OUTCOMES:
Upon completion of the course, the student will be able to
- Understand the basics of human computer interactions via usability engineering and cognitive modeling.
- Understand the basic design paradigms, complex interaction styles.
- Understand the fundamental design issues.
- Evaluate of interaction designs and implementations.
- Use models and theories for user interaction.
- Use above concepts for web and mobile applications.

REFERENCES:
1. Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs, NiklasElmqvist, "Designing the User Interface: Strategies for Effective Human-Computer Interaction", Sixth Edition, Pearson Education, 2016.
2. Jenny Preece, Helen Sharp, Yvonne Rogers, "Interaction Design: Beyond Human Computer Interaction", Wiley Student Edition, 4th Edition, Wiley, 2015.
3. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human Computer Interaction", Third Edition, Pearson Education, 2004.
4. Alan Cooper, Robert Reimann, David Cronin, Christopher Noessel,"About Face: The Essentials of Interaction Design", 4th Edition, Wiley, 2014.
5. Donald A. Norman, "Design of Everyday Things", MIT Press, 2013.
6. Cameron Banga, Josh Weinhold, "Essential Mobile Interaction Design: Perfecting Interface Design in Mobile Apps", Addison-Wesley Professional, 1 edition, 2014.
7. Bill Scott and Theresa Neil, "Designing Web Interfaces", First Edition, O "Reilly, 2009.
8. Steven Hoober, Eric Berkman, "Designing Mobile Interfaces Patterns for Interaction Design", O'Reilly, 2011.

CO	PO						PSO		
	1	**2**	**3**	**4**	**5**	**6**	1	2	3
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SE5074   SOFTWARE RELIABILITY METRICS AND MODELS   L T P C
                                                                              3 0 0 3
OBJECTIVES:

- Learn different definitions of software quality.
- Know different notions of defects and classify them.
- Understand the basic techniques of data collection and how to apply them.
- Learn software metrics that define relevant metrics in a rigorous way.
- Gain confidence in ultra-high reliability.

UNIT I INTRODUCTION 9

Automated Testing – Background on software testing – Automated test life cycle methodology (ATLM) – Test Maturity Model – Test Automation Development – Overcoming false expectations of automated testing – benefits – Test tool proposal

UNIT II TEST FRAMEWORK AND AUTOMATION 9

Automated Test Tool Evaluation and selection – Organisation's system engineering environment – Tools that support the testing life cycle – Test Tool Research – Hands-on Tool evaluation -Test process analysis – Test tool consideration – Selecting the test automation approach - Test team management – Organization Structure of a Test Team – Test Program Tasks – Test Effort Sizing

UNIT III TEST PLANNING AND DESIGN 9

Test planning – Test program scope – Test requirements management – Test Program Events, Activities and Documentation – Test Environment – Test plan – Test requirements analysis – Test program design – Test procedure design – Test development architecture – Test Development Guidelines – Automation Infrastructure – Test execution and review – Executing and Evaluating Test Phases - Test metrics - Test bench design and evaluation

UNIT IV TESTING THE APPLICATIONS 9

Testing Web Applications – Functional Web testing with Twill – Selenium – Testing a simple Web Application – Testing Mobile Smartphone Applications – Running automated test scripts – Test tools for Browser based applications – Test Automation with Emulators – Test Results reporting – Test defect tracking and fixing.

UNIT V CASE STUDIES 9

Test automation and agile project management – database automation – test automation in cloud – Mainframe and Framework automation – Model based test case generation – Model based testing of Android applications

TOTAL : 45 PERIODS

OUTCOMES:
Upon completion of the course, the student will be able to
- Perform some simple statistical analysis relevant to software measurement data.
- Classify defects on identification and work on them.
- Use data collection techniques aptly.
- Use software metrics for relevant measures in a rigorous way.
- Use from practical examples both the benefits and limitations of software metrics for quality control and assurance.

REFERENCES:
1. Elfriede Dustin, Jeff Rashka, "Automated software testing: Introduction, Management and Performance", Pearson Education, 2008.
2. C. Titus Brown, Gheorghe Gheorghiu, Jason Huggins, " An Introduction to Testing Web Applications with twill and Selenium ", O'Reilly Media, Inc., 2007.
3. Dorothy Graham, Mark Fewster, "Experiences of Test Automation: Case Studies of Software Test Automation", illustrated Edition, Addison-Wesley Professional, 2012.
4. Julian Harty, "A Practical Guide to Testing Mobile Smartphone Applications", Vol. 6 of Synthesis Lectures on Mobile and Pervasive Computing Seriesǁ, Morgan & Claypool Publishers, 2009.
5. Kanglin Li, Mengqi Wu, "Effective Software Test Automation: Developing an Automated Software Testing Tool", John Wiley & Sons, 2006.

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1.	√		√				√	√	
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4.	√		√				√	√	
5.	√		√	√			√	√	√

OE5091　　　　　　　　**BUSINESS DATA ANALYTICS**　　　　　　**L T P C**
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　3 0 0 3

OBJECTIVES:
- To understand the basics of business analytics and its life cycle.
- To gain knowledge about fundamental business analytics.
- To learn modeling for uncertainty and statistical inference.
- To understand analytics using Hadoop and Map Reduce frameworks.
- To acquire insight on other analytical frameworks.

UNIT I　　　**OVERVIEW OF BUSINESS ANALYTICS**　　　　　　　　**9**
Introduction – Drivers for Business Analytics – Applications of Business Analytics: Marketing and Sales, Human Resource, Healthcare, Product Design, Service Design, Customer Service and Support – Skills Required for a Business Analyst – Framework for Business Analytics Life Cycle for Business Analytics Process.

Suggested Activities:
- Case studies on applications involving business analytics.
- Converting real time decision making problems into hypothesis.
- Group discussion on entrepreneurial opportunities in Business Analytics.

Suggested Evaluation Methods:
- Assignment on business scenario and business analytical life cycle process.
- Group presentation on big data applications with societal need.
- Quiz on case studies.

UNIT II　　　**ESSENTIALS OF BUSINESS ANALYTICS**　　　　　　**9**
Descriptive Statistics – Using Data – Types of Data – Data Distribution Metrics: Frequency, Mean, Median, Mode, Range, Variance, Standard Deviation, Percentile, Quartile, z-Score, Covariance, Correlation – Data Visualization: Tables, Charts, Line Charts, Bar and Column Chart, Bubble Chart, Heat Map – Data Dashboards.

Suggested Activities:
- Solve numerical problems on basic statistics.
- Explore chart wizard in MS Excel Case using sample real time data for data visualization.
- Use R tool for data visualization.