



MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE
Belawadi, Srirangapatna Tq, Mandya-571477
Department of Computer Science and Business System
Academic Year 2023-26



Innovation In Teaching Learning LEARNIG and Real- Life Examples

Sl. No	Subject Name	Semester	Topic of Case Study	Faculty Name
1	Analysis and Design of Algorithms BCS401	4 th Semester	Shortest Path Algorithms used in Flipkart and Amazon, Ubber	Dr. Honnaraju B
2	Research Methodology and IPR BRMK557	5 th Semester	Different Parents of PEPSI Company. Cases File on Patents Case 1: Apple Inc. vs Samsung Electronics Issue: Smartphone design and utility patents Key Point: Patent infringement related to design and UI features Outcome: Mixed judgments across countries; emphasized the value of design patents Case Study: Ilaiyaraaja and Intellectual Property Rights (IPR) Ilaiyaraaja, one of India's most renowned music composers, has been involved in significant Intellectual Property Rights (IPR) discussions, particularly related to copyright ownership in music compositions. Design Patent Case Study: Coca-Cola Contour Bottle. Geographical Indication (GI) Tags of Karnataka.	Dr. Honnaraju B

			Karnataka State Budget Simulation. Etc.	
3	Marketing Research and Market Management	5 th Semester	Ad Mad Show and Product Launching. The event aimed to enhance students' creativity, marketing skills, and teamwork by encouraging them to conceptualize and present innovative advertisements for various products and services. Ads an: aggi, Apple Phone, Adivasi Hair oil, Etc	Prof. Sahana Seles
4	AI for Business BCB601	6 th Semester	Case Study: AI Applications in Business 1. Personalized Recommendations AI algorithms analyze customer browsing and purchase history to suggest relevant products, increasing sales and customer satisfaction. 2. AI in Retail: Flipkart's Recommendation Engine. 3. AI in Marketing: Netflix Content Recommendation. 4. Case Study: AI-Powered Hotel in China – FlyZoo Hotel (Alibaba Group) 5. Case Study: Impact of Artificial Intelligence (AI) at Tata Group – Motors. 6. Case Study: Role of Artificial Intelligence (AI) in YouTube. 7. Case Study: Inventory Management 8. Case Study: AI in Health Care – Apollo Hospital	Dr. Honnaraju B
5	Financial Management M23BCB403	4 th Semester	Karnataka State Budget Simulation.	Prof. Sahana Seles
6	Computer Networks and Security M23BCS502	5 th Semester	Review of the RFC documents related to TCP protocol.(RFC 9293)	Prof. Nanda Kumar R B

7	Marketing Research and Market Management M23BCS505A Fundamentals of Management M23BCB501	5 th Semester	Ad Mad Show. The event aimed to enhance students' creativity, marketing skills, and teamwork by encouraging them to conceptualize and present innovative advertisements for various products and services. Ads an: Colgate, Gemes, Fogg, Boost, Santoor	Prof. Sahana Seles And Prof. Apsara
8	Operational Research M23BCB503	5 th Semester	Case Study in Operations Research 1. To expose students to real-world applications of Operational Research techniques in Agriculture, Marketing, healthcare, and Indian Railways. 2. To enhance problem-solving and decision-making skills through case studies and practical scenarios beyond textbook problems. 3. To familiarize students with contemporary research trends and emerging applications of Operations Research. 4. To develop analytical thinking by integrating Operations Research concepts with data analytics and machine learning approaches. 5. To prepare students for higher studies, competitive examinations, and industry-oriented roles involving optimization and resource management.	Dr. Honnaraju B
9	Total Quality Management	7 th Semester	- TQM Practice in TSLA - Maggi noodle produced by NESLE Innovation – India - COCOLA Applies TQM - TOYOTA Corola Continues Improvement. - Star Bucks Coffey - TQM in KFC, etc	Rajeshwari M

Ad Mad Show activity Report

Department: **Computer Science and Business System (CS & BS)**

Subject : Marketing Research and Marketing Management

Date: **28/09/2024**

Overview:

On 28-09-2024, the 5th Semester students of the Department of Computer Science & Business Systems (CS&BS) showcased their creativity and teamwork through an engaging activity.

