Course Outcomes:

At the end of the course the student will be able to:

1. **Construct** mobile application development environment along with an emulator to build the new project.
2. **Develop** Mobile app using various UI components.
3. **Create** graphics and animations in the application.
4. **Apply** database, sensors concepts for the mobile applications.
5. **Design** a web based android app.

Mapping of POs & COs:

POs / COs	a	b	c	d	e	f	g	h	i	j	k	l
1			H						L			
2		H			H				L		M	M
3	H				H				L		M	
4	H	H			H				L		M	
5		H							L		M	

H: High M: Medium L : Low

TEXT BOOKS:

1. Anubhav Paradhan, Anil V Deshpande, "Mobile apps Development", Edition: 1, Publication: Wiley, 2014, ISBN: 978-81-265-4660-2
2. Barry Burd , "Android Application Development All in one for Dummies"
3. "Teach Yourself Android Application Development in 24 Hours", Publication : SAMS

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ENGINEERING MANAGEMENT

Sub Code: 15HU801 **Credits : 04**
L+T+P+S: 4+0+0+0 **Total Hours: 50**

Course Objectives

This Course will enable students to:

1. Develop basic management knowledge essential to make a managerial career in professional life.
2. Impart some of the crucial and basic skills required to work in teams such as – communication skill, leadership traits, motivation techniques, personal and personnel management skills
3. Gain basic knowledge about production management, marketing strategies,

consumer requirements and behaviour, marketing activities,

4. Understand the basics of accounting and finance and financial markets, managing engineering technology, project evaluation and selection
5. Create awareness among the engineering students about their social responsibilities and obligations.

UNIT – I

MANAGEMENT:

Meaning – Functions of Management

PLANNING:

Nature and Importance of Planning, Types of Plans, Planning Process, Planning Premises and Planning Horizon.

OBJECTIVES:

Meaning, Characteristics/Qualities of Sound Objective.

FORECASTING:

Meaning, Methods of Forecasting (Qualitative methods and Quantitative methods – simple moving average method, weighted moving average method, exponential smoothing method, simple regression model)

BREAK EVEN ANALYSIS:

Meaning of Break-Even Point, Margin of Safety and estimation **10 Hours**

UNIT – II

ORGANIZING:

Meaning, Legal Forms of Organization – Sole Proprietorship, Partnership, Corporation/Company, Co-operatives – Meaning and Features only)

DELEGATION OF AUTHORITY AND SPAN OF CONTROL:

Meaning, Factors Determining the Span of Control.

HUMAN ASPECTS OF MANAGEMENT:

Manpower Planning, Employing People (Recruitment, Selection Process, Making Job Offer, the Induction Process, Cost of Employing New Staff, Termination of Employment), Training and Development – Conducting Training and Methods of Training.

PERFORMANCE APPRAISAL:

Aims and formal schemes/methods of performance appraisal, 360 degree performance appraisal. **10 Hours**

UNIT – III

MOTIVATION:

Meaning, Theories of motivation (the Carrot and the Stick, Maslow's Need Hierarchy theory, Herzberg's Motivation-Hygiene theory, McClelland's Trio of Needs, Theory - X and Theory – Y, Self-Motivation, General Motivational Techniques).

LEADERSHIP:

Meaning, Ingredients/Traits of leadership, styles of leadership – Blake and Mouton's

Managerial Grid **8 Hours**

UNIT – IV

CONTROLLING:

Meaning, Controlling Process, Three Perspectives on the Timing of Control, Types of Control, Characteristics of Effective Control System.

PROJECT EVALUATION TECHNIQUES:

Interest Rate Calculations, Simple Interest, Compound Interest, Effective Rate of Interest, Payback Time, Present Worth, Future Worth, Annual Worth Calculations. **12 Hours**

UNIT V

PROJECT PLANNING TOOLS:

Gantt (Bar) Charts, Network Analysis – PERT and CPM - Crashing the Project completion duration using network analysis.

DEPRECIATION:

Types and Causes, Computing Depreciation (using straight line method only) – Estimation of Sunk Cost. **10 Hours**

Course Outcomes

At the end of the course the student will be able to:

1. Demonstrate the basic management skills required for a professional
2. Apply team work, communication skill, leadership traits, motivation techniques
3. Practice of personal management, production management, financial management, accounting, marketing, etc. in personal and professional life.
4. Demonstrate the management of engineering technology, project evaluation and selection.
5. Practice social responsibilities in real life.

