# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

Circular / Co-Curricular course / Semester I/ AY 2025-26 Date :-22nd September 2025

Course contents of Co-Curricular courses to be offered for I semester of the Academic Year 2025-26 are given below. Students are requested to give three choices for the Co-Curricular course of the semester I (**from 23rd September 2025 09:30 am to 26th September 2025 09:30 am**).
Once selected, the course will not be changed under any circumstances. Therefore students should be very careful while selecting the course.

- There are no pre-requisites for any course.
- Classes of the Co-Curricular courses will begin from **01st October 2025.**
- Minimum 25 students are required for running a course.
- Each course has a limit for maximum number of students. If number of students opting for a course is higher than the limit, the course will be offered on first come first serve basis.

**Link for Google form –** https://forms.gle/PgC4dhZpY7LMZfZu7

Sd/
Dr. A. V. Deshpande
Associate Dean (AP)

**Co-Curricular course at Institute Level**
**(B. Tech Semester I Semester AY 2025-26)**

| Sr. No | Course Title | Sr. No | Course Title |
|---|---|---|---|
| 1 | Social Work | 9 | Basketball |
| 2 | Meditation | 10 | Introduction to Aeromodelling (Aero VJTI) |
| 3 | Football | 11 | Python and Introduction to Data science (Community of Coders) |
| 4 | Robotics | 12 | Community Engagement |
| 5 | NCC | 13 | National Service Scheme (NSS) |
| 6 | Integrated Personality Development Course (IPDC)-I | 14 | Climate Change |
| 7 | Comprehensive Personality Development | 15 | Leadership & Critical Thinking |
| 8 | Engineering Motorsports and Electric Vehicles (VJTI racing) | 16 | Latex |

# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

## Social Work

- **Method:** Lecture, Group Discussion and Field Visit
- **Medium of Instruction:** English and Marathi
- **Medium of Writing Papers:** English and Marathi
- **Assessment:** Assignments & Project

| Sr.No | Title | | Description |
|---|---|---|---|
| 1 | **Unit 01** | **Foundation Course I** | • Understanding Society<br>• Society<br>• Community<br>• Family System |
| 2 | **Unit 02** | **Contemporary Problems in Social Work** | • Professional and Voluntary Social Work in India<br>• Understanding Social Problems<br>• Road Safety<br>• Police Administration<br>• Women's and Child related issues<br>• Field Visit and Project<br>• |

# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

# Meditation

**Vipashyana (Vipassana) – A Way to See Clearly**

Vipashyana, also called Vipassana, is one of the oldest forms of meditation. The word means **"to see things as they really are."** It was rediscovered by Gautama Buddha more than 2,500 years ago. Unlike prayers or rituals, Vipashyana is a **practical method** that trains the mind to observe calmly and think clearly.

**How It Works**

- Vipashyana teaches us to watch our own mind and body carefully.
- We notice that everything – thoughts, feelings, and sensations – is always changing.
- By understanding this, we reduce **anger, stress, craving, and fear.**
- The goal is to become balanced, peaceful, and kind.

**Steps in Practice**

1. **Anapana (Breathing Practice):** First, students focus on natural breathing to make the mind calm.
2. **Vipashyana (Observation):** Then, they learn to observe sensations in the body without reacting.
3. **Metta Bhavana (Loving-Kindness):** Finally, positive thoughts of love and goodwill are shared with all beings.

**10-Day Training**

Vipashyana is usually learned in a **10-day residential course**. During this time:

- Students follow noble silence (no talking or distractions).
- They meditate for many hours each day.
- They eat simple food and live a disciplined routine.

**Benefits for Students**

- Improves **concentration and memory.**
- Reduces **exam stress and anxiety.**
- Helps to manage emotions like anger and fear.
- Builds **self-confidence and compassion.**

**Why It Matters**

Vipashyana is not about any religion – it is an **art of living.** Anyone can practice it to become calmer, happier, and more focused in daily life.

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## Course contents:- Leadership and Critical thinking

General intro session- laying the Foundation
Module 1
Understanding Self - Human Construct - this has 4 modules
Physical quotient
Emotional quotient
Mental quotient
Intellectual quotient
Spiritual quotient

Module 2- Construct of Nature & World

Understanding the World & Universe I operate in & my connection with the two & finding my purpose.

