



INSTITUTE OF AERONAUTICAL ENGINEERING (Autonomous)

Dundigal, Hyderabad - 500 043

AERONAUTICAL ENGINEERING

TECH TALK TOPICS

Course Title	AEROSPACE STRUCTURAL DYNAMICS				
Course Code	AAEC35				
Program	B.Tech				
Semester	VII	AE			
Course Type	Core				
Regulation	IARE	UG-20			
Course Structure	Theory			Practical	
	Lecture	Tutorials	Credits	Laboratory	Credits
	3	1	4	-	-
Course Coordinator	Mr. K Arun Kumar, Assistant Professor				

COURSE OBJECTIVES:

The students will try to:

I	Formulate mathematical models of problems in vibrations using Newton's second law or energy principles.
II	Determine a complete solution to the modelled mechanical vibration problems.
III	design a mechanical system that has desirable vibrational behavior.
IV	Assess the underlying assumptions in the aeroelastic analysis of fixed wing and rotary wing aerospace vehicles/systems.

COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	Outline the fundamental concepts of mechanical vibrations and justify their application in a variety of engineering design contexts	Apply
CO 2	Analyze the dynamic response of a single degree-of-freedom mass-spring-damper system with no force excitation, with harmonic force excitation, and with general force excitation.	Analyze
CO 3	Compute the natural frequency (or frequencies) of vibratory systems for determining the system's modal response.	Apply

CO 4	Apply theoretical and numerical procedures for predicting the dynamic response of continuous structural systems under the most diverse loading conditions.	Apply
CO 5	Formulate the static aeroelasticity problems such as typical section and wing divergence problems; for their selection in real world applications.	Apply

TECH TALK TOPICS:

Topic No	Title of the topic	Source	Publisher	Course Outcomes
1	Duhem modeling of friction-induced hysteresis	(Volume:28, Issue:5, October 2008)	IEEE	CO1
2	Vibration Stimulation as a Non-Invasive Approach to Monitor the Severity of Meniscus Tears	IEEE Transactions on Neural Systems and Rehabilitation Engineering (Volume: 29)	IEEE	CO1, CO2
3	Fault Detection Based on a Bio-Inspired Vibration Sensor System	IEEE Access (Volume:6)	IEEE	CO1, CO2
4	Analysis and Optimization of the Novel Inerter-Based Dynamic Vibration Absorbers	IEEE Access (Volume:6)	IEEE	CO2
5	Active Vibration Suppression of Flexible Spacecraft during Attitude Manoeuvre With Actuator Dynamics	IEEE Access (Volume:6)	IEEE	CO1
6	Sensitive Vibration Detection Using Ground-Penetrating Radar	IEEE Microwave and Wireless Components Letters (Volume:23, Issue:12, Dec. 2013)	IEEE	CO1
7	Design of Eccentric Mass-Type Vibration-Damping Electric Actuator Control System for Non-Fixed-Wing Aircraft	IEEE Access (Volume:8)	IEEE	CO2, CO3
8	A compact piezoelectric stack actuator and its simulation in vibration control	Tsinghua Science and Technology (Volume:14, Issue:S2, Dec. 2009)	IEEE	CO1, CO2
9	Utilizing Nonlinear Active Vibration Control to Quench the Nonlinear Vibrations of Helicopter Blade Flapping System	IEEE Access (Volume:8)	IEEE	CO1, CO2

10	Research on Error Compensation Property of Strapdown Inertial Navigation System Using Dynamic Model of Shearer	IEEE Access (Volume:4)	IEEE	CO1, CO3
11	An Enhanced Hemostatic Ultrasonic Scalpel Based on the Longitudinal-Torsional Vibration Mode	IEEE Access (Volume:9)	IEEE	CO1, CO2
12	Design and Modeling of a Magnetic-Coupling Monostable Piezoelectric Energy Harvester under Vortex-Induced Vibration	IEEE Access (Volume:8)	IEEE	CO1, CO2
13	Adaptive Hyperbolic Tangent Sliding-Mode Control for Building Structural Vibration Systems for Uncertain Earthquakes	IEEE Access (Volume:6)	IEEE	CO1, CO2
14	Boundary Control for a Suspension Cable System of a Helicopter With Saturation Nonlinearity Using Backstepping Approach	IEEE Access (Volume:7)	IEEE	CO2
15	Coupled Dynamic Modeling and Analysis of the Single Gimbal Control Moment Gyroscope Driven by Ultrasonic Motor	IEEE Access (Volume:8)	IEEE	CO2
16	Modal Space Feed forward Control for Electro-Hydraulic Parallel Mechanism	IEEE Access (Volume:7)	IEEE	CO1, CO2
17	A Levitation Condition Awareness Architecture for Low-Speed Maglev Train Based on Data-Driven Random Matrix Analysis	IEEE Access (Volume:8)	IEEE	CO1, CO2
18	Failure analysis and design changes of oxygen pump inducers	Tsinghua Science and Technology (Volume:6, Issue:5, Dec.2001)	IEEE	CO1, CO2
19	Routing protocols for unmanned aerial vehicles	IEEE Communications Magazine (Volume: 56, Issue: 1, Jan. 2018)	IEEE	CO9
20	Research on Eigenvalue Analysis Method in Multi-Surface Metal Shell Vibratory Gyro	IEEE Access (Volume:7)	IEEE	CO1, CO2