Students were divided into groups, with each group selecting a brand and delivering innovative, entertaining advertisements for their chosen brand.

The exercise not only encouraged collaboration but also helped sharpen their presentation, script writing, choreography, direction and communication skills — a key to thriving in today's dynamic business and tech landscape. Proud to see our students' enthusiasm and talent on full display! 🙌

Truly a great blend of creativity, learning and fun!

Participants

Total Students Participated: **56**





Impact of the Activity

An Ad Mad show is a fun, creative activity with multiple benefits, especially for students and aspiring marketers. Participants are tasked with creating and presenting mock advertisements, which can have a lasting impact on their skills and confidence. Here are some key benefits:

1. **Boosts Creativity**
2. **Improves Communication Skills**
3. **Develops Teamwork and Collaboration**
4. **Enhances Marketing and Branding Skills**
5. **Builds Confidence and Public Speaking Skills**
6. **Encourages Quick Thinking and Adaptability**
7. **Provides Insight into Audience Reactions**
8. **Fosters a Fun Learning Environment**

An Ad Mad show has a positive impact by fostering creativity, enhancing communication skills, and building confidence among participants. It is an enjoyable and educational activity that nurtures essential marketing and interpersonal skills in a supportive, energetic setting.

Case Study - AI

Subject : AI for Business

Faculty Name: Dr. Honnaraju B

Artificial Intelligence (AI) refers to the use of machines and algorithms to simulate human intelligence. In business, AI helps organizations automate processes, analyze large data sets, improve decision-making, and enhance customer experience.

Applications of AI in Business

1. Customer Relationship Management (CRM)

AI chatbots and virtual assistants provide 24/7 customer support and personalized interactions.

2. Marketing & Sales

AI analyzes customer behavior to enable targeted marketing, recommendation systems, and demand forecasting.

3. Operations & Supply Chain

AI improves inventory management, logistics optimization, and predictive maintenance.

4. Finance & Banking

AI is used for fraud detection, credit scoring, risk analysis, and algorithmic trading.

5. Human Resource Management

AI supports resume screening, employee performance analysis, and workforce planning.

6. Decision Support Systems

AI-driven analytics help managers make data-driven strategic decisions.



Case Study – Research Methodology

Subject: Research Methodology and IPR

Faculty Name: Dr. Honnaraju B

Different Parents of PEPSI Company.

Cases File on Patents

Case 1: Apple Inc. vs Samsung Electronics

Issue: Smartphone design and utility patents

Key Point: Patent infringement related to design and UI features

Outcome: Mixed judgments across countries; emphasized the value of design patents

Case Study: Ilaiyaraaja and Intellectual Property Rights (IPR)

Ilaiyaraaja, one of India's most renowned music composers, has been involved in significant **Intellectual Property Rights (IPR)** discussions, particularly related to **copyright ownership in music compositions**.

Design Patent Case Study: Coca-Cola Contour Bottle.





Karnataka State Budget Simulation Case Study Activity Report

Department: **Computer Science and Business System (CS & BS)**

Date: **19/11/2024 and 20/11/2024**

Subject: **Research Methodology and IPR**

The Karnataka State Budget Simulation Activity was organized to provide participants with an understanding of the intricacies involved in formulating a state budget. This interactive and educational exercise aimed to replicate the budget-making process, allowing participants to assume the roles of various stakeholders and deliberate on fiscal priorities, resource allocation, and economic development strategies.

Objective

The primary objectives of the simulation were:

- To educate participants about the structure and process of a state budget.
- To foster critical thinking and decision-making skills in resource allocation.
- To encourage teamwork and negotiation among participants representing diverse stakeholders.
- To create awareness about Karnataka's economic and social challenges.
- **Review of various news articles, TV news, articles related to Budget, Karnataka Government Websites to provide information related to portfolio, Technical Papers on Budget allocation** and some other.
- **Prepare budget proposal based on the review document.**





19-11-2024: A day of preparation and brainstorming for the Karnataka State Budget Simulation Activity.

