Dhirubhai Ambani
Institute of Information and Communication Technology

Welcome
Overview of B.Tech. (ICT) and Research and Development at DA-IICT

Sanjay Chaudhary
Dean (Academic Programs)
Vision

To serve as a catalyst and a change agent for the development of a culture for Information and Communication Technology and to actively participate in the fructification of the National Action Plan for Information Technology
Genesis

- Commenced activities in August 2001
- DA-IICT is a statutory university
- Approved by UGC in November 2004
- Member of Association of Indian Universities
- Focus on ICT
- Research-led Education
Components of Excellence

• Students
  – All India selection purely on merit based on AIEEE score

• Faculty
  – PhD’s from nationally or internationally known institutions
  – Actively involved in research, sponsored projects, publication or consultancy
  – This attitude is reflected in their teaching

• Educational Programs, Staff, Infrastructure, Campus Ambience and Relations with Industry
B Tech (ICT) Program at DA-IICT

- 4-Year unique Program and DA-IIICT was the pioneer in introducing a program in ICT at UG level in 2001
- It embodies the convergence of electronics, computers and communications into a unified discipline
- Minor revisions are carried out on continuous basis
- Major reviews of curriculum: 2005 and 2008
- Eligibility for higher studies and jobs:
  - Master and higher degrees in India and abroad
  - Private, Public Sector, Govt. jobs including UPSC Civil Service Examinations: IAS, IES ...
- Scholarships: Merit and Merit-cum-means
B Tech (ICT)

- Communication & Signal Processing
- Electronics & VLSI
- Computer Science & Information Technology
THE ICT PROGRAM COURSE CREDIT STRUCTURE

- Technical Electives
  - 12 - 24 Credits

- BTP
  - 15 credits
  - Industrial/Research - 9 credits, Rural - 6 credits

- Open Electives
  - 3 - 9 credits

- Group Electives
  - 6 - 26 Credits

- Science Electives
  - 6 - 16 credits

- Foundation
  - 104 credits
## Courses of First Two Semesters

<table>
<thead>
<tr>
<th>Semester - I</th>
<th>Semester - II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EL103</strong> Basic Electronic Circuits (3-0-3-4.5)</td>
<td><strong>CT203</strong> Signals and Systems (3-1-0-4)</td>
</tr>
<tr>
<td><strong>HM106</strong> Approaches to Indian Society (3-0-0-3)</td>
<td><strong>HM216</strong> Science, Technology, Society (3-0-0-3)</td>
</tr>
<tr>
<td><strong>IT105</strong> Introduction to Programming (3-0-3-4.5)</td>
<td><strong>IT205</strong> Data Structures (3-0-3-4.5)</td>
</tr>
<tr>
<td><strong>PC105</strong> Communication Skills (P/F) (2-0-0-2)</td>
<td><strong>IT209</strong> Computer Organization (3-0-3-4.5)</td>
</tr>
<tr>
<td><strong>PC107</strong> ICT for Freshers (P/F) (1-0-0-1)</td>
<td><strong>SC116</strong> Algebraic Structures (3-1-0-4)</td>
</tr>
<tr>
<td><strong>SC105</strong> Calculus and Complex Variables (3-1-0-4)</td>
<td><strong>SC217</strong> Electromagnetic Theory (3-1-0-4)</td>
</tr>
</tbody>
</table>
Academic Requirements

Student will be placed in **Academic Probation** if SPI is less than 4.5 and CPI is less than 5

Student will be **Discontinued**, if CPI is < 4 at the end of 2\(^{nd}\) or 4\(^{th}\) semester. Will be allowed to register for backlog courses during summer semester.

Self Study hours with support

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Corr. Points</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>BB</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>CD</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>DD</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>3</td>
<td>Pass</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>Fail</td>
</tr>
<tr>
<td>I</td>
<td>-</td>
<td>Incomplete</td>
</tr>
<tr>
<td>P</td>
<td>-</td>
<td>Passed</td>
</tr>
</tbody>
</table>
Research Groups

