

Content

SUMMARY OF: OPTOELECTRONICS FOR TELECOMMUNICATIONS AND INFORMATICS	10
1 INTRODUCTION – EVOLUTION OF OPTOELECTRONICS IN TELECOMMUNICATIONS AND INFORMATICS	13
2 TRANSMISSION PROPERTIES OF OPTICAL FIBERS	23
2.1 ATTENUATION OF OPTICAL FIBERS	26
2.2 DISPERSION IN OPTICAL FIBERS	32
2.3 ZHEORY OF TRANSMISSION OVER LIGHTGUIDES	44
2.4 POLYMER OPTICAL FIBRES – POF	55
2.5 NEW TECHNOLOGIE SOF FIBRE MANUFACTURE	57
3 MANUFACTURE OF OPTICAL FIBERS	62
4 MANUFACTURE OF OPTICAL CABLES	78
4.1 PROPERTIES OF SELECTED TYPE SOF OPTICAL FIBRE	87
5 SPLICING TECHNICE, CONNECTORS AND COUPLERS	98
5.1 ON GENERAL PROBLEMS OF SPLICING	98
5.2 NON-DEMOUNTABLE SPLICES	112
5.3 DEMOUNTABLE SPLICES	118
5.4 OPTICAL COUPLERS	127
6 SOURCE OF LIGHT	136
6.1 LIGHT-EMITTING DIODES	137
6.2 LASER DIODES	144
6.3 OPTOELECTRONIC TRANSMISSION COMPONENTS	151
7 LIGHT MODULATION AND DETECTION	152
7.1 MODULATION METHODS	152
7.2 DETECTION OF RADIATION	156
7.3 PARAMETERS OF RADIATION DETECTORS	162
8 OPTOELECTRONIC TELECOMMUNICATION SYSTEMS	166
8.1 BASIC PROBLEMS OF OPTOELECTRONIC SYSTEMS	170
8.2 TRANSMITTER AND RECEIVER PART SOF OPTICAL SYSTEM	174
8.3 OPTICAL LINK CODES	181
8.4 OPTICAL LINK RANGE	184
8.5 DEPLOYMENT OF OPTOELECTRONIC SYSTEMS	185
8.6 OPTOELECTRONIC LINK TRACK OF 8 Mbit·s ⁻¹ DIGITAL SYSTEM	186
8.7 OPTOELECTRONIC LINK TRACK OF 34 Mbit·s ⁻¹ DIGITAL SYSTEM	190
8.8 OPTOELECTRONIC LINHK TRACK OF 140 Mbit·s ⁻¹ DIGITAL SYSTEM	192
8.9 OPTOELECTRONIC LINK TRACK OF 565 Mbit·s ⁻¹ DIGITAL SYSTEM	192

8.10	OPTOELECTRONIC SYSTEMS FOR TRANSMISSION OF ANALOGUE MODULATION	194
8.11	OPTOELECTRONIC SYSTEMS FOR TRANSMISSION OF TELEVISION SIGNAL	196
8.12	OPTOELECTRONIC TRANSMISSION SYSTEMS FOR SHORT DISTANCES ..	197
8.13	OPTOELECTRONIC SYSTEMS FOR INDUSTRIAL APPLICATIONS	197
8.14	LOCAL OPTICAL NETWORKS	199
8.15	CURRENT TRENDS IN OPTICAL ACCESS NETWORKS	215
8.16	OPTOELECTRONIC MULTIPLE SYSTEMS	223
8.17	TV OPTICAL FIBRE LINKS	242
8.18	SUBMARINE OPTICAL TRANSMISSION	242
8.19	INSTALLATION OF OPTICAL ROUTES	244
8.20	FREE-SPACE OPTICAL COMMUNICATION	255
8.21	OPTICAL FILTERS	266
8.22	EXPERIENCE OF BUILDING CZECHOSLOVAK OPTICAL ROUTES	278
8.23	EXPERIENCE OF BUILDING METROPOLITAN OPTICAL NETWORK IN BRNO	279
8.24	SELECTED EXAMPLES OF OPTICAL NETWORKS OF VARIOUS OPERATORS	287
8.25	FURTHER POSSIBILITIES AND METHODS IN OPTOELECTRONICS	292
8.26	HEALTH PROTECTION DURING WORK WITH OPTICAL LINKS	293
9	MEASURING METHODS IN OPTICAL COMMUNICATIONS	294
9.1	METHODS OF OPTICAL FIBRE EXCITATION FOR MEASURING PURPOSES	295
9.2	MEASUREMENT ON OPTICAL FIBERS	303
9.3	MECHANICAL MEASUREMENT	305
9.4	TRANSMISSION MEASUREMENT ON OPTICAL FIBERS	306
9.5	MEASUREMENT OF OPTOELECTRONIC COMPONENTS	329
9.6	SPECIAL MEASUREMENT METHODS	330
9.7	SUPERVISION (MONITORING) OF OPTICAL NETWORKS	332
10	PLANAR OPTICAL WAVEGUIDES	333
10.1	PRINCIPLE AND FICTION OF PLANAR LIGHTQUIDES	333
10.2	COUPLING STRUCTURES OF PLANAR LIGHTGUIDES	339
10.3	APPLICATION OF PLANAR LIGHTQUIDES IN INTEGRATED OPTICS	344
	CONCLUSION	353
	LIST OF REFERENCES	355
	LIST OF FIGURES	360
	LIST OF TABLES	369
	APPENDIXES	373