

1 Patient Selection	1
1.1 Social Conditions	1
1.2 Economic Conditions	1
1.3 Psychological Conditions	1
1.4 Indication	2
1.4.1 Age	2
1.4.2 Physical Conditions	3
1.4.3 Knee Joint Conditions	4
1.4.4 Surgeon's Experience	10
1.5 Contraindications	10
Bibliography	11
2 Implant Selection	13
2.1 Material	13
2.1.1 Metal	13
2.1.2 Ceramic	15
2.1.3 Polyethylene (Ultrahigh Molecular Weight Polyethylene: UHMWPE, PE)	15
2.1.4 Bone Cement (Polymethylmethacrylate, PMMA)	19
2.2 Design	22
2.2.1 Introduction	22
2.2.2 Anatomy and Biomechanics	23
2.2.3 Factors to Be Considered in Implant Design	24
2.3 Design of Each Component	38
2.3.1 Femur	38
2.3.2 Tibia	41
2.3.3 Spacer (Polyethylene)	45
2.3.4 Patella	46
2.3.5 Size Matching	47
2.3.6 Options	48
2.3.7 Design to Increase Knee Flexion	51
2.4 Surgical Instruments	53
2.4.1 Surgical Instruments for Use in TKA	53
2.4.2 Implant-Specific Surgical Instruments	59
Bibliography	60
3 Preparation for the Operation	67
3.1 Admission Checkup	67
3.1.1 History Taking	67
3.1.2 Physical Examination	68
3.1.3 Preoperative Evaluation	68

3.2	Final Decision.	68
3.3	Outcome Study	71
3.3.1	HSS Score.	71
3.3.2	Knee Society Score.	73
3.3.3	Knee Society Total Knee Arthroplasty Roentgenographic Evaluation System	74
3.3.4	WOMAC Score (The Western Ontario and McMaster Universities Osteoarthritis Index Score).	76
3.3.5	SF-36 (36-Item Short-Form Health Survey) or MOS (Medical Outcomes Study).	77
3.3.6	Patellofemoral Scoring System	78
3.3.7	Miscellaneous Methods	78
3.4	Patient Education	79
3.5	Final Checkup for the Operation	79
3.5.1	Consent Form	79
3.5.2	Medical Preparation	80
3.5.3	Preparation for Anesthesia	80
3.5.4	Knee Joint Preparation	81
	Bibliography	81
4	Surgical Techniques	83
4.1	Drape	83
4.2	Surgical Approach	83
4.2.1	Skin Incision.	84
4.2.2	Arthrotomy	86
4.2.3	Ancillary Procedures	89
4.3	Soft Tissue Procedure.	92
4.3.1	Cruciate Ligament Treatment.	92
4.3.2	Meniscectomy.	92
4.3.3	Soft Tissue Release.	93
4.3.4	Fat Pad Removal.	94
4.3.5	Removal of Posterior Soft Tissues	94
4.4	Osteotomy and Bone Preparation.	95
4.4.1	Osteotomy.	95
4.4.2	Osteotomy of Each Bone and Preparation for Fixation	100
4.5	Balancing	117
4.5.1	Flexion and Extension Gap Balancing	117
4.5.2	Mediolateral Balancing	120
4.5.3	Patellofemoral Balancing	126
4.6	Fixation.	129
4.6.1	Fixation Methods	129
4.6.2	Cementing Techniques	129
4.7	Closure	132
4.7.1	Hemostasis	132
4.7.2	Hemovac Insertion	132
4.7.3	Suturing Technique.	132
4.8	Miscellaneous Techniques	132
4.8.1	Methods for Increasing the ROM.	133
4.8.2	Techniques for the Mobile-Bearing Joint.	135
4.8.3	Techniques for the Posterior Cruciate-Substituting Type.	136
	Bibliography	137

5 TKA in Specific Conditions	143
5.1 Bone Defects	143
5.1.1 Introduction	143
5.1.2 Classification	143
5.1.3 Diagnosis	144
5.1.4 Principles and Methods of Treatment	145
5.1.5 Surgical Methods of Each Bone	152
5.2 Deformity	159
5.2.1 Intra-articular Deformity	160
5.2.2 Extra-articular Deformity	168
5.3 Ankylosis	172
5.3.1 Indication	173
5.3.2 Prognostic Factors	173
5.3.3 Surgical Techniques	174
5.4 Miscellaneous Conditions and Diseases	176
5.4.1 Osteopenia	176
5.4.2 Previous Knee Operation	178
5.4.3 Ankylotic Hip	182
5.4.4 Miscellaneous Diseases	183
5.5 Tumor Prosthesis	186
5.5.1 Indication	186
5.5.2 Type and Composition	187
5.5.3 Surgical Techniques	187
5.5.4 Results	189
Bibliography	191
6 Unicompartmental Knee Arthroplasty	195
6.1 Unicompartmental Knee Arthroplasty	195
6.1.1 Introduction	195
6.1.2 Implant	196
6.1.3 Indications	198
6.1.4 Surgical Technique	200
6.1.5 Postoperative Care	205
6.1.6 Complications	205
6.1.7 Prognosis	207
6.2 Patellofemoral Arthroplasty	208
6.2.1 Overview	208
6.2.2 Design	209
6.2.3 Indication	209
6.2.4 Surgical Technique	210
6.2.5 Postoperative Care	210
6.2.6 Complications	211
6.2.7 Prognosis	211
6.3 Bicompartamental Knee Arthroplasty	211
Bibliography	212
7 Postoperative Management	215
7.1 Postoperative Care	215
7.1.1 Early Stage	216
7.1.2 Midterm Stage	218
7.1.3 Late Stage	223
7.2 Education	223
7.3 Follow-Up	224
Bibliography	225

8 Complications	227
8.1 Systemic Complications	227
8.1.1 Deep Vein Thrombosis	227
8.1.2 Fat Embolism Syndrome	231
8.2 Knee Joint Complications	231
8.2.1 Pain	231
8.2.2 Swelling	234
8.2.3 Motion Limitation	234
8.2.4 Instability and Dislocation	236
8.2.5 Vascular Complications	238
8.2.6 Nerve Palsy	239
8.2.7 Component Breakage	239
8.2.8 Complications of the Extensor Mechanism	239
8.2.9 Hematoma and Wound Drainage	243
8.2.10 Superficial Infection and Skin Necrosis	243
8.2.11 Deep Infection	245
8.2.12 Aseptic Loosening	252
8.2.13 Wear	253
8.2.14 Osteolysis	255
8.2.15 Heterotopic Ossification	257
8.2.16 Periprosthetic Fracture	257
8.3 Results	268
Bibliography	268
9 Revision Arthroplasty	275
9.1 Introduction	275
9.2 Revision for Aseptic Failure	276
9.2.1 Preoperative Checkup	276
9.2.2 Surgical Procedure	277
9.3 Revision of Unicompartamental Knee Arthroplasty (UK)	287
9.4 Revision of Infected TKA	287
9.4.1 One-Stage Revision TKA	288
9.4.2 Two-Stage Revision TKA	289
Bibliography	294
10 Optional Techniques	297
10.1 Introduction	297
10.2 Computer Assisted Orthopedic Surgery	297
10.2.1 Overview	297
10.2.2 History	298
10.2.3 Type	298
10.2.4 Indication	305
10.3 Result	306
10.3.1 Future of CAOS	306
10.4 Minimally Invasive Surgery	307
10.4.1 Overview	307
10.4.2 History	307
10.4.3 Indication	307
10.4.4 Surgical Technique	307
10.4.5 Postoperative Care	310
10.5 Result	310
Bibliography	311
About the Author	315
Index	317