- Communication and Signal Processing
- Distributed & Service-Oriented Computing
- ICT in Agriculture & Rural Development
- Natural Information Processing
- Networks & Security
- Next Generation Wireless Systems
- Pattern Recognition & Image Processing
- Sensor Networks
- Speech Processing
- VLSI
- Wireless communication

http://www.daiict.ac.in/daiict/research/research_groups.html
## Sponsored projects (Y09-11)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Total no. of projects</th>
<th>Total funds sanctioned (in lacs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Science and Technology (DST)**</td>
<td>7</td>
<td>148</td>
</tr>
<tr>
<td>Dept. of Information Technology (DIT)</td>
<td>3</td>
<td>305</td>
</tr>
<tr>
<td>Dept. of Space</td>
<td>3</td>
<td>88</td>
</tr>
<tr>
<td>Dept. of Atomic Energy (DAE)</td>
<td>2</td>
<td>42</td>
</tr>
</tbody>
</table>
Partial List of R&D Projects

- Text-to-Speech Synthesis (TTS) Phase II in Gujarati (DST)
- Brain Computer Interface and Brain CePal Device
- Speech-Based Access of Weather and Agricultural Commodity Price Information (DIT)
- Distortion and Accuracy Improvement in Sample and Hold Circuits for Analog-Digital Converters (DST)
- Service-oriented Architecture for Spatial Analysis (DST)
- Value Addition in Grassroots Technologies (NIF)
- Development of Cross Lingual Information (CLIA) System (NIT)
- Indian Digital Heritage (IDH-Hampi) Phase-II (DST)
- Securing Biometric Data Using Data Hiding Techniques (BRNS)
- Security and Privacy Infrastructure for Internet of Things (DST)
- Wireless Telemedicine using Body Area Sensor Networks and Heterogeneous Access Networks (DST)
Some books authored by faculty
Institutional Collaboration

• Network of Engineering Institutions (NEI)
  – It is a cooperative endeavor, initiated in January 2011 to promote the quality of PhD research
  – To provide quality courses through workshops conducted and evaluated by experts
• DA-IICT and IIT Gandhinagar initiated a process to jointly offer courses on electronics and communication, mathematics, science and humanities.
• MoUs: Space Applications Center Sponsored PhD students
  – ISEP (FR), WSU (USA), Uni of Regina, ICRISAT…
• Tata Consultancy Services (TCS): PhD fellowships
• Ericsson India: High-end industrial training
Business Incubator at DA-IICT

• Set up to facilitate product based technology start-ups
  – Independent legal status since 2011
  – 150 lakhs funding sanctioned from DIT

• Facilities/services
  – Physical infrastructure
  – B-plan evaluation
  – Mentoring and networking

• 3 start-up companies currently in incubator
Seminars and Conferences

- Hosted several national and international conferences
  - Workshop on Graph and Geometric Algorithms, March 14-16, 2012
  - International Conference on Information Systems Security (ICISS), Dec 15-19, 2010
  - Formal Methods Update Meeting, July 15-17, 2010
  - FIRE Workshop, Forum for Information Retrieval Evaluation, Feb 19-21, 2010
  - IEEE INDICON, Dec 18-20, 2009
- Opportunities to link with professors and professionals from all over the world
Special Lectures

- Prof. Anne Murray, Stanford University, 'Interactive Session', 24 February, 2012
- Prof. Phani Tetali, Industrial Design Centre - IIT Bombay, Mumbai, ‘Game Design - A Case Study’, 09 September, 2011
Special Lectures (cont)

• Dr A S Kiran Kumar, Associate Director, SAC(ISRO), 'Chandrayan Mission', 8 August, 2011
• Ms. Rashmi Bansal, Entrepreneur and Youth Expert, ‘Entrepreneurship’, 08 July, 2011
• Dr. Amit Sheth, Professor, Wright State University, Ohio, USA, ‘Human Computing Experiences’, 25 March, 2011
• Dr. Desh Deepak Singh, Indian Institute of Advanced Research (IIAR), 'Modern Biology: The Informatics Entanglement', 23 February, 2011
• Mr. Mayur Punekar, University College Dublin (UCD), Ireland, 'Advance Error Correcting Codes: State of the Art Decoding Algorithms and Future Outlook', 04 January, 2011
PG Programs

- M.Tech. (ICT) - 2002
- M.Sc. (IT) - 2002
- M.Sc. (ICT in Agriculture & Rural Development) - 2002
- PhD – 2002
- M.Des. (Communication Design) – 2003

- All programs are of 2 years duration except PhD
Thank You