

## Curriculum Vita

### M. G. Abbas Malik

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#### Education

##### **2006 – 2010: Doctorate in Computer Sciences**

Doctoral School of Mathematics, Information Sciences and Technologies,  
Computer Science (<http://edmstii.ujf-grenoble.fr>)  
University of Grenoble I (Ex. University of Joseph Fourier), Grenoble, France  
([www.ujf-grenoble.fr](http://www.ujf-grenoble.fr))

##### **2005 – 06: Master Research in Computational Linguistics (in French: Master Recherche Linguistique informatique)**

Faculty of Linguistics, University of Paris 7 – Denis Diderot, Paris, France  
(<http://www.univ-paris-diderot.fr>)

##### **2001 – 03: Master in Computer Sciences**

Punjab University College of Information Technology,  
University of the Punjab, Lahore, Pakistan [www.pucit.edu.pk](http://www.pucit.edu.pk)

##### **1996 – 99: Bachelor in Science**

Major in Mathematics (Theoretical and Applied) and Statistics,  
University of the Punjab, Lahore, Pakistan [www.pu.edu.pk](http://www.pu.edu.pk)

#### Experience

##### **2014 – to date: Assistant Professor, University of Jeddah, Jeddah, Saudi Arabia**

Since September 2014, I am working as Assistant Professor in the Department of Computer Science, Faculty of Computing and Information Technology, University of Jeddah, Jeddah Saudi Arabia (ex. North Jeddah Branch of King Abdulaziz University, Saudi Arabia).

##### **2011 – 2014: Assistant Professor, King Abdulaziz University, Jeddah, Saudi Arabia**

I worked as Assistant Professor in the Department of Computer Science, Faculty of Computing and Information Technology North Jeddah Branch, King Abdulaziz University, Jeddah Saudi Arabia from September 2011 to August 2014.

##### **2010 – 2011: Assistant Professor, COMSATS Institute of Information Technology, Lahore, Pakistan**

I worked as an Assistant professor from September 2010 to June 2011 in Department of Computer Science, COMSATS Institute of Information Technology, Lahore, Pakistan. In addition to teaching, I was also working as *Master of Computer Science Program Coordinator* and managing its academic issues like course allocation, academic calendar and timetable.

##### **2009 – 2010: Researcher and Teacher, University of Grenoble 1 (Ex. University Joseph Fourier), France**

I worked as an ATER (Temporary teaching and research position) in Faculty of Computer Sciences, Mathematics and Applied Mathematics, University of

Grenoble I (Ex. University Joseph Fourier), Grenoble, France from September 2009 to August 2010.

#### **Nov 2002 – Jun 2005: Punjab Lok Sujag (NGO)**

I worked as System Analyst and principal researcher on a *European Union* funded project PLATT (Punjabi Language and Transliteration Tool). I was also responsible for the project management. It was a research project for designing a software which will be able to transliterate the Shahmukhi (Right-to-left script used for Punjabi in Pakistan and derived from Persian/Arabic script) into Gurmukhi (Left-to-right script used for Punjabi in India and derived from old script of Indian Subcontinent named Landa) and vice versa. See Demo version at [www.sanlp.org/PMT](http://www.sanlp.org/PMT)

### **Research Funding and Projects**

#### **Current Projects**

##### **Fundamentals of Graphene-based Nano scale Machines Communications**

My Role: **Co- Principal Investigator**

International Collaboration with **Dr. Ian F. Akyldiz, Ken Byers Chair Prof. Georgia Institute of Technology, Atlanta, USA**

Funding Body: *King Abdulaziz City of Science and Technology* (Saudi Arabian national funding agency)

Funding: 1.5 Million Saudi Riyal

Start date: September 2014

End Date: October 2016

Reference: 12-NAN2730-03

URL:

[http://www.kau.edu.sa/Content.aspx?Site\\_ID=611888&Lng=EN&CID=248905](http://www.kau.edu.sa/Content.aspx?Site_ID=611888&Lng=EN&CID=248905)

##### **Reliable Wireless Sensor Networks for Saudi Arabian's Future Smart Grid Systems**

My Role: **Co- Principal Investigator**

International Collaboration with **Dr. Ian F. Akyldiz, Ken Byers Chair Prof. Georgia Institute of Technology, Atlanta, USA**

Funding Body: *King Abdulaziz City of Science and Technology* (Saudi Arabian national funding agency)

