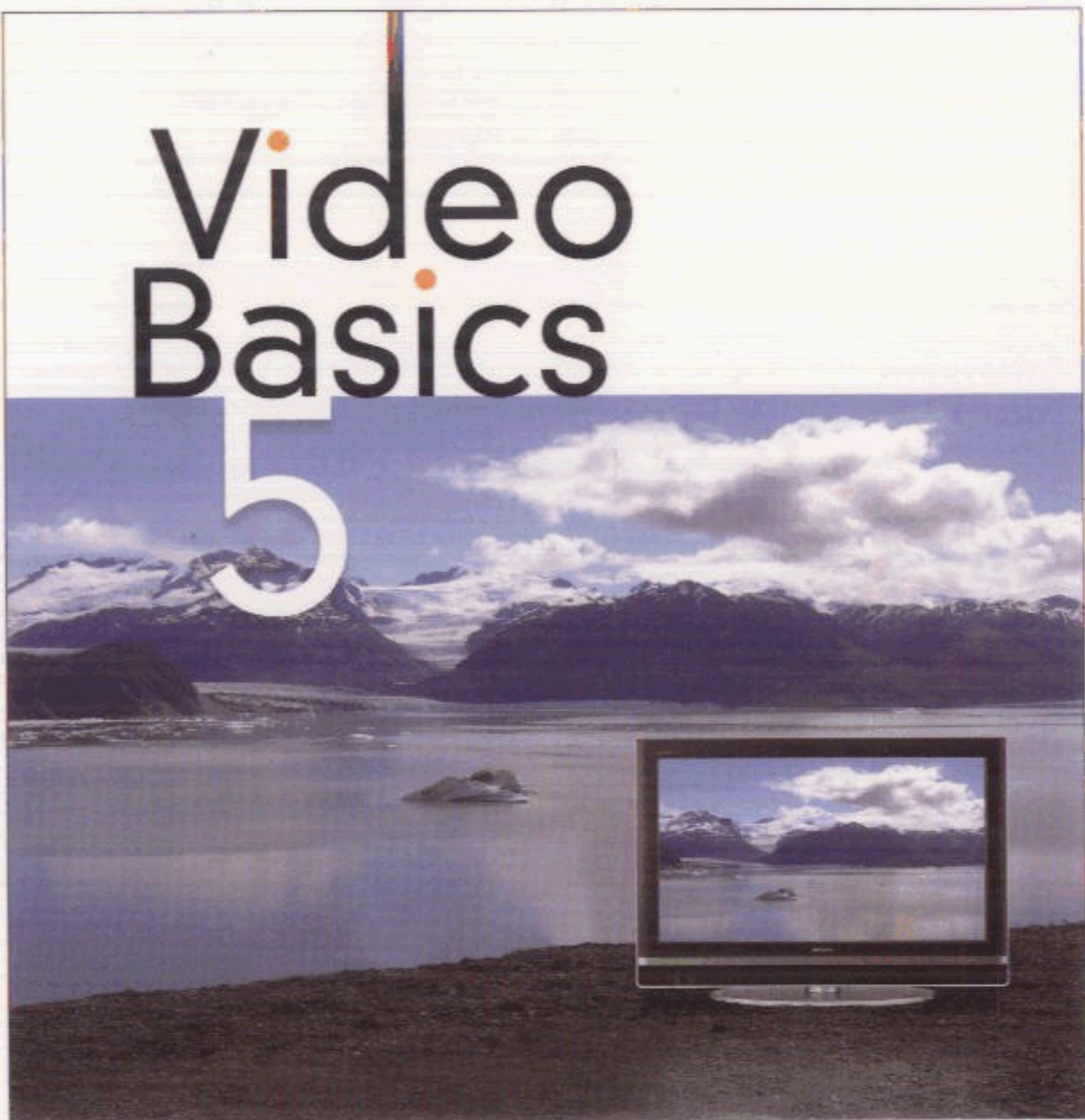


INTERNATIONAL STUDENT EDITION

Video Basics

5



Zettl

**Not for Sale in the
United States**

Contents

About the Author xiii

Preface xiv

PART 1 **Production: Processes and People** **1**

CHAPTER 1 **The Production Process** **2**

THE PRODUCTION MODEL	4
THE PRODUCTION PHASES	4
IMPORTANCE OF PREPRODUCTION	5
PREPRODUCTION: FROM IDEA TO SCRIPT	6
Program Objective	6
Angle	7
Evaluation	7
Script	8
PREPRODUCTION: FROM SCRIPT TO PRODUCTION	8
Medium Requirements	8
Budget	8
GENERATING IDEAS ON DEMAND	9
Brainstorming	9
Clustering	10
THE CONVERGENCE OF STUDIO AND FIELD PRODUCTION	12

