

COM644 Full Stack Web and App Development - Lab Schedule 2019

WEEK		
A. NODE.JS and EXPRESS.JS		
1	A1. Introducing Node - A first application; require and Module.exports; callback functions; blocking vs non-blocking	A2. npm - The Node Package Manager - Introduction to npm; package.json; installing dependencies; understanding version numbers; running scripts
2	A3. Express - listening on a port; using application variables; defining routes, returning status codes and data; Serving static files - CSS, images, Javascript	A4. Middleware and Routing - Express middleware; the Express Router - instantiating, applying and testing the router
3	A5. Defining and Using Controllers - creating an API, define and export functions, map controllers to routes, get & return data; Using URL parameters	A6. Passing Data through Express Applications - QueryStrings and POSTed forms
WEEK		
B. MONGODB		
4	B1. NoSQL and MongoDB - Introduction to NoSQL databases; NoSQL vs Relational; Collections in MongoDB; JSON and BSON; the MongoDB Shell; creating, listing and retrieving collections and documents	B2. MongoDB Commands - querying the database to find documents; sorting results; updating document; deleting documents; Exporting and importing data
5	B3. MongoDB and Node - Connecting a Node.JS application to a MongoDB database; creating a reusable connection; accessing the connection from controllers; Querying the database from Node.JS; returning single/multiple documents; Adding documents	B4. Mongoose and RESTful APIs - URL patterns; GET/POST/PUT/DELETE; Using Mongoose; database connections; data structures with Mongoose schemas; nested schemas; geo-location coordinates; spherical index for geo-location data
6	B5. Mongoose and Information Retrieval - Creating GET routes with Mongoose queries; finding documents and subsets; finding sub-documents; returning multiple and individual results; Queries based on geo-location data; Error trapping	B6. Mongoose and Information Update - Creating new documents and sub-documents; updating existing documents and sub-documents; deleting documents and sub-documents
WEEK		
MID-TERM ASSESSMENT		
7	Catch-up	Lab-based Coursework
WEEK		
C. ANGULAR		
8	C1. Introducing Angular - Structure of an Angular app; introducing TypeScript; components; data binding	C2. Angular application structure - Using Directives; ngIf and ngFor; ngClass and ngStyle; setting up a front-end for a single-page app; creating components and models
9	C3. Components and Data Binding - splitting apps into components, binding to custom properties and events; using lifecycle hooks; adding navigation	C4. Directives and Services - creating an attribute directive; using HostListener and HostBinding; using ngSwitch; services and dependency injection
10	C5. Routing, Observables and Forms - managing a router; programmatic navigation and route parameters; redirecting and wildcard routes; custom observables; handling Angular forms; using pipes	C6. HTTP requests and User Authentication - sending GET and PUT requests; authentication and JWT; login and logout
WEEK		
FINISHING OFF		
11	Coursework workshop	Coursework workshop