The 3rd and 5th-semester students of the Department of Computer Science & Business Systems are in full swing, gearing up for the Karnataka State Budget Simulation Activity scheduled tomorrow, 20-11-2024.

This exciting activity offers a unique opportunity for students to step into the shoes of policymakers, analyze and propose practical solutions to real-world challenges.



CASE STUDY – Applications of OR

Subject: Operational Research – M23BCB503

Faculty: Honnaraju B

Objectives of Case Study in Operations Research

1. To expose students to real-world applications of Operational Research techniques in Agriculture, Marketing, healthcare, and Indian Railways.
2. To enhance problem-solving and decision-making skills through case studies and practical scenarios beyond textbook problems.
3. To familiarize students with contemporary research trends and emerging applications of Operations Research.
4. To develop analytical thinking by integrating Operations Research concepts with data analytics and machine learning approaches.
5. To prepare students for higher studies, competitive examinations, and industry-oriented roles involving optimization and resource management.

1. Operational Research in Healthcare

Operational Research (OR) helps healthcare organizations make efficient decisions by using mathematical and analytical methods.

Applications:

- **Hospital Resource Management:**
Optimizing allocation of doctors, nurses, beds, and operation theatres to reduce patient waiting time.
- **Scheduling and Staffing:**
Creating efficient duty rosters for hospital staff using linear programming and scheduling models.
- **Inventory Control:**
Managing medical supplies, medicines, and blood banks to minimize shortages and wastage.
- **Patient Flow Optimization:**
Using queuing theory to improve emergency room efficiency and reduce crowding.
- **Disease Modelling:**
Predicting the spread of infectious diseases and planning vaccination or intervention strategies.

2. Operational Research in Marketing

In marketing, OR helps organizations make data-driven decisions to improve sales and customer satisfaction.

Applications:

- **Market Segmentation:**

Cluster analysis helps identify customer groups with similar buying behavior.

- **Product Mix Decisions:**

Linear programming optimizes the combination of products to maximize profit within budget limits.

- **Advertising and Media Planning:**

OR techniques determine the best advertising channels and budget allocation for maximum reach.

- **Sales Forecasting:**

Time series analysis and regression models predict future demand based on past data.

- **Distribution and Logistics:**

Transportation and network models minimize delivery costs and optimize routes.

3. Operational Research in Agriculture

OR supports efficient resource utilization and strategic planning in agriculture.

Applications:

- **Crop Planning:**

Linear programming models help decide which crops to grow and in what proportions for maximum yield and profit.

- **Irrigation Scheduling:**

Optimization ensures efficient water distribution among fields.

- **Supply Chain Management:**

Network models improve transportation and storage of agricultural products.

- **Pest and Fertilizer Management:**

Simulation models predict pest outbreaks and optimize pesticide usage.

- **Farm Mechanization Planning:**

Decision models help allocate farm machinery based on crop and area requirements.

4. Operational Research in Indian Railways

Indian Railways uses OR extensively to enhance operational efficiency, safety, and passenger satisfaction.

Applications:

- **Train Scheduling:**

OR helps design efficient timetables, minimizing delays and maximizing track utilization.

- **Crew and Engine Assignment:**

Optimization models allocate locomotives and staff to minimize idle time and fuel consumption.

- **Capacity Planning:**

Helps plan track expansion, platform utilization, and maintenance schedules.

- **Ticket Pricing and Revenue Management:**

Dynamic pricing models optimize fare structures based on demand and season.

- **Freight and Logistics Optimization:**

Network models determine the best routes for freight movement to reduce costs.

Content Structure for Each Topic (Case Study)

1. Healthcare

- ◊ **Content to Include:**

- 1. Introduction / Problem Area**

- Issues like long waiting times, limited staff, shortage of equipment, high operational costs.

- 2. OR Techniques Used**

- Linear Programming → Resource allocation
- Queuing Theory → Patient flow
- Simulation → Emergency department performance

- 3. Applications**

- Scheduling surgeries and staff shifts
- Managing hospital beds and medicines
- Optimizing ambulance routes

- 4. Example / Case Study**

- COVID-19: OR models used for ventilator allocation & testing center locations.

- 5. Benefits / Results**

- Reduced waiting time, efficient resource use, improved patient care.

2. Marketing

- ◊ **Content to Include:**

- 1. Introduction / Problem Area**

- Companies face challenges in product pricing, advertising, and logistics.

- 2. OR Techniques Used**

- Linear Programming → Product mix
- Regression Analysis → Sales forecasting
- Network Models → Distribution planning

- 3. Applications**

- Market segmentation and customer targeting
- Optimal advertising budget allocation
- Sales and demand forecasting

4. **Example / Case Study**

- Coca-Cola or Amazon using OR to optimize delivery routes and marketing spend.

5. **Benefits / Results**

- Cost reduction, increased sales, better customer satisfaction.

3. **Agriculture**

◊ **Content to Include:**

1. **Introduction / Problem Area**

- Limited resources (water, land, fertilizers), need for high productivity.

2. **OR Techniques Used**

- Linear Programming → Crop selection
- Simulation → Weather & yield prediction
- Transportation Models → Product distribution

3. **Applications**

- Deciding the best crop mix for maximum profit
- Efficient irrigation scheduling
- Optimizing fertilizer and pesticide usage
- Managing supply chain of produce

4. **Example / Case Study**

- ICAR using OR for cropping pattern optimization.

5. **Benefits / Results**

- Increased productivity, reduced waste, sustainable farming.

4. **Indian Railways**

◊ **Content to Include:**

1. **Introduction / Problem Area**

- Large network, train delays, resource allocation, fuel cost, scheduling complexity.

2. **OR Techniques Used**

- Network Optimization → Route planning
- Queuing Models → Station traffic flow
- Linear Programming → Crew assignment

3. **Applications**

- Train and crew scheduling
- Dynamic ticket pricing

- Freight route optimization
- Maintenance scheduling
- 4. **Example / Case Study**
 - OR-based “Crew Management System” and “Integrated Coach Management System.”
- 5. **Benefits / Results**
 - Reduced delays, improved efficiency, better resource utilization.

5. Evaluation Parameters (Common for All Sectors)

◇ **Content to Include:**

- Efficiency
- Cost Effectiveness
- Resource Utilization
- Accuracy of Predictions
- Service Quality
- Productivity Improvement
- Decision-Making Support
- Sustainability
- Scalability
- ROI (Return on Investment)

