

Name: Dr. Kulwinder Singh Malhi

Designation: Associate Professor

Department: Electronics & Communication Engineering

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Academic Qualifications

B.Tech. : Electronics & Communication Engineering M.Tech.: Electronics & Communication Engineering Ph.D. : Optical FiberCommunication Systems

Area of Specialisation:

Optical Fiber and Wireless Communication systems
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Working Experience:

Total teaching experience: 19 Years (UG) 08 Years (PG)

Detailed Teaching Experience:

1.	Department of Electronics & Communication Engineering, Punjabi University Patiala.	Associate Professor	September, 2013 to till date
2.	University College of Engineering, Punjabi University Patiala.	Associate Professor	December, 2009 to September, 2013
3.	University College of Engineering, Punjabi University Patiala.	Reader	September, 2006 to December, 2009
4.	University College of Engineering, Punjabi University Patiala.	Lecturer	August, 2005 to September, 2006

5.	SUS Institute of Engineering & Technology Tangori (Mohali)	Sr. Lecturer	1999 to 2005
6.	Sant Longowal Institute of Engineering & Technology, Longowal ,Sangrur (PB)	Lecturer	1998 to1999

Publications: Annexure I attached for publications Details:

Journal Papers	:	24 (International)
Conference Papers	:	05 (International) 06 (National)

Research Experience: Annexure II attached for Details

M.Tech. Students	:	17 (Guided) 04 (On Going)
Ph.D. Students	:	01 (On Going)

Refresher Course/ Short Courses/ seminars: Annexure III attached for Details

Seminars/Conferences/Workshops/Short-term-courses	:	14
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Professional Membership

S. No.	Name of Professional Body	Type of Membership	Year
1.	Indian Society for Technical Education (ISTE)	Life Member (LM 36283)	2003
2.	Institution of Engineers India (IEI)	Life Member (AM093699-8)	2005

Annexure I Publications Details:

(A) International Journals

1. Kulwinder Singh, Manjeet Singh Patterh and Manjit Singh Bhamrah (2014), “An effective numerical method for Gain profile optimizations of multi pumped fiber

Raman amplifiers”, *Optik, International Journal of Light Electronics and Optics*, Elsevier Science, Germany, Vol. 125, No. 10, pp. 2352-2355.

2. Kulwinder Singh, Manjeet Singh Patterh and Manjit Singh Bhmrah (2016), “Analysis of Dual-Order Backward Pumping Schemes in distributed Raman Amplification System”, *Journal of Optical Communications*, DE Gruyter, Germany, Published Online: 2016-11-10 | DOI: <https://doi.org/10.1515/joc-2016-0>, (Online ISSN: 2191-6322).Kulwinder
3. Singh, Manjeet Singh Patterh and Manjit Singh Bhamrah (2012), “Investigations on Multi Pumped Fiber Raman Amplifiers over WDM in Optical Communication System”,*International Journal of Computer Applications (IJCA)*, Vol. 39, No.4, pp. 8-12, (ISSN 0975 – 8887).
4. Kulwinder Singh, Manjeet Singh Patterh and Manjit Singh Bhamrah (Accepted on 11 May, 2017), A comparative analysis of dual order bidirectional pumping Schemes in Optical fiber Raman amplification” *Journal of Optical Communications (JOC)*, DE Gruyter, Germany, (Online ISSN: 2191-6322).
5. Sukhbir Singh andKulwinder Singh (2012), “Investigations on Receiver sensitivity of SOA based optical communication system using RZ super Gaussian pulse” *International Journal of Engineering Research & Technology (IJERT)*, Vol. 1, No. 3, pp. 1-8, (ISSN: 2278-0181).
6. Sukhbir Singh and Kulwinder Singh (2012), “Investigations on Receiver sensitivity of 10 Gbps SOA based optical communication system” *International Journal of Computers & Technology*, Vol. 1, pp. 76-83, (ISSN: 2277-3061).
7. Anupjeet Kaur and Kulwinder Singh (2013), “Wavelength Converters in Optical Communication Systems”, *Engineering Science and Technology: An International Journal (ESTIJ)*, Vol.3, No.2, (ISSN: 2250-349).
8. Anupjeet Kaur and Kulwinder Singh, (2013), “Performance analysis of semiconductor optical amplifier using four wave mixing based wavelength converter for all optical networks” *International Journal of Engineering Research and Applications. (IJERA)*, www.ijera.com, Vol. 3, No. 4, pp. 108-113, (ISSN: 2248-9622).
9. Chinky Rani and Kulwinder Singh (2013), “Performance analysis of bi-directional broadband passive optical network using travelling wave” *International Journal of Engineering Research and Applications(IJERA)*, Vol. 3, No. 4, pp. 114-118, (ISSN: 2248-9622).
10. Prabhpreet Kaur and Kulwinder Singh (2013), “Analysis of four wave mixing effect at different channel spacing in multichannel optical communication System.”*International Journal of Engineering and Innovative Technology. (IJEIT)*, Vol. 3, No. 5, pp. 320-323, (ISSN 2277-3754).

