

## RESUME

1. Name: Dr. Nirmal Singh
2. Date of Birth: 15<sup>th</sup> September 1963
3. Designation: Principal, MIMIT Malout
4. Date of Joining: 3<sup>rd</sup> March 2010
5. Nationality: Indian
6. Present Address: Dr. Nirmal Singh  
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### 7. Qualifications:

Qualification	Name of the Board/University	Year of Passing	Division/ Grade
Matriculation	Govt High School, VPO: Jallowal Khanoor Hsp. C/o PSEB Mohali	March 1981	First Division
BE (Mech Engg)	GNE College, Ludhiana C/o Panjab University Chandigarh	June 1987	First Division
ME (Mech Engg)	GNE College, Ludhiana C/o Panjab University Chandigarh	Jan 1995	First Division
PhD (Mech Engg)	Punjab Technical University, Jalandhar	March 2003	First PhD of PTU

### 8. Previous Employments:

Name of Employer	Date of joining	Date of leaving	Position	Nature of Duty	Basic pay p. m. with the Grade
The Chairman BOG	03-03-10	Continue	Principal MIMIT Malout	Administrative	18400-22400 with initial start Rs, 19400/-
The Chairman BOG (BCET, Gurdaspur)	08-11-04	02-03-10	Professor	Teaching and Administrative	BP=Rs. 19550/- 16400-22400
The Chairman BOG (BCET, Gurdaspur)	08-11-96	07-11-04	Assistant Professor	Teaching and Administrative	12000-18300
The Secretary, TE & IT Via PPSC, Patiala	20-06-89	07-11-96	Lecturer	Teaching	2200-4000
The Director, PGIMER, Chandigarh	28-11-87	19-06-89	Jr. Engineer	Operation & Maintenance	1400-2300

### 9. Research Interests:

Modeling, Identification, Validation & Simulation of Mechanical Engineering Applications Using Fuzzy Logic as Methodology in MATLAB Environment

**10. Short Term Courses Attended:**

Sr.	Name of STC	Conducted by	From	To	Weeks
1	Computer Aided Drawing (CAD) for Mechanical Engineering	TTTI, Sectors-26, Chandigarh	03-04-95	15-04-95	02
2	Training on MIS Package (Punjab)	TTTI, Sectors-26, Chandigarh	24-07-95	26-07-95	01
3	Training on MIS Package (Punjab)	TTTI, Sectors-26, Chandigarh	18-09-95	30-09-95	02
4	Computer Based Instructional Material Development	TTTI, Sectors-26, Chandigarh	16-09-96	04-10-96	03

**11. Short Term Course Conducted:**

1. Conducted a Short Term Training Programme at BCET Gurdaspur, in association with ISTE (Indian Society for Technical Education) on, "Fuzzy Logic in Engineering Systems", from 22<sup>nd</sup> to 26<sup>th</sup> May 2006. Thirty participants attended this programme, 15 faculty members from inside the institution and 15 faculty members from outside institutions.

**12. Details of Publications:**

1. Singh N., "Fuzzy Logic- A New Trend", The Science Tribune, 1<sup>st</sup> June 2000.
2. Singh N., "Anti-Swing and Position Control of a Crane Using Fuzzy Logic," ISTE Seminar on Logistic Management (MIS), 4<sup>th</sup> Feb 1999, GNEC, Ludhiana, Punjab.
3. Singh N., Vig R., Sharma J. K., "Fuzzy Modeling & Identification to Approximate the Static SISO Nonlinear Mathematical Functions," National Conference on Engineering Mathematics, 6-7<sup>th</sup> April 2001, Institute of Engineering & Technology, Baddal, Ropar, Punjab, India.
4. Singh N., Vig R., Sharma J. K., " Identification of MIMO Systems by Input-Output Takagi-Sugeno Fuzzy Models," International Conference on Computational Science (ICCS), San Francisco, CA, USA, May 2001, Published in Springer Verlag, Germany, Lecture Notes in Computer Science, ISBN 3-540-42233-1, pp 1050-1059.
5. Singh N., Vig R., Sharma J. K., "Fuzzy Modeling for Intelligent Ignition Timing Control," Journal of Mechanical Section, Institution of Engineers, Calcutta (India), Vol. 83, July 2002, pp 78-83 (**Memorial Prize Awarded to this Paper by the Institution of Engineers Calcutta, India**).
6. Singh N., Vig R., Sharma J. K., "Linguistic Fuzzy Modeling for Industrial Applications", Journal of Scientific & Industrial Research, Vol. 60, November 2001, pp 851-859.
7. Singh N., Vig R., Sharma J. K., "ICE Idle Speed Control Using Fuzzy Idle", SAE Paper No 2002-01-1151, SP-1704, SAE World Congress, 4-7<sup>th</sup> March 2002, Detroit USA.

