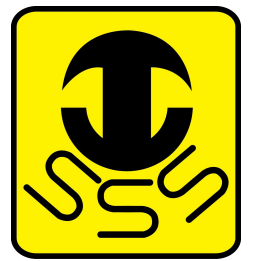


PMRF-ISSS Teaching Programme

Prime Minister Research Fellowship students' teaching requirement
facilitated by the Institute of Smart Structures and Systems



Module PMRF-ISSS179/2024

Plant modelling - Part 1: Photosynthesis

Name of the PMRF student

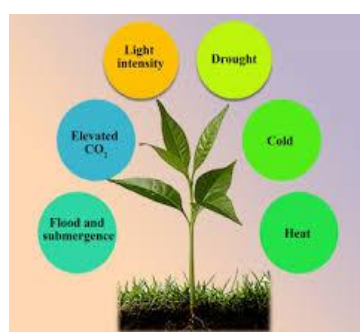
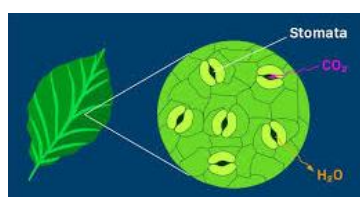
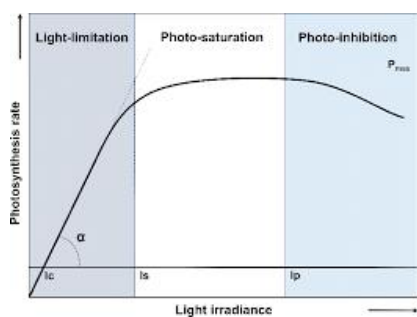
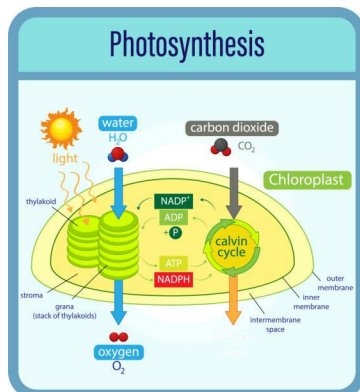
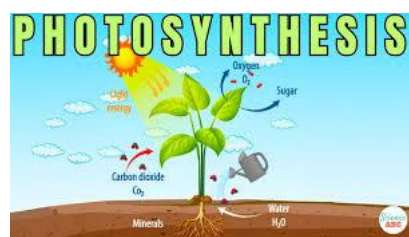
Sruthi Surendran, IIT Palakkad

Required background of the students taught

Any engineering disciplines. Preferable for civil engineering, agricultural engineering, water resources engineering, botany specialisations. Any programming skill; preferably R. All the theory required will be taught during the sessions.

Online session coordinator

Will be chosen from the list of registrants



Details of the content of the module

This course explores how plants interact with their environment, focusing on photosynthesis, water relations, energy balance, and adaptation. Covering foundational topics like C3, C4, and CAM pathways to advanced models such as the Farquhar von Caemmerer Berry (FvCB) and Ball-Berry models, it bridges theory and application. By the end of this course learners will be able to assess plant responses to climate change, equipping them with the knowledge for mathematical modelling of plants for sustainable agriculture.

- **Module 1: Introduction to Plant Ecophysiology (1.5)**
- **Problem Solving/Discussion/Lecture/Lecture (1.5)**
- **Module 2: Various Photosynthesis pathways (1.5)**
- **Problem Solving/Discussion/Lecture (1.5)**
- **Module 3: In-Depth Exploration of C3 Leaf Physiology (1.5)**
- **Problem Solving/Discussion/Lecture (1.5)**
- **Module 4: In-depth exploration of C4 Leaf Physiology (1.5)**
- **Problem Solving/Discussion/Lecture (1.5)**
- **Module 5: Leaf-Scale Water Relationships (1.5)**
- **Problem Solving/Discussion/Lecture (1.5)**
- **Module 6: Coupling Photosynthesis Rate and Stomatal Conductance (1.5)**
- **Problem Solving/Discussion/Lecture (1.5)**
- **Module 7: Leaf-Scale Energy Balance (1.5)**
- **Problem Solving/Discussion/Lecture (1.5)**

Schedule of the module

Course Start date: 27th Jan, 2025 (Tentative)

Course End date: 28th March, 2025 (Tentative)

Lecture, problem solving sessions and discussion.

Lecture days : Every Monday and Friday

Meeting link : Will be shared later

[Link](#)

Contact email ID: issf.forum@gmail.com

Registration link:

<https://forms.gle/e1ywU8u5axazfp6G8>