Funding: 1.5 Million Saudi Riyal

Start date: September 2014

End Date: October 2016

Reference: 12-INF2731-03

URL:[http://www.kau.edu.sa/Content.aspx?Site\\_ID=611888&Lng=EN&CID=248917](http://www.kau.edu.sa/Content.aspx?Site_ID=611888&Lng=EN&CID=248917)

#### **Completed Projects**

##### **Energy Efficient Heterogeneous Cellular Networks (HetNets)**

My Role: **Principal Investigator**

International Collaboration with **Dr. Ian F. Akyldiz, Ken Byers Chair Prof. Georgia Institute of Technology, Atlanta, USA**

Funded by Deanship of Scientific Research, King Abdulaziz University

Funding: 250,000 Saudi Riyal

Start date: August 2014

End Date: August 2015

Reference: HiCi-35-611-3

URL:[http://www.kau.edu.sa/Content.aspx?Site\\_ID=611888&Lng=EN&CID=248917](http://www.kau.edu.sa/Content.aspx?Site_ID=611888&Lng=EN&CID=248917)

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### **The Internet of Nano-Things**

My Role: Co- Principal Investigator

International Collaboration with **Dr. Ian F. Akyldiz, Ken Byers Chair Prof. Georgia Institute of Technology, Atlanta, USA**

Funding Body: *King Abdulaziz University, Jeddah, Saudi Arabia*

Funding: 400,000 Saudi Riyal

Start date: September 2013

End Date: July 2014

Reference: 11-15-1432/HiCi

URL:

[http://www.kau.edu.sa/Content.aspx?Site\\_ID=611888&Lng=EN&CID=%20249866](http://www.kau.edu.sa/Content.aspx?Site_ID=611888&Lng=EN&CID=%20249866)

### **Events Organized 6<sup>th</sup> Workshop on South and Southeast Asian Natural Language Processing (WSSANLP – 2016)**

I am serving as the Organizing Committee Chair of the 6<sup>th</sup> workshop on South and Southeast Asian Natural Language Processing, a collocated event at the 26<sup>th</sup> International Conference on Computational Linguistics ([COLING](#)), December 2016, Osaka, Japan. <http://www.sanlp.org/wssanlp2016/>

### **1<sup>st</sup> Workshop on Wireless Networks Applications in Smart Grid and Nano Devices**

I have served as the Technical Program Co-chair and as an organizer of this workshop.

[http://awng.kau.edu.sa/Content.aspx?Site\\_ID=611888&Lng=EN&CID=256486](http://awng.kau.edu.sa/Content.aspx?Site_ID=611888&Lng=EN&CID=256486)

### **5<sup>th</sup> Workshop on South and Southeast Asian Natural Language Processing (WSSANLP – 2014)**

I served as the Co-Chair of the 5<sup>th</sup> workshop on South and Southeast Asian Natural Language Processing, a collocated event at International Conference on Computational Linguistics (COLING), August 2014, Dublin, Ireland. [www.sanlp.org/wssanlp2014](http://www.sanlp.org/wssanlp2014)

### **4<sup>th</sup> Workshop on South and Southeast Asian Natural Language Processing (WSSANLP – 2013)**

I served as the Chair of the organizing committee of the 4<sup>th</sup> workshop on South and Southeast Asian Natural Language Processing at International joint Conference on Natural Language Processing (IJCNLP), October 2013, Japan. [www.sanlp.org/wssanlp2013](http://www.sanlp.org/wssanlp2013)

### **3<sup>rd</sup> Workshop on South and Southeast Asian Natural Language Processing (SSANLP – 2012)**

I served as the Chair of the organizing committee of the 3<sup>rd</sup> workshop on South and Southeast Asian Natural Language Processing at International Conference on Computational Linguistics (COLING), December 2012, Mumbai, India. [www.sanlp.org/wssanlp2012](http://www.sanlp.org/wssanlp2012)

### **2<sup>nd</sup> Workshop on South and Southeast Asian Natural Language Processing (SSANLP – 2011)**

I served as the Chair of the organizing committee of the 2<sup>nd</sup> workshop on South

and Southeast Asian Natural Language Processing with special emphasis *Morphology and Segmentation* at International Joint Conference on Natural Language Processing (IJCNLP), December 2011, Thailand. [www.sanlp.org/wssanlp2011](http://www.sanlp.org/wssanlp2011)

