

Aerodynamics:

1. Design and Optimization of Wing Shapes for Improved Lift-to-Drag Ratios
2. Study of Flow Control Techniques for Aerodynamic Performance Enhancement
3. Analysis of Boundary Layer Separation on Airfoils
4. Investigation of High-Lift Devices for Short Takeoff and Landing (STOL) Aircraft
5. Development of Low-Drag Airfoil Profiles for Supersonic Flight
6. Wind Tunnel Testing of Airfoil Models under Various Conditions
7. Design of Aerodynamic Fairings for Aircraft and Rockets
8. Computational Fluid Dynamics (CFD) Simulations of Aircraft Aerodynamics
9. Study of Wingtip Devices for Reduced Induced Drag
10. Development of Aerodynamic Braking Systems for Aircraft

Propulsion Systems:

11. Design and Optimization of Turbofan Engines for Commercial Aircraft
12. Investigation of Alternative Fuels for Jet Engines
13. Performance Analysis of Rocket Propulsion Systems
14. Study of Ramjet and Scramjet Engines for Hypersonic Flight
15. Development of Electric Propulsion Systems for Satellites
16. Testing and Evaluation of Propellant Combustion Efficiency
17. Analysis of Thrust Vectoring Techniques for Improved Maneuverability
18. Design and Testing of Hybrid Rocket Motors
19. Optimization of Propeller Designs for General Aviation Aircraft
20. Research on Pulse Detonation Engines for Future Aerospace Applications

Structural Analysis and Design:

21. Finite Element Analysis (FEA) of Aircraft Wing Structures
22. Material Selection and Optimization for Lightweight Aircraft Components
23. Study of Composite Materials for Aerospace Applications
24. Design and Testing of Landing Gear Systems
25. Investigation of Structural Dynamics and Vibration Control Techniques
26. Analysis of Fatigue and Fracture Mechanics in Aircraft Structures
27. Development of Crashworthiness Criteria for Aircraft Design
28. Design and Optimization of Spacecraft Structures for Launch and Reentry
29. Research on Additive Manufacturing Techniques for Aerospace Components

30. Investigation of Aeroelastic Effects on Aircraft Performance

Avionics and Control Systems:

- 31. Design and Implementation of Flight Control Systems
- 32. Development of Autonomous Navigation Algorithms for UAVs
- 33. Research on Fault Tolerant Control Systems for Aircraft
- 34. Study of Fly-by-Wire Systems for Aircraft Stability and Control
- 35. Analysis of Guidance, Navigation, and Control (GNC) Systems for Spacecraft
- 36. Integration of Sensors and Actuators for Unmanned Aerial Vehicles (UAVs)
- 37. Design and Testing of Attitude Control Systems for Satellites
- 38. Research on Adaptive Control Techniques for Aircraft
- 39. Development of Flight Management Systems for Commercial Aircraft
- 40. Investigation of Human Factors in Cockpit Design and Human-Machine Interaction

Space Systems and Satellite Technology:

- 41. Design and Optimization of CubeSat Platforms for Scientific Missions
- 42. Study of Satellite Constellations for Earth Observation
- 43. Development of On-Orbit Servicing and Maintenance Technologies
- 44. Analysis of Solar Sail Propulsion Systems for Interplanetary Travel
- 45. Research on Space Debris Mitigation and Removal Techniques
- 46. Design and Testing of Deployable Space Structures
- 47. Investigation of Additive Manufacturing in Space for In-Situ Resource Utilization (ISRU)
- 48. Development of Communication Systems for Deep Space Missions
- 49. Study of Orbital Mechanics and Trajectory Optimization for Spacecraft
- 50. Research on Lunar and Martian Habitat Design for Human Colonization

Aircraft Systems and Subsystems:

- 51. Design and Optimization of Aircraft Fuselage Structures
- 52. Investigation of Environmental Control Systems for Aircraft Cabin Comfort
- 53. Development of Aircraft Electrical Power Systems
- 54. Analysis of Aircraft Hydraulic Systems for Landing Gear and Flight Controls
- 55. Research on Aircraft Fuel Systems and Fuel Efficiency

