Outline – EM 1110-2-1100 Part VI
757 pages total

Chapter 1 – Introduction to Coastal Project Element Design – 7 pages

VI-1-1. Introduction to Part VI VI-1-1
VI-1-2. References VI-1-5
VI-1-3. Acknowledgements VI-1-5
VI-1-4. Symbols VI-1-5

Chapter 2 – Types and Functions of Coastal Structures – 64 pages

VI-2-1. Applications VI-2-1
VI-2-2. Typical Cross Sections and Layouts VI-2-8
VI-2-3. Main Types of Concrete Armor Units VI-2-24
VI-2-4. Failure Modes of Typical Structure Types VI-2-26
VI-2-5. References VI-2-55
VI-2-6. Acknowledgments VI-2-56

Chapter 3 – Site Specific Design Conditions – 26 pages

VI-3-1. Foundation/Geotechnical Requirements VI-3-1
VI-3-2. Seasonal Profile Variation VI-3-8
VI-3-3. Flanking Possibility VI-3-9
VI-3-4. Seismic Activity VI-3-10
VI-3-5. Ice VI-3-11
VI-3-6. Environmental Considerations VI-3-14
VI-3-7. Construction Considerations VI-3-15
VI-3-8. Other Design Considerations VI-3-19
VI-3-9. References VI-3-21
VI-3-10. Acknowledgments VI-3-22

Chapter 4 – Materials and Construction Aspects – 73 pages

VI-4-1. Material Requirements VI-4-1
VI-4-2. Earth and Sand VI-4-9
VI-4-3. Stone VI-4-16
VI-4-4. Portland Cement Concrete and Bituminous Concrete VI-4-28
VI-4-5. Steel and Other Metals VI-4-40
VI-4-6. Wood VI-4-47
VI-4-7. Geotextiles and Plastics VI-4-53
VI-4-8. References VI-4-65
VI-4-9. Acknowledgements VI-4-68
VI-4-10. Symbols VI-4-69

Chapter 5 – Fundamentals of Design – 364 pages

VI-5-1. Introduction VI-5-1
VI-5-2. Structure Hydraulic Response VI-5-3
VI-5-3. Rubble-Mound Structure Loading and Response VI-5-59
VI-5-4. Vertical-Front Structure Loading and Response VI-5-145
VI-5-5. Foundation Loads VI-5-192
VI-5-6. Scour and Scour Protection VI-5-252
VI-5-7. Wave Forces on Slender Cylindrical Piles VI-5-278
VI-5-8. Other Forces and Interactions VI-5-309
VI-5-9. References VI-5-320
VI-5-10. Acknowledgements VI-5-352
VI-5-11. Symbols VI-5-353

Chapter 6 – Reliability Based Design of Coastal Structures – 56 pages

VI-6-1. Introduction VI-6-1
VI-6-2. Failure Modes and Failure Functions VI-6-2
VI-6-3. Single Failure Modes Probability Analysis VI-6-3
VI-6-4. Failure Probability Analysis of Failure Mode Systems VI-6-15
VI-6-5. Parameter Uncertainties in Determining the Reliability of Structures VI-6-22
VI-6-6. Partial Safety Factor System for Implementing Reliability in Design VI-6-26
VI-6-7. References VI-6-49
VI-6-8. Acknowledgments VI-6-50
VI-6-9. Symbols VI-6-50

Chapter 7 – Example Problems, 93 pages

VI-7-1. Introduction VI-7-1
VI-7-2. Wave Runup VI-7-2
VI-7-3. Wave Overtopping VI-7-21
VI-7-4. Armor Layer Stability VI-7-29
VI-7-5. Stability of Vertical Walled Bulkheads and Caissons VI-7-70
VI-7-6. Forces on Cylindrical Piles VI-7-86
VI-7-7. References VI-7-89
VI-7-8. Acknowledgements VI-7-91
VI-7-9. List of Symbols VI-7-91

Chapter 8 – Monitoring, Maintenance, and Repair of Coastal Projects – 74 pages

VI-8-1. Maintenance of Coastal Projects VI-8-1
VI-8-2. Inspecting and Monitoring Coastal Structures VI-8-3
VI-8-3. Repair and Rehabilitation of Coastal Structures VI-8-37
VI-8-4. References VI-8-60
VI-8-5. Acknowledgments VI-8-67
VI-8-6. Symbols VI-8-67