

# DIPLOMA PROGRAM

## IN **BIOMEDICAL** **INSTRUMENTATION**

**Program Code:**

2275907

**Course Duration:**

1 Year

**Course Fees:**

Rs. 25,000/- & \$450

For Indian and International Candidates



### **PARUL UNIVERSITY**

Parul University is an intellectual and a creative quest for all its stakeholders viz. Indian and International Students, Parents, Alumni, Faculties, Industry & Academic partners as well as society at large. We believe in proliferating our efforts towards quality education and environment. Every year we advance our targets to make headway to our scholarly endeavors.

Our University brings to everyone the best of all worlds. Be it its ethics, global exposure, contemporary educational practices, innovation and growth, PU outshines in all of these. We aim to make successful academic pursuits through entrepreneurship, research, modernization and partnerships with educationally inclined organizations, thus enhancing our position as the finest education destination.

We have been pioneers in accepting various interdisciplinary programs and have included them to our ideal and promising higher education curriculum. Starting with this decade it's our collective effort to empower more youth towards the pursuit to continuously learn, enhance skills, generate better employment opportunities and become competent entrepreneurs. For this very purpose, we are initiating a plurality of short term courses.

### **CENTRE FOR CONTINUING EDUCATION & ONLINE LEARNING**

In this present day world, each year creates a generation gap which leads to change in the demand of job skills by the employers. Parul University has embarked on filling this gap by enlightening students and working professionals with the most updated skill based education and to transform them into adept industry professionals and talented entrepreneurs.

Parul University is introducing multiple programs under Centre for Continuing Education & Online Learning which are developed as per industry requirements and in compliance with the changing market needs.

## **DUAL DEGREE PROGRAM - LETS YOU EARN TWO CREDENTIALS IN DISTINCT DOMAINS**

With the ever increasing knowledge and skills in today's competitive world, Parul University's Dual Degree opportunities allow you to pursue two degrees at the same time. Pursuing dual degrees will provide you with the most competitive advantage, and will give you diverse knowledge in multiple fields and disciplines. Undergraduate and Postgraduate students can undergo two degree programs in distinct fields. All programs offered by Parul University under Dual Degree are designed in line with NEP 2020 and guidelines suggested by University Grants Commission (UGC).

### **Surprising Benefits of Graduating with a Dual Degree**

- Enhancing Employability and Entrepreneurship Skills
- Increase in Knowledge Base
- Diverse Career Options
- Enhancement of Multi-disciplinary Talent
- Saving of Time and Money

### **PREAMBLE**

The diploma course in Biomedical Instrumentation is a comprehensive program that provides participants with the knowledge, skills, and practical experience related to medical field. This course will cover the repair, maintenance and operation of medical equipment. Biomedical instrumentation technicians learn the application of electronic equipment - like monitoring devices - to the medical field impacts health care professionals and patient care. Students apply theoretical math and physics concepts to problems in the design and repair of electrical circuits in the biomedical field. Diploma in Biomedical Instrumentation is a technical course that teaches the principles of engineering and medical sciences and their application in the development of medical devices and equipment. The biomedical instrumentation program covers aspects of installation, maintenance and servicing of key healthcare devices & equipment. This program will give the requisite knowledge to the participants along with adequate practical training in healthcare sector. This will ensure better patient assessments and care in clinical settings, thereby improving patient outcomes.

**Program Name:** Diploma in Biomedical Instrumentation

**Program Type:** Diploma

**Program Duration:** 1 year

**For Whom:** Individuals with 10+2 education or relevant education

### **PROGRAM HIGHLIGHTS:**

- Diploma Certificate Program in Biomedical Instrumentation
- Project Work based on Medical product Design.
- Knowledge of the Latest medical tools and technologies.
- Practical exposure on Medical Instruments

## CAREER OPPORTUNITIES

A candidate by undergoing this program shall have the following career opportunities: On successful completion of the course the candidates can either get employed or become a self-employed Entrepreneur in the following fields:

1. Biomedical Assist Engineer	7. Plant Engineer
2. Applications Assist Engineer	8. Medical Equipment Technician
3. Design Assist Engineer	9. Quality Control Engineer
4. Manufacturing Engineer	10. Biomedical Instrumentation Engineer
5. Sales Engineer	11. Medical Equipment Sales Executive
6. Service Engineer	

## PROGRAM OBJECTIVES AND OUTCOMES

Program Objectives	Program Outcomes
Define parameters to measure health of human body.	State importance of measurement of healthcare parameters for wellbeing of human body.
Classify the biomedical signal sources to introduce electronic devices and theory of operation in the field of medical science.	Translate signals from biological systems and processing those signals for estimating various biological parameters.
Operate electronic devices for measuring biological parameters.	Interpret readings of electronic devices used for measurement of biological parameters.
Analyse electronic circuits, their trouble shooting, calibration and repair using various electronics test equipment.	Examine the application of electronics in diagnostics and therapeutic area to help physicians to provide appropriate treatment to human being
Evaluate different biological signals, their acquisition, measurements and related constraints.	Critique various findings and interpretations to be reported based on which treatment is to be defined.
Design electronic circuits to diagnose various abnormalities related to healthcare.	Develop prototypes of biomedical devices and instruments to provide appropriate treatment based on correct diagnosis.

## COURSE CURRICULUM:

Semester - I					
Sr. No.	Subject Name	Teaching Scheme (Contact hrs/week)			Credit Assigned
		Theory	Practical/Tutorial	Total	
1	Human anatomy and Physiology	3	2	5	4
2	Medical Electronics	2	4	6	4
3	Microcontrollers and Interfacing	2	4	6	4
4	Fundamentals of Medical Equipment	3	2	5	4
5	Installation, Maintenance & Servicing	0	8	8	4
<b>TOTAL</b>					<b>20</b>

Semester - II					
Sr. No.	Subject Name	Teaching Scheme (Contact hrs/week)			Credit Assigned
		Theory	Practical/Tutorial	Total	
1	Biomedical Instrumentation	3	2	5	4
2	Rehabilitation Engineering	3	2	5	4
3	Internet of Things	2	4	6	4
4	Bioinformatics	3	2	5	4
5	Project	0	8	8	4
<b>TOTAL</b>					<b>20</b>