56. Design and Testing of Aircraft Emergency Evacuation Systems
57. Study of Aircraft Noise Reduction Techniques
58. Integration of In-Flight Entertainment Systems in Commercial Aircraft
59. Development of Anti-Icing and Deicing Systems for Aircraft
60. Investigation of Aircraft Lighting Systems for Safety and Visibility

Unmanned Aerial Vehicles (UAVs) and Drones:

61. Design and Optimization of Fixed-Wing UAV Platforms
62. Study of Vertical Takeoff and Landing (VTOL) UAVs
63. Development of Payload Integration Techniques for UAVs
64. Analysis of Autonomous Navigation Systems for UAV Swarms
65. Research on UAV Collision Avoidance Algorithms
66. Design and Testing of Solar-Powered UAVs for Long-Endurance Missions
67. Investigation of UAV Applications in Precision Agriculture
68. Development of UAVs for Disaster Response and Search and Rescue Operations
69. Study of UAV Swarming Behavior and Coordination
70. Research on UAV Traffic Management Systems (UTM) for Urban Air Mobility

Hypersonic and Spaceplane Technologies:

71. Design and Optimization of Hypersonic Vehicle Configurations
72. Investigation of Thermal Protection Systems for Reentry Vehicles
73. Development of Scramjet Engine Technologies for Hypersonic Flight
74. Analysis of Hypersonic Airfoil and Control Surface Design
75. Research on Hypersonic Vehicle Aerodynamics and Stability
76. Design and Testing of Rocket-Plane Hybrid Vehicles
77. Study of Spaceplane Concepts for Suborbital and Orbital Missions
78. Development of Airbreathing Launch Vehicles for Small Satellite Deployment
79. Investigation of Hypersonic Combustion and Propulsion Systems
80. Research on Hypersonic Wind Tunnel Testing Techniques

Aircraft Performance and Efficiency:

81. Design and Optimization of Aircraft Winglets for Fuel Efficiency
82. Study of Aircraft Drag Reduction Techniques
83. Development of Aircraft Performance Monitoring Systems

84. Analysis of Aircraft Weight Reduction Strategies
85. Research on Aircraft Engine Efficiency Improvement Methods
86. Design and Testing of Aircraft Wing Morphing Technologies
87. Investigation of Aircraft Energy Harvesting Systems
88. Development of Aircraft Regenerative Braking Systems
89. Study of Aircraft Wake Turbulence and its Effects
90. Research on Aircraft Ground Operations Optimization for Fuel Savings

Aerospace Materials and Manufacturing:

91. Design and Optimization of Additively Manufactured Aerospace Components
92. Investigation of Advanced Composite Materials for Aircraft Structures
93. Development of Lightweight Metal Alloys for Aerospace Applications
94. Analysis of Smart Materials and Structures for Aerospace Systems
95. Research on Sustainable Materials and Manufacturing Processes
96. Design and Testing of Aerospace Coatings for Corrosion Protection
97. Study of Nanomaterials for Aerospace Applications
98. Development of Shape Memory Alloys for Actuators and Sensors
99. Investigation of Bio-inspired Materials for Aerospace Engineering
100. Research on Recyclable and Biodegradable Aerospace Materials

Aerospace Systems Integration:

101. Design and Optimization of Integrated Modular Avionics (IMA) Systems
102. Investigation of Systems Engineering Approaches for Aerospace Projects
103. Development of Aircraft Health Monitoring and Diagnostics Systems
104. Analysis of Integrated Air Traffic Management Systems
105. Research on Aerospace Vehicle-to-Vehicle (V2V) Communication Systems
106. Design and Testing of Integrated Cockpit Display Systems (ICDS)
107. Study of Aerospace Mission Planning and Management Systems
108. Development of Aircraft Maintenance, Repair, and Overhaul (MRO) Systems
109. Investigation of Aerospace Supply Chain Management Techniques
110. Research on Integrated Logistics Support (ILS) Systems for Aerospace Operations.