11. Prabhpreet Kaur and Kulwinder Singh (2014),” Investigation of four wave mixing effects using different modulation formats in optical communication system”, International Journal of Engineering Research and Applications, www.ijera.com, Vol. 4, No. 1, pp. 176-181, (ISSN: 2248-9622).
12. Kamalbir Kaur and Kulwinder Singh (2014), “Performance Analysis of 16 channel WDM system using erbium doped fiber amplifier”, International Journal of Engineering and Innovative Technology (IJEIT), Vol. 4, No. 1, pp. 50-57, (ISSN: 2277-3754).
13. Kamalbir Kaur and Kulwinder Singh (2014), “Analysis of numerical aperture dependence in L band 16 channel WDM optical communication system”, International Journal of Engineering Research and Applications, www.ijera.com, Vol. 4, No. 1, pp. 50-57, (ISSN: 2248-9622).
14. Areet Aulakh and Kulwinder Singh (2014), “To investigate effects of extinction ratio on SOA based wavelength Converters for all Optical Networks”, International Journal of Scientific Research Engineering & Technology (IJSRET), Vol. 3, No. 2, pp. 289-294, (ISSN 2278 – 0882).
15. Amninder Singh and Kulwinder Singh (2014), “Investigate the Performance of QAM Communication System by Transforming Linear Phase Filter Design using Parks-McClellan Algorithm into Minimum Phase Filter”, International Journal of Computer Applications IJCA, Vol. 93, No.14, pp 38-42, (ISSN: 0975 – 8887).
16. Amninder Singh and Kulwinder Singh (2014), “Cost Analysis of Different Digital Fir Filter Design Methods” International Journal of Engineering Research and Applications, www.ijera.com, Vol. 4, No. 5, pp.70-72, (ISSN: 2248-9622).
17. Areet Aulakh and Kulwinder Singh (2014), “To Investigate the Characteristics Parameters of Semiconductor Optical Amplifier based on Wavelength Converters for all Optical Networks”, International Journal of Computer Applications (IJCA), Vol. 95, No.19, pp 37-41, (ISSN: 0975 – 8887).
18. AmritPal Singh and Kulwinder Singh (2014), “Demonstration of a Bidirectional WDM-PON with 10 Gb/s Downstream DQPSK and 5 Gb/s Upstream Re-modulated OOK Data Based on Reflective Semiconductor Optical Amplifier”, International Journal of Innovative Science, Engineering & Technology (IJSET) Vol. 1, No. 4, (ISSN: 2348-7968).
19. Shivani Sharma and Kulwinder Singh (2015), “A Reversible Data Hiding Scheme to Embed High Capacity Data in Two Dimensional Difference Histogram Modification”, International journal of research in electronics and computer engineering, a unit of I2OR (ijrece), vol. 3, No. 3, pp. 108-116, (ISSN: 2393-9028 (Print), ISSN: 2348-2281 Online).
20. Shivani Sharma and Kulwinder Singh (2015), “A Reversible Data Hiding Scheme Based on Two Dimensional Difference-Histogram Modification to Embed Binary

Data”, International Journal of Advanced Research in Computer Engineering & Technology (IJARCET), Vol. 4, No. 10, pp. 3795-3804, (ISSN: 2278 – 1323).

21. Sukhvir Kaur, Kulwinder Singh (2016), “Hybrid Security Using Encryption Algorithm in Wireless Adhoc Network”, An International Journal of Engineering Sciences, Vol. 20, (ISSN: 2229-6913 Print, ISSN: 2320-0332 Online).
22. Supreet Singh, Kulwinder Singh, (2016), “Analysis of Self Phase Modulation Fiber nonlinearity in Optical Transmission System with Dispersion”, An International Journal of Engineering Sciences, Vol. 20, (ISSN: 2229-6913 Print, ISSN: 2320-0332 Online).
23. Supreet Singh, Kulwinder Singh, (2016), “Analysis of Self Phase Modulation Effect in 40 Gb/s Optical Fiber Communication System for Various Modulation Formats with Dispersion Compensation” An International Journal of Engineering Sciences, Vol. 20, (ISSN: 2229-6913 Print, ISSN: 2320-0332 Online).
24. Arvinder Kaur, Kulwinder Singh, (2017), “Performance Evaluation of Gigabit Passive Optical Networks with Fiber Raman Amplification”, International Journal of Research in Electronics and Computer Engineering, A Unit of I2R, IJRECE Vol. 5 No. 4, ISSN: 2393-9028 (Print), ISSN: 2348-2281 (Online).

