Construction Engineering and Management Program at IIT Delhi

by Prof. K.C. Iyer

Indian Institute of Technology Delhi is one of the seven Institutes of Technology created as centres of excellence for higher training, research and development in science, engineering and technology in India.

- 'Institute of National Importance'
- Heritage of excellence
- Autonomous body
- Freedom from Bureaucracy
- Institute of International standards
- Brand Value of IIT
- Global recognition

IIT Delhi: Vital Statistics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Departments</td>
<td>13</td>
</tr>
<tr>
<td>Centres</td>
<td>11</td>
</tr>
<tr>
<td>Schools</td>
<td>2</td>
</tr>
<tr>
<td>Faculty</td>
<td>575</td>
</tr>
<tr>
<td>Staff</td>
<td>1175</td>
</tr>
<tr>
<td>Students on Roll</td>
<td>7395</td>
</tr>
<tr>
<td>Under Graduate</td>
<td>3396</td>
</tr>
<tr>
<td>Post Graduate</td>
<td>2404</td>
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<tr>
<td>M.B.A</td>
<td>174</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>1422</td>
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</table>
DEPARTMENTS AT IIT DELHI

1. Applied Mechanics
2. Biochemical Engineering and Biotechnology
3. Chemical Engineering
4. Chemistry
5. Civil Engineering
6. Computer Science and Engineering
7. Electrical Engineering
8. Humanities and Social sciences
9. Management Studies
10. Mathematics
11. Mechanical Engineering
12. Physics
13. Textile Technology

CENTRES AT IIT DELHI

1. Centre for Applied research in Electronics (CARE)
2. Centre for Atmospheric Sciences (CAS)
3. Centre for Biomedical Engineering (CBME)
4. Computer Service Centre (CSC)
5. Centre for Energy Studies (CES)
6. Educational Technology Services Centre (ETSC)
7. Industrial Tribology, Machine Dynamics & Maintenance Engineering (ITMMEC)
8. Instrument Design Development Centre (IDDC)
9. Centre for Polymer Science & Engineering (CPSE)
10. Centre for Rural Development & Technology (CRDT)
11. National Resource Centre for Value Education in Engineering (NRCVEE)
## DEMOGRAPHICS AT IIT DELHI

### M.O.U.
- Foreign University/Industry: 47
- Indian Industry: 35
- HUMBOLDT Fellows: 23
- HUMBOLDT Research Awards: 2
- NRDC Awards: 15
- Padmashree: 4

### Sponsored Research Projects
- 09-10: 116
- 05-10: 490
- Value Million UDS: 12.7 71.0

### International Projects
- Number: 33 92

### Patents
- Applied for: 27 128
- Granted: 10 28

### Continuing Education/Quality Improvement Programs
- Number: 35 139
- Participants: 880 3172

### Average pass-outs every year

<table>
<thead>
<tr>
<th>Degrees Awarded</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>Ph.D.</td>
<td>134</td>
</tr>
<tr>
<td>M.S.(R.)</td>
<td>11</td>
</tr>
<tr>
<td>M.Tech</td>
<td>816</td>
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<tr>
<td>MBA</td>
<td>205</td>
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<tr>
<td>M.Sc.</td>
<td>120</td>
</tr>
<tr>
<td>Dual Degree</td>
<td>168</td>
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<tr>
<td>B.Tech</td>
<td>950</td>
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<tr>
<td>M.Des</td>
<td>20</td>
</tr>
<tr>
<td>DIIT</td>
<td>15</td>
</tr>
</tbody>
</table>

### Papers Published
- National/International Journals per year: 1252
- National/International Conferences per year: 1025

**ABOUT IIT DELHI Continued.**
Sponsored Research Projects at IITD

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (Rs. Lacs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>4671</td>
</tr>
<tr>
<td>2006-07</td>
<td>3338</td>
</tr>
<tr>
<td>2007-08</td>
<td>6680</td>
</tr>
<tr>
<td>2008-09</td>
<td>7754</td>
</tr>
</tbody>
</table>

1 lac rupees $\approx$ 2500 USD

Stat. of Consultancy Projects at IITD

<table>
<thead>
<tr>
<th>Year</th>
<th>Value (Rs. Lacs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>745</td>
</tr>
<tr>
<td>2006-07</td>
<td>1336</td>
</tr>
<tr>
<td>2007-08</td>
<td>1344</td>
</tr>
<tr>
<td>2008-09</td>
<td>1934</td>
</tr>
<tr>
<td>2009-10</td>
<td>1875</td>
</tr>
</tbody>
</table>

1 lac rupees $\approx$ 2500 USD

1 lac rupees $\approx$ 4.7 million USD
LIBRARY AT IIT DELHI

The IIT Delhi Library System consists of a Central Library and 18 departmental libraries which collectively support the teaching, research and extension programs of the Institute.

The Library uses Libsys software package which is an integrated multi-user library management system that supports all in-house operations of the Library.

More than 1,30,000 bibliographic records of books available in the Library.

CIVIL ENGINEERING AT IIT DELHI

One of the primary Engineering Departments of the Institute, the Department of Civil Engineering offers B. Tech., M. Tech. and Ph.D. degrees programs.

