

Institute/Department	UNIVERSITY INSTITUTE OF COMPUTING (UIC)	Program	Master of Computer Applications (MC305)
Master Subject Coordinator Name:	Ajay Yadav	Master Subject Coordinator E-Code:	E13382
Course Name	Front End Technologies	Course Code	23CAH-554

Lecture	Tutorial	Practical	Self Study	Credit	Subject Type
0	2	4	0	4.0	T

Course Type	Course Category	Mode of Assessment	Mode of Delivery
Major Elective	Graded (GR)	Hybrid	Hybrid (HYB)

Mission of the Department	<p>M1. To provide innovative learning centric facilities and quality-oriented teaching learning process for solving computational problems.</p> <p>M2. To provide a framework through Project Based Learning to support society and industry in promoting a multidisciplinary activity.</p> <p>M3. To develop crystal clear evaluation system and experiential learning mechanism aligned with futuristic technologies and industry.</p> <p>M4. To provide doorway for promoting research, innovation and entrepreneurship skills in collaboration with industry and academia.</p> <p>M5. To undertake societal activities for upliftment of rural/deprived sections of the society.</p>
Vision of the Department	To be a Centre of Excellence for nurturing computer professionals with strong application expertise through experiential learning and research for matching the requirements of industry and society instilling in them the spirit of innovation and entrepreneurship.

## Program Educational Objectives(PEOs)

PEO1	Establish a well-fortified computing foundation of successful professionals by applying computing fundamentals and domain-specific knowledge, demonstrating their innovative skills and considering social and environmental concerns.
PEO2	Undertake successful implementation of ethical solutions as an individual or a member or a leader of a team by investigating, analyzing, formulating and solving complex computing problems in multidisciplinary approaches using modern tools.
PEO3	Enhance professionalism and ethical attitude in the profession while communicating with local, national, and foreign peers, bound within regulations and leading to lifelong learning.
PEO4	Promote awareness for uplifting health, safety, legal, environmental, ethical and cultural diversity issues for serving the society.

## Program Specific OutComes(PSOs)

PSO1	Analyze their abilities in systematic planning, developing, testing and executing complex computing applications in field of Social Media and Analytics, Web Application Development and Data Interpretations.
PSO2	Apprise in-depth expertise and sustainable learning that contributes to multi-disciplinary creativity, permutation, modernization and study to address global interest.

## Program OutComes(POs)

PO1	Apply mathematics and computing fundamental and domain concepts to find out the solution of defined problems and requirements. (Computational Knowledge)
PO2	Use fundamental principle of Mathematics and Computing to identify, formulate research literature for solving complex problems, reaching appropriate solutions. (Problem Analysis)
PO3	Understand to design, analyze and develop solutions and evaluate system components or processes to meet specific need for local, regional and global public health, societal, cultural, and environmental systems. (Design/Development of Solutions)
PO4	Use expertise research-based knowledge and methods including skills for analysis and development of information to reach valid conclusions. (Conduct Investigations of Complex Computing Problems)
PO5	Adapt, apply appropriate modern computing tools and techniques to solve computing activities keeping in view the limitations. (Modern Tool Usage)
PO6	Exhibiting ethics for regulations, responsibilities and norms in professional computing practices. (Professional Ethics)

PO7	Enlighten knowledge to enhance understanding and building research, strategies in independent learning for continual development as computer applications professional. (Life-long Learning)
PO8	Establishing strategies in developing and implementing ideas in multi- disciplinary environments using computing and management skills as a member or leader in a team. (Project Management and Finance)
PO9	Establishing strategies in developing and implementing ideas in multi- disciplinary environments using computing and management skills as a member or leader in a team. (Project Management and Finance)
PO10	Apply mathematics and computing knowledge to access and solve issues relating to health, safety, societal, environmental, legal, and cultural issues within local, regional and global context. (Societal and Environmental Concern)
PO11	Gain confidence for self and continuous learning to improve knowledge and competence as a member or leader of a team. (Individual and Teamwork)
PO12	Learn to innovate, design and develop solutions for solving real life business problems and addressing business development issues with a passion for quality competency and holistic approach. (Innovation and Entrepreneurship)