8. J. Singh, N. Singh, J. K. Sharma, "Design of Fuzzy Logic base for Human Comfort" Proceedings of National Conference on Trends of Computational Techniques in Engineering, SLIET Longowal, pp 600-603, 2004.
9. J. Singh, N. Singh, J. K. Sharma, " Fuzzy Modeling of Fan-coil Unit of HVAC System" International Conference on 'Emerging Technologies in Intelligent System and Control' Kumaraguru College of Technology, Coimbatore, pp 451-558, 5-7<sup>th</sup> January 2005.
10. J. Singh, N. Singh, "Friction Welding Study on Similar Weld Joints of Aluminum and G. I. Pipes." Journal of Mechanical Section, the Institution of Engineers. (India), Vol. 85, March 2005, pp 80-83.
11. J. Singh, N. Singh, J. K. Sharma, " Complexity Reduction in Fuzzy Modeling of Fan-coil Unit of HVAC System", Journal of Scientific & Industrial Research, Vol. 64, June 2005, pp 420-425.
12. J. Singh, N. Singh, J. K. Sharma, "Linguistic Modeling of Mechanical Systems," Journal of Mechanical Section, the Institution of Engineers. (India), Vol. 86, October 2005, pp 115-120.
13. J. Singh, N. Singh, J. K. Sharma, " Fuzzy Modeling and Identification of Expansion Valve Control on Vapor Compression Refrigeration System", 4<sup>th</sup> International Conference on Heat Transfer, Fluid Mechanics, and Thermodynamics Cairo, Egypt, 19-22 September 2005.
14. J. Singh, N. Singh, J. K. Sharma, "Fuzzy Modeling and Identification of Intelligent Control for Refrigeration Compressor," Journal of Scientific & Industrial Research, Vol. 65, January 2006, pp 22-30.
15. J. Singh, N. Singh, J. K. Sharma, "Fuzzy Modeling and Control of HVAC Systems- A Review, "Journal of Scientific & Industrial Research, Vol. 65, January 2006, pp 470-476.
16. J. Singh, N. Singh, J. K. Sharma, "Fuzzy Modeling of Vapor Compression Cycles for Advanced Controls in HVAC Systems," Journal of Mechanical Section, the Institution of Engineers. (India), Vol. 87, October 2006, pp 52-28. **(Memorial Prize Awarded to this Paper by the Institution of Engineers, Calcutta, India).**
17. J. Singh, N. Singh, J. K. Sharma, "Fuzzy Modeling and Identification of Vapor Compression Elements of Air Conditioning System for Integrated Fuzzy Control," International Journal of Information and Systems Sciences, Vol.3, Number 1, pp 88-115, 2007.
18. J. Singh, N. Singh, J. K. Sharma, "Modeling and Simulation for Intelligent Control of Expansion Calve in Vapor Compression Refrigeration System", Cybernetics and Systems: An International Journal, Vol.38, pp 411-427, 14<sup>th</sup> May 2007.
19. Nripjit, Nirmal Singh, Anand K. Tyagi, "Evolution of Metal Casting (A Review Study)", Proceeding of International Conference on AME-2006, pp 295-298.

20. Nripjit, Nirmal Singh, Anand K. Tyagi, "Al/Al Alloys Matrix Ceramic Particulate Composites-Past, Present & Future", Proceeding of International Conference on Advanced Materials and Applications, , ICAMA-2007, pp 1-15.
21. Bharj R. S., Chander S., Singh N., "Impact of Emission Norms on In –Use Spark Ignition Engine Driven Vehicles." Proceedings of 15<sup>th</sup> International Conference, ISME 2008, pp 203-211.
22. Bharj R. S., Singh N., Chander S., "Fuzzy Modeling for Optimization of a Spark Ignition Engine under Real Environment." JSIR-2008.

