

# Contents

|          |   |     |
|----------|---|-----|
| 1        | A Simple Programming Example . . . . .                                | 1   |
| 2        | Whole Numbers, Analysis of Arithmetic Expressions . . . . .           | 5   |
| 3        | GOTO-Statement, Loops, and BOOLEAN Variables . . . . .                | 9   |
| 4        | Polynomials, Vectors, and Matrices . . . . .                          | 18  |
| 5        | Input of Data Cards (Standard Input) . . . . .                        | 25  |
| 6        | Printout (Standard Output) . . . . .                                  | 32  |
| 7        | Treating Texts . . . . .  | 37  |
| 8        | Program Structure: Compound Statements, Blocks, Subprograms . . . . . | 53  |
| 9        | Recursive Procedures; Predefined Subprograms . . . . .                | 66  |
| 10       | Classes as Compound Objects . . . . .                                 | 73  |
| 11       | Classes with Statements, Classes as a Program System . . . . .        | 87  |
| 12       | Co-routines . . . . .   | 93  |
| 13       | List Processing . . . . .   | 99  |
| 14       | Simulation . . . . .  | 106 |
| 15       | Approaching Files . . . . .   | 115 |
| 16       | EXTERNAL-Declaration . . . . .  | 124 |
|          | <br>Solutions of Exercises and Examples . . . . .                     | 128 |
| Appendix | A: Internal Representation of Numbers . . . . .                       | 181 |
|          | B: Reserved and Predefined Names . . . . .                            | 183 |
|          | C: Characters used in SIMULA and Their Significance . . . . .         | 185 |
|          | D: System Classes SIMSET and SIMULATION . . . . .                     | 186 |
|          | E: Generating Random Numbers . . . . .                                | 192 |
|          | F: Predefined External Procedures . . . . .                           | 194 |
|          | <br>References . . . . .  | 195 |
|          | Index . . . . .   | 197 |