Module 3 - Critical Reasoning/Thinking

4 types of analysis.
Collecting data.
Analysing data to arrive to seggregate relevant information.
Processing information to arrive at meaningful knowledge.
Applying knowledge to build lifetime of wisdom that is valuable for others to arrive at their own wisdom..

3 parts of the process. (Experience, Reasoning, Application in work & in dealing with people)

Where do I start as an individual?
Is there prior intelligent or wisdom available to start with?
What do I receive from the intelligence that is available?
How do I process it ?
What can I contribute further & role of critical thinking in the same?
Case studies- Artha Shastra

*Module 4 leadership & Communication.

What is 360 degree leadership?
Why communication ?
Types of communication ?
Role of effective communication in leadership.
Case studies.

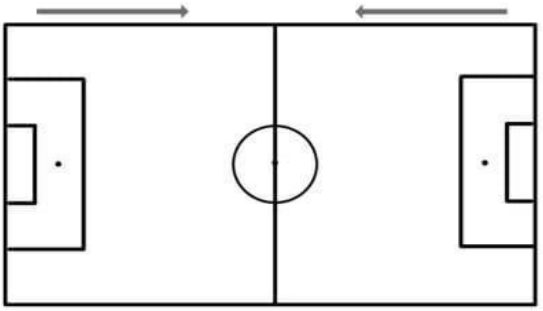
Student to choose from fill sub modules to work in groups:
-How Learning happens in humans
-Self-Esteem
-Communication
-Team building
-Inter personal relationship
-Let go
-Change
-Creativity
-Leadership
-Excellence
-Success

All these include story telling, case studies & presentations, activities -individual & group.
Mentors for those interested in take this approach further.

What's app support group.

# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

## 3 Football



# 12 WEEK - COACHING CALENDAR

| TIME<br>DAY | Time | Time |
|---|---|---|
| MON | • Off | • Off |
| TUE | • Topics – Dribbling<br>• Warm Up- with Dynamic Stretching – 15min<br>• Technical Ball mastering – 20 min<br>• Tactical ball works and Co- ordination – 20 min<br>• SSG (Small size of the Game) 20min<br>• Deactivation – cooldown stretching communication- 10 min | • Topic – Dribbling<br>• Warm Up - with Dynamic stretching – 15min<br>• Technical Ball mastering – 20 min<br>• Technical & Tactical ball works and Co- ordination exercise – 20 min<br>• SSG (small side of the game) 20min<br>• Deactivation- cooldown stretching communication- 10 min |
| WED | • Off | • Off |
| THU | • Topics – Dribbling & Passing<br>• Warm Up- with Dynamic Stretching – 15min<br>• Technical Ball mastering – 20 min<br>• Technical & Tactical ball works and Co- ordination – 20 min<br>• SSG (Small size of the Game) 20min<br>• Deactivation – cooldown stretching communication- 10 min | • Topics – Dribbling & Passing<br>• Warm Up- with Dynamic Stretching – 15min<br>• Technical Ball mastering – 20 min<br>• Technical & Tactical ball works and Co- ordination – 20 min<br>• SSG Small size of the Game) 20min<br>• Deactivation – cooldown stretching communication- 10 min |
| FRI | | |
| SAT | | |
| SUN | REST | REST |

| 1a, Dribbling | | 1b, Passing & Receiving | | 1c, Finishing | | 2a, Protecting the Ball | | 3a, Set plays | | | 4,Transition |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Attack / Defense |
| Dribbling Basics | Dribbling Basics | Passing Basics | Passing & Receiving | Finishing Basics | Finishing Creating Space | Staying on the ball | Twisting & Turning | Corners Kicks | Free Kicks | All dead ball free kicks | Press/Delay |
| Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 |

# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

# Robotics

## Contents and Evaluation:

There are three components of Course:

1. Attending a 20 hours workshop organized by SRA-VJTI and completing evaluation. Attendance monitoring and evaluating is done by Faculty. (30% weightage).
2. Working on mini-project during the semester (3 hours/week) at SRA-VJTI under the guidance of faculty and student mentor from SRA. (30% weightage). Attendance will be taken every week by faculty.
3. Final evaluation of the project in terms of exam/competition during last week of semester. (40% weightage). Faculty will conduct the final evaluation.

## Details of 20-hours SRA- VJTI workshop:

All the students who have opted for this course will attend 20 Hours workshop organized by Society of Robotics and Automation (SRA-VJTI) Team. The workshop is designed for beginners who want to learn how to build and control their own robots using ESP-32, and a custom SRA development board. All the students will prepare their own bot from scratch with their assigned mentor's assistance to perform tasks like Line Following and Self Balancing.

# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

## Introduction to Aeromodelling

### Contents and Evaluation:

1. Lecture series on Basics of Aeromodelling, which includes basic concepts of Aeromodelling, electronic propulsion system and Aircraft structure. Attendance will be taken in each lecture. (Weightage: 10%)
2. Design workshop by AEROVJTI. Workshop will include teaching of different software for aeromodelling and assignments. Every student will be assigned mentor. Evaluation will be done on the basis of assignments. Attendance will be taken for each session. (Weightage: 50%)
3. Project in terms of problem statement will be given. Period: 1 month). Final evaluation of the project in terms of exam during last week of semester. (Weightage: 40%). Faculty will conduct the final evaluation.

# VEERMATA JIAJABAI TECHNOLOGICAL INSTITUTE, MUMBAI

## Comprehensive personal development course

1. **Personal Development Modules:**

- Harnessing the Mind (4 hours)
  - Power of Mind
  - Managing the Mind
  - Desire Management
- Habits for Life (3.5 hours)
  - Reprogram Habits
  - Reprogram Time
- Stress Management (1.5 hours)

2. **Skill Development:**

- Art of Smart Work (3 hours)
  - Convert STRESS to SMILE
  - Book of Life
  - Know the Personality Type
  - Expand the Time (Time Management)
- Self Esteem (2 hours)
  - Inferiority Complex vs. Self Esteem
  - Overcoming Inferiority Complex
  - Transformation of Insecurity to Self-Worth

3. **Life Leadership:**

- Winning Life's Goal (3 hours)
  - Choice and Determination
  - Long-term Goals vs. Short-term Rewards
  - Instant Gratification
  - Overcoming Temptations
  - Putting Purpose to Life
- Life's Essential Motivating Factors (3 hours)
  - Range of Factors
  - Pros and Cons
  - Live, Love, and Let Go
- Leadership Sutras (2 hours)
  - Art of Forgiveness (1 hour)
  - Art of Discipline (1 hour)
  - Power of Now (1.5 hours)
- Meaningful Living (1 hour)
  - Finding Purpose
  - Acting on Purpose
  - The Power of Values
  - Happiness
- Balanced Life (3 hours)
  - Physical, Intellectual, Emotional, and Spiritual Quotients

4. **Professional and Social Impact:**

- Work-Life Flow (3 hours)
  - Finding Strength
  - Facing Challenges
  - Achieving Results
  - Leading and Contributing to Society
- Live to Give (1.5 hours)
  - Virtue of Selflessness
  - Society as an Extended Family

Art of Thinking Win-Win (2 hours)

- Engineering the Better World (2 hours) Rhythm of Give and Take
  Work as Worship
  From "I and Me" to "We and Us"
  Ethical Values in Engineering for a Better World
  Principles of Living in Society
- Servant Leadership in Society (2.5 hours) Types of Leadership
  Concept and Characteristics of Servant Leadership
  Building a Sustainable Society
- Meaningful Relationships (2 hours) Encouraging Potential Appreciating Good Tolerating the Unchangeable Respecting Differences Forgiving Mistakes

# Integrated Personality Development Course (IPDC)-I

Elevate Your Journey with IPDC!

Designed for future leaders, the Integrated Personality Development Course (IPDC) by BAPS Swaminarayan Sanstha is a transformative journey tailored for university students for seamlessly integrating holistic development with your academic path.

The course is designed to be the passport to success by paving the way for a stellar professional future. What and how? Here's your answer key -

## 1. Seamless Integration

IPDC isn't just another course; it's your sidekick for academic excellence and professional prowess. It effortlessly syncs with your university studies, enhancing your skills for the challenges that lie ahead.

## 2. Beyond Academics

In sync with the New Education Policy (NEP), IPDC prioritizes globally coveted real-world skills, ensuring you possess the qualities that make you stand out to employers worldwide and excel in the competitive job market!

## 3. Unleash Your Potential

IPDC goes beyond rote learning; it's about transforming obstacles into opportunities, promoting unity in diverse teams. Spanning across 7 modules, it empowers you to redefine yourself, enhance connections, tackle challenges, make a meaningful impact on society, and draw inspiration from legends to unveil your true purpose. Craft yourself into a leader equipped with impactful habits and a distinctive skill set.