21	A transform method for Laplace's equation in multiply connected circular domains	IMA Journal of Applied Mathematics (Volume:80, Issue:6, Dec.2015)	IEEE	CO1, CO2
22	Two Degrees of Freedom Active Damping Technique for LCL Filter-Based Grid Connected PV Systems	IEEE Transactions on Industrial Electronics (Volume:61, Issue:6, June.2014)	IEEE	CO1, CO2
23	Two-Degree-of-Freedom Robust Control Optimization for the IPT System with Parameter Perturbations	IEEE Transactions on Power Electronics (Volume:33, Issue:12, Dec.2018)	IEEE	CO2, CO3
24	A Single-Fiber Endoscope Scanner Probe Utilizing Two-Degrees-of-Freedom (2DOF) High-Order Resonance to Realize Larger Scanning Angle		IEEE	CO1, CO2
25	A Two-Degree-of-Freedom Internal Model-Based Active Disturbance Rejection Controller for a Wind Energy Conversion System	IEEE Journal of Emerging and Selected Topics in Power Electronics (Volume:8, Issue:3, Sept.2020)	IEEE	CO1, CO3
26	Robust Two Degrees of Freedom Attitude Controller Design and Flight Test Result for Engineering Test Satellite-VIII Spacecraft	IEEE Transactions on Control Systems Technology (Volume:22, Issue:1, Jan.2014)	IEEE	CO2, CO4
27	Multi-Objective Optimization Design of Natural Frequency of Two-Degree-of-Freedom Fast Steering Mirror System	IEEE Access (Volume:9), 23 February 2021	IEEE	CO3, CO4
28	Drones to the rescue, airline industry embraces drones as cost-saver	Aerospace America, Issue: Nov., 2025)	AIAA	CO5, CO11
29	Multi-Objective Optimization Design of Natural Frequency of Two-Degree-of-Freedom Fast Steering Mirror System	IEEE Access (Volume:9), 23 February 2021	IEEE	CO3, CO4
30	Dynamic Switching of Two Degree-of-Freedom Control for Belt-Driven Servomechanism	IEEE Access (Volume:6), 30 November 2018	IEEE	CO3, CO4

31	A Laboratory Prototype Tandem Helicopter with Two Degrees of Freedom	IEEE Access (Volume:9), 09 March 2021	IEEE	CO3, CO4
32	Robust Control for Singular Systems Based on the Uncertainty and Disturbance Estimator	IEEE Access (Volume:9), 04 August 2021	IEEE	CO3, CO4
33	Adaptive Sliding Mode Based Stabilization Control for the Class of Under actuated Mechanical Systems	IEEE Access (Volume: 9), 08 February 2021	IEEE	CO3, CO4
34	Research on Control Strategy of Two Dimensional Output Force Vibration Damping Electric Actuator	IEEE Access (Volume:9), 11 January 2021	IEEE	CO3, CO4
35	Synchronous vibration suppression of magnetic bearing systems without angular sensors	CES Transactions on Electrical Machines and Systems (Volume:5, Issue:1, March.2021)	IEEE	CO3, CO4
36	Direct Vibration Force Suppression for Magnetically Suspended Motor Based on Synchronous Rotating Frame Transformation	IEEE Access (Volume:7), 13 March 2019	IEEE	CO3, CO4
37	Experience-Based Lecture for Vibration Engineering Using Dual-Scale Experiments: Free Vibration of an Actual Seismic Building and Controlling the Vibration of Scale-Down Experimental Model	IEEE Access (Volume:8), 14 May 2020	IEEE	CO3, CO4
38	Electromagnetic Vibration Characteristics Analysis of a Squirrel-Cage Induction Motor Under Different Loading Conditions	IEEE Access (Volume: 7), 02 December 2019	IEEE	CO3, CO4
39	Vibration Control of Tie Rod Rotors With Optimization of Unbalanced Force and Unbalanced Moment	IEEE Access (Volume:8), 06 April 2020	IEEE	CO3, CO4
40	Influence of Rotor-Bearing Coupling Vibration on Dynamic Behaviour of Electric Vehicle Driven by In-Wheel Motor	IEEE Access (Volume:7), 14 May 2019	IEEE	CO3, CO4

41	The Impact Analysis of Beating Vibration for Active Magnetic Bearing	IEEE Access (Volume:7), 02 August 2019	IEEE	CO3, CO4
42	Utilizing Nonlinear Active Vibration Control to Quench the Nonlinear Vibrations of Helicopter Blade Flapping System	IEEE Access (Volume:8), 03 November 2020	IEEE	CO3, CO4
43	Source of Acoustic Noise in a 12/16 External-Rotor Switched Reluctance Motor: Stator Tangential Vibration and Rotor Radial Vibration	IEEE Open Journal of Industry Applications (Volume:1), 23 July 2020	IEEE	CO3, CO4
44	Rotor Vibration Control of a Bearing-less Induction Motor Based on Unbalanced Force Feed-Forward Compensation and Current Compensation	IEEE Access (Volume:8), 06 January 2020	IEEE	CO3, CO4
45	Design of Eccentric Mass-Type Vibration-Damping Electric Actuator Control System for Non-Fixