

Index

A

Active system, 30
 Algorithms, 177, 202
 Alternatives, 87, 158
 Analog control system, 13
 Analog-to-digital converter, 134, 167
 Annual net recurring costs, 87
 ASTM Committee E-31, 8, 66, 78, 93, 153
 Atomic absorption, 172
 Spectrometry, 155
 Spectrophotometer, 160
 AutoAnalyzer, 161
 Auto-calibration, 99
 Automated analysis, 198
 Gas chromatogram-mass spectrometer, 43
 Automatic balance, 156
 Automation flow chart, 26

B

Ball integrators, 127
 Benchmark, 103
 Bendix G-15 computer, 94
 Budget changes, 86
 Bulk memory, 109

C

Capitalized equipment, 87
 Cathode ray tube, 166
 Chromatographic evolution, 129
 Classification of laboratory functions, 81

Clinical analysis, 3
 Comparative costs, 160
 Competitive vendors, 117
 Computer, 166
 Automated system, 168
 Generated report, 183
 Outputs, 205
 Proposal, 86
 Specifications, 135
 Central processing unit, 109
 Current and forecast equipment utilization, 88

D

Data acquisition, 169, 238
 System, 119
 General, 118
 Management, 159, 167
 Management system, 207
 Definition procedure, 27
 Design considerations, 132
 Designer documentation, 78
 Determination of laboratory functions, 81
 Digital control algorithms, 11
 Digital equipment PDP-8/I, 96
 Disc integrators, 127
 Disks, 166
 Documentation, 9
 Dwight P. Joyce Research Center, 103

E

E-31 documentation concept, 78
 Electronic balance, 161, 230

Emission spectrometer, 75
 End user documentation, 78
 Environmental considerations, 86
 Enzyme reaction, 18
 Equipment
 Evaluation, 82
 Specifications, 87
 Utilization, 88
 Estimated costs, 165
 Evaluation, 9
 Evaluator documentation, 78
 Expense items, 87

F

Feasibility study, 85
 File inputs, 200
 Financial budgeting, 83
 Flame aspiration, 171
 Flow chart, 120
 Focal, 45
 Followup methods, 90
 Functional
 Description, 239
 Design procedure, 28
 Designs, 69
 Schematic, 223

G

Gas chromatograph
 Interface, 44
 Gas chromatograph/mass
 spectrometer
 Automation, 31
 Automation approach, 36
 Cost summary, 56
 Implementation design, 36
 Operational features, 46
 Software implementation, 41
 System characteristics, 44
 System definition, 31
 System evaluation, 54
 System functional designs, 32
 System specifications, 32
 Timing diagram, 34

Gel permeation chromatograph,
 104

H

Hardware evaluation, 111
 Hardware software, 121

I

Implementation
 Design procedure, 29
 Digital control algorithm, 20
 Instron, 94
 Instrument
 Inputs, 201
 Interface, 167
 Integration, 139
 Techniques, 127
 Interpolation, 186, 222

L

Laboratory
 Evaluation, 82
 Structure, 79
 Laplace transform, 14
 Launch schedule, 88
 Least squares
 Determination, 184
 Definition, 222
 Line printer, 166

M

Magnetic tape, 166
 Maintenance documentation, 78
 Management
 Documentation, 78
 Guidelines, 91
 Science, 103
 Manpower savings, 162
 Mass spectrometer interface, 44
 Method of additions, 187
 Methodology, 5
 Monitor, 99

Molecular weight distribution
statistics, 104

N

National Environmental Research
Center, 67

O

Operator

Documentation, 78

Interface, 134, 136

Organizational structure, 79

P

PAL III assembly language, 97

Particle size distribution, 104

Passive system, 30

PDP-8/I computer, 96

Peak locator, 194, 217

Performance, 149

Personnel

Assignment, 84

Evaluation, 82

Pollution control, 3

Polymer characterization, 104

Post-integration, 145

Preliminary scope, 82

Preprocessing methods, 171

Project

Approval, 88

Costs, 86

Development, 83

Initiation, 78

Proposed guidelines, 76

Purpose and benefits, 87

Q

Quality control, 1, 219

R

Random automatic sampling, 187

Random sampling, 170

Read only memory, 135

Real-time data acquisition, 35

Recurring costs, 87

Report generation, 143

Research automation, 103

Resolution, 140

Resource utilization, 122

Roundoff errors, 21

S

Sample file controller, 168, 239

Sample logistics, 156

Sequential

Automatic I/O, 188

Sampling, 170

Signal smoothing, 138

Software, 95

Requirements, 115

Specifications, 27, 85, 121, 146

Storage requirements, 179

Stress-strain, 94

System

Architecture, 133

Classification, 30

Control, 12

Definition, 9, 66, 197, 230

Development, 131

Implementation, 9

Performance, 124

Specifications, 69, 172

Specifications check list, 58

Systron-Donner ADC, 94

T

Task force objective, 84

Technicon AutoAnalyzer, 155, 197

Teletypes, 166

Terminals, 166

Textile yarn, 100

Time-shared computer, 104, 159

Timing diagram, 216

Transfer function, 16

Tustin's method, 13

U

User specifications, 94

V

Vendor

 Capabilities, 116

 Contact, 85

Vendor-buyer relationship, 123