# A BRIEF PROFILE OF THE INSTITUTE

**I. Name of the Institute and Address:** Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing Jabalpur, Dumna Airport Road, P.O. Khamariya, Jabalpur 482 005.

**II. Year of establishment:** 2005

**III. Brief Historical Background and Need for an IT Design and Manufacturing Institute:**

Globalization has created uniformity in customer expectations world over. With the opening up of Indian economy, our manufacturing sector has to compete globally even for the domestic market. This requires strong products with leading technology/quality and compelling cost advantage. Suitably trained manpower is critical to achieve this goal. Large pool of highly trained manpower has provided India leadership position in knowledge-based industries. Efforts are now required to translate this leadership in building indigenous manufacturing capabilities. Whereas, China is already a leader in low-tech bulk manufacturing, India could emerge as leader in brain-intensive manufacturing. This would require skill sets appropriate for design, development and prototyping that too - using modern tools and techniques.

The present system of technical education – though huge and diverse has focus on analytical capabilities. There is need for skill sets appropriate for design, development and prototyping, that too - using modern tools and techniques. Product Lifecycle Management (PLM)[1] approach to entire cycle from R & D, manufacturing, quality assurance, distribution, maintenance and disposal of new products is gaining currency. In other words, there is a need for a design and manufacturing programme that is holistic in nature. It should include all aspects such as mechanical, electrical/electronics as well as software engineering. In due course of time, disciplines such as chemical engineering and bioengineering could also be integrated with such an approach.

Keeping the above in view, the **Ministry of Human Resource Development, Department of Education** felt the need to set up a national institute devoted exclusively for Information Technology (IT), Design & Manufacturing (D & M). It was envisaged that such an academic institute would promote excellence in the desired areas of specialization and would facilitate and promote the competitive advantage of Indian products and manufacturing in global markets.

Accordingly, Government of India established Pundit Dwarka Prasad Mishra Indian Institute of Information Technology, Design & Manufacturing [PDPM IIITDM] at Jabalpur, Madhya Pradesh. The Institute was started under the Indian Societies Registration Act. The Society was registered on January 24, 2005 with the Registrar of Societies at Jabalpur under Madhya Pradesh Societies Registration Act 1973.

The foundation stone of the new Institute was laid by Shri Arjun Singh, the then Minister of Human Resource Development (MHRD) on February 7, 2005. It was decided to start the academic session of PDPM IIITDM Jabalpur from July – August, 2005. It was also decided that the new institute would begin its activities from the premises given to it in the IT Bhawan of the Jaba;pur Engineering College (JEC), Jabalpur.

In order to manage the affairs of the new Institute, Prof Sanjay G Dhande, Director, IIT Kanpur was given the additional charge as the Director of the Institute. It was also conceived that the Institute would initially operate from the temporary location at the IT Bhawan of the Jabalpur Engineering College at Ranjhi. Indian Institute of Technology, Kanpur was asked to help the Institute in its incubation.

Simultaneously, the efforts were on to find out a suitable piece of land where the campus of the new Institute could be built. Thus, a piece of land of ~ 250 acres, near the Dumna Airport of Jabalpur was identified and was handed over to the Institute by the Government of Madhya Pradesh on May 03, April 2006. The construction work of Phase I buildings was started in 2006 after planning and designing. Presently, the Institute is operating from its own campus at Dumna Airport road, Jabalpur. First few buildings have come up and others are coming up soon.

In July-August 2005, the Institute began its academic work with the admission of its B Tech (undergraduate) students in disciplines of (1) Computer Science & Engineering, (2) Electronics & Communication Engineering and (3) Mechanical Engineering. Subsequently, the Institute started its Masters and Ph. D. Programme in the above three disciplines from the years 2006 and 2007 respectively. Apart from this a Master of Design programme in line with those running in IISc Bangalore, IIT Kanpur, IIT Delhi, IIT Bombay and IIT Guwahati was also started from the year 2008.

**IV. Aims and Objectives:** The aims and objectives of the PDPM IIITDM Jabalpur are summarized below:

- To provide education and training, at both undergraduate as well as postgraduate levels, to persons of outstanding abilities who would provide leadership to Indian industry in globally competitive economic environment.
- To carry out advanced research and development activities in IT enabled design and manufacturing technologies, both on its own and on sponsorship basis for the industry.
- To organize conferences, seminars, workshops and such other activities for the dissemination of knowledge to industry.