(B) International Conferences (05)

1. Sukhbir Singh, Kulwinder Singh (2011), “Analysis of Receiver sensitivity of spectrum-sliced WDM system” International Conference on Recent Advancements in Technology and Management, held at Continental Group of Institutes, Fatehgarh Sahib (PB).
2. Prabhpreet Kaur, Kulwinder Singh Malhi (2013), “Four wave mixing mitigation techniques with chromatic dispersion in multichannel optical communication system”, International Conference on Emerging Technologies in Electronics and Communications (ICETEC-13) held at Guru Nanak Dev University Amritsar (PB).
3. Sukhvir Kaur, Kulwinder Singh (2016), “Hybrid Security Using Encryption Algorithm in Wireless Adhoc Network”, Second International Conference on Innovative Trends in Electronics Engineering (ICITEE2) held at department of Electronics & Communication engineering, Punjabi University Patiala.
4. Supreet Singh, Kulwinder Singh (2016), “Analysis of Self Phase Modulation Fiber nonlinearity in Optical Transmission System with Dispersion”, Second International Conference on Innovative Trends in Electronics Engineering (ICITEE2), held at department of Electronics & Communication engineering, Punjabi University Patiala.
5. Supreet Singh, Kulwinder Singh (2016), “Analysis of Self Phase Modulation Effect in 40 Gb/s Optical Fiber Communication System for Various Modulation Formats with

Dispersion Compensation” Second International Conference on Innovative Trends in Electronics Engineering (ICITEE2), held at department of Electronics & Communication engineering, Punjabi University Patiala.

(C) National Conferences: Published/Presented (06):

1. Kulwinder Singh and R.S. Kaler (2003), “Simulation of 10 Ghz NRZ optical communication system with self-phase modulation effects”, IETE National symposium. (NSNM-2003) held at PEC, Chandigarh.
2. Kulwinder Singh and R.S. Kaler (2004), “Analytical studies of higher order dispersion terms in single mode optical communication system” National seminar CETEC-2004, held at SLIET, Longowal, Sangrur (PB).
3. Kulwinder Singh and R.S. Kaler (2004), “Higher order chromatic dispersion in single mode optical communication systems” National conference ECCS-2004, held at TIET, Patiala (PB).
4. Ramanpreet Kaur and Kulwinder Singh (2011), “Raman Amplifier Noise Figure Characteristics and Improvement methods” National Conference on advances in computational intelligence”, (NCACI 11) held at Sat Priya Group of Institutions, Rohtak (Haryana).
5. Amandeep Kaur and Kulwinder Singh (2011), “Improving Performance of Double Rayleigh Backscattering (DRBS) in Raman Amplifiers Using Isolators and other Methods”, National Conference on advances in computational intelligence (NCACI 11) held at Sat Priya Group of Institutions, Rohtak (Haryana).
6. Kirandeep Kaur and Kulwinder Singh (2011), “Different Methods to Achieve Gain Flatness in Raman Fiber Amplifier”, National Conference on advances in computational intelligence (NCACI 11) held at Sat Priya Group of Institutions, Rohtak (Haryana).

Annexure II: M.Tech. Thesis Supervised (17) Completed:

S.No	Name of Student & Roll/Regd. No.	Title of Thesis	Supervisor(s)	Year of Completion
1.	Ramanpreet Kaur (Regd. No. UCE(P)2009-665)	Investigations on noise figure in fiber Raman amplifier	Kulwinder Singh	July, 2011
2.	Kirandeep Kaur (Regd. No. UCE(P)2009-666)	Gain profile optimizations of fiber Raman amplifiers	Kulwinder Singh	July, 2011
3.	Amandeep Kaur (Regd. No. UCE(P)2009-671)	Investigation on Double Rayleigh Backscattering noise in fiber Raman amplifier	Kulwinder Singh	July, 2011
4.	Sukhbir Singh (Regd. No. UCE(P)2010-694)	Investigations on receiver sensitivity with semiconductor optical amplifiers in optical communication systems	Kulwinder Singh	July, 2012
5.	Anupjeet Kaur (Regd. No. 7141-11-1072)	Performance analysis of semiconductor optical amplifier(SOA) based wavelength converters in optical communication systems	Kulwinder Singh	August, 2013
6.	Chinky Rani (Regd. No. 7141-11-1090)	Performance analysis of broadband and Gigabit passive optical networks	Kulwinder Singh	August, 2013
7.	Prabhpreet Kaur (Regd. No.7141-11-1077)	Investigations of four wave mixing (FWM) mitigation techniques in multichannel optical communication systems	Kulwinder Singh	January, 2014
8.	Kamalbir Kaur (Regd. No. 7141-11-1078)	Investigations on characteristics of erbium doped fiber amplifier (EDFA) in wavelength division multiplexed optical communication systems	Kulwinder Singh	January, 2014
9.	Areet Aulakh (Regd. No. 7142-12-1359)	Investigations of wavelength converter based on semiconductor optical amplifier for all optical networks	Kulwinder Singh	July, 2014
10.	Amninder Singh (Regd. No. 7141-12-1380)	Design and analysis of minimum-phase FIR filter for efficient implementation	Kulwinder Singh	July, 2014
11.	AmritPal Singh (Regd. No.7141-12-1383)	Performance analysis of a bidirectional wavelength division multiplexing passive optical network using reflective Semiconductor optical amplifier (RSOA)	Kulwinder Singh	July, 2014
12.	Neetu Singh (Regd. No.	Investigations on injection current and confinement factor of semiconductor	Kulwinder Singh	February, 2015

	(UCE(E)- 2008-134)	optical amplifier in fiber optic communication systems		
13.	Shivani Sharma(Regd. No.7141-13-1258)	A reversible data hiding scheme to embed high capacity data in two dimensional difference histogram modification	Kulwinder Singh	November, 2015
14.	Supreet Singh (Regd. No. 7141-14-233)	Analysis and reduction of self-phase modulation fiber nonlinearity in optical fiber communication systems	Kulwinder Singh	August, 2016
15.	Sukhvir Kaur (Regd. No. 7141-13-1397)	Detection of packet dropping attack and privacy preserving by encryption algorithm in wireless adhoc networks	Kulwinder Singh	August, 2016
16.	Kumar Sanu (Regd. No. 7141-13-1211)	Research on scale invariant feature transformation based object detection	Kulwinder Singh	August, 2016
17.	Arvinder Kaur Roll No. 11592058	Investigations on Gigabit Passive Optical Networks with Fiber Raman Amplifiers	Kulwinder Singh	December 2017

Annexure III: Details of Refresher Courses / Short Term Programs / Workshops Attended

S.No.	Name	Start Date	End Date	Organized By
1	Applied Electronics and Instrumentation.	Two weeks. 19/06/2000.	30/06/2000.	GNDEC, Ludhiana
2	Simulation Tools for Electronic system design.	One Day, 07/10/2002.		NIT, Jalandhar
3	Optical Communication, Emerging Trends it's role and Technology application.	Two weeks., 31/03/2003.	11/04/2003.	PEC, Chandigarh
4	Virtual Instrumentation	Five Days, 28/07/2003	01/08/2003.	NITTTR, Chandigarh
5	Curriculum Process	Four Days, 23/09/2003	26/9/2003	NITTTR, Chandigarh

6	AUTOCAD	Five Days, 08/12/2003	12/12/2003	NITTTR, Chandigarh
7	HRD Prigame for Faculty.	Four Days, 23/09/2004	02/07/2004.	Indian Heritage Academy, Bangalore (Bengaluru)
8	Digital Signal processing: Fundamentals, Algorithms & Applications	Two Days, 03/03/2005	4/3/2005	TIET, Deemed University, Patiala.
9	Satellite Communication, Application & Emerging Trends.	Two Weeks, 20/06/2005	1/7/2005	Career Institute of Technology & Management, Faridafad, Haryana.
10	Enhancing Pedagogy with Modern Technologies.	Two Weeks, 13/02/2006	24/02/2006	UIET, Punjab University, Chandigarh.
11	UGC Refresher Course on Advanced Signal Processing Technologies in in wireless Communication.	Three Weeks, 04/12/2006	23/12/2006	TIET, Deemed University, Patiala.
12	MATLAB & SIMULINK for Engineer Education	One day, 20/04/2010		MATLAB India, Chandigarh
13	OFC System Design & Performance Evaluation.	One week, 23/08/2010	27/08/2010	NITTTR, Chandigarh
14	AICTE Recognized STC on Wireless Communication	One week 02/05/2016	06/05/2017	NITTTR, Chandigarh
15	AICTE Recognized STC on Repair and Maintenance of Electronics Measuring Instruments.	One week, 09.01.2017	13.01.2017	NITTTR, Chandigarh at UCoE, Punjabi University, Patiala.