## 4. Your Professional Toolkit

This isn't just a syllabus supplement; it's your complete toolkit for professional growth. Strengthen familial bonds, become a considerate citizen, and gain a competitive edge that propels you to success.

Ready to transform education into your career catalyst? Don't miss out! IPDC is your bridge if you are ready to embark on a path to a brighter, more fulfilling professional future.

Embrace the journey, embrace success!

# ENGINEERING MOTORSPORTS AND ELECTRIC VEHICLES

Module 1: Basics of Computer Aided Design, around 3-4 hours of lecture series on Solidworks. Students will be introduced to basics CAD commands (20% weightage)

Module 2: Learning about basic automobile components and their manufacturing. Additive and subtractive manufacturing basics.

Students are expected to learn about 3D printing technology. (20% weightage)

At the end of Module 2, students are expected to design their own automobile components, 3D print it and learn about the different material properties of 3D printed components.

Module 3: Use of power tools; Welding, Profiling, Drilling, Grinding.(20% weightage)

Module 4: Workshop practice, Students are expected to manufacture some automobile components, like inserts for suspensions, tie rods, and shafts on their own. (20% weightage) Students are expected to compare the material properties of components manufactured through additive and subtractive manufacturing.

Module 5: Basics of electronic circuit board, PCBs, Breadboard printing, basics of soldering practice.(10 % weightage) Develop a code to program BMS of battery pack, optimizing the mechanical design of battery pack.(10% weightage)

Students will be able to customize their own battery pack that can be used for electric vehicles and will be able to understand how to make a circuit.

Evaluation Scheme:

- Students will be evaluated based on their active participation in all modules.
- Each module has a submission towards the end, either in the form of a component that they made in the workshop or an online submission. They will be evaluated on that basis.
- We have divided the modules in such a way that they benefit students from all branches.

# Course Title: Climate Change and the Earth's Living Systems: A Focus on

Soil, Carbon, and Plants

Course Description: This course will delve into the critical role of soil, carbon, and plants in mitigating climate change. Students will explore the complex interactions between these elements and their impact on global warming, greenhouse gas emissions, and ecosystem health. The course will cover topics such as:

- Soil as a Carbon Sink: The role of soil in sequestering carbon and its implications for climate change mitigation.
- Plant-Soil Interactions: How plants influence soil carbon storage and nutrient cycling.
- Carbon Cycle Dynamics: Understanding the global carbon cycle and its key components.
- Agricultural Practices and Climate Change: The impact of agriculture on soil health, carbon emissions, and climate change.
- Forestry and Carbon Sequestration: The role of forests in mitigating climate change through carbon sequestration.
- Climate-Smart Agriculture: Exploring sustainable agricultural practices that promote soil health and reduce greenhouse gas emissions.
- Policy and Governance: Examining international and national policies related to climate change, agriculture, and land use.

Outcome: By the end of this course, students will be able to:

- Understand the critical role of soil, carbon, and plants in the Earth's climate system.
- Analyze the impact of human activities on soil health, carbon emissions, and plant biodiversity.
- Evaluate the potential of soil, carbon, and plant-based solutions to mitigate climate change.
- Develop a critical understanding of climate change policies and governance.
- Apply their knowledge to real-world challenges and propose sustainable solutions.

Potential Course Activities:

- Field Trips: Visits to local farms, forests, and research institutions to study soil health, carbon sequestration, and sustainable agricultural practices.
- Guest Lectures: Inviting experts in soil science, plant biology, climate change policy, and agriculture to share their insights.
- Group Projects: Students can work on projects related to climate change mitigation, such as designing a sustainable farming system or developing a carbon sequestration strategy.
- Case Studies: Analyzing real-world case studies of climate change impacts and mitigation efforts.
- Discussions and Debates: Engaging in discussions and debates on controversial topics related to climate change and agriculture.

# LaTeX: Importance & Applications

**LaTeX** is a powerful tool for creating professional-quality documents, research papers, and theses. It is especially useful for handling mathematical equations, technical content, and structured formatting, which are difficult in regular word processors.

Its applications are vast in academics, research, and publishing. LaTeX helps in managing citations, bibliographies, tables, and figures with accuracy and consistency, making it essential for students in engineering, computer science, mathematics, and related fields.