**V. Whether the Institute is registered under the Societies Registration Act or Registered as Trust**

As mentioned earlier, PDPM Indian Institute of Information Technology, Design & Manufacturing Jabalpur was registered under Societies Registration Act on January 24, 2005 with the Registrar of Societies at Jabalpur under Madhya Pradesh Societies Registration Act 1973. The Registration Certificate issued by the Registrar of the Society is enclosed as **Annexure 1**.

**VI. Whether Movable and Immovable Assets have been legally transferred in the name of the society/ trust seeking recognition as Deemed to be University.**

The Institute was started from the scratch. A land of ~ 250 acres for the purpose of building the campus of the Institute was allotted by the State Government of Madhya Pradesh. The land allotment Certificate is enclosed as **Annexure 2**. Map of the campus site is enclosed as **Annexure 3**. Movable assets are created/built by the Institute from its own resources and are in the possession of the Institute.

**VII. Academic Programmes:** The Institute started with the following undergraduate programmes in the year 2005.

Bachelor of Technology in

- Computer Science & Engineering,
- Electronics & Communication Engineering,
- Mechanical Engineering

From the year 2006, following post graduate programme were also started.

Master of Technology in

- Computer Science & Engineering
- Electronics & Communication Engineering
- Mechanical Engineering

Subsequently, Ph. D. programme was also started in the year 2008 in all the above three disciplines. Apart from this, keeping in view the main theme of the Institute, a Master of Design programme was also started in August 2008. The programme is in line with those already running in established Institutes such as IIT Bombay, Kanpur, Delhi, Guwahati and IISc Bangalore.

**VIII. Faculty and Academic Staff:**

Total Sanctioned Posts – 39

Faculty and Research Engineers at Present - 33

Professors – 2
Emeritus Fellows – 2
Associate Professors – 5
Assistant Professors – 17
Visiting Faculty – 1
Research Engineers – 6

For further details see **Annexure 4**.

In addition, the Institute also invites several Guest Faculty Members from time to time (a) from other reputed Institutes within India and (b) from Japanese Universities. Most of these Guest Faculty members are stalwarts and very well known nationally/internationally in their areas of specialization.

**IX. Administrative and Technical Staff:** Total Sanctioned Posts – 43

Positions filled -

Administrative Staff – Total Sanctioned Posts - …

Officers and Staff in position – 18

Deputy Registrar – 2

Assistant Registrar – 1

Sr. Stenographer - 1

Jr. Superintendent – 1

Deputy Account Assistant - 1

UDC – 4

LDC – 6

Driver – 1

Technical Staff in position – 9

Technical Assistant - 5

Lab Assistant – 3

## X. Composition of the Governing Body

The Memorandum of Association and Rules and Regulations of the Society are enclosed as Annexure 2. As per provisions of the Rules & Regulations of the Society, the first Board of Governors (BOG) of PDPM Indian Institute of Information Technology, Design & Manufacturing (IIITDM) Jabalpur was constituted by the Government of India. At present Shri A.K. Singh, (Retd. IAS), Member, Public Enterprise Selection Board, Govt. of India is the Chairman of the BOG. The list of members of the Board of Governors of PDPM IIITDM Jabalpur is enclosed as **Annexure 5**.

## XI. Japan Collaboration

During the visit of the Honourable Prime Minister, Dr Manmohan Singh, to Tokyo in December 2006, an agreement for the joint India-Japan collaboration for the development of IIITDM Jabalpur was signed. The agreement covers exchange of faculty and students and aims to jointly develop teaching and research activities of mutual interest. The Govt. of Japan has also constituted a consortium of 12 partners for development and nurturing of the Institute.

