

# Curriculum Vitae

***Mahmoud Nikoufard***

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## **Address (job):**

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Faculty of Electrical and Computer Engineering  
University of Kashan  
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## **Personal Information:**

First name: Mahmoud  
Surname: Nikoufard  
Place of Birth: Kashan, Iran  
Birth Date: September 11, 1967  
Sex: Male  
Marital Status: Married

## **Education:**

Ph.D., Opto-Electronic Devices Group, Eindhoven University of Technology, the Netherlands, 2008.  
*Thesis Topic:* Integrated Wavelength Division Multiplexing Receivers.

M.Sc., Electrical Eng. (telecommunication Eng.), Tarbiat Modarres University, Tehran, Iran, 1994.  
*Thesis Topic:* Propagation of the electromagnetic waves in the plasma media.

B.Sc., Electrical Eng. (Communication Eng.), Sharif University of Technology, Tehran, Iran, 1990.  
*Project Topic:* Design of the E-H plane horn antenna.

## **Publications:**

1. Nikoufard, Mahmoud, Abbas Nourmohammadi, and Saeid Esmaeili. "Hybrid plasmonic nanoantenna with the capability of monolithic integration with laser and photodetector on InP-substrate." *IEEE Transactions on Antennas and Propagation* (2017).
2. Nikoufard, Mahmoud, Masoud Kazemi Alamouti, and Soheil Pourgholi. "Multimode Interference Power-Splitter Using InP-Based Deeply Etched Hybrid Plasmonic Waveguide." *IEEE Transactions on Nanotechnology* 16.3 (2017): 477-483.
3. Nikoufard, Mahmoud, and Mohsen Hatami. "Extremely compact slanted waveguide hybrid plasmonic polarization rotator." *Optics Communications* 382 (2017): 232-236.
4. Nikoufard, M., et al. "Novel hybrid plasmonic-based directional coupler on InP substrate." *Photonics and Nanostructures-Fundamentals and Applications* 22 (2016): 9-17.
5. Firouzabadi, Mojtaba Dehghani, Mahmoud Nikoufard, and Mohammad Bagher Tavakoli. "Optical Kerr nonlinear effect in InP-based hybrid plasmonic waveguides." *Optical and Quantum Electronics* 49.12 (2017): 390.
6. Soltani, Mohamadreza, Mahmoud Nikoufard, and Massoud Dousti. "Enhancement of Second Harmonic Generation in Metal-Insulator-Metal Plasmonic Waveguides." *Plasmonics* (2017): 1-5.
7. Nikoufard, Mahmoud, and Mohsen Hatami. "Analysis of Ultra-Compact TE to TM Polarization Rotator in InGaAsP and SOI Technologies." *Optik-International Journal for Light and Electron Optics* (2017).
8. Soltani, Mohamadreza, and Mahmoud Nikoufard. "Second harmonic generation using an electrically controlled asymmetric plasmonic waveguide." *Journal of Experimental Nanoscience* 12.1 (2017): 104-113.
9. Nikoufard, M., and A. Rostami Khomami. "Hybrid plasmonic polarization splitter using three-waveguide directional coupler in InGaAsP/InP." *Optical and Quantum Electronics* 48.5 (2016): 296.
10. Nikoufard, Mahmoud, and Masoud Kazemi Alamouti. "Full analysis of a high-bandwidth microring-based PIN modulator." (2017).
11. Nikoufard, Mahmoud, Masoud Kazemi Alamouti, and Alireza Adel. "Ultra-compact photonic crystal based water temperature sensor." *Photonic Sensors* 6.3 (2016): 274-278.
12. Nikoufard, Mahmoud, and Masoud Kazemi Alamouti. "Design of Photonic Crystal Polarization Splitter on InP Substrate." *Journal of Optoelectronic Nanostructures* 1.2 (2016): 69-76.
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14. Nikoufard, M., and S. Amadeh., "InP-Based Photonic Crystal Electro-Optic Modulator" ,*Optik-International Journal for Light and Electron Optics*, No. 19, Vol. 126, pp. 2219–2222, 2015.
- 15.
16. Soltani, M., Nikoufard M., and Dousti M., "Investigation of Second Harmonic Generation in Asymmetric Metal-Insulator-Metal Plasmonic Waveguides", *Plasmonics*, pp. 1-7, 2015.
17. Nikoufard, M., and M. Hatami. "Ultra-short novel transverse magnetic to transverse electric polarization rotator in hybrid integration of InGaAsP/silicon-on-insulator technologies." *Indian Journal of Physics*, pp. 1-7, 2015.
18. Kari M., and Nikoufard M., "Ring Resonator-Based Monolithic Integrated Optical Transceiver," *Iranian Journal of Electrical and Computer Engineering (IJECE)*, No.1, Vol. 12, 2014.
19. B. A. Saleh, and M. Teich, "Fundamentals of Photonics", Translation to Farsi Language by Nikoufard M., University of Kashan, Iran, 2013.
20. Nikoufard M., and Taheri R. , " Hybrid spot-size converter on semi-insulating InP substrate at 1.55 $\mu\text{m}$  wavelength," *Cyber Journals: Multidisciplinary Journals in Science and Technology, Journal of selected Areas in Microelectronics (JSAM)*, May Edition, 2012.

