectures and demonstrations will be provided by technical directors and managers from industry partners including Kawai, Yamaha and Steinway,.

## INDUSTRY PARTICIPATION

Recognized individual industry specialists, representatives and technical directors from industry partners will provide both theoretical and practical instruction and guidance on varying topics such as advanced intonation, key bedding, action geometry, regulation techniques and topics specific to instruments and materials to their 'BRAND' and what may be encountered in the concert hall and private environment.

Potential partners may include, C Bechstein Germany, JD Grandt, Paul Hahn Co, Kawai America, Renner USA, Royal Conservatory of Music Toronto, University of Toronto, Steinway NY, Yamaha Canada, and others.

Lectures and/or workshops will be presented on site at the Don Wright Faculty of Music or may involve class trips to selected industry locations.