American College of Prosthodontics
Digital Curriculum Development
Framework-Content

Developed by

Gerald Grant, Ramtin Sadid-Zadeh, Judy Yuan, Rick Windhorn, Alan Furness,
Walter Renne
Introduction

The primary intent of this document is to provide dental schools with the information they need to develop curriculum on Digital Dentistry. The document provides a comprehensive list of topic and gives the opportunity to dental schools to pick and choose what elements they think is necessary for their particular school and to organize the overall curriculum to incorporate objectives, metrics, and knowledge base.

The secondary intent of this outline is to provide guidance to individuals as to what type of document they could provide American College of Prosthodontics to share on Prosthopedia. Documents maybe shared in the following formats: handouts, reading lists, powerpoints, and videos.

Summary of the framework-content

- Foundational Knowledge of Digital Dentistry
- Educational and Self-Assessment tools
- Applying Science in Digital Dentistry
- Step-by-Step of Computer Aided Design/Computer Aided Manufacturing
- Step-by-Step Protocol for Implant Planning
Framework-Content

Foundational Knowledge of Digital Dentistry
- History of Digital Dentistry
- Fundamentals of digital dentistry
- Terminology (Glossary)
- Imaging (Photography, Radiology, Surface)
- Science behind scanning
  Chairside
  Laboratory
  Facial
- Science behind production
  Milling
  3D Printing
- Over view on digital systems
  Workflows
  Modern digital lab and office
- Basics of 3D Radiology
- Electronic Health Record
- Assessment and diagnosis of CBCT and digital radiograph
- Merging datasets — DICOM, stl, etc

Educational and Self-Assessment tools
- Scanning and Comparing
- Dental Anatomy (Digital assessment of wax-up)
- Tooth Preparations (Digital assessment of tooth preparation)
- Virtual Occlusion (learning tool)
- Removable Partial Design (learning tool)
- Complete denture tooth set up (learning tool)

Applying Science in Digital Dentistry
- Fundamentals of tooth preparation
  Full coverage restoration
  Partial coverage restoration
- Materials used for production
  Metal alloy
  Ceramic
  Composite Resin
PMMA
Wax pattern
-Luting Agent

**Digital Impression**
-Chairside Digital Impression
  *Tissue management*
  *Technique*
  *Abutment tooth*
  *Implant*
  *Errors*
  *Maintenance*
-Lab side surface imaging
  *Abutment tooth*
  *Implant*
  *Full arch edentulous*
  *Partial Denture*
  *Maintenance*

**Computer aided Design**
-Single tooth
  *Full coverage*
  *Partial Coverage*
-Partial Fixed Dental Prosthesis
-Model Builder
-Complete Denture
-Partial Denture
-Surgical guide
-Occlusal Device
-Implant Restoration
  *Abutment- Restoration (cement retained)*
  *Screw Retained single crown*
  *Partial Fixed Dental Prosthesis*
  *Fixed full arch*
  *Bar*

**Computer aided manufacturing**
-Milling units
  *3, 4 and 5 axes milling units*
  *Dry and wet milling units*
  *Burs for production*
  *Maintenance*
  *Production*
Study model
Single restoration
Partial Fixed Dental Prosthesis
Complete Denture
Partial Denture
Implant Restoration
  Abutment- Restoration (cement retained)
  Screw Retained single crown
  Partial Fixed Dental Prosthesis
  Fixed full arch
  Bar
-3D printing

Production
Study model
Master (definitive) model
  Tooth born
  Implant
Partial Denture Framework
  Single crown
  Occlusal Device
  Surgical guide
  Others

Maintenance

Processing protocols
-Processing machines
  Zirconia
  Metal alloy
  Ceramic
-Stain and Glaze Protocol
  Zirconia
  Ceramic
  Composite Resin

Single Unit Full Coverage- Anterior and Posterior
-Current workflows
-Procedure from start to insertion
-Laboratory communication

Fixed Partial Dental Prosthesis
-Current workflows
-Procedure from start to insertion
-Laboratory communication
Complex fixed restorations
  - Current workflows
  - Procedure from start to insertion
  - Laboratory communication

Implant supported single restorations
  - Current workflows
  - Radiographic/CBCT analysis and Interpretation
    Prosthetic guided planning and placement
    Surgical guide fabrication and utilization
  - Procedure from start to insertion
  - Insertion and maintenance
  - Laboratory communication

Implant supported removable and fixed –Full arch
  - Current workflows
  - Diagnosis and treatment planning
  - Radiographic/CBCT analysis and Interpretation
    Prosthetic guided planning and placement
    Surgical guide fabrication and utilization
  - Procedure from start to insertion
  - Insertion and maintenance
  - Laboratory communication

Removable Dental Prosthesis
  - Current workflows
  - Procedure from start to insertion
  - Laboratory communication

Complete Dentures
  - Current workflows
  - Procedure from start to insertion
  - Laboratory communication

Digital Smile Analysis
  - Current workflows
  - Procedure from start to insertion
  - Laboratory communication