21. Nikoufard M., Alaei Tabatabaei F. S., and Ghafouri S. N., " High-speed pin-traveling wave photodetector based on a semiconductor optical amplifier layer stack on semi-insulating InP substrate," *Progress In Electromagnetic Research C*, Vol. 28, pp. 271-281, 2012.
22. Nikoufard M., and Ghafouri S. N., " Symmetric twin-waveguide photodetector on semi-insulating InP substrate at 1.55 $\mu\text{m}$  wavelength," *Journal of Optics*, Vol. 13, 2011.
23. Xu L., Nikoufard M., Leijtens X. J. M., Vries T. de, Smalbrugge E., Nötzel, R., Oei Y. S., and Smit M. K., " High bandwidth waveguide photodetector based on an amplifier layer stack on an active-passive semi-insulating InP at 1.55 $\mu\text{m}$ ," *IEEE Photonics Technol. Lett.*, Vol. 20, No. 23, Dec. 2008.
24. Nikoufard M. , "Integrated wavelength division multiplexing receivers", Technische Universiteit Eindhoven, Eindhoven, The Netherlands, 2008.

### **Publications on photonics (conferences):**

1. Nikoufard, M., A. Farahani Dastjani, and A. Farhadi. "Photonic Crystal Based MZI Biosensor on InP materials", 23<sup>rd</sup> *Iranian Conference on Electrical Engineering (ICEE)*, pp. 1180-1182, 2015.
2. Nikoufard M., and Farhadi A., "Photonic crystal based gas sensor on InP substrate," 5<sup>th</sup> *international conference on Nanostructure*, Mar. 2014, Kish, Iran.
3. Nikoufard M., and Ranjbaran A., "Novel pillar-based photonic crystal polarization splitter at 1.55 $\mu\text{m}$ ," 5<sup>th</sup> *international conference on Nanostructure*, Mar. 2014, Kish, Iran.
4. Nikoufard M., Adel A., and Hatami M., " Gas-sensor based on photonic crystal to identify carbon dioxide," 6<sup>th</sup> *Iranian Conference on Electrical and Electronics Engineering*, Aug. 2014, Gonabad, Iran.
5. Nikoufard M., and Ranjbaran M., " Polarization filter on InP substrate at 1.55 $\mu\text{m}$  wavelength," 20<sup>th</sup> *conference on Optics and Photonics*, Jan. 2014, Shiraz, Iran.
6. Nikoufard M., Fallah M., and Elhamnia M., "All-optical AND-gate using Y-junction photonic crystal on InP substrate," 3<sup>rd</sup> *National Conference on Optic and Laser Engineering*, Oct. 2013, Shahin Shahr, Iran.
7. Nikoufard M., Fallah M., and Elhamnia M., "Design of NOR-gate using nonlinear ring resonator," 3<sup>rd</sup> *National Conference on Optic and Laser Engineering*, Oct. 2013, Shahin Shahr, Iran.
8. Nikoufard M., Adel A., and Hatami M., Gas-sensor based on photonic crystal to identify Xenon," 2<sup>nd</sup> *International Conference on Nano Technology*, July 2014, Istanbul, Turkey.
9. Nikoufard M., Adel A., and Esmaeili R., " Photonic crystal based gas-sensor on InP substrate at 1.55 $\mu\text{m}$  wavelength," *Nano symposium 93*, Apr. 2014, Najafabad, Iran.
10. Nikoufard M., Pourmousa M., Esmaeili A, and Izadi F., " Graded-doping double junction solar cell on GaInP/GaAs material," 3<sup>rd</sup> *Iranian conference of renewable Energy and distributed*, Apr. 2013, Isfahan, Iran.
11. Nikoufard M., Omidi Roozbahani, and Mirzaei A., " Design of photonic crystal polarization splitter on InP substrate at 1.55 $\mu\text{m}$  wavelength," *Procedings of Iranian Conference of Electromagnetics Engineering*, Sep. 2012, Tehran, Iran.

