



1. Present Position: Professor HAG

2. Educational Qualifications:

Degree	Year/Position/Div.	University/Institute	Remarks
Ph.D	1978	University of Sheffield (U.K) (project at Std. Telecom.Lab,Harlow)	Govt of India National Scholar (British Council Fee Award)
M.Engg	1975/-/Distn.	University of Sheffield (U.K) (course work at Univ.Manchester Inst. Sc. &i Tech.)	Govt of India National Scholar (British Council Fee Award)
M.Sc.Tech	1971/-/1 st (8.27/10)	B.I.T.S,Pilani	U.G.C, J.R.F
M.Sc	1969/3 rd /1 st (70.75%)	Agra University	U.P.Govt Scholarship

3. Membership of Professional Societies:

- (i) Fellow Inst of Phys.(London) since 2003
- (ii) Fellow Inst of Engg & Tech.(Formerly Inst of Elect Eng.) (U.K) since 2009
- (iii) Life Fellow Inst of Electron. & Telecom Engs since 1983
- (iv) Life Fellow Inst of Engs. and Chartered Eng. Since 2006
- (v) Life Fellow Ind Microelectron Soc. since 2007
- (vi) Senior Member IEEE (U.S.A) since 2004
- (vii) Member BITSAA, Pilani
- (viii) Member Sheffield & Manchester Univs. Alumni Associations

4. Emploment Details:

Positions Held	Pay Scale/Present Basic	University/Institute
Professor(22/10/1989-to date)	67,000-79,000/79,000 37,000-67,000/18,400-22,400/5100- 7300/1500-2500	I.I.T.Roorkee/Univ of Roorkee
Reader(23/12/1978-22/12/1988)	3700-5700/1200-1900	Univ of Roorkee
S.S.A(16/5/1972-17/10/1974)	550-900/325-575	C.S.I.R (C.E.E.R.I,Pilani)
Senior Visiting Fellow (SERC,UK UK)(19	-	Univ of Surrey, U.K
INSA-Royal Society Visiting Fellow(Nov.1982-Feb.1983)	-	Univ of Surrey, U.K
As a Ph.D research scholar (1975-78)	-	Standard Telecom Lab,Harlow (U.K)

5. Administrative/Committees

- (i) Chairman NBA/AICTE, Delhi Accreditation committees
- (ii) Chairman of DOEACC, Delhi Accreditation committees
- (iii) Chairman IPR Evaluation Committee, IITR
- (iv) Vice-Chairman IEEE Roorkee Chapter
- (v) President/Chief Advisor Educational Cinema Club, IITR
- (vi) Member All India REE B.E/B.Arch Entrance Exam committee, UOR/IITR
- (vii) MHRD nominee on TEQIP-I & II/Evaluator, mentor and auditor for 3 NIT's
- (viii) Member NBA Engg. Accreditation & Evaluation (EAEC)/Appellate committees of NBA
- (ix) Member Board of Governors, Shobhasaria Group of Insts., Sikar (Rajasthan)
- (x) Nominator for INSA (Delhi) Young Scientist Award & Foreign Collaboration Programmes
- (xi) Member Faculty Appraisal Committee (other than Professors), IITR
- (xii) Chairman Dept Library Committee, IITR
- (xiii) Chairman Ph.D interview committee, E & CE Dept, IITR
- (xiv) Chairman a.c committee, IITR
- (xv) Chairman Grade Moderation Committee, IITR
- (xvi) Group Leader Microelectronics and VLSI Technology, IITR
- (xvii) Member Senate, Syndicate, Academic council, IITR/UOR
- (xviii) Centre Supdt DOEACC (Delhi) exams
- (xix) Member institute student affairs council, IITR
- (xx) Evaluator for Khosla National Award, IITR
- (xxi) Convener Fact Finding Committee, IITR
- (xxii) Member purchase committee, Tel Exch., IITR
- (xxiii) Member Roorkee Univ. Committee for Res. & Ind. Liason
- (xxiv) Member Departmental Administrative Committee,
- (xxv) Member Univ CPF sub-committee

6. Awards and Honours:

(i) Awards :