Mapping of POs & COs:

POs / COs	a	b	c	d	e	f	g	h	i	j	k	l
1			H	M		H	H	M	L			
2			H	H		H	H	H	M			
3		L	M	H	M	H		H	L	L		
4		L	H	M	M	M		H	M	H	M	
5			H			H	L	H	H			

H: High M: Medium L: Low

TEXT BOOKS:

1. Daniel L. Babcock, Lucy C Morse, “Managing Engineering and Technology”, 3rd Edition.
2. Gail Freeman Bell, James Balkwill, “Management in Engineering – Principles and

Course Outcomes:

At the end of the course the student will be able to:

1. **Identify and Illustrate** different types Strategic games, Mixed strategy games, Extensive Games.
2. **Model , Formulate** different types of games.
3. **Analyze** different types of games.
4. **Creation of graph** for different types of games.
5. **Apply Game Theory** in Cryptography, Adhoc Network and Network Security.

Mapping of POs & COs:

POs / COs	a	b	c	d	e	f	g	h	i	j	k	l
1	H											
2					H						L	
3					H						L	
4			M									
5	H										H	H

H: High M: Medium L: Low

TEXT BOOKS:

1. Martin Osborne: "An introduction to game theory", Oxford University Press, Indian Edition, 2004.
2. Joel Watson, "An Introduction to Game Theory: Strategy", W W Norton and Company
3. Noam Nisan, Tim Roughgarden, Eva Tardos, Vijay V Vazirani, "Algorithmic Game Theory", Cambridge University Press

REFERENCE BOOKS:

1. Roger B Myerson: "Game theory: Analysis of Conflict", Harvard University Press, 1997.

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SOCIAL AND WEB ANALYTICS

Sub Code: 15CS815 **Credits : 03**

L+T+P+S: 3+0+0+0 **Total Hours: 39**

Course Objectives:

This course will enable students to:

1. Understand social media, web and social media analytics, and their potential impact.

2. Determine how to Leverage social media for better services and Understand usability metrics, web and social media metrics
3. Use various data sources and collect data relating to the metrics and key performance indicators
4. Identify key performance indicators for a given goal, identify data relating to the metrics and key performance indicators
5. Use ready-made web analytics tools (Google Analytics) and be able to understand a statistical programming language (R), also use its graphical development environment (Deduce) for data exploration and analysis

UNIT – I

INTRODUCTION TO WEB & SOCIAL ANALYTICS:

Overview of web & social media (Web sites, web apps, mobile apps and social media), Impact of social media on business, Social media environment, , How to leverage social media for better services, Usability, user experience, customer experience, customer sentiments, web marketing, conversion rates, ROI, brand reputation, competitive advantages

Need of using analytics, Web analytics technical requirements., current analytics platforms, OpenSource vs licensed platform, choosing right specifications & optimal solution, Web analytics and a Web analytics 2.0 framework (clickstream, multiple outcomes **8 Hours**

UNIT – II

RELEVANT DATA AND ITS COLLECTION USING STATISTICAL PROGRAMMING LANGUAGE R.:

Data (Structured data, unstructured data, metadata, Big Data and Linked Data), Participating with people centric approach, Data analysis basics (types of data, metrics and data, descriptive statistics, comparing,

BASIC OVERVIEW OF R:

R-Data Types, R-Decision Making, R-Loops, R-functions, R-Strings, Arrays, R-Lists, R-Data Frame, R-CSV Files, R-Pie Charts, R-Bar charts, R-Barplots. Basic Text Mining in R and word cloud. **8 Hours**

UNIT – III

KPI/METRICS:

Understand the discipline of social analytics, Aligning social objectives with business goals, Identify common social business objectives, developing KPIs; Standard vs Critical metrics. PULSE metrics (Page views, Uptime, Latency, Seven-day active users) on business and technical Issues, HEART metrics (Happiness, Engagement, Adoption, Retention, and Task success) on user behaviour issues; Bounce rate, exit rate, conversion rate, engagement, strategically aligned KPIs, Measuring Macro & micro conversions, On-site web analytics, off-site web analytics, the goal-signal-metric process. Case study on Ready-made tools for Web and social media analytics (Key Google Analytics metrics, dashboard, social reports, Tableau Public and KNIME **7 Hours**

UNIT – IV

MINING TWITTER: EXPLORING TRENDING TOPICS, DISCOVERING WHAT PEOPLE ARE TALKING ABOUT, AND MORE:

Why Is Twitter All the Rage?, Exploring Twitter's API, Fundamental Twitter Terminology, Creating a Twitter API Connection, Exploring Trending Topics, Searching for Tweets, Analyzing the 140 Character, Extracting Tweet Entities, Analyzing Tweets and Tweet Entities with Frequency Analysis, Computing the Lexical Diversity of Tweets, Examining Patterns in Retweets, Visualizing Frequency Data with Histograms

MINING FACEBOOK: ANALYZING FAN PAGES, EXAMINING FRIENDSHIPS, AND MORE:

Overview, Exploring Facebook's Social Graph API, Understanding the Social Graph API, Understanding the Open Graph Protocol, Analyzing Social Graph Connections, Analyzing Facebook Pages, Examining Friendships. **8 Hours**