12. Nikoufard M., and Kari M., "Design of novel ring reflector modulator on semi-insulating InP," *Proceedings of Iranian Conference of Electromagnetics Engineering*, Sep. 2012, Tehran, Iran.
13. Nikoufard M., Pourmousa M., Esmaili A., and Karamdel J., "single junction solar cell on graded doped InP," *National Congress of Electrical, Computer and Information Technology*, Oct. 2012, Khorasan, Iran.
14. Nikoufard M., Pourmousa M., Esmaili A., and Karamdel J., "single junction solar cell on modified structure GaAs," *National Congress of Electrical, Computer and Information Technology*, Oct. 2012, Khorasan, Iran.
15. Nikoufard M., Hajiloo N., Amadeh S., and Farshadpour A., "Resonant cavity add-drop filter on InP substrate", *Proceedings of the International Congress on Nanoscience and Nanotechnology (ICNN2012)*, Sep. 2012, Kashan, Iran.
16. Nikoufard M., Omidi Roozbahani M., and Mirzaei A., " Photonic crystal polarization splitter on InP substrate", *Proceedings of the International Congress on Nanoscience and Nanotechnology (ICNN2012)*, Sep. 2012, Kashan, Iran.
17. Nikoufard M., Mirzaei A., and Omidi Roozbahani M., " Photonic crystal-based polarization splitter on InP substrate", *Proceedings of the Iran-Belarus International Conference on Modern Application of Nanotechnology (IBCN2012)*, Jun. 2012, Minsk, Belarus.
18. Nikoufard M., and Amadeh S., " InP-based photonic crystal electro-optic modulator", *Proceedings of the Iran-Belarus International Conference on Modern Application of Nanotechnology (IBCN2012)*, Jun. 2012, Minsk, Belarus.
19. Nikoufard M., Amadeh S., and Hajiloo N., " Optimized Y-junction based on directional coupler photonic crystal on InP substrate ", *Proceedings of the 4<sup>th</sup> International Conference on Nanostructures (ICNS4)*, Mar. 2012, pp. 85, Kish, Iran.
20. Nikoufard M., Amadeh S., and Hajiloo N., " Photonic crystal MZI modulator by using directional coupler on InP substrate", *Proceedings 18<sup>th</sup> Iranian conference on Optics and Photonics (ICOP2012)*, Feb. 2012, pp. 155-158, Tabriz, Iran.
21. Nikoufard M., and Yazdanpanah J., " Twin-waveguide uni-travelling carrier photodetector ", *Proceedings 18<sup>th</sup> Iranian conference on Optics and Photonics (ICOP2012)*, Feb. 2012, pp. 41-44, Tabriz, Iran.
22. Kari M., and Nikoufard M., " Ring-based monolithic optical transceiver ", *Proceedings 18<sup>th</sup> Iranian conference on Optics and Photonics (ICOP2012)*, Feb. 2012, pp. 71-74, Tabriz, Iran.
23. Firoozi S, Abaeiani GH., and Nikoufard M., " Calculation and analysis of structural dependency of the plasmonic fiber-optic sensors characteristics ", *Proceedings 18<sup>th</sup> Iranian conference on Optics and Photonics (ICOP2012)*, Feb. 2012, pp. 646-649, Tabriz, Iran.
24. Nikoufard M., Amadeh S., Farshadpour A., " Photonic crystal power splitter-based directional couplers on InP substrate", *The Annual physics conference of Iran (PSI2011)*, Sep. 2011, Urmiah, Iran.
25. Nikoufard M., Rezazadeh A, Jahani Bahnamiri H., " Design of a 3D-compact lateral taper on semi-insulating InP substrate", *The Annual physics conference of Iran (PSI2011)*, Sep. 2011, Urmiah, Iran.
26. Kari M., Nikoufard M., Abaeiani Gh., and Anis A., " Monolithic integrated transcieverbased on ring-resonator," *Proceedings 19th Iranian Conference on Electrical Engineering (ICEE)*, 2011, Tehran, Iran.

