



Electronics & ICT Academy

(Under Ministry of Electronics and Information Technology (MeitY), Govt. of India)

Indian Institute of Technology Guwahati, Guwahati, Assam, Pin 781039

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Faculty Development Programme on

“Full Stack Development: A Comprehensive Approach for Modern Web Application”

Date: 10th – 14th February, 2025

In Association with: RV Institute of Technology and Management

Day 1	10th Feb 25, Monday
09.00 AM - 09.30 AM	Inaugural Session
Speaker	Debashish Panda
09.30 AM - 11.00 AM	Details of 05 days contents
11.00 AM - 1.30 PM	Introduction to Web Development • Understanding the basics of web development • Introduction to HTML tags and attributes, DOM Manipulation, Selecting Elements, working with DOM Nodes, Updating Element Content & Attributes, Events, Different Types of Events, Event Listeners • Styling HTML pages with CSS
01.30 PM - 2.00 PM	Lunch
02.00 PM - 5.30 PM	•Recap •Understanding JavaScript Statements, Comments, Variables, Data Types, Arrays, Strings, Functions, Methods & Objects, Decisions & Loops. • Introduction to MERN stack • What is the Java Stack • What is MERN Stack and Advantages? • MERN Stack vs Java Full Stack
5.30 PM - 6.00 PM	Q&A / Discussion
Day 2	11th Feb 25, Tuesday
Speaker	Debashish Panda
09.30 AM - 1.30 PM	Express.js, Node.js Fundamentals and RESTful API • Setting Up Express.js GraphQL, Field Specification, Graph Based, Single Endpoint, Strongly Typed, The List API, List API Integration, Custom Scalar types, The Create API, Create API Integration, Query Variables, Input Validations, Introspection, Libraries.
01.30 PM - 2.00 PM	Lunch
02.00 PM - 4.30 PM	•Recap • Middleware and Routing • Using callbacks, promises, and async/await in Node.js • Handling errors and debugging Node.js applications
4.30 PM - 6.00 PM	Practices on some sample programs
Day 3	12th Feb 25, Wednesday
Speaker	Debashish Panda
09.30 AM - 1.30 PM	React.js Development • Setting Up React Environment • Issue Tracker, React Classes, Composing Components, Passing Data Using Properties, Passing Data Using Children, Dynamic Composition.
01.30 PM - 2.00 PM	Lunch



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02.00 PM - 4.30 PM	•Recap • React State: Initial State, Async State Initialization, Updating State, Lifting State Up, Event Handling, Stateless Components, Designing Components, State vs. Props, Component Hierarchy, • React Router for SPA Development • Hooks and Context API
4.30 PM - 6.00 PM	Hands-on Activity: React Programming example practice.
Day 4	13th Feb 25, Thursday
Speaker	Debashish Panda
09.30 AM - 1.30 PM	MongoDB Basics and Advanced • Setting up MongoDB • Basics, Documents, Collections, Databases, Query Language, Installation, The Mongo Shell, MongoDB CRUD Operations, Create, Read, Projection, Update, Delete, Aggregate, MongoDB Node.js Driver, Schema Initialization, reading from MongoDB, Writing to MongoDB
01.30 PM - 2.00 PM	Lunch
02.00 PM - 4.30 PM	•Recap • Modularization and Webpack, Back-End Modules Front-End Modules and Webpack Transform and Bundle, Libraries Bundle, Hot Module Replacement. • Debugging Define Plugin: Build Configuration, Production Optimization.
4.30 PM - 6.00 PM	Hands-on Activity: MongoDB Query and practice
Day 5	14th Feb 25, Friday
Speakers	Debashish Panda
09.30 AM - 11.30 AM	Project Deployment • Introduction to CI/CD Pipelines • Deploying Applications on Cloud Platforms
11.30 AM - 1.30 PM	Hands-on Activity: Practice on overall content
01.30 PM - 2.00 PM	Lunch
02.00 PM - 4.30 PM	•Recap Capstone Project • A web application project that involve end-to-end process Database, backend to front end. • Project Overview and Objective – What is the project about and how we resolve the real time problem with this project • Project Design and Architecture – A complete web application design where we understand the flow and how it work in real time . • Database design, Implementation of frontend and backend services . • Deployment of the project in node server. Question Answer session and Workshop Conclusion
4.30 PM - 5.00 PM	Valedictory session + Feedback, Online feedback link will be shared by the organisers
5.00 PM - 6.00 PM	Assignment Evaluation