Text Books					
Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	Mastering Bootstrap-4	Benjamin Jakobus	1st edition	Pockt	2016
2	JavaScript Frameworks for Modern Web Development; 2019	Sufyan bin Uzayr, Nicholas Cloud, Tim Ambler	2nd edition	Apress	2022

Reference Books					
Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	Instant SASS CSS How-to	Alex Libby	1st edition	Pocket	2013

Course OutCome	
SrNo	OutCome
CO1	Recall and recognize the key concepts, terminologies, and principles of front-end technologies, such as HTML, CSS, and JavaScript.
CO2	Apply the basic concepts of Bootstrap in the development of websites
CO3	Analyse about the Bootstrap architecture and creating responsive UI
CO4	Design web pages using extended functionalities of CSS
CO5	Create web pages using React framework

Lecture Plan Preview-Theory						
Unit No	LectureNo	ChapterName	Topic	Text/ Reference Books	Pedagogical Tool**	Mapped with CO Numer (s)
1	1	Introduction to Web User Interface	Introduction to HTML, features, HTML tags.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flippe d Classes,Info graphics,Inst ructor Lead WorkShop,P PT,Professo r of Practice/Adj unct Faculty/Visiti ng Professor,R eports,Simul ation,Video Lecture	CO1

1	2	Introduction to Web User Interface	HTML tags. Introduction to CSS	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	Activity,Case Study,Flippe d Classes,Info graphics,Inst ructor Lead WorkShop,P PT,Professo r of Practice/Adj unct Faculty/Visiti ng Professor,R eports,Simul ation,Video Lecture	CO1
1	3	Introduction to Web User Interface	features, types of CSS	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	Activity,Case Study,Flippe d Classes,Info graphics,Inst ructor Lead WorkShop,P PT,Professo r of Practice/Adj unct Faculty/Visiti ng Professor,R eports,Simul ation,Video Lecture	CO1
1	4	Introduction to Web User Interface	CSS properties.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO1
1	5	Introduction to Web User Interface	Introduction to JavaScript, features	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	Simulation,V ideo Lecture	CO1
1	6	Introduction to Web User Interface	programming elements,	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO1
1	7	Introduction to Web User Interface	Introduction to jQuery	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO1
1	8	Introduction to Web User Interface	. Introduction to full stack development	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO1
1	9	Introduction to Web User Interface	Git	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO1
1	10	Introduction to Web User Interface	Setting up Git	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO1
1	11	Introduction to Bootstrap	Introduction to Bootstrap	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	12	Introduction to Bootstrap	Responsive design. Bootstrap Layout:	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	13	Introduction to Bootstrap	Responsive design. Bootstrap Layout:	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	14	Introduction to Bootstrap	Breakpoint, Containers	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2

1	15	Introduction to Bootstrap	Breakpoint, Containers	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	16	Introduction to Bootstrap	Grid, Columns	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	17	Introduction to Bootstrap	Grid, Columns	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	18	Introduction to Bootstrap	Utilities, Z-Index	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	19	Introduction to Bootstrap	Utilities, Z-Index	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
1	20	Introduction to Bootstrap	CSS Grid	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO2
2	21	Advance Bootstrap	Reboot	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	22	Advance Bootstrap	Typography, Images	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	23	Advance Bootstrap	Tables, and Figures	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	24	Advance Bootstrap	Form Control, select	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	25	Advance Bootstrap	checkbox, radio buttons	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	26	Advance Bootstrap	range, input, floating labels	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	27	Advance Bootstrap	layout and validations	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	28	Advance Bootstrap	Bootstrap components	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	29	Advance Bootstrap	helpers and utilities.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	30	Advance Bootstrap	helpers and utilities.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	31	Bootstrap JavaScript Components	Tabs, pills	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	32	Bootstrap JavaScript Components	Tabbed navigation	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	33	Bootstrap JavaScript Components	Collapse and accordion	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	34	Bootstrap JavaScript Components	Tooltips	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	35	Bootstrap JavaScript Components	Popovers, and modals	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R-Instant SASS CSS How-to	PPT,Video Lecture	CO3