### **13. Academic achievements and extra curricular activities:**

#### **1. PhD:**

His Excellency Dr. A. P. J. Abdul Kalam, the then President of India awarded a 1<sup>st</sup> PhD degree in the faculty of Mechanical Engineering & Technology at the campus of Punjab Technical University, Jalandhar, in the 1<sup>st</sup> Convocation on 23<sup>rd</sup> March 2003.

#### **2. PhD Students:**

1. Guided a PhD on, "Fuzzy Modeling of Vapour Compression Air Conditioning System", to Dr. Jagdev Singh, Assistant Professor, Mechanical Engineering, BCET, Gurdaspur in the Faculty of Engineering & Technology, Punjab Technical University, Jalandhar vide Registration Number 05-13-03 dated 19<sup>th</sup> May 2003. PhD has been awarded by PTU in the month of May 2009.
2. Guided a PhD on, "Fuzzy Modeling and Performance Optimization of a Spark Ignition Hybrid Fuel vehicle using Gasoline and LPG", to Dr. Ravinder Singh Bharj, Assistant Professor, Mechanical Engineering, National Institute of Technology, Jalandhar in the Faculty of Engineering & Technology, NIT, Jalandhar vide Registration Number 05-17-04 dated 27<sup>th</sup> Feb 2004. PhD has been awarded by NIT in the month of June 2009.
3. Guiding a PhD on, "Experimental Study of Aluminum and its Alloys", to Sh Nripjit, Assistant Professor, Mechanical Engineering, SBSCET Ferozepur in the Faculty of Engineering & Technology, Punjab Technical University, Jalandhar vide Registration Number 05-29-06 dated 13<sup>th</sup> June 2006.

#### **3. Selection as Dean in PTU Jalandhar:**

Subject to advertisement for the post of Dean on deputation by PTU Jalandhar, the appointment letter was issued to me in the month of June 2008 for the post of Dean on deputation for one year extendable up to three years. I was not relieved by the Govt. of Punjab to join my new assignment for the reasons not known to me and consequently my appointment was withdrawn by the University. Now, I have been selected again as Dean on regular basis in the month of February 2010 by the Vice Chancellor, PTU.

#### 4. **AICTE Sponsored Projects:**

1. MODROB project sponsored by AICTE entitled, “Up gradation of Metallurgy Lab”, for Rs. 10 Lakhs vide File. No 8023/RID/BOR/MOD-94/2005-06 dated 17<sup>th</sup> February 2006 **(Completed)**
2. MODROB project sponsored by AICTE entitled, “Modernization of CAD/CAM & Automation Lab”, for Rs. 10 Lakhs vide File. No 8023/RID/BOR/MOD-95/2005-06 dated 17<sup>th</sup> February 2006 **(Completed)**
3. MODROB project sponsored by AICTE entitled, “Up gradation of Robotics & Automation Lab” for Rs. 9 Lakhs vide File. No. 8023/RID/BOR/MOD-310/2007-08 dated 20<sup>th</sup> June 2008. **(Under Progress)**

#### 5. **Energy Club:**

1. Established (REC) Renewable Energy Club in the Department of Mechanical Engineering in the college, sponsored by (PEDA) Punjab Energy Development Agency, Solar Passive Complex, Sector 33-D, Chandigarh with a grant of Rs. 25000/-

#### 6. **Citations/ Letters of Recommendations:**

1. Ref No PDP/49888 dated 21<sup>st</sup> May 2003 by Dr. V. P. Singh, Ex- Director, Planning and Development, Punjab Technical University, Jalandhar, Punjab.
2. No PSB/IT/Miscellaneous/611 dated 28<sup>th</sup> May 2003 by Sh Ranjit Singh, Ex-Additional Director, Department of Technical Education & Industrial Training, Punjab, Chandigarh.
3. Ref No BCET/Gsp/2004/402 dated 19<sup>th</sup> Feb 2004 by Dr. S. S. Koonar, Ex-Principal, Beant College of Engineering & Technology, Gurdaspur, Punjab.

#### 7. **Awards:**

1. The Institution of Engineers, Calcutta (India) awarded “The N K Iyengar Memorial Prize” to the Paper Entitled, “Fuzzy Modeling for Intelligent Ignition Timing Control”, Journal of Mechanical Section, Institution of Engineers (India), Vol. 83, July 2002, pp 78-83.
2. The Institution of Engineers, Calcutta (India) awarded “The N K Iyengar Memorial Prize” to the Paper Entitled, “Fuzzy Modeling of Vapour Compression Cycles for Advanced Controls in HVAC Systems,” Journal of Mechanical Section, the Institution of Engineers (India), Vol. 87, October 2006, pp 52-28.