Learning LaTeX gives students an edge as many reputed journals, conferences, and institutions require it. This skill not only supports academic success but also adds value to career opportunities in research and industry.

**LaTex for project report generation and presentation (0-0-3)**

**COURSE OBJECTIVE**

The main motive is to impart knowledge and understanding about the LaTeX system, explain the procedure of LaTeX typesetting, and familiarize the participants with various document formats of LaTeX, enabling them to prepare research articles, thesis, books, and presentations confidently.

The broad objectives of the course are:

- Understand LaTeX, a document preparation system for high-quality typesetting.
- Getting Familiarized with the features of LaTeX.
- Gaining hands-on experience in becoming a user of LaTeX

**COURSE OUTCOME**

- Typesetting of complex mathematical formulae using LaTeX.
- Use tabular and array environments within LaTeX.
- Use various methods to either create or import graphics into a LaTeX document.
- Typesetting of journal articles, technical reports, and slide presentations.
- Automatic generation of a table of contents, bibliographies, and indexes.

# Community Engagement

| Semester - I | | Vocational and Skill Enhancement Course (VSEC) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SN** | **Course Code** | **Course Title** | **L-T-P (Hours/Week)** | **Credit** | **TA** | **IST** | **ESE** | **ESE hours** |
| **11** | | **Social Responsibility & Community Engagement** | 0-0-3=3 | 1.4 | 80 | | 20 | 1 |

After completion of course, student will be able to :

Gain an understanding of rural life, culture and social realities

Develop a sense of empathy and bonds of mutuality with local community

Appreciate significant contributions of local communities to Indian society and economy

Learn to value the local knowledge and wisdom of the community

dentify opportunities for contributing to community's socio-economic improvements

Syllabus

1. Appreciation of Rural Society , Community/Rural lifestyle, rural society, caste and gender relations, rural value s with respect to community, nature and resources, elaboration of "soul of India lies in villages' (Gandhi), rural infrastructure ,Community Map Technique prpeparation (physical, visual or digital)

2. Understanding rural community and local economy & livelihood, local business, rural Agriculture, farming, landownership, water management, animal husbandry, non-farm livelihoods and artisans, rural entrepreneurs, rural markets, migrant labour , Analysis of rural household economy, its challenges and possible pathways to address them .Circular economy and migration patterns focus

3. Rural and local Institutions, Traditional rural & community organisations, Self-help Groups, Panchayati raj institutions (Gram Sabha, Gram Panchayat, Standing Committees),Nagarpalikas & municipalities, local civil society, local administration .

4. Rural & National Development Programmes ,History of various/development in India, current national programmes: Sarva Shiksha Abhiyan, Beti Bachao , Beti Padhao, Ayushman Bharat, Swatchh Bharat, PM AwaasYojana , Skill India, Gram Panchayat Decentralised Planning, NRLM, MNREGA, SHRAM, Jal Jeevan Mission, SFURTI, Atma Nirbhar Bharat,etc. ,`

Recommended Readings Books:

1. Singh, Katar, Rural Development : Principles, Policies and Management, Sage Publications, New Delhi, 2015.

2. A Hand book on Village Panchayat Administration, Rajiv Gandhi Chair for Panchayati Raj Studies, 2002.

3. United Nations, Sustainable Development Goals, 2015 un.org/sdgs/

4. M.P.Boraian, Best Practices in Rural Development, Shanlax Publishers, 2016

# National Service Scheme (NSS) – Course Summary

The National Service Scheme (NSS) is  co-curricular programme that develops students' personalities through community service and nation-building activities.

Motto: "Not Me, But You" – symbolizing selfless service for the community.
Objectives:
Foster social responsibility and leadership.
Promote teamwork and empathy.
Connect classroom knowledge with real-life community needs.

Course Components:

1. Introduction to NSS – History, motto, objectives, activities.
2. Leadership & Youth Development – Leadership skills, role of youth in social change.
3. Society & Community – Duties towards family, society, environment, and the nation.
4. Health & Awareness – Personal hygiene, first aid, yoga, environmental care.

Activities:
Regular Service: Weekly/semester-based activities (awareness drives, cleanliness, helping schools, tree plantation, waste management, etc.).
Special Camp: One day rural/community camp  focusing on hands-on social work.