These partners include six members from Universities of Japan and six members from Japanese industries. Member include –

(1) University of Tokyo
(2) Tokyo Institute of Technology
(3) Tohoku University
(4) Kyushu University
(5) Kanagawa Institute of Technology
(6) Shibaura Institute of Technology
(7) M/s Hitachi Ltd
(8) M/s Toshiba Ltd
(9) M/s Sumitomo Metals Ltd
(10) M/s GE (Energy) Japan
(11) M/s Amada Ltd
(12) M/s Okuma Ltd

Apart from this, four eminent academicians from Japan have been made coordinators of the programme. These four persons are

- **Prof Yoshimi Ito** (Emeritus Professor at the Tokyo Institute of Technology),
- **Prof M Kiuchi** (Emeritus Professor at the University of Tokyo)
- **Prof Takashi Nanya** (Professor at the University of Tokyo)
- **Dr. H. Suzuki** ( Scientist at GE Energy, Japan)

Japanese professors and experts from industries visit the Institute to deliver lectures on state of the art technologies and also participate in the Institute's teaching programme. Besides,

several of our faculty members and students also visit Japanese Universities and industries and get themselves exposed to and acquainted with the cutting edge technologies and education and training system in Japan. In the current academic session, twelve students went for Japan visit out of which seven successfully completed summer internships in Japanese industries such as Amada, Sumitomo Metals, Hitachi, Toshiba etc.

**XII. Research and Development:**

**Thrust Areas of the Institute:** IT Enabled Design and Manufacturing

With a view to promote inter-disciplinary and cross-disciplinary research and development activities, following research groups were formed, consisting of faculty members from across the disciplines.

1. **Innovative Design and Manufacturing**
   - Embedded System Design
   - Design of Control Systems
   - VLSI Design
   - CAD/CAM
   - Design of Smart Structures
   - MEMS
   - Intelligent Product Design
   - Design of Energy Systems

2. **Graphics, Vision and Image Processing**
   - Computer Graphics
   - Image Processing
   - Geometric Modelling
   - Computer Vision
   - Pattern Recognition
   - Biometrics
   - Simulation
   - Computer Animation

3. **Advanced Manufacturing**
   - Rapid Prototyping
   - Micro Nano Fabrication
   - Manufacturing Culture

4. **Data and Knowledge Engineering**
   - Computational Linguistics
   - Data Engineering
   - Natural Language Processing
   - Artificial Intelligence
   - Parallel Algorithms
   - Human Computer Interaction
   - Software Engineering

Following research proposals are approved by the Department of Science and Technology, Govt. of India for financial support.

1. Aparajita Ojha and Tanuja Sheorey ( Co PI), Constrained Curve Drawing Problem for Robot Motion Planning, Period 2009-12 ( Amount: Rs. 9.23 lakhs)
2. Puneet Tandon and Pritee Khanna ( Co PI), Department of Science and Technology Project on “Geometric Modeling, Analysis and Design for Generic Definitions of Custom-Engineered Cutting Tools”, Period 2008-11 (Amount: Rs.25.26 lakhs)

3. Prabin Kumar Padhy, Improved Controller Design for AQM Routers Supporting TCP Flows funded by Department of Science and Technology, Amount Rs. 3.0 lakhs
4. Ashutosh Shrivastava, Electrical Characterization of nano scale MOSFETs – Scalability issues and possible solutions, Project approved under FASTRACK scheme of DST.

**XIII. Research and Development Infrastructure:**

**Lab:** Following Research and Development Labs have been developed in the Institute during last five years.

- Advanced Manufacturing Lab
- Biometric Lab
- Digital Signal Processing Lab
- High Performance and Parallel Computing Lab
- Infrared Imaging Lab
- Nanoscience and Technology Lab

For details of equipment available under each of these labs, reference may be made to **Annexure 6**.

**Library**: The library has around 6500 books and following e-resources for journal access.

Following is the detail of Library Resources –

Number of Journals: 2956 (online) + open access journals through INDEST membership.