27. Farshadpour A., and Nikoufard M., " Photonic crystal ring resonator-based wavelength division multiplexer on InP substrate," *Proceedings 19th Iranian Conference on Electrical Engineering (ICEE)*, 2011, Tehran, Iran.
28. Anis A., Nikoufard M., and Kari M., " Wavelength converter based on cross-phase modulation on InP substarte at 1.55 $\mu$ m wavelength," *2nd National Conference on Optics and Laser Engineering (ICOLE)*, 2011, Shahin-shahr, Iran.
29. Kari M., Nikoufard M., and Anis A., " Ring-based monolithic integrated optical transceiver on semi-insulating InP substrate," *2nd National Conference on Optics and Laser Engineering (ICOLE)*, 2011, Shahin-shahr, Iran.
30. Alaei Tabatabaei F. S., and Nikoufard M., " Design and RF-analysis of a high-speed, high-efficiency traveling-wave photodetector," *2nd National Conference on Optics and Laser Engineering (ICOLE)*, 2011, Shahin-shahr, Iran.
31. Nikoufard M., Alaei Tabatabaei F. S., Kari M. and Sheikhan M., " Design and RF-analysis of a high-speed traveling-wave photodetector based on InP material at 1.55 $\mu$ m wavelength," *Proceedings 17th Iranian Conference on Photonics and Optics (ICOP)*, 2011, Kerman, Iran.
32. Nikoufard M., and Farshadpour A., " Photonic crystal ring resonator-based wavelength division multiplexer on InP substrate," *Proceedings 176th Iranian Conference on Photonics and Optics (ICOP)*, 2011, Kerman, Iran.
33. Nikoufard M., Ghafouri S. N., and Alaei Tabatabaei F. S., " DC-analysis of a traveling-wave photodetector on semi-insulating InP at 1.55 $\mu$ m wavelength," *Proceedings 3rd Iranian Conference on Photonics Engineering*, 2011, Kerman, Iran.
34. Nikoufard M., Alaei Tabatabaei S. F., and Sheikhan M., " Efficient pin-Travelling Wave Photodetector Based on a Semiconductor Optical amplifier layer stack on Semi-Insulating InP Substrate at 1.55 $\mu$ m," *Numerical Simulation of Optoelectronic Devices (NUSOD2010)*, Sep. 2010, USA.
35. Nikoufard M., Taheri R., Farrokhi A., " Hybrid Spot Size converter on Semi-Insulating InP substrate at 1.55 $\mu$ m wavelength," *Numerical Simulation of Optoelectronic Devices (NUSOD2010)*, Sep. 2010, USA.
36. Nikoufard M., Taheri R., Farrokhi A., " Monolithic Integration of a Spot-Size Converter and active and passive photonic devices on Semi-Insulating InP substrate at 1.55 $\mu$ m wavelength window," *The Annual physics conference of Iran (PSI2010)*, Sep. 2010, Hamadan, Iran.
37. Nikoufard M., and Taheri R., Farrokhi A., "Design of a Low-Coupling Loss Hybrid Spot-Size Converter Based on SI-InP substartel at 1.55 $\mu$ m Wavelength Window," *Proceedings 18th Iranian Conference on Electrical Engineering (ICEE)*, 2010, Isfahan, Iran.
38. Nikoufard M., Taheri R., Farrokhi A., "Design of Hybrid Spot-Size Converter Based on InP Material at 1.55 $\mu$ m Wavelength Window," *Proceedings 16th Iranian Conference on Photonics and Optics (ICOP)*, 2010, Yazd, Iran.
39. Nikoufard M., " Design and characterization of a monolithic integrated eight-channel WDM receiver on InP-based material," *Proceedings 15th Iranian Conference on Photonics and Optics (ICOP)*, 2009, Isfahan, Iran.
40. Nikoufard M., " Design and fabrication of edge-illuminated photodetector based on vertical coupler on InP-substrate," *First National Conference on Optics and Laser Engineering (NCOLE)*, 2009, Shahin-shahr, Iran.