#### 8. **Lectures:**

1. Delivered an ISTE Lecture on “Fuzzy Logic Applications of Mechanical Engineering” to Faculty and Students of Mechanical Engineering Department at JMIT Radaur, Yamna Nagar, Haryana on 20<sup>th</sup> March 2001.
2. Delivered an Expert Lecturers on 21<sup>st</sup> - 22<sup>nd</sup> July 2003 in Four Sessions on “Fuzzy Logic” in Short Term Courses of “Neural Networks & Fuzzy Logic” held from 14<sup>th</sup> to

25<sup>th</sup> July 2003 at National Institute of Technical Teacher's Training & Research, Sector 26, Chandigarh.

3. Delivered a Key Note Address during Inauguration of Short Term Training Program, "Optical Fiber Technology & Applications", in BCET, Gurdaspur held on 16<sup>th</sup> –20<sup>th</sup> Feb 2004.
4. Delivered a lecture on, "Intelligent Traffic Control Using Fuzzy Logic", in National Technology Day-2005 celebration in the College on 5<sup>th</sup> September 2005 on the occasion of Teacher's Day.
5. Delivered key note address and a lecture on, "Soft Computing: using MATLAB", to the candidates attending a Short Term Training Program Sponsored by AICTE-ISTE on, "Emerging Trends in Modern Manufacturing" from 26<sup>th</sup> May to 30<sup>th</sup> May 2008.
6. Delivered a guest lecture in National Conference on, "Modern Developments in Engineering & Sciences", organized by Ambala College of Engineering and Applied Research, Ambala from 27<sup>th</sup> -28<sup>th</sup> February 2009.
7. Deliver three hour presentation on the overview of all the college for Accreditation purpose from NBA in the presence of 6 AICTE-NBA expert committee members and all HODs, co-ordinators, section in charges and officers of the college on 10<sup>th</sup> April during the visit of the AICTE-NBA expert committee w.e.f 10<sup>th</sup> -12<sup>th</sup> April 2009.

## 9. Workshops:

1. Attended Annual Workshop at National Institute of Technical Teacher's Training & Research, Sectors-26, Chandigarh as , "DTE/BTE Officials, Senior Faculty of Engineering Colleges, Principals and HOD's of Polytechnics and TTTI Faculty", on 11<sup>th</sup> -12<sup>th</sup> Oct 2002.
2. Attended One-day Workshop at National Institute of Technical Teacher's Training & Research, Sectors-26, Chandigarh as, "Development of Need Based Training Scheduled for Technical Teachers of Engineering Colleges of the States of Northern Regions", on 31<sup>st</sup> January 2003.
3. Attended One-day Workshop at National Institute of Technical Teacher's Training & Research, Sectors-26, Chandigarh as, "Educational & Training Needs: Staff Development, Curriculum Development, Instructional Material Development, Research Development and Extension Services & Consultancy", on 9<sup>th</sup> July 2003.
4. Presided over the workshop on new curricula of three years diploma course in Automobile Engineering on dated 19<sup>th</sup> October 2006 in the office of the Secretary, Punjab State Board of Technical Education and Industrial Training, Sector 36-A, Chandigarh and also attended the 22<sup>nd</sup> meeting of Academic Council for approval and adoption of this curricula on 20<sup>th</sup> November 2006 in the same office.
5. Attended a 'Guidance Workshop' organized by Punjab State Council of Science & Technology, Chandigarh on 31<sup>st</sup> January 2007 at Sector 12, Punjab Engineering College, Chandigarh. A grant of Rs. 5000/- was received for the implementation of project entitled as "Solid Waste Management"

**10. Main Participations in BCET:**

1. Editor-in Chief of College Magazine “BECTIANS-2005, 2006 and 2007”
2. Chairman Library Committee.
3. Chairman, DPC (Departmental Promotion Committee)
4. Chairman, Students Welfare Committee and Discipline Committee of the College
5. Chairman, Printing of College Magazine/ Survivor/ Information Brochure Committee.
6. Chairman, Direct Admission Committee in the College for the Session 2006-2007
7. Member Board of Governor, BCET Gurdaspur for one year.

