Course Objectives

This course aims at enabling the graduate students to analyse the data that they obtain either from physical systems or from mathematical models. Further, the course will focus on imparting modelling skills to graduate students that will enable them to create models from data. The students will be exposed to conventional and the state-of-the art modelling techniques including AI/ML techniques.

Course Outcomes

After completing the course, the students will be able to

CO1: Analyse data from physical systems and mathematical models

CO2: Model systems from the first principles

CO3: Develop data driven models of systems of interest

CO4: Apply the state-of-the-art data analytics techniques to explore the dynamics of the systems of interest

Syllabus

Unit 1


Unit 2


Unit 3

Textbooks/References


Evaluation Policy

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Internal/External</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>Internal</td>
<td>25%</td>
</tr>
<tr>
<td>Presentations</td>
<td>Internal</td>
<td>25%</td>
</tr>
<tr>
<td>Submission of research article to Tier-1 Conferences or Q1/Q2 Journals*</td>
<td>External</td>
<td>50%</td>
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</table>

* - In order to achieve the course outcomes, a mandatory publication will be more suitable as an external evaluation component than a conventional exam. Since, PhD students are the target audience, they will be able employ the techniques learned from this course to their respective field of study to arrive at a publication.