INSA Young Scientist Gold Medal, Khosla Award Gold Medal & Commendation Certificates, Bharat Excellence Award & Gold Medal of FFI 06 & 09, Chosen for rising personalities of India & gold medal and Bharat Jyoti Award, S.K.Mitra Memorial Awards (twice), Govt. of India National Scholarship for Studies Abroad, Govt. of U.P National Scholarship, UGC Junior Fellowship, British Council Fees Award, SERC (U.K) Awarded Senior Visiting Fellowship, Univ. of Michigan, Utah & Calgary Fellowship Awards, Overseas travel/ grants from AICTE, DST, DOE, INSA, SERC(UK), NTT(Japan), IMT(Romania), Royal Society(UK), Ministry of Edn. & Social Welfare and UOR, Awards in Drawing & Paintings

(ii) Honors :

Govt. of India National Scholar in U.K, President/Chief Advisor ECC-Univ./IIT Roorkee, Reviewer for IEEE Journals on Electron Devices and Nanotechnology, Phys. Status. Solidi (Germany), Int. J. Electron.(U.K), J.I.E.T.E , J.I.E, Def. Sci. J and Commun. In Inst etc., , A level in GaAs christened as "Saxena's Deep Donor" by Philips Research Laboratory - Netherlands, Reviewer / Member Advisory Boards / Session Chairman /Invited Speaker for Nat./Int. Conf., Indian and Overseas

Journals, University of Roorkee, Paper setter/ Examiner for UPSC, Member Roorkee Univ. Committee for Res. & Ind. Liason, Member Administrative Committee, Member CPF sub-committee, Professorial's and Faculty Boards, Chairman M.Tech admission committees, Coordinator Inst. Electronics counsel, Chairman Technical Sessions & invited speaker at various conferences. Member RDC and BOS of many universities/institutions, As coordinator trained about 350 U.G Engg students of various Engg colleges for VLSI/VHDL entrepreneurship.

Dr. Saxena has visited several countries viz., UK, USA, Japan, Australia, Romania and Thailand. He has also been a Royal Society (London) - INSA visiting fellow and SERC (UK) senior visiting fellow at University of Surrey (UK). He was also awarded visiting fellowship by University of Michigan (USA). He has published about 250 research papers in international journals and conference proceedings with very high citation index of about 900 so far. He has also written about 30 technical reports and has been Investigator-in-charge of several sponsored research projects from various national funding agencies. He also received financial assistance from NTT (Japan), IMT (Romania), DST, INSA, AICTE, DOE, UP Govt., Ministry of Education & Social Welfare and UOR/IIT for attending conferences abroad. Some of his research work has been included in books published from USA and Germany. His biography has been published in a large numbers of publications from U.K., U.S.A., Malaysia and India. Dr. Saxena has supervised many Ph.D./M.E./M.Tech./M.Phil. theses in the area of VLSI design, metal-semiconductor ohmic and non-ohmic contacts, band structure and deep energy levels of GaAs, GaAlAs, GaP, InP, etc and quantum wells under pressure. He has also written AICTE sponsored nine volumes on the related subjects for working professionals.

7. Sponsored Research and Consultancy Projects:

- (i) Ohmic and Rectifying Metal Contacts To GaAs/AlAs Semiconductors, CSIR, New Delhi
- (ii) Identification and Characterization of Energy Levels in GaAs and GaAlAs, INSA, New Delhi
- (iii) Band off-sets in GaAs and InP Based Systems From Capacitance Spectroscopy with Prof A.R.Adams, Dept of Physics, Univ. of Surrey, SERC(UK)
- (iv) Growth of Gallium Arsenide for microwave and optical semiconductor devices, DST, New Delhi
- (v) Investigation of Si nanowire FET reliability at high and low temperatures and its modeling, DST, New Delhi (in progress)
- (vi) Several one year projects from University of Roorkee

8. Courses Offered to U.G/P.G Students:

Fundamentals of Electronics, Characterization of semiconductor materials and devices, VLSI technology, Optoelectronics and devices, Compound semiconductor and devices, Semiconductor devices and technology, Electronics laboratory, Microelectronics laboratory

9. Ph.D Students:

- (a) Ph.D's in progress
 - (i) Ashutosh Nandi "Analytical performance analysis of dual k spacer based underlap FinFET"
 - (ii) Om Prakash "Device and circuit reliability"
- (b)** Ph.D's completed
 - (iii) R.P. Benyon "Deep levels in III-V semiconductors and quantum wells at high pressures"
 - (iv) Prabhat Singh "Metal contacts and transport properties of GaAs/AlAs and its mixed alloys"
 - (v) S.S. Rathod "Mitigation of radiation effects in MOS based devices and circuits"

- (vi) S.K. Vishvkarma "Analytical modelling of low leakage MGDG MOSFET and its application to SRAM"
- (vii) B.Raj "Analytical modelling of double gate FinFET and its applications to SRAM cell design"