- Geotechnical & Geoenvironmental Engineering Engineering
  - Engineering Geology
  - Rock Mechanics
- Structural Engineering
  - Offshore Structures
  - Construction Engineering Management & Building Science
- Environment Engineering & Management
  - Surveying & Remote Sensing
- Transportation Engineering
- Water Resources Engineering
Bachelor of Technology

Admission through All India Admission Test (JEE) after 12th Std
Success Ratio ≈ 1 in 1000

Course Structure
- BS: Basic Sciences (Core)
- EAS: Engineering Arts and Sciences (Core)
- HU: Humanities and Social Sciences (Core)
- HM: Humanities and Social Sciences (Elective)
- DC: Departmental Core (Core)
- DE: Departmental Electives (Elective)
- OC: Open Category (Elective)

The overall credits structure
Bachelor of Technology in Civil Engineering

<table>
<thead>
<tr>
<th>Undergraduate Core (UC)</th>
<th>Undergraduate Elective (UE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Credits</td>
</tr>
<tr>
<td>DC</td>
<td>62</td>
</tr>
<tr>
<td>BS</td>
<td>20</td>
</tr>
<tr>
<td>EAS</td>
<td>21</td>
</tr>
<tr>
<td>HU</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>106</td>
</tr>
</tbody>
</table>

Total credits = 180
Master of Technology

Admission to
- Fresh Graduates (Indian Nationals) – An All India Test (GATE)
- Industry sponsored (Indian Nationals) – A special test
- Foreign nationals – Based on Grad score & recommendations

Course Structure
- **PC:** Programme Core (42 credits)
- **PE:** Programme Electives (12 credits)
- **OC:** Open Category (9 credits)
- **Total:** 60 credits

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CEM at IIT Delhi

- Aims to develop competent, knowledgeable construction and project managers with potential to manage a wide range of construction projects with complete control.

- The M.Tech program in Construction Engineering and Management trains engineers and architects in different areas of Construction technology and Management, analytical knowledge, functional design of buildings and building materials, safety and quality control and most importantly managing contracts and contractual projects.

- Aim is to expose the students to the latest and appropriate techniques in these areas.
STRENGTH OF CEM

- A Batch of young **architects and engineers**, prepared to get knowledge and skills required in the diverse fields of construction, quality and project management & co-ordination.

- Sharing classroom with various sponsored and experienced candidates widens the rational vision.

- Diverse knowledge of various analytical tools as well as exposure to designing, simulation, BIM and Project Management soft wares.
  - Microsoft Project
  - Primavera
  - Auto CAD
  - Matlab
  - Revit (BIM)
  - STAAD Pro
  - Symphony
  - TORA

INDUSTRY PARTICIPATION AT CEM

- A unique blend of GATE qualified and sponsored candidates from Defence and best construction companies like LARSEN & TUBRO and DMRC allows exposure to best practices in the construction industry.

- Sharing classroom with various sponsored and experienced candidates widens the rational vision.
  - **L&T BIS**: Candidates selected through All India Exam allowing both the fresh and experienced engineers from Larsen & Tubro.
  - **DMRC**: Engineers and Architects from Delhi Metro Rail Corporation selected through rigorous process.

- An online programme for Ethiopian students through Video Conf Mode.
THE SUPPORT IN CEM AT IIT DELHI

- The Department takes pride in having excellent and dedicated faculty.
- Dedicated world class faculty with degrees from the best national and international institutes.
- Authors of renowned books and major research journals with several patents on their name.
- Best consultants in industry and also mentor students in startups.

Jain A.K. [Ph.D. (IIT/D)] Professor
Area of Interest: Design of RCC and Steel Structures, Earthquake Engineering, Wind Engineering, Offshore Structures.

B. [Ph.D. (IIT/D)] Professor
Area of Interest: Durability of Concrete, Rebar Corrosion, Cement based Composites, Construction Technology, Building Science.

..Contd. THE SUPPORT IN CEM AT IIT DELHI

Iyer K.C. [Ph.D. (IIT Madras)] Professor
Area of Interest: Financial Management; Project Risks; Legal Issues in Business; and Project Management.

Gupta Supratic [Ph.D. (Nagoya)] Asst. Professor
Area of Interest: Concrete Mechanics, Self Compacting Concrete, FEM analysis of Structures, Constitute Modeling of Material.

Jha K. N. [Ph.D. (IIT Delhi)] Asst. Professor
Area of Interest: Financial Management; Project Success Factors, Organizational Management, Project Risks, Construction Safety

Maheswari J. U. [Ph.D. (IIT/M)] Asst. Professor
Area of Interest: Construction Project Management with Fast Track & Concurrent Engineering Projects, Design Management.
COURSES IN CEM AT IIT DELHI

- Project Planning and Control
- Quantitative Methods in Construction Management
- Civil Engineering Materials
- Construction Engineering Practices
- Construction Methods and Equipments
- Construction & Contract Management
- Construction Economics & Finance
- Construction Engineering and Information Technology Lab
- Systems Design and Value Analysis
- Recent Advances in Construction Materials
- Management of Quality and Safety in Construction
- Functional Planning, Building Services and Maintenance Management
- Building Science

INDIAN INSTITUTE OF TECHNOLOGY DELHI
CONSTRUCTION ENGINEERING AND MANAGEMENT

PLACEMENT AT IIT DELHI

Following list is of companies which took part in the Campus Recruitment Process 2010-11.

- Indian Oil Corporation Ltd (IOCL)
- Atkins
- BPCL
- Caterpillar
- Cushman & Wakefield
- Deloitte
- DLF
- Engineers India
- Ernst & Young
- Fluor Daniel
- International Design & Engg. Solutions
- IRCON.
- ITC
- Larsen & Toubro
- NTPC
- Pricewaterhouse Coopers
- Reliance Industries
- Schlumberger
- Shimizu Corporations
- TCE Consulting Engineers
Thank you