CHAPTER 2 **The Production Team: Who Does What When?** **16**

PRODUCTION TEAMS	18
Preproduction Team	20
Production Team	24
Postproduction Team	24
PASSING THE BUCK	25
TAKING AND SHARING RESPONSIBILITY	27
PRODUCTION SCHEDULE AND TIME LINE	29
INTERVIEW PRODUCTION SCHEDULE	29
TIME LINE: MARCH 9—INTERVIEW (STUDIO 1)	30

PART II **Image Creation: Digital Video and Camera** **35**

CHAPTER 3 **Image Formation and Digital Video** **36**

BASIC IMAGE FORMATION 37

- Scanning Process 38
- Digital Video Scanning Systems 40
- Flat-panel Screens 42

WHAT IS DIGITAL? 42

- The Difference Between Analog and Digital 43

WHY DIGITAL? 44

- Picture Quality in Dubs 44
- Compression 45
- Picture and Sound Manipulation 46

CHAPTER 4 **The Video Camera** **48**

BASIC CAMERA FUNCTION AND ELEMENTS 49

- Function 49
- Lens 51
- Imaging Device 54
- Video Signal Processing 56
- Viewfinder 57

TYPES OF CAMERAS 58

- Camcorders 58
- Studio Cameras 60
- Field Cameras 62
- ENG/EFP Cameras 63
- HDTV Cameras 65

CHAPTER 5 **Operating the Camera** **68**

BASIC CAMERA MOVEMENTS 70

CAMERA MOUNTS AND HOW TO USE THEM 73

- Handheld and Shoulder-mounted Camera 73
- Tripod-supported Camera 76
- Special Camera Mounts 80
- Studio Pedestal 82
- Robotic Studio Pedestal 84

OPERATIONAL FEATURES 84

- Focusing 85
- Adjusting Shutter Speed 86
- Zooming 87
- White-balancing 87

GENERAL GUIDELINES 88

- CHECKLIST: CAMCORDERS AND ENG/EFP CAMERAS 88*
- CHECKLIST: STUDIO CAMERAS 89*

CHAPTER 6 Looking Through the Viewfinder 92

FRAMING A SHOT 94

- Aspect Ratio 94
- Field of View 95
- Vectors 96
- Composition 98
- Psychological Closure 103

MANIPULATING PICTURE DEPTH 105

- Defining the Z-axis 105
- Lenses and Z-axis Length 106
- Lenses and Depth of Field 106
- Lenses and Z-axis Speed 108

CONTROLLING CAMERA AND OBJECT MOTION 108

- Controlling Camera Movement and Zooms 108
- Controlling Object Motion 110

PART III Image Creation: Sound, Light, Graphics, and Effects 113

CHAPTER 7 Audio and Sound Control 114

SOUND PICKUP PRINCIPLE 116**MICROPHONES 116**

- How Well Mics Hear: Sound Pickup 116
- How Mics Are Made 118
- How Mics Are Used 120

SOUND CONTROL 129

- Manual Volume Control 131
- Audio Mixer 131
- Audio Console 134
- Cables and Patch Panel 136

SOUND RECORDING 138

- Analog Recording Equipment 138
- Digital Audio Production Equipment 139

SYNTHESIZED SOUND 143**SOUND AESTHETICS 143**

- Context 143
- Figure/Ground 144
- Sound Perspective 144
- Continuity 144
- Energy 145

CHAPTER 8 Light, Color, and Lighting 148

LIGHT 150

- Types of Light 150
- Light Intensity 150
- Measuring Illumination 151
- Contrast 152

SHADOWS 153

- Attached Shadows 153
- Cast Shadows 155
- Falloff 156

COLOR 156

- Additive and Subtractive Color Mixing 157
- Color Television Receiver and Generated Colors 157
- Color Temperature and White-balancing 158

LIGHTING INSTRUMENTS 160

- Spotlights 161
- Floodlights 164
- Special-purpose Spotlights and Floodlights 166

LIGHTING TECHNIQUES 168

- Operation of Lights 168
- CHECKLIST: LIGHTING SAFETY* 169
- Studio Lighting 170
- Field Lighting 176
- GUIDELINES: FIELD LIGHTING* 180

CHAPTER 9 Graphics and Effects 184

PRINCIPLES OF GRAPHICS 186

- Aspect Ratio 186
- Essential Area 186
- Readability 187
- Color 189
- Animated Graphics 190
- Style 190

STANDARD ELECTRONIC VIDEO EFFECTS 190

- Superimposition 190
- Key 191
- Wipe 194

DIGITAL EFFECTS 196

- Digital Image Manipulation Equipment 196
- Common Digital Video Effects 197
- Synthetic Image Creation 198

PART IV Image Control: Switching, Recording, and Editing 203

CHAPTER 10 Switcher and Switching 204

PRODUCTION SWITCHER 205

BASIC SWITCHER FUNCTIONS 207

SWITCHER LAYOUT 208

- Program Bus 208
- Preview Bus 209
- Key Bus 210
- Fader Bar and Auto-transition 210
- Delegation Controls 210