**1<sup>st</sup> Workshop on South and Southeast Asian Natural Language Processing (SSANLP – 2010)**

I served as Chair of organizing committee of the Workshop on South and Southeast Asian Natural Language Processing with special emphasis *Morphology and Segmentation* (the present scope of the workshop) at **International Conference on Computational Linguistics COLING – 2010**, August 2010, Beijing, China. [www.sanlp.org/wssanlp](http://www.sanlp.org/wssanlp)

**Journal Papers**

***Papers Under Review***

Fadel, E., Faheem, M., Gungor, V. C., Nassef, L., Akkari, N., **Malik, M. G. Abbas**, Almasri, S., Akyildiz Ian F.; (2015), “*Honey Bee Mating Optimization-based Clustering Routing in Cognitive Radio Wireless Sensor Networks for Smart Grid Applications*”, under review in **Computer Communications Journal** (COMCOM, JCR Impact Factor 1.695 – Elsevier, December 2015).

Bashir, Z. **Malik, M. G. A.** Rashid, T. Zafar, S. (2016) “*Chaotic dynamical state variables selection procedure based image encryption scheme*”, under review in **Nonlinear Dynamics** (Springer Journal, March 2016).

Bashir, Z. **Malik, M. G. A.** Rashid, T. Zafar, S. (2016) “*Chaotic Dynamical System Based Image Encryption Scheme With Time-Varying Delays*”, under review in **IEEE Transaction on Computational Social Systems** (March 2016).

***Papers Published or Accepted for Publications***

Akkari, N., Wang, P., Jornet, J. M., Fadel, E., Elrefaei, L. A., **Malik, M. G. A.**, Almasri, S., Akyildiz, Ian F.; (2015) “*Distributed Timely-Throughput Optimal Scheduling for the Internet of Nano-Things*”, **IEEE Internet of Things Journal** (May 2016) Vol. PP(99):1-12, May 26, 2016. [DOI](#)

Akkari, N., Jornet, J. M., Wang, P., Fadel, E., Elrefaei, L. A., **Malik, M. G. Abbas**, Almasri, S., Akyildiz, Ian F.; (2015) “*Joint physical and link layer error control analysis for nanonetworks in the Terahertz band*”, **Wireless Networks** (JCR Impact Factor 0.961 – Springer) Vol. 22(4):1221-1233, May 2016. [DOI](#)

Chavarria-Reyes E., Fadel, E., Almasri, S., **Malik, M. G. A.**; (2016) “*Reducing the Energy Consumption at the User Equipment Through Multi-Stream Cross-Carrier-Aware Discontinuous Reception (DRX) in LTE-Advanced Systems*”, **Journal of Network and Applications** (JCR Impact Factor 2.229 – Elsevier) Vol. 64:43-61, April 2016. [DOI](#)

Fadel, E., Gungor, V. C., Nassef, L., Akkari, N., **Malik, M. G. Abbas**, Almasri, S., Akyildiz Ian F.; (2015) “*A Survey on Wireless Sensor Networks for Smart Grid*”, **Computer Communications Journal** (COMCOM, JCR Impact Factor 1.695 – Elsevier), Vol 71:22-33, November 2015. [DOI](#)

Wang, P. Jornet, Josep M., **Malik, M. G. Abbas**; Akkari, N., Akyildiz, Ian F.; (2013); “*Energy and Spectrum-aware MAC Protocol for Perpetual Wireless Nanosensor Networks in the Terahertz Band*”, **Ad Hoc Networks** (JCR Impact Factor 1.530 – Elsevier) Vol. 11(8): 2541-2555. [DOI](#)

**Conference  
Publications**

Javaid, Saira; Sattar, Hira; Ali, Aasim; **Malik, M. G. Abbas**; (2011); “*Survey of Computational Support for Shahmukhi script of Punjabi language*”, **Academic Research International**, Vol. 1(1): 292-300. [PDF](#)

**Malik, M. G. Abbas**, Boitet, C., Besacier, L., Bhattcharrya, P.; (2013) “*Urdu Hindi Machine Transliteration using SMT*”, The 4th Workshop on South and Southeast Asian Natural Language Processing (WSSANLP), a collocated event at International Joint Conference on Natural Language Processing (IJCNLP), Nagoya, Japan. pp. 43-57. [PDF](#)

**Malik, M. G. Abbas**, Boitet, C., Bhattcharrya, P.; (2010) “*Finite-state Scriptural Translation*”, The 23rd International Conference on Computational Linguistics (COLING 2010), August 23 - 27, Beijing, China. pp. 791-800. [PDF](#)

