

Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
Mr. S. Karthik, IT Analyst, Tata Consultancy Services	Dr. Neelanarayanan,, Professor, School of Computer Science and Engineering, VIT Chennai	Mr.M.R.Vinodh Dr.G.Kalpana

Course Code	UCS20D03J	Course Name	WEB DEVELOPMENT USING ANGULARJS AND MONGO	Course Category	E	Discipline Specific Elective	L	T	P	C
							4	0	4	6

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Computer Science	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning	Program Learning Outcomes (PLO)
----------------------------------	--	----------	---------------------------------

CLR-1 : Create single page applications and understand the functional behavior of dynamic web pages	1	2	3		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2 : Understand presentation components that look like HTML elements																			
CLR-3 : Build corner to corner interactive components in dynamic web pages																			
CLR-4 : Understand MVC framework/architecture of web programming/client-server architecture																			
CLR-5 : Build synchronized objects across view and model components																			
CLR-6 : Understanding JSON in DBs, helps building applications for large scale data storage																			

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)		Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
CLO-1 : Make use of expressions, do data binding with external components		3	90	90		H	L	M	M	H	-	-	-	-	-	-	-	M	M	H
CLO-2 : Distinguish the role of MVC in creating dynamic web applications		3	90	90		H	M	M	M	H	-	-	-	-	-	-	-	M	M	H
CLO-3 : Understand the role of reusability and data encapsulation in the form of objects		3	85	85		H	M	M	M	H	-	-	-	-	-	-	-	M	M	H
CLO-4 : Distinguish RDBMS and schema design of MongoDB		4	90	90		H	M	M	M	H	-	-	-	-	-	-	-	M	M	H
CLO-5 : Perform query operations using MongoDB		3	90	90		H	M	M	M	H	-	-	-	-	-	-	-	M	M	H
CLO-6 : Understand and build logical relationships between documents using MongoDB		4	85	85		H	H	H	H	H	-	-	-	-	-	-	-	M	M	H



Duration (Hour)		24	24	24	24	24
S-1	SLO-1	Need of Scripting Language	Array Methods :indexOf, join, lastIndexOf, toString	Angular JS Arrays	Angular JS Scope	Document with different types of values i) <i>Document with Scalar Values</i>
	SLO-2	Difference between client and server side scripting	Array Methods : reduce, reverse, slice, some, sort	Angular JS Expressions vs JavaScript Expressions	Understanding the scope	ii) <i>Document with Documents as values</i>
S-2	SLO-1	Script tag in HTML	Function Definition	Angular JS Modules	Angular JS Filters	iii) <i>Document with Array as values</i>
	SLO-2	JavaScript declaration	Function Parameters	Creating a Module	Adding Filters to Directives	CRUD operation :Insert Operation i) <i>insertOne()</i> and ii) <i>insertMany()</i> with examples
S-3	SLO-1	Output printing – document. Write, innerHTML	Calling a Function	Adding a Controller	The filter Filter	Perform Query Operation for the following situations i) <i>Query on nested documents</i> ii) <i>Query an array</i>
	SLO-2	window .alert, console.log	Return Statements	Adding a Directive	Filter an Array Based on User Input	ii) <i>Query an array of nested documents</i> iv) <i>Geospatial Queries</i> <i>Query Operation Examples</i>
S-4	SLO-1	JavaScript statements	Nested Functions	Modules in Files	Sorting an Array based on User input	Update Operation: <i>updateOne()</i> , <i>updateMany()</i>
	SLO-2	Comments and Variables	Example Programs	Controllers in Files	Custom Filters	<i>replaceOne()</i> , <i>findAndModify()</i> Update operation :Examples
S-5-8	SLO-1	Laboratory 1 – JavaScript	Laboratory 4 - Functions	Laboratory 7 – Using controllers	Laboratory 10 – using filters	<i>Laboratory 13 :Working with CURD operations</i>
	SLO-2	Input and Output				Insert and Query
S-9	SLO-1	JavaScript Operators -Logical, Bitwise	Web stacks introduction	Angular JS Directives	Angular Service \$http Service, \$timeout Service, \$interval service	Delete Operation: <i>deleteMany()</i> , <i>deleteOne()</i>
	SLO-2	Arithmetic and Assignment operators	LAMP and LEMP	Data Binding	Creating own services	iii) <i>findOneAndDelete()</i> Delete operation Examples
S-10	SLO-1	JavaScript Datatypes - numeric	Difference between php and JavaScript	Repeating HTML Elements	Angular JS \$http and methods	Operation on MongoDB Data: projection
	SLO-2	JavaScript Datatypes – non	MEAN, MERN	ng-app directive	Angular JS \$http and Properties	Limiting Records Sorting



