

Systems Analysis & Design

Semester 2026-I

Team Project Assignment

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Team Project Assignment

Each team is assigned a real-world systems analysis and design project focused on **current global challenges and local implementation opportunities**. Teams will follow the complete systems engineering lifecycle: analysis, design, project management, simulation, and prototype implementation.

Team Project Distribution

Team	Project Topic	Description	Students
1	Smart Campus Energy Management System	IoT monitoring & optimization of university energy consumption. Real-time dashboard with automated recommendations.	Fonseca López Omar Yesid Daniel Felipe Barrera Suárez Guzmán Triviño Dania Lizeth Ballesteros Molina Daniel Mateo

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Any comment or concern about this document can be sent to Carlos A. Sierra at: *cavir-guezs@udistrital.edu.co*.

2	Student Mental Health Support Platform	Peer support network addressing mental health issues. Resource matching & anonymous counselor connections.	Agudelo Sarmiento Alan Santiago Sierra Contreras Nicolás Alexander Cardozo Trujillo Juan David Romero Gutiérrez Julián Ernesto
3	Urban Mobility Optimization System	Route planning for university area transport. Real-time traffic data & multimodal options.	Riveros Guío Marlón Yecid Sepúlveda Cortés Edilson Santiago Cañón Solorza Juan Esteban Mariño Figueroa Natalie
4	Food Waste Reduction Platform	Connecting cafeterias & restaurants with community for surplus food redistribution.	Bravo Rojas Juan Sebastián Bonilla Lizarazo Cristian Camilo Rodríguez Granados Nicolás Sandoval Rodríguez Luna Alejandra
5	Digital Inclusion Bridge System	Resource sharing for device/internet access. Technical support coordination for remote learning.	Martínez Gil Daniel Mateo Triana Paipa Juan Camilo Ramírez Hernández Juan Guillermo Silva Orrego Dylan David
6	Sustainable Transportation Coordinator	Carpooling & bike-sharing optimization for campus. Route matching & environmental impact tracking.	García Bermeo Santiago Alexander Muñoz Revelo Julián David Acero Ladino Nicolás Guillén Guzmán Miguel Mateo
7	Local Business Recovery Support System	Post-pandemic business support. Customer engagement & inventory optimization analytics.	Rincón Vivas Daniel Eduardo Socha Gil Sara Sofía Zambrano Hurtado Sebastián Yañez Zabala Diego Alejandro
8	Academic Collaboration Network	Study group formation & resource sharing. Skill matching algorithms & collaboration tools.	Silva González Kevin Santiago Casas Zapata Anyelo Esteban Beltrán Varela Gabriel Andrés Tarazona Correa Miguel David

9	Smart Campus Parking Management	IoT parking space monitoring. Mobile app for real-time availability & reservation system.	Varela Sarmiento Esteban Josué Herreño Cifuentes Dilan Santiago Zambrano Matiz Kevin Sneider Alvarado Doria Ronaldo Andrés
10	Community Safety Alert System	Real-time safety notifications for campus areas. Crowd-sourced incident reporting & verification.	Garrido Medina Henry Samuel Cusba Marín Gabriel Mateo Garzón Herrera Felipe José Quintero Gordillo Juan Esteban
11	Local Volunteer Coordination Platform	Matching volunteers with community organizations. Skills-based matching & impact tracking.	Candia Marín Johan Sebastián Hernández Ortiz Adrián Mauricio Leudo Mosquera José Luis Hernández Rojas David Santiago

Detailed Project Descriptions

- Smart Campus Energy Management System:** IoT-based monitoring and optimization of university energy consumption. Students will develop sensors network integration with web dashboard for real-time energy tracking, automated recommendations, and carbon footprint reduction. Stakeholders include students, facilities management, and sustainability office.
- Student Mental Health Support Platform:** Peer support network addressing rising mental health issues among university students. Platform includes resource matching, appointment scheduling with counseling services, and anonymous peer counselor connections. Focus on user experience design and data privacy compliance.
- Urban Mobility Optimization System:** Traffic congestion and public transport inefficiency solution for university area. Route planning application with real-time data integration, multimodal transportation options, and transit route optimization algorithms. Collaboration with local transport authority and city planners.
- Food Waste Reduction Platform:** Connecting university cafeterias and local restaurants with students and community to redistribute surplus food. Mobile application for real-time coordination, logistics management, and food redistribution tracking. Partnership with food services and local businesses.
- Digital Inclusion Bridge System:** Addressing digital divide affecting remote learning access. Resource sharing platform with device/internet booking system, technical support coordination, and accessibility features. Collaboration with IT services and community organizations for equity-focused solutions.

6. **Sustainable Transportation Coordinator:** Campus parking shortage and emissions reduction through carpooling and bike-sharing optimization. Matching platform with route optimization algorithms, social coordination features, and environmental impact tracking. Integration with security and environmental office systems.
7. **Local Business Recovery Support System:** Supporting small businesses post-pandemic through customer engagement and inventory optimization. Business analytics platform with customer loyalty programs, inventory management, and performance metrics. Direct collaboration with local merchants and economic development office.
8. **Academic Collaboration Network:** Addressing isolated learning and limited peer interaction. Study group formation platform with academic resource sharing, skill matching algorithms, and collaboration tools integration. Partnership with academic advisors and library services for enhanced learning outcomes.
9. **Smart Campus Parking Management System:** IoT-enabled parking space monitoring addressing campus parking shortage. Mobile application with real-time availability tracking, reservation system, and occupancy optimization algorithms. Integration with campus security and traffic management systems.
10. **Community Safety Alert System:** Real-time safety notification platform for campus and surrounding areas. Crowd-sourced incident reporting with verification mechanisms, emergency response coordination, and community engagement features. Collaboration with campus security and local authorities.
11. **Local Volunteer Coordination Platform:** Matching volunteers with local community organizations and social impact projects. Skills-based matching algorithms, availability scheduling, and impact tracking system. Partnership with community organizations and social development initiatives.

Project Implementation Requirements

Each team must complete all four workshop phases plus final implementation:

- **Workshop 1:** Systems Analysis - stakeholder interviews, process mapping, problem quantification
- **Workshop 2:** Systems Design - system architecture, database design, interface mock-ups
- **Workshop 3:** Project Management - timeline, risk assessment, quality standards
- **Workshop 4:** System Simulation - simulation with realistic data and scenarios
- **Final Project:** Working prototype with basic functionality and user validation