**Malik, M. G. Abbas**, Boitet, C., Bhattcharrya, P., Besacier, L.; (2010) “*Weak Translation Problems - a case study of Scriptural Translation*”, Traitement Automatique des Langues Naturelles (TALN-2010), July 19 - 23, Montreal, Canada. [PDF](#)

**Malik, M. G. Abbas**; Boitet, C., Bhattcharrya, P.; (2010) “*Analysis of NOORI Nasta’leeq for MAJOR Pakistani Languages*”, 2nd Workshop on Spoken Language Technology for Under-resourced Languages (SLTU - 2010), May, Penang, Malaysia. [PDF](#)

**Malik, M. G. Abbas**; Besacier, L., Boitet, C., Bhattcharrya, P.; (2009) “*A Hybrid Model for Urdu Hindi Transliteration*”, Named Entities Workshop: Joint Conference the 47th Annual Meeting of the Association of Computational Linguistics (ACL - 2009) and the 4th International Joint Conference on Natural Language Processing (IJCNLP), August 2 - 7, Singapore. pp. 177-185. [PDF](#)

**Malik, M. G. Abbas**; Boitet, C., Bhattcharrya, P.; (2008) “*Hindi Urdu Machine Transliteration using Finite-state Transducers*”, The 22nd International Conference on Computational Linguistics (COLING 2008), August 18 - 22, Manchester, UK. pp. 537-544. [PDF](#)

**Malik, M. G. Abbas**; (2006) “*Punjabi Machine Transliteration*”, The 21st International Conference on Computational Linguistics (COLING 2006) and the 44th Annual Meeting of ACL, July 17 - 21, Sydney, Australia. pp. 1137-1144. [PDF](#)

**Malik, M. G. Abbas**; (2005) “*Towards A Unicode Compatible Punjabi Character Set*”, The 27th Internationalization and Unicode Conference, April 6 - 8, Berlin, Germany. [PDF](#)

**Program  
Committee  
Member**

I am serving or have served on the *Technical Program Committee* of the following events:

**3<sup>rd</sup> ACM International Conference on Nanoscale Computing and Communication (NanoCom)**

<http://nanocom.acm.org/>

**6<sup>th</sup> Workshop on South and Southeast Asian Natural Language Processing (WSSANLP – 2016)**

<http://www.sanlp.org/wssanlp2016/>

**1<sup>st</sup> Workshop on Wireless Networks Applications in Smart Grid and Nano Devices**

[http://awng.kau.edu.sa/Content.aspx?Site\\_ID=611888&Lng=EN&CID=256486](http://awng.kau.edu.sa/Content.aspx?Site_ID=611888&Lng=EN&CID=256486)

**5<sup>th</sup> Workshop on South and Southeast Asian Natural Language Processing (WSSANLP – 2014)**

[www.sanlp.org/wssanlp2014](http://www.sanlp.org/wssanlp2014)

**4<sup>th</sup> Workshop on South and Southeast Asian Natural Language Processing (WSSANLP – 2013)**

[www.sanlp.org/wssanlp2013](http://www.sanlp.org/wssanlp2013)

**3<sup>rd</sup> Workshop on South and Southeast Asian Natural Language Processing (SSANLP – 2012)**

[www.sanlp.org/wssanlp2012](http://www.sanlp.org/wssanlp2012)

**2<sup>nd</sup> Workshop on South and Southeast Asian Natural Language Processing (SSANLP – 2011)**

[www.sanlp.org/wssanlp2011](http://www.sanlp.org/wssanlp2011)

**1<sup>st</sup> Workshop on South and Southeast Asian Natural Language Processing (SSANLP – 2010)**

[www.sanlp.org/wssanlp](http://www.sanlp.org/wssanlp)

**Talks Delivered**

**Routing Algorithms in Wireless Nanosensor Networks: Past, Present and Future (December 2015)** – invited in the 1<sup>st</sup> Workshop on Wireless Networks Applications in Smart Grid and Nano Devices at King Abdulaziz University, Saudi Arabia

**Combining Finite-state Machines and Statistical Language Models for Urdu to Hindi Transliteration (July 2009)** at XEROX Research Center Europe (XRCE), Grenoble, France.