41. Nikoufard M., "Planarization, passivation and metallization processes in the fabrication of the microwave-phonic integrated circuits," *First National Conference on Optics and Laser Engineering (NCOLE)*, 2009, Shahin- shahr, Iran.
42. Ph.D. thesis titled "Integrated Wavelength Division Multiplexing Receivers", Eindhoven University of Technology, Eindhoven, the Netherlands, March 2008.
43. Nikoufard M., Xu L., Leijtens X. J. M., Vries T. de, Smalbrugge E., Nötzel, R., Oei Y. S., and Smit M. K., "High bandwidth waveguide photodetector based on an amplifier layer stack on an active-passive semi-insulating InP at 1.55 $\mu$ m," *Proceedings 14th European Conference on Integrated Optics (ECIO)*, 2008, Eindhoven, Holland.
44. Nikoufard M. , Leijtens X. J. M., La Porta A. ,Binetti P. R. A., Smalbrugge E., Vries T. de, Veldhoven P. J. van, Notzel R., Oei Y. S., and Smit M. K., "An efficient waveguide photodetector fabricated in an InP-based amplifier layer stack," *proc. IEEE/LEOS Benelux Chapter 2007*. Brussels, Belgium.
45. Binetti P. R. A., La Porta A., Leijtens X. J. M., Nikoufard M., de Vries T., Oei Y. S. Di Cioccio L., Fedeli J. M. Lagahe C., Orobthouk R., Seassal C., Van Campenhout J., Van Thourhout D., van Veldhoven P. J., Nötzel R. and Smit M. K., "InP-based membrane photodetector for optical interconnections on CMOS ICs," *proc. IEEE/LEOS Benelux Chapter 2007*. Brussels, Belgium.
46. Binetti P. R. A., Campenhout J. van, Leijtens X. J. M., Nikoufard M., Vries T. de, Oei Y. S., Di Cioccio L., Fedeli J. -M., Lagahe C., Orobthouk R., Letartre X., Regreny P., Rojo-Romeo P., Seassal C., Veldhoven P. J. van, Nötzel R., Thourhout D. van, Baets R., and Smit M. K., "An optical interconnect layer on silicon," *Proceedings 13th European Conference on Integrated Optics (ECIO)*, 2007, (pp. 1-3) Copenhagen, Denmark.
47. Binetti P. R. A., Leijtens X. J. M., Nikoufard M., Vries T. de, Oei Y. S., Di Cioccio L., Fedeli J.-M., Lagahe C., Orobthouk R., Seassal C., Campenhout J. van, Thourhout D. van, Veldhoven P. J. van, Nötzel R., and Smit M. K., "InP-based membrane photodetectors for optical interconnects to Si," *proc. 4th International Conference on Group IV Photonics. (Vol. WB4, pp. 1-3)*. 2007, Tokyo, Japan.
48. Binetti P. R. A., Leijtens X. J. M., Nikoufard M., Vries T. de, Oei Y. S., Di Cioccio L., Fedeli J.-M., Lagahe C., Orobthouk R., Seassal C., Veldhoven P. J. van, Nötzel R., and Smit, M. K., "Membrane couplers and photodetectors for optical interconnections on CMOS ICs," *proc. ePIXnet Winter School 2007. (pp. 1-1)*. Pontresina, Switzerland.
49. Binetti P. R. A., Leijtens X. J. M., Nikoufard M., Vries T. de, Oei Y. S., Di Cioccio L., Fedeli J.-M., Lagahe C., Orobthouk R., Seassal C., Veldhoven P. J. van, Nötzel R., and Smit M. K., "Membrane couplers and photodetectors for optical interconnections on CMOS ICs," *proc. IEEE/LEOS Benelux Symposium 2006. (pp. 237-240)*. Eindhoven, The Netherlands: IEEE/LEOS.
50. Nikoufard M., Zhu Y., Bennekom P. K. van, Kwaspen J. J. M., Leijtens X. J. M., and Smit M.K., "Design and characterization of a high-speed WDM receiver," In *proc. IEEE/LEOS Benelux Chapter 2005* (pp. 145-148). Mons, Belgium.
51. Nikoufard M., Besten J. H. den, Heck M. J. R., Zhu Y., Smalbrugge E., Vries T. de, Veldhoven P. J. van, Leijtens X. J. M., Oei Y. S., Notzel R., and Smit M. K., "InP-based ridge lasers with lateral n-contacts," In *proc. IEEE/LEOS Benelux Chapter 2005* (pp. 261-264). Mons, Belgium.
52. Binetti P. R. A., Leijtens X. J. M., Nikoufard M., Orobthouk R., Benyattou T., Vries T. de, Oei Y.S., and Smit M. K., "A compact detector for use in photonic interconnections on CMOS ICs," In *proc. IEEE/LEOS Benelux Chapter 2005* (pp. 233-236). Mons, Belgium.



