

Nome da disciplina		
OPTICAL COMMUNICATIONS: DEVICES		
Ministrada em 2021-2		
Número de créditos: 4	Carga horária: 48	Obrigatória/Eletiva: Eletiva
Ementa:		
<p>The objective of this course is to present features and designs of devices for high-speed optical communications networks. Propagation and main mechanisms of signal degradation in optical fiber linear and non-linear optical effects are analyzed. Recent research on optical and photonics devices telecom applications are presented.</p>		
Bibliografia:		
<p>AGRAWAL, G. P.; Fiber-Optic Communication Systems, 4th edition, New York: John Wiley &amp; Sons, 2007.  RAMASWAMI, R.; SIVARAJAN, K. N.; Optical Networks: A Practical Perspective. 3rd edition, Morgan Kaufmann Publishers, 2009.  KEISER, G.; Optical Fiber Communications, 4th edition, McGraw Hill, 2003.  BUCK, J.; Fundamentals of Optical Fibers, 2nd edition, Wiley-Interscience, 2004.  SALEH B. E. A.; TEICH M. C.; Fundamentals of Photonics 2nd edition, Wiley, 2007.  OKAMOTO, K.; Fundamentals of Optical Waveguides, Academic Press, 2000.  PARADISI, A.; FIGUEIREDO, R. C.; CHIUCHIARELLI, A.; ROSA, E.; Optical Communications: Advanced Systems and Devices for Next Generation Networks, Springer, 2019.</p>		
Nome da disciplina		
PHOTONIC MATERIALS AND STRUCTURES		
Ministrada em 2021-2		
Número de créditos: 4	Carga horária: 48	Obrigatória/Eletiva: Eletiva
Ementa:		
<p>It will be presented materials and structures (micro and nanometric) capable of manipulating and/ or changing the properties of light.</p> <ul style="list-style-type: none"> <li>• Motivation and review of electromagnetic waves</li> <li>• Optical properties of metals and metallic structures</li> <li>• Optical properties of dielectrics and dielectric structures</li> <li>• Semiconductor optical properties</li> <li>• Materials with optical gain and lasers</li> <li>• Non-linear materials</li> <li>• Metamaterials</li> </ul>		
Bibliografia:		
<p>SIMMONS, J. H., POTTER, K. S. Optical Materials. Academic Press. 2000.  VERDEYEN, J. T. Laser Electronics. 3rd Ed. Prentice Hall. 1995.  AGRAWAL, G. P. Nonlinear Fiber Optics. 5th Ed. Academic Press. 2012.  JOANNOPOULOS, J. D., JOHNSON, S. G., WINN, J. N., MEADE, R. D. Photonic Crystals: Molding the Flow of Light. 2nd Ed. Princeton University Press. 2009.  Scientific Literature Articles.</p>		