**Computational Linguistics: a Case Study of Punjabi (January 2009)** at Oriental College, University of the Punjab, Lahore, Pakistan

**Statistical Machine Translation (December 2008)** at Punjab University College of Information Technology, University of the Punjab, Lahore, Pakistan

**Urdu/Punjabi Font Development (May 2005)** at Punjab University College of Information Technology, University of the Punjab, Lahore, Pakistan

**Software Development**

**Seraiki Machine Transliteration Tool**

This system transliterates Pakistani Seraiki (Shahmukhi – a right-to-left script, derived from the Persio-Arabic script) into Indian Seraiki (Devanagari).

[www.sanlp.org/saraikiMT](http://www.sanlp.org/saraikiMT)

**Punjabi Machine Transliteration Tool (Puran 1.0)**

This system transliterates Pakistani Punjabi (Shahmukhi – a right-to-left script, derived from the Persio-Arabic script) into Indian Punjabi (Gurmukhi – a left-to-right script like Devanagari). [www.sanlp.org/pmt](http://www.sanlp.org/pmt)

**Hindi Urdu Machine Translation System (HUMT 1.0)**

HUMT system translates Hindi into Urdu and vice versa. [www.sanlp.org/humt](http://www.sanlp.org/humt)

**Font Development** **Fajer Pakistani Nasta'lique 1.0 beta** (*font for Urdu, Punjabi, Sindhi, Pashto, Kashmiri and Balochi, 2008*)

This font is the continuation of my previous font Fajer Noori Nasta'lique. This may first ever try to give a taste of Nasta'lique to Sindhi and Pashto languages. According to my best knowledge, no one ever tried to give a Nasta'lique font for Sindhi and Pashto languages. I have also enhanced Fajer Noorin Nasta'lique font for other languages like Kashmir and Balochi. This font is also made according to current international standards of Unicode and Open Type Font (OTF) technology.

**Fajer Noori Nasta'lique 1.0 beta** (*font for Urdu/Punjabi - 2003*)

This font is among the pioneer fonts that were developed for Urdu language in accordance with the international language encoding standards – Unicode and the current font development technology – Open Type Font (OTF) technology. This font is the first ever Nasta'lique font for Punjabi language. I have developed this font as *Final Year Project* for my Masters degree in **Computer Sciences** at **Punjab University College of Information Technology, University of the Punjab**, Lahore, Pakistan. It is also used in the European Union's research project.

**Punjabi Naskh 1.0 beta** (*font for Urdu/Punjabi, 2003*)

I have developed this Naskh font for Urdu and Punjabi using the international standards for font development and the first ever standard code page for Punjabi language in accordance with Unicode, described in my paper "Towards a Unicode Compatible Punjabi Character Set". This is the first ever font for Punjabi language using Unicode and OTF.

**Academic Distinction**

- Winner of Merit Scholarship of Higher Education Commission (HEC) of Government of Pakistan for Higher Studies in France
- School Gold Medal Winner in Matriculation Examination

**Professional Memberships**

- Professional Member of IEEE
- Professional Member of ACM (Association of Computing Machines)
- Member ACL (Association for Computational Linguistics)

**Teaching**

**Faculty of Computing and IT, University of Jeddah**

- **CPCS 202 – Programming I** (Fall 15, Summer 15, Fall 13, Summer 13)

*It is a core course about the basic concepts of structured programming in Java language. Topics include algorithms, design of algorithms, flow chart, data types (primitive and reference types), numerical data, text data, variables, various operators of Java language, Boolean expressions, Boolean variables, logical operators, selections statements, switch statements, break & continue statement, loops (while, do-while, for), methods, parameter passing by value and by reference, method overloading, method abstraction, recursion and arrays and basic array operations, basic sorting and searching algorithms on arrays.*

- **CPCS 211 – Digital Logic and Design** (Spring 11)

*This objective of this course is to provide an introduction to the fundamental concepts of digital logic design. Topics include number systems, binary codes, Boolean algebra, canonical and fundamental forms of Boolean functions, functions applications to digital circuits design, minimization of Boolean functions by Boolean algebra and Karnaugh maps, two-level and multi-level digital circuits, decoders, encoders, multiplexers, demultiplexers, latches, flip-flops, registers, counters, analysis and synthesis of synchronous sequential circuits. Additionally, this course includes a laboratory component in which students apply the design principles learned in lectures to the*