UNIT – V

DATA MINING IN SOCIAL MEDIA:

Introduction, Data Mining in a Nutshell, Social Media, Motivations for Data Mining in Social Media, Data Mining Methods for Social Media, Data Representation, Data Mining - A Process, Social Networking Sites: Illustrative Examples, The Blogosphere: Illustrative Examples, Related Efforts, Ethnography and Netnography, Event Maps

TEXT MINING IN SOCIAL NETWORKS:

Introduction, Keyword Search, Query Semantics and Answer Ranking, Keyword search over XML and relational data, Keyword search over graph data, Classification Algorithms, Clustering Algorithms, Transfer Learning in Heterogeneous Networks **8 Hours**

Course Outcomes:

After Studying this course, students will be able to:

1. Use Social Media Analytics and Web analytics,
2. Explain how to leverage social media for better services.
3. Develop KPIs and to build scorecards & dashboards to track KPIs.
4. Understand text mining and data mining in social networks.
5. Use ready-made web analytics tools (Google Analytics) and be able to understand a statistical programming language (R), also use its graphical development environment (Deduce) for data exploration and analysis

Mapping of COs to POs

POs / COs	a	b	c	d	e	f	g	h	i	j	k	l
1		H				L			H		M	
2	H		H					M				
3					H							H
4		H			H						H	

BIG DATA ANALYTICS

Sub Code: 15CS825 **Credits : 03**
L+T+P+S: 3+0+0+0 **Total Hours: 39**

Course Objectives:

This course will enable students to:

1. Comprehend in depth the fundamental issues behind Big Data problem
2. Understand Big Data technologies, different databases and Hadoop foundations
3. Discuss the philosophy of Hadoop MapReduce
4. Learn Pig and Hive Scripts using Hadoop environment
5. Relate different Analytics associated with Big Data problem

UNIT – I

INTRODUCTION TO BIG DATA:

Data, Characteristics of data and Types of digital data: Unstructured, Semi-structured and Structured, Sources of data, Working with unstructured data, Evolution and Definition of big data, Characteristics and Need of big data, Challenges of big data, Data environment versus big data environment **7 Hours**

UNIT - II

BIG DATA TECHNOLOGIES AND DATABASES:

Introduction to NoSQL, Uses, Features and Types, Need, Advantages, Disadvantages and Application of NoSQL, Overview of NewSQL, Comparing SQL, NoSQL and NewSQL, Introduction to MongoDB and its needs, Characteristics of MongoDB, Introduction of apache cassandra and its needs, Characteristics of cassandra

HADOOP FOUNDATION FOR ANALYTICS:

History, Needs, Features, Key advantage and Versions of Hadoop, Essential of Hadoop ecosystems, RDBMS versus Hadoop, Key aspects and Components of Hadoop, Hadoop architectures. **8 Hours**

UNIT - III

HADOOP MAPREDUCE AND YARN FRAMEWORK:

Introduction to MapReduce, Processing data with Hadoop using MapReduce, Introduction to YARN, Components, Need and Challenges of YARN, Dissecting YARN, MapReduce application, Data serialization and Working with common serialization formats, Big data serialization formats **8 Hours**

UNIT –IV

BIG DATA WITH HIVE AND PIG:

Overview of hive and its architecture, Hive data types and File format, Hive query language (HQL), Introduction to Pig, pig latin overview, Data types in Pig and Running Pig **8 Hours**

UNIT –V

BIG DATA ANALYTICS:

Overview of business intelligence, Data science and Analytics, Meaning and Characteristics of big data analytics, Need of big data analytics, Classification of analytics, Challenges to big data analytics, Importance of big data analytics, Basic terminologies in big data environment **8 Hours**

Course Outcomes:

After Studying this course, students will be able to

1. Identify the issues and challenges related to Big Data.
2. Choose and apply Big Data technologies and tools in solving real life Big Data problem.
3. Design MapReduce architecture for Big Data problem.
4. Write scripts using Pig and Hive to implement Big Data problem
5. Derive different Analytics from the Big Data problem

Mapping of POs & COs:

POs / COs	a	b	c	d	e	f	g	h	i	j	k	l
1		H			M				H			
2		H			H						H	
3	M	H			H							H
4		H									H	
5			H		H				M			H

H: High M: Medium L: Low

TEXT BOOKS:

1. Seema Acharya, Subhashini Chellappan , “Big Data and Analytics”, Wiley., 2017
2. Alex Holmes, “Big Data Black Book”, Dreamtech, 2015

REFERENCE BOOKS:

1. Minelli, Chambers, Dhiraj- “Big Data Big Analytics”, Wiley, 2013.
2. Bart Baesens – “Analytics in a Big Data World”, Wiley.
3. Boris Lublinsky, Kevin T. Smith – “Hadoop Solutions”, Wrox.
4. Chuck Lam – “Hadoop in Action”, Dreamtech.

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