6. Conclusion

◇ **Content to Include:**

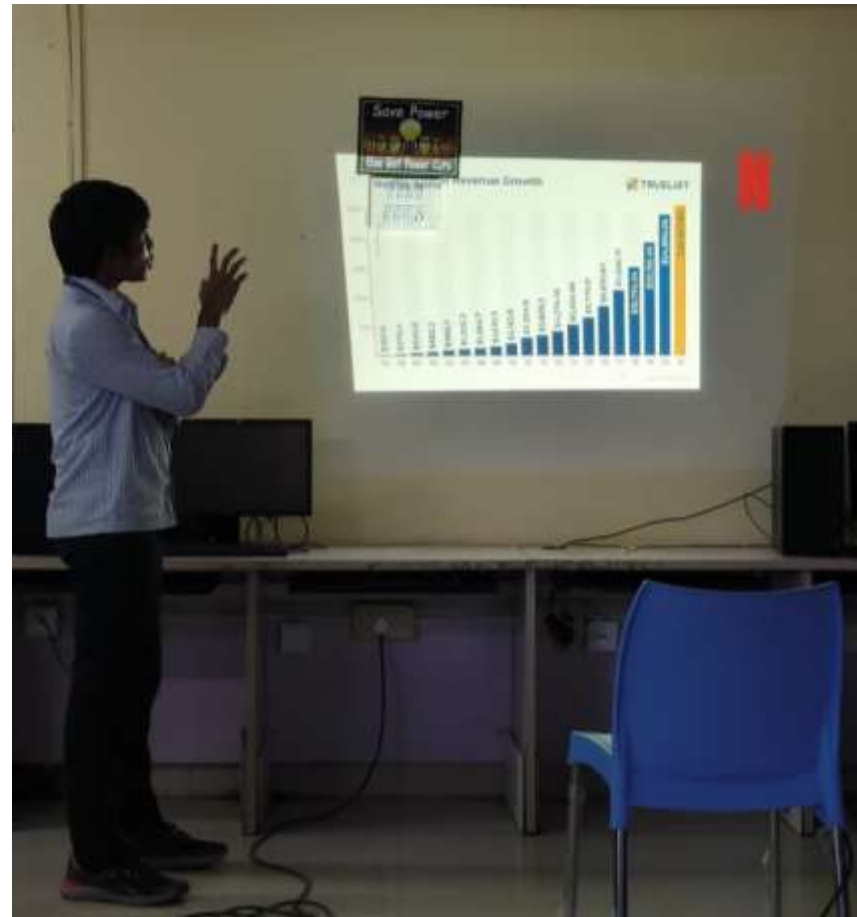
- OR helps in **data-driven, efficient, and cost-effective decision-making**.
- Improves **productivity, service quality, and sustainability**.
- Plays a vital role in **modernizing sectors** like Healthcare, Agriculture, Marketing, and Railways.
- **Final Message:** “Operational Research transforms complex problems into smart solutions.”

Objectives of the Group Presentation

1. **To explain the concept of Operational Research (OR)**
 - Understand what OR is and how it supports scientific decision-making.
2. **To explore the practical applications of OR in different sectors**
 - Highlight how OR techniques are applied in **Healthcare, Marketing, Agriculture, and Indian Railways**.
3. **To analyze real-world case studies**
 - Demonstrate how OR helps solve actual problems such as resource allocation, scheduling, and cost optimization.

4. **To evaluate the outcomes of OR implementation**
 - Assess improvements in **efficiency, cost effectiveness, and service quality** using evaluation parameters.
5. **To develop teamwork and presentation skills**
 - Encourage collaboration, communication, and analytical thinking among students.
6. **To emphasize the role of OR in sustainable and data-driven decision making**
 - Show how OR contributes to long-term planning and performance improvement.







Case Study Based Learning

Date of Program: **25-10-2025**

Organized by: **Dept. of Computer Science and Business System**

Subject Name: Marketing Research and Marketing Management, Fundamentals of Management.

Faculty Coordinators: **Dr. Honnaraju B, Sahana Seles and Apsara**

The Department of **Computer Science and Business Systems** organized an engaging and creative event titled “**Ad Mad Show**” on 25-10-2025. The event aimed to enhance students’ creativity, marketing skills, and teamwork by encouraging them to conceptualize and present innovative advertisements for various products and services.

Students from **5th semester** participated enthusiastically in teams. Each team was assigned a product category and was given a limited time to prepare a short and impactful advertisement. Participants showcased their marketing acumen through humorous, thought-provoking, and persuasive ad presentations, displaying exceptional creativity and communication skills.

The event was conducted as part of the **Marketing Management** course to provide students with a practical understanding of brand promotion, consumer appeal, and advertisement strategies.

The performances were evaluated by a panel of faculty members based on **creativity, relevance, presentation, teamwork, and audience engagement**. The judges appreciated the originality and enthusiasm of the participants.

Objective of the AD-Mad

The primary objectives of conducting AD –MAD is:

1. To develop creativity, communication, and presentation skills among engineering students.
2. To bridge the gap between technical knowledge and creative marketing.
3. To foster teamwork, critical thinking, and innovative problem-solving.
4. To promote awareness about product branding and advertising strategies.