- design of combinational circuits and synchronous sequential circuits.*
- **CPCS 212 – Applied Math for Computing** (Fall 11, Spring 12)  
*The objective of this course is to familiarize students with the basic concepts of applied Mathematics used in computer science. Topics include: Matlab: matrices and arrays, Matlab: graphics, Matlab: programming, solution of nonlinear equations, solution of systems of linear equations, numerical integration, numerical differentiation, and ordinary differential equations.*
  - **CPCS 222 – Discrete Structures** (Spring 15, Fall 14, Spring 11)  
*The objective of this course is to study the logical and algebraic relationships between discrete objects. The topics include logics & proofs, Boolean algebra, sets, functions, sequence, sums, matrices, Mathematics inductions, recursive functions & recursions, algorithms and graphs.*
  - **CPCS 223 – Design and Analysis of Algorithms** (Summer 14, Spring 14, Fall 12, Spring 12, Fall 10)  
*This is the first of a two-course sequence on algorithmic solution design and advanced data structures. It introduces fundamental algorithms for classic computing problems, the techniques used to construct those algorithms, their performance and applications. Topics include: formal definition and characterization of algorithms, recurrence relations, asymptotic notation and efficiency classes, iterative and recursive algorithm efficiency, empirical analysis of performance, advanced data structures such as balanced trees, and fundamental algorithms from the following design strategies: brute force, divide-conquer, decrease-conquer, problem transformation, and trading time for space*
  - **CPCS 301 – Programming Languages** (Spring 12)  
*The objective of this course is to provide a comprehensive coverage of the fundamental concepts of programming languages by discussing the design issues of the various languages constructs, examining the design choices for these constructs in some of the most common languages, and critically comparing design alternatives. It discusses the formal methods of describing the syntax like finite-state devices and semantics of programming languages.*
  - **CPCS 302 – Compiler Construction** (Fall 15, Spring 13)  
*The objective of this course is to acquaint students with the fundamentals of compilers and their construction.*
  - **CPCS 324 – Algorithms and Data Structures II** (Summer 15, Spring 15, Fall 14, Fall 13, Fall 12)  
*The objective of this course is to study algorithms from a major application area, to illustrate advanced design techniques, and to introduce main concepts in computational complexity. The course should provide an opportunity to work with complex data structures and develop advanced programming skills.*
  - **CPCS 371 – Computer Networks** (Spring 14, Summer 14)  
*The objective of this course is to provide an introduction to computer networks and the ISO-7 layers reference model, which includes necessary protocols, network layer, data link layer, transport layer, and physical layer. In addition to this, network security, web technologies and application layer will also be covered.*
  - **CPCS 381 – Human Computer Interaction** (Spring 13)  
*The objective of this course is to familiarize students with the skills and concepts of Human-Computer Interaction (HCI), including the understanding of user needs, interface design and prototyping, and interface evaluation. Topics include an introduction to HCI, HCI goals, cognitive and perceptual issues, HCI design, data gathering, data analysis, task description, task analysis, interaction styles, interaction frameworks, prototyping, and evaluation.*
  - **CPCS 457 – Software Engineering Theory** (Spring 14)  
*The objective of this course is to study the methods, values, attitudes, and techniques in software systems. It provides an understanding of the need for rigors and enables students to select and apply a relevant methodological approaches to the development*



*of well-designed and documented systems.*

- **CPIT 252 – Software Design Patterns** (Spring 13)

*The objective of this course is to study the principles behind the patterns of software and then apply a number of basic patterns. This course covers fundamental aspects of large scale software architecture, defined frameworks, design patterns, and ways of developing and establishing systems based on components. The purpose of this course is: (1) to know the classical styles of software pattern and the need for a language to describe the architecture, (2) to understand how to express the qualities we want our architecture to provide to the system or systems we are building from it, and (3) to know how to achieve software qualities using TACTICS. Topics include envisioning architecture (architecture business cycle), architectural patterns, reference models, reference architectures, understanding quality attributes, achieving qualities using tactics, and how to document software architecture.*

- **CPIT 305 – Advanced Programming** (Spring 13)

*The objective of this course is to study advanced techniques in Java programming. Topics include how to build applications for different purposes, methods for Java programs to interact with other existing technologies, exception and error handling, streams and files operations, concurrent programming, network and socket programming, and Java Database Connectivity (JDBC).*

- **CPIT 475 – Wireless Data Networks** (Fall 14)

*The objective of this course is to explore principles of IT Infrastructure, Networking and System Administration. Topics include cellular architecture, GSM, GPRS, UMTS, 802.11 WLAN infrastructure designing, and planning and administration*

**Natural  
Languages**

- English (2<sup>nd</sup> Language)
- French (Good)
- Punjabi (Mother Tongue)
- Urdu (Mother Tongue)
- Hindi (Very Good)