SWITCHER OPERATION 211

- Working the Program Bus: Cuts-only 211
- Working the Mix Buses: Cuts 212
- Working the Mix Buses: Dissolves 213
- Working the Effects Bus: Wipes 214
- Working the Key Bus: Keys 214
- Working the Downstream Keyer 216
- Chroma Keying 216
- Special Effects 216

CHAPTER 11 Video Recording 218

VIDEOTAPE-RECORDING SYSTEMS 220

- Tape- and Tapeless Recording Systems 220
- Basic Videotape Tracks 220
- Composite, Y/C Component, and Y/Color Difference Component Recording Systems 222
- Types of Videotape Recorders 224
- Time Base Corrector 225
- Tape Format and Quality 228

VIDEOTAPE-RECORDING PROCESS 228

- THE "BEFORE" CHECKLIST 228*
- THE "DURING" CHECKLIST 230*
- THE "AFTER" CHECKLIST 234*

NONLINEAR STORAGE SYSTEMS 234

- Computer Disks and Video Servers 234
- Flash Memory Devices 235
- Read/Write Optical Discs 236
- Electronic Still Store Systems 236

USE OF VIDEO RECORDING 236

- Multimedia 237
- Interactive Video 237

CHAPTER 12 Postproduction: Linear and Nonlinear Editing 240

LINEAR EDITING 242

- Single-source Linear System 242
- Multiple-source Linear System 245
- Pulse-count and Address Code 246
- Assemble Editing 248
- Insert Editing 249

NONLINEAR EDITING 250

- Nonlinear Editing System 250
- Nonlinear Editing Phase 1: Capture 254
- Nonlinear Editing Phase 2: Editing 255
- Nonlinear Editing Phase 3: Export to Videotape or Disc 256

POSTPRODUCTION PREPARATIONS 256

- PRODUCTION TIPS TO MAKE POSTPRODUCTION EASIER* 258

OFF-LINE AND ON-LINE EDITING 262

- Off-line Editing Procedures 262
- On-line Editing Procedures 264

CHAPTER 13 Editing Principles 268

EDITING PURPOSE 269

EDITING FUNCTIONS 270

- Combine 270
- Condense 270
- Correct 270
- Build 271

AESTHETIC PRINCIPLES OF CONTINUITY EDITING 271

- Mental Map 271
- Vectors 274
- On- and Off-screen Positions 278

AESTHETIC PRINCIPLES OF COMPLEXITY EDITING 283

- Intensifying an Event 284
- Supplying Meaning 286

PART V Production Environment: Studio, Field, and Synthetic 289

CHAPTER 14 Production Environment: The Studio 290

VIDEO PRODUCTION STUDIO 292

- Physical Layout 292
- Major Installations 294

STUDIO CONTROL ROOM 296

- Image Control 296
- Sound Control 299

MASTER CONTROL	300
STUDIO SUPPORT AREAS	302
Scenery and Property Storage	302
Makeup	302
SCENERY, PROPERTIES, AND SET DRESSINGS	302
Scenery	303
Properties	306
Set Dressings	307
SET DESIGN	307
Program Objective	307
Floor Plan	308
Prop List	310
Using the Floor Plan for Setup	310
Evaluating the Floor Plan	311

CHAPTER 15 **Production Environment: Field and Computer-generated** **316**

ELECTRONIC NEWS GATHERING	318
News Gathering	318
Transmission	318
ELECTRONIC FIELD PRODUCTION	320
Preproduction: Remote Survey	320
Production: Shooting	321
<i>CHECKLIST: FIELD PRODUCTION EQUIPMENT</i>	324
Postproduction: Wrap-up	329
BIG REMOTES	329
SYNTHETIC ENVIRONMENTS	331
Computer-generated Settings	332
Virtual Reality	332
Computer-controlled Environments	332

PART VI **Production Control: Talent and Directing** **337**

CHAPTER 16 **Talent, Clothing, and Makeup** **338**

PERFORMING TECHNIQUES	340
Performer and Camera	340
Audio and Lighting	341
Timing and Prompting	343
ACTING TECHNIQUES	349
Environment and Audience	349
Close-ups	350
Repeating Action	351

AUDITIONS	351
CLOTHING	352
Texture and Detail	352
Color	353
MAKEUP	353
Technical Requirements	354
Materials	354

CHAPTER 17 **Putting It All Together: Directing** **356**

REVISITING THE PROGRAM OBJECTIVE	358
Program Objective and Angle	358
Script Formats	358
VISUALIZATION	365
PREPARING FOR A MULTICAMERA STUDIO PRODUCTION	367
CONTROL ROOM DIRECTING	373
Terminology	373
Time Line	373
Rehearsals	378
Directing the Multicamera Show	381
SINGLE-CAMERA DIRECTING	383
Major Differences	383
Single-camera Studio Directing	384
Single-camera Field Production	385
Interview	386
Documentary	387
Epilogue	390
Glossary	391
Index	402
Photo Credits	412