**11. Celebration of National Technology Days:**

1. Celebrated National Technology Day-2005 in BCET on 5<sup>th</sup> September 2005 on the occasion of Teacher’s Day with a grant of Rs. 10000/- from Punjab State Council of Science & Technology, Chandigarh.
2. Celebrated National Science Day on the occasion of International Women’s Day on 8<sup>th</sup> March 2006 on the theme selected by AICTE New Delhi as, “Nurture Nature for Our Future”.
3. Celebrated National Technology Day-2006 in BCET on 1<sup>st</sup> November 2006 on the occasion of New Punjab Day with a grant of Rs. 10000/- from Punjab State Council of Science & Technology, Chandigarh.

**12. Memberships:**

1. Associate Member of Institution of Engineers (India) AM-065535
2. Life Member of Indian Society for Technical Education, New Delhi

**13. Detail of Additional Duties in BCET Gurdaspur:**

In addition to teaching performed the duty of Dy. Superintendent, Superintendent, Controller of PTU Examinations and Evaluations. Following additional duties performed in the college.

<b>Sr.</b>	<b>Name of Additional Duties</b>	<b>From</b>	<b>To</b>
1	Chairman House Allotment Committee	01-05-01	20-03-04
2	In-charge Security	01-10-01	08-08-03
3	Chief Warden (Hostels)	23-09-02	07-03-04
4	Training and Placement Officer	23-09-02	26-05-03
5	Co-ordinator (Mechanical & Production Engg)	26-05-03	07-11-04
6	In-charge Academics	01-07-03	20-03-04
<b>7</b>	<b>Additional Duties of Principal, BCET</b>	<b>10-07-04</b>	<b>10-08-04</b>
8	HOD (Mechanical Engineering)	08-11-04	07-08-07
9	Chief Warden (Hostels)	01-01-05	30-05-07
10	Dean (Academics)	01-06-07	07-08-07
11	HOD (Mechanical Engineering)	15-09-07	01-04-08
12	Dean (Hostels & Students Welfare)	01-01-08	01-04-08
<b>13</b>	<b>Additional Duties of Principal, BCET</b>	<b>29-01-08</b>	<b>29-07-08</b>
<b>14</b>	<b>Additional Duties of Principal, BCET</b>	<b>20-03-2009</b>	<b>02-03-2010</b>

In addition of routine duties, some of the following notable achievements were made w.e.f 20-03-2009 to 02-03-2010 as Principal BCET Gurdaspur for progress and improvement of corporate life of faculty, staff and students:

**1. Finance Committee Meeting:**

Organized a 20<sup>th</sup> Finance Committee meeting of BCET on 26<sup>th</sup> March 2009 in the office of the Principal Secretary TE&IT cum Chairperson, Finance Committee.

**2. 4<sup>th</sup> Annual Athletic Meet 2008-2009:**

Organized a 4<sup>th</sup> Annual Athletic Meet 2008-2009 on 30<sup>th</sup> March 2009 in BCET. Sh. Nilkanth S. Avhad, IAS, DC Gurdaspur was the Chief Guest.

**3. North East States Cultural Festival 2009:**

Organized a North East states cultural festival of folk dances on 6<sup>th</sup> April 2009 in the college in association with North East Cultural Zone Patiala and district administration Gurdaspur. Participant of 7 North Eastern Sister States participated in the cultural festival. Sh. Depurva Lakra. IAS, SDM Dhar Kalan presided over the function.

**4. Accreditation of College from NBA (National Board of Accreditation):**

AICTE-NBA expert committee consisting of 6 members visited the college on 10<sup>th</sup> -12<sup>th</sup> April 2009 for accreditation of three B. Tech. courses via; Computer Science & Engineering, Electronics & Communication Engineering and Mechanical Engineering. Consequent of evaluation of human recourses, infrastructure and technical teaching learning process, NBA has given accreditation to these three courses of BCET Gurdaspur for 3 years w.e.f 10<sup>th</sup> July 2009 to 10<sup>th</sup> July 2012. This is a matter of great pleasure and pride not only for the State of Punjab but also for the Border District that BCET achieved a major success by getting Accreditation and has become the First accredited college of Engineering & Technology established, managed and promoted by Govt. of Punjab.