		numeric				Records
S-11	SLO-1	Conditional statements	Angular Environment set up - windows	ng-init directive	Displaying Data in a Table	Indexes in MongoDB, default _id index
	SLO-2	If else statements	Angular JS Framework	Ng-model directive	Displaying with CSS Style	Creating and Index createIndex method
S-12	SLO-1	Switch statements	Angular JS with HTML	Create new directives	Angular JS Select Box	Single Field, Compound, Multikey
	SLO-2	Iteration statements	Angular ng directives	Restrictions	Data Source as Object	Geospatial, text Index, Hashed Index
S-13-16	SLO-1	Laboratory 2 – Java Script Operators and Conditions	Laboratory 5 – Angular ng directives	Laboratory 8 – data binding	Laboratory 11 – location service and timeout service	<i>Laboratory 14: Working with CRUD operations</i> Update and Delete
	SLO-2					
S-17	SLO-1	Loop Controls – for loop	Angular directives	Angular JS ng-model directive	MongoDB Datatypes: i) Integer ii) Boolean iii) Double iv) String v) Arrays vi) Object vii) Null viii) Regular expression ix) Timestamp x) Date xi) Object ID	Properties of Index i) Unique Indexes ii) Partial Indexes
	SLO-2	While loop	Angular JS Expressions	Ng-model directive	Installing MongoDB in Windows, Linux and Mac Operating Systems	iii) Sparse Indexes iv) TTL Indexes
S-18	SLO-1	Do while Loop	Angular JS Applications	Two-way binding	Installing and Working with MongoDB interfaces: i) Mongo Shell, ii) Mongo Compass	Aggregation in MongoDB: i) aggregate() method Aggregate expressions: i) \$sum ii) \$avg iii) \$min iv) \$max
	SLO-2	For each loop	Angular JS Module	Validating user input	Introduction to entities of MongoDB: i) Databases ii) Collections and iii) Documents	v) \$push vi) \$addToSet vii) \$first viii) \$last
S-19	SLO-1	Arrays Introduction and declaring	Angular JS Controller	AngularJS Data Binding – Data Model	Database: i) createDatabase() method with example	<i>MongoDB Backup:</i> <i>Export/Import data backup using shell</i> i) mongodump ii) mongorestore
	SLO-2	Accessing arrays	Angular JS Numbers	AngularJS Data Binding – ng Model	ii) dropDatabase() method with example	<i>MongoDB Backup:</i> <i>Export/Import data backup</i>



						using Mongo Compass
S-20	SLO-1	Array Properties : index, input length, prototype	Angular JS Strings	AngularJS Controller	Collections: i) <code>createCollection()</code> method with example	Monitoring Deployment using Mongoddb: i) <code>mongostat</code> , <code>mongotop</code>
	SLO-2	Array Methods :concat, every, forEach	Angular JS Objects	Controller Methods	ii) <code>dropCollection()</code> method with example	iii) <code>serverStatus</code> , <code>dbStats</code> , <code>collStats</code>
S 21-24	SLO-1	Laboratory 3 - Looping Statements	Laboratory 6 –Manipulating strings and numbers	Laboratory 9 - Data binding: controllers and external files	Laboratory 12 - – creating dbs	Laboratory 15: i) Creating different types of indexes ii) Aggregate data using different Aggregate expressions iii) Perform Mongoddb data <i>Export</i> and <i>Import</i> using shell as well as mongo compass. iv) Working with mongo deployment commands
	SLO-2					

Learning Resources	1.Ken Williamson (2015), “Learning AngularJS: A Guide to AngularJS Development”, O’REILLY	1.URL: <a href="https://docs.AngularJS.org/api">https://docs.AngularJS.org/api</a> 2.URL: <a href="https://docs.mongodb.com/manual/tutorial/">https://docs.mongodb.com/manual/tutorial/</a>
--------------------	---	--

Learning Assessment											
Bloom's Level of Thinking		Continous Learning Assessment(50% Weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (10%)		CLA – 3 (20%)		CLA – 4# (10%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember	20%	20%	15%	15%	15%	15%	15%	15%	15%	15%
	Understand										
Level 2	Apply	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	Analyze										
Level 3	Evaluate	10%	10%	15%	15%	15%	15%	15%	15%	15%	15%
	Create										
	Total	100 %		100 %		100 %		100 %		100%	

# CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,



Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
Mr. S. Karthik, IT Analyst, Tata Consultancy Services	Dr. Neelanarayanan,, Professor, School of Computer Science and Engineering, VIT Chennai	Dr.P.Muthulakshmi
		Dr.S.P.Angelin Clartet

Course Code	UMS20G03T	Course Name	STATISTICAL METHODS	Course Category	G	Generic Elective Course	L	T	P	C
							3	1	0	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Mathematics and Statistics		Data Book / Codes/Standards	Graph sheet needed; t, F and $\chi^2$ table is needed	

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning	Program Learning Outcomes (PLO)
----------------------------------	--	----------	---------------------------------

CLR-1 :	To provide foundations in Bio Statistics	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2 :	To provide a strong foundations of organizing the data, diagrammatic and graphical presentation.																		
CLR-3 :	To apply Statistical techniques for biological problems.																		
CLR-4 :	To understand the characteristics of biological problems.																		
CLR-5 :	To provide the application of correlation and regression in biological sciences.																		
CLR-6 :	To analyze the sample data in order to estimate or predict characteristics of the larger population from which the sample is drawn.																		

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Scientific Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
---------------------------------	--	---------------------------	--------------------------	-------------------------	----------------------	------------------	----------------------	----------------------------	-------------------	-------------------	------------------------------	--------	------------------------	---------------	------------------------	--------------------	---------	---------	---------