

Contents

Table of figures	11
Tables	13
Introduction	15
PART I	19
1. Construction and development projects management:	
introduction, definitions and approaches	19
1.1. Definitions	19
a) Project	19
b) Project management	20
c) Construction project management	22
d) Development project management	24
1.2. Approaches	25
1.3 Revision questions	26
2. Construction industry: overview and actual trends	
(macroeconomic, social, environmental, demographic and technical factors)	27
2.1. Construction industry: overview	27
a) Importance	27
b) Classification	31
c) Characteristics and changing structure of the construction industry in Poland. . . .	35
2.2 Actual trends	39
a) Technological (efficiency due to technology)	42
b) Macroeconomic factors	42
c) Social and demographic factors	46
d) Environmental	49
2.3 Revision questions	52
3. Specific managerial aspects of construction & development projects:	
communication and ethics	53
3.1 Communication aspects	53
3.2 Ethical aspects	57
3.3 Revision questions	67
4. Green building: history, importance and its influence	
on different segments of construction and development projects.	68
4.1 What is green building? (definitions, understanding and misunderstandings)	68
4.2 Green building – factors and institutions responsible for its development	69

4.3 Certification of buildings (BREEAM, LEED)	73
a) US green building standard: LEED.	73
b) EU rating systems: Green Building Program and BREEAM	76
4.4 Revision questions	79
5. Project participants – owners, design professionals, construction professionals, other participants, A/E firm	80
5.1 Introduction	80
5.2 The owner's team	81
5.3 The designer's team	82
5.4 The contractor's team	84
a) Project manager.	84
b) Superintendent	85
c) Foremen	85
d) Field engineers, assistant superintends	85
5.5 Other players	86
a) Authorities having jurisdiction (AHJ)	86
b) Manufacturers/fabricators/product representatives and suppliers	87
c) Testing and inspecting agencies	88
d) Commissioning agents.	89
5.6 The relation.	89
5.7 Revision questions	90
PART II	91
6. Stages of Construction and Development Projects – overview	91
6.1 Project life cycle – different classifications	91
6.2. The main stages of the construction project	98
a) Pre-project phase.	98
b) Planning and design phase	99
c) Contractor selection phase	100
d) Project mobilization phase	100
e) Project operations phase	100
f) Project closeout and termination phase	101
6.3. Revision questions	103
7. First stage: Project feasibility and associated problems	104
7.1 Introduction	104
7.2 Main issues	105
a) Needs assessment	106
b) Site selection	107
c) Financial feasibility.	107
d) Schedule feasibility.	108
e) Regulatory requirements.	108
f) Community values	111

7.3 Project delivery methods	112
a) Design-bid-build (traditional DM) DBB.....	113
b) Design-build	114
c) Construction management (CM).....	116
d) Integrated project delivery.....	118
7.4 Polish issues	119
7.5 Revision questions.....	119
8. Second stage: Programming & Design and connected issues	120
8.1 Programming	120
8.2 Design	121
a) Drawings.....	121
(1) Plans	122
(2) Elevations	124
(3) Sections.....	126
b) Phases	127
(1) Schematic design	127
(2) Design development	127
(3) Final design	127
8.3 Polish issues	129
8.4 Revision questions.....	130
9. Third stage: Bidding and award of prime contract	132
9.1. Bidding	132
a) Examples.....	132
(1) Bid package – broad example	132
(2) Bid package – detailed example.....	134
b) Bidding process	137
(1) Architect completes bid package.....	138
(2) Owner solicits bids	139
(3) Contractor review bid documents	140
(4) Contractors develop and submit bids.....	141
(5) Owner analyzes bids and awards contract.....	142
c) Negotiating	143
9.2 Contractors.....	143
9.3 Estimating.....	149
a) Sorts of costs.....	150
(1) Direct costs.....	150
(2) Indirect Project Costs	153
(3) Indirect Business Costs (overhead).....	153
b) Sources of cost estimation	154
(1) Field generated data	154
(2) Purchased cost data.....	154
(3) Subcontractors and suppliers.....	155

c) Checklist for good estimation and value engineering	155
d) Life-cycle approach to the cost estimation.	155
e) Creating estimates	157
(1) Issues by making an estimation.	157
(2) Stages of estimation.	158
(f) Detailed estimates.	160
9.4 Contract Documents.	161
a) Contracts.	161
b) Construction documents: The Agreement.	164
c) Construction documents: General and Supplementary Conditions	164
d) Construction documents: The Specifications	165
9.5 Vocabulary	166
9.6 Revision questions	168
10. Fourth stage: Pre-construction and mobilization	170
10.1 Introduction	170
10.2 Subcontracting	173
10.4 Insurances.	176
10.5 Mobilization	178
10.6 Vocabulary	179
10.7 Revision questions.	179
11. Fifth stage: Construction.	181
11.1 Payments.	181
a) Contract types and payment	184
b) Payment procedures	185
11.3 Changes in the work	187
11.4 Claims, disputes, mechanics liens	189
a) Claim	189
b) Disputes	189
c) Mechanic's lien	190
11.5 Vocabulary	191
11.6 Revision questions.	191
12. Sixth stage: Close-out and Occupancy	193
12.1 Construction closeout.	194
a) Completion of the physical work.	194
b) Substantial completion	194
c) System testing	195
d) Certificate of occupancy.	195
e) Demobilization and final cleaning.	195
12.2 Contract closeout.	196
12.3 Contractor's closeout.	197
12.4 Occupancy	197

12.5 Vocabulary	198
12.6 Revision questions	199
13. Scheduling	200
13.1 Who and why the schedule is developed?	200
13.2 How is the schedule developed: Types Forms and levels	201
a) A master construction schedule	201
b) A summary schedule (bar chart).	202
c) Look-ahead schedules	202
13.3 The graphical forms of the schedules	203
a) Bar chart	203
b) Gantt chart	203
c) Network diagrams	204
d) Critical Path Method.	205
13.4. Vocabulary.	207
13.5. Revision questions	207
BIBLIOGRAPHY	208