**5. Workshop Conducted:**

Organized a Robotics Workshop "Robokriti" in BCET in association with Technophilia Solutions, Mumbai on 18<sup>th</sup> -19<sup>th</sup> April 2009. Besides students of our college, more than 100 students participated from neighboring institutions.

**6. Award of Honour by Hon'ble Governor of Punjab:**

Award of Honour was presented to the BCET on account of maximum contribution on the occasion of Flag Day and NSS programs by His Excellency Gen. Dr. S.F. Rodrigues PVSM & VSM, Hon'ble Governor of Punjab & President of Indian Red Cross Society, Chandigarh on the occasion of World Red Cross Day celebrations on 8<sup>th</sup> May 2009 at Tagore Theatre, Sector-18, Chandigarh.

**7. 1<sup>st</sup> Annual Convocation:**

1<sup>st</sup> annual convocation was organized on 20<sup>th</sup> May 2009 in BCET since its inception in 1995. Dr. Rajneesh Arora, Vice-Chancellor, Punjab Technical University, Jalandhar presided over as Chief Guest, delivered the Convocation Address and conferred the degrees to 270 students.

**8. 10+2 School:**

Beant Senior Secondary School of 10+2 Non-medical stream has been started in BCET w.e.f June 2009 for the session 2009-2010. Affiliation from PSEB, Mohali has been taken with School No GS 2407 and 50 students were admitted in 10+1.

**9. Polytechnic Wing:**

Beant College of Engineering & Technology (Polytechnic Wing) Gurdaspur was started in the month of August 2009. Polytechnic wing has approval from from AICTE and Govt. of Punjab for three diploma courses with intake of 180. During online counseling and direct admissions 195 students were admitted including admission under fee wavier scheme.

**10. Plantation Camp in the College:**

Organized a plantation camp in BCET on 28<sup>th</sup> August 2009 with variety of more than 300 plants. All HODs, coordinators, section in charges, faculty, staff and student took active part in the camp.

**11. New Course of M. Tech. Computer Science & Engineering:**

New course of M. Tech. CSE part time was stated from academic session 2009-2010 in the department of Computer Science & Engineering and Information Technology under the Regional Center of PTU at BCET with intake of 25 seats. All seats were filled in the 1<sup>st</sup> Batch CSE. All seats were also filled in M.Tech of ECE and ME at BCET Gurdaspur.

**12. Blood Donation Camp:**

Blood donation camp was organized in BCET under NSS on 10<sup>th</sup> September 2009 in association with Civil Hospital and Blood Bank Gurdaspur. More than 200 students participated and 125 units of blood were donated by the students. Dr. Karamjit Singh Sra. IAS, Deputy Commissioner Gurdaspur inaugurated the camp.

**13. Research Promotion Schemes:**

Helped and motivated the faculty of BCET to get funds under Research Promotion Schemes sponsored by AICTE amounting to Rs. 33.5 Lakhs. This amount has been received in BCET and projects are under active progress.

**14. Filling up of all Seats at BCET Gurdaspur:**

Almost all seats were filled in Beant Senior Secondary School, Beant Polytechnic, Beant College of Engineering and Technology and in Regional Center of PTU at Beant College

for three M. Tech. part time courses of ME, CSE & ECE. This is first time that all seats were filled up for three M. Tech courses.

In addition to this, improvement in placements of students, short term courses, placements of faculty and staff in higher scales, sponsoring the faculty to international conference in USA, UK and France with full funding from different funding agencies, international expert lecture, starting the construction of auditorium, completion of pending civil works are also notable achievements during 11 months as Principal, BCET Gurdaspur.

#### **15. Names and Address of References:**

1. Dr. J. K. Sharma (Guide of PhD)  
Director, Ambala College of Engineering & Applied Research, Ambala  
Ph: 0172-3850890 @,099966-44012, 98144-12945 (Mobile)  
E-mail: [dr\\_jksharma@yahoo.com](mailto:dr_jksharma@yahoo.com)
  
2. Dr. Renu Vig (Co-Guide of PhD)  
Professor in Electronics & Communication Engineering,  
University Institute of Engineering & Technology, Sector-25, Chandigarh  
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E-mail: [renuvig@hotmail.com](mailto:renuvig@hotmail.com)
  
3. Dr. R. P. Gakhar (Supervisor of PhD)  
Associate Professor, Department of Mechanical & Industrial Engineering  
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**Dr. Nirmal Singh**  
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