2	36	Bootstrap JavaScript Components	Popovers, and modals	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	37	Bootstrap JavaScript Components	Popovers, and modals	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	38	Bootstrap JavaScript Components	Popovers, and modals	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO3
2	39	Bootstrap JavaScript Components	Bootstrap, jQuery and Sass	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO4
2	40	Bootstrap JavaScript Components	Bootstrap, jQuery and Sass	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO4
3	41	Introduction to front-end JavaScript- React	Introduction to front-end JavaScript frameworks and libraries,	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	42	Introduction to front-end JavaScript- React	React components and JSX.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	43	Introduction to front-end JavaScript- React	React components and JSX.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	44	Introduction to front-end JavaScript- React	React components and JSX.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	45	Introduction to front-end JavaScript- React	React components and JSX.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	46	Introduction to front-end JavaScript- React	React Forms	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	47	Introduction to front-end JavaScript- React	Flow Architecture	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	48	Introduction to front-end JavaScript- React	Redux thunk, client-server communication using Fetch and the REST API	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	49	Introduction to front-end JavaScript- React	Introduction to Redux,Redux action, combining reducers	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5
3	50	Introduction to front-end JavaScript- React	Introduction to animation in React Testing, building and deploying React applications.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	PPT,Video Lecture	CO5

Lecture Plan Preview-Practical					
Unit No	ExperimentNo	Experiment Name	Text/ Reference Books	Pedagogical Tool**	Mapped with CO Numer(s)
1	1	Create a web-based project to demonstrate the land	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO1
1	2	Make the created project interactive by using Jav	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO1
1	3	Create a three column layout similar to Facebook	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO1,CO2
1	4	Create a news-based web page using CSS grid.	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO4
2	5	Create login, signup, change password, and forget	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO2
2	6	Create a webpage similar to amazon home page where	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO2,CO3

2	7	Implement the validations in forms of experiment 5	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO2,CO3
2	8	Create the Sass file for your portfolio webpage c	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO4
3	9	Create login, signup forms using different React	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO5
3	10	Create change password, and forget password forms	,T- JavaScript Frameworks for Mod,T-Mastering Bootstrap-4,R- Instant SASS CSS How-to	Activity,Case Study,Flipped Classes,Infographics,Instructor Lead WorkShop,PPT,Professor of Practice/Adjunct Faculty/Visiting Professor,Reports,Simulation,Video Lecture	CO5

Assessment Model			
Sr No	Assessment Name	Exam Name	Max Marks
1	Hybrid Course All	Practical Evaluations	40
2	Hybrid Course All	End Term Hybrid Theory	60
3	Hybrid Course All	Attendance Marks	2
4	Hybrid Course All	Surprise Test	12
5	Hybrid Course All	practical MST	10
6	Hybrid Course All	Practical Worksheet/Projects 1	30
7	Hybrid Course All	Practical Worksheet/Projects 2	30
8	Hybrid Course All	Practical Worksheet/Projects 3	30
9	Hybrid Course All	Practical Worksheet/Projects 4	30

10	Hybrid Course All	Practical Worksheet/Projects 5	30
11	Hybrid Course All	Practical Worksheet/Projects 6	30
12	Hybrid Course All	Practical Worksheet/Projects 7	30
13	Hybrid Course All	Practical Worksheet/Projects 8	30
14	Hybrid Course All	Practical Worksheet/Projects 9	30
15	Hybrid Course All	Practical Worksheet/Projects 10	30
16	Hybrid Course All	Quiz	4
17	Hybrid Course All	Assignment/GD Hybrid	10
18	Hybrid Course All	MST-1 Hybrid	20
19	Hybrid Course All	MST-2 Hybrid	20