10. M.Tech Students:

(a) M.Tech's in progress

- (i) Ashish Shrivastava "NBTI effects in Si nanowire transistors and their characterisation"
- (ii) Bipin B. Meena "Stress effects on Si nanowire FET's"
- (iii) S. K. Harode "Energy harvesting MEMS using AlN"
- (iv) C. V. S. Reddy "Design and modelling of carbon nanotube FET's for gas sensing applications"
- (v) Manjeet Singh Lowanshi "Fabrication of III-V MOSFET's"

(b) M.Tech's completed

45 dissertations have been completed and degrees awarded

11. Some Current Publications (2014-2011):

1. "Effect of load capacitance and input transition time on FinFET inverter capacitances" IEEE Trans Electro Dev (USA)-vol 61, no 1, 2014, pp 30-36
2. "Quantum mechanical analytical modeling of nanoscale DG FinFET: evaluation of potential, threshold voltage and source/drain resistance" Mater Sci in Semicond Process, (U.K), vol 16, no 4, 2013, pp 1131-1137
3. "Analytical modeling of double gate MOSFET considering source/drain lateral gaussian doping profile" IEEE Trans Electron Dev(USA) ,vol 60, no 11, 2013, pp 3705-3709
4. "High performance double gate FinFET SRAM cell design for low power applications" Int J VLSI & Signal Process Appl(China), vol 1, no 1, 2011, pp 12-20
5. "Design and analysis of analog performance of dual-k spacer underlap n/p-FinFET at 12 nm gate length" IEEE Trans Electro Dev (USA), vol 60, no 5, 2013, pp 1529-1535
6. "Impact of Dual-k Spacer on Analog Performance of Underlap FinFET: A TCAD study" Micro Electron J(UK), vol 43, no 11, 2012, pp 883-887
7. "Analysis of double gate FinFET based address decoder for radiation induced single event transients" IET Circuits, Dev & Syms(UK), vol 6, no 4, 2012, pp 218-226
8. "Design of an ultra low power clock gating D Flip-Flop using Quasi Static Energy Recovery Logic" J Solid State and Microelectron (U.S.A), vol ,no 1 , 2012, pp 9-14
9. "Radiation effects in Si-NW GAAFET and CMOS inverter: A TCAD simulation study" IEEE Trans Electron Dev(USA), vol 59, no 5, 2012, pp 1563-1566
10. "DG-FinFET based SRAM configurations for increased SEU immunity" J Ccts, Syms & Comp (Singapore), vol 21, no 4, , 2012, pp-1250032-1-18
11. "Radiation effects in MOS based devices and circuits" IETE Tech Rev(India), vol. 28, no 6, 2011, pp 451-469
12. "Comparative analysis of SEU in FinFET SRAM cell for super threshold and subthreshold supply voltage operation" IEEE Trans Electro Dev(USA), vol 58, no 10, 2011, pp 3630-3634
13. "Modeling and Estimation of Edge Direct Tunneling Current for Nanoscale Metal Gate (Hf/AlN_x) Symmetric Double Gate MOSFET" Microelectronics Engineering(UK) ,vol 42, 2011, pp 688-692
14. "Nanoscale FinFET Based SRAM Cell Design: Analysis of Performance metric, Process variation, Underlapped FinFET and Temperature effect" IEEE J Ccts & Syms(USA), vol 11, no 3, 2011, pp 38-50.
15. "Modeling of threshold voltage, mobility, drain current and sub threshold leakage current in

virgin and irradiated SOI FinFET device" J Appl Phys (U.S.A), vol 109, no 8, April 2011, pp 094504-1-11

11. Research Work in Books:

- (i) A.K.Saxena-09 volumes of AICTE sponsored packages written for working professionals
- (ii) G.T.Dyos and T.Farrell "Electrical Resistivity Handbook" (IET,UK), 1992, ISBN 0863412661
- (iii) H.Kalt "Optical properties of III-V Semiconductors: The influence of Multivalley Band Structures" (Springer, Germany), 1995, ISBN 3540602291
- (iv) K.W.Boer "Survey of Semiconductor Physics: Electrons and Holes in Bulk Semiconductors" (Van Nostrand, USA), 2002, ISBN 0171079553
- (v) S.Adachi "Properties of Semiconductor Alloys: Group IV, II-V and II-VI Semiconductors" (Wiley, USA), 2009, ISBN 9780470743690