53. [Nikoufard M.](#), Leijtens X. J. M., Zhu Y., Kwaspen J. J. M., Bente E. A. J. M., Groen F. H., and Smit M. K. ,” An 8 x 25 Ghz polarization-independent integrated multi-wavelength receiver,” In *proc. IPR 2004* (pp. iTHB2). San Francisco, USA.
54. [Nikoufard M.](#), Besten J. H. den, Leijtens X. J. M., and Smit M. K. , “ Design and measurement of a reversely biased SOA as high-speed photodetector,” In *proc. IEEE/LEOS Benelux Chapter 2004* (pp. 71-74). Gent, Belgium.
55. [Nikoufard M.](#), Leijtens X. J. M., Zhu Y., Bennekom P. K. van, Kwaspen J. J. M., Bente E. A. J. M., Groen F. H., and Smit M. K., “An 8x20 GHz polarization independent WDM receiver”, In *proc. IEEE/LEOS Benelux chapter 2003*, Enschede, The Netherlands (pp. 153-156). Enschede, The Netherlands.
56. [Nikoufard M.](#), Leijtens X. J. M., Zhu Y., Kwaspen T., & Smit M. K, “ Modeling and characterization of InP-based high-speed pin-photodiodes,” In *proc. IEEE/LEOS Benelux Chapter 2003* (pp. 149-152). Enschede, The Netherlands.
57. [M. Nikoufard](#), A.Hadidi," Simulation of Electromagnetic Waves in the Plasma Media", 6th ICEE, Vol. 2, PP 43-47, 1998, Tehran, Iran.
58. Master Thesis Titled "Propagation of Electromagnetic Waves in Plasma Media", Teheran, Iran, 1994.

### **Design, processing and characterization of photonic devices:**

1. Design of the complicated optical integrated circuits in the conjunction with microwave considerations and plotting mask layout with ADS and CLEWIN software.
2. Experience in the clean room environment for about 5 years based on InP technology: lithography, PECVD machine for the deposition of SiN, RIE machine, SEM machine, optimization of the processing, etc.
3. Experience with optical and microwave equipments: lightwave component analyzer, vector network analyzer, pulse response setup, BER and eye diagram setup, static and dynamic characterization of SOA, photodetector, AWG, laser, etc.

### **Academic Activities:**

1. Researcher at Eindhoven University of Technology, Eindhoven, the Netherlands, Since 2000-2008.
2. Lecturer in department of Electronic Eng., Faculty of Electrical and Computer Eng., Kashan University, Kashan, Iran, 1995-2000 & 2008-now.
3. Vice director of Faculty of Eng., Kashan University, 1996-1997.
4. Head of Departments of Electronics, University of Kashan, since 2014.
5. Establishing several laboratories such as Electronics, communication circuits, and digital circuits, University of Kashan, since 1995.

### **Academic Honors and Awards:**

1. Received the best article award in the first National Conference on Optic and Laser, Iran.
2. Received the best poster award in the 2nd National Conference on Optic and Laser, Iran.
3. Received the best researcher award at Kashan University, 2013.

### **Computer Software Skills:**

Advanced Design Systems (ADS), COMSOL, OPTIWAVE, FIMMWAVE, LUMERICAL, MATLAB, FORTRAN, Pascal and general softwares.

**Subjects Lectured:**

Theory and fabrication technology of semiconductor devices, Semiconductor devices, Opto-electronic devices, Design of photonic integrated circuits, Electromagnetics, Communication Circuits, Communication Systems, Basics of Electrical Eng., Advanced Engineering Mathematics, Signals and Systems, Digital Circuits,....