The Institute is a member of INDEST and is presently subscribing major e-resources from following Publications/Societies:

ScienceDirect.com, springerlink.com, acm.org, ieeexplore.ieee.org, asme.org, nature.com and selected titles from iop.org, aps.org, ams.org, siam.org, kluwer.com, palgrave.com and informs.

a. National: open access through INDEST
b. International: 2956 + open access journals through INDEST

**XIV. Source of finance and quantum of funds available:**

| | | |
|---|---|---|
| **From MHRD, Govt. of India** | **Rs. 2600 lakhs** | **- Year 2009-2010** |
| | **Rs. 2392 lakhs** | **- Year 2008-2009** |
| **Fee:** | Rs 17,55,000/- during initial years when the students admitted are limited in numbers. Rs 80,72,000/- when the students strength reaches full sanctioned strength. | |
| **From UGC:** | Nil | |

**Receipt and Expenditure of the Institution for the last 3 years**

The summary of Grant received from MHRD & Expenditure for last 3 Yrs. is as under:

| **Financial Year** | **Grant received** | **Expenditure** | **Balance** |
|---|---|---|---|

| | (Rs. in Lacs) | (Rs. In Lacs) | (Rs. in Lacs) |
|---|---|---|---|
| 04-05 | 100.00 | 26.29 | 73.71 |
| 05-06 | 900.00 | 487.04 | 486.67 |
| 06-07 | 800.00 | 914.73 | 371.94 |
| 07-08 | 1100.00 | 1415.98 | 55.96 |

**XV. Civil Infrastructure**

**Details of buildings**

A. Permanent: The Institute is building its campus at village Mahagawa, near Dumna airport, Jabalpur. The construction of its **Core Labs Complex** (having 8 halls of 30 m x 12 m each and the associated servicing rooms) and the **Service Block** (to accommodate its electrical and HVAC installations) has been completed. The Construction of the **Hall or Residence I** (having 408 single seated rooms with all other associated services) will be completed by March 2010. Construction of **Lecture Halls and Tutorial Complex (LHTC)**, (2) **Triple Seated Hall of Residence** to accommodate 500 students, (3) **Students Activity Center** and (4) **Mess and Dining Hall** is under progress.

**Class Rooms/Lecture Halls-**

(1) Lecture Hall of capacity of 250 – 1 Number

(2) Lecture Hall of capacity of 160 – 1 Numbers

(3) Lecture Hall of capacity of 80 – 2 Numbers

(4) Lecture Hall of capacity of 40 – 2 Numbers

**Laboratory Infrastructure**: All basic engineering and design labs have been established in the Institute for batches of 75 students. Computer lab is having a capacity of 180 students at a time. Following are the main labs.

(i) Workshop

(ii) Physics lab

(iii) Material Science Lab

(iv) Electronics Lab

(v) Mechanical Drives and Devices Lab

(vi) Sensing Lab

(vii) Mechatronics and Robotics Lab

(viii) Computer Lab

(ix) Design Lab.

## XVI. Admission Procedure

B. Tech. Programme -

Through AIEEE - Admissions to the B.Tech. Programme are made once a year in July through All India Engineering Entrance Examination (AIEEE) conducted by Central Board of Secondary Education. The minimum academic qualification for admission is a pass in the final examination of 10+2 system or its equivalent with Physics and Mathematics as compulsory subjects and any one among Chemistry, Bio-technology, Computer Science and Biology as optional subjects. The procedures and other requirements for admission are specified in the AIEEE Information Brochure.

M. Tech. /M. Des. Programme **–**

Held every year in July and November. Admissions in all postgraduate programmes are recommended by the duly constituted Selection Committees. The selection committees is appointed by PGCS and approved by Chairman, Senate. Admissions may be recommended on the basis of the GATE/CEED score of the candidate. However, in addition, a given Selection Committee may deem it fit to call short listed candidates for the written test and/or interviews. Applications of those students who have obtained their qualifying degree from any Indian Institute of Technology (IIT) and have obtained a CPI > 8.0 may be considered without the GATE score. Recommendations of the Selection Committees are finally approved by Chairman Senate.

Ph. D. Programme –

Applicants to the Doctoral programme may apply for admission on prescribed form any time throughout the year. On receipt of sufficient number of applications, the Post Graduate Committee of Senate (PGCS) will conduct the admission process, similar to that of M Tech/M Des except that GATE is not a prerequisite.

**Reservations** - Reservations for Scheduled Caste (SC), Scheduled Tribe (ST), Other Backward Classes (OBC) and Physically Handicapped (PH) candidates are as per the Government of India existing rules. Admissions to the reserved category candidates shall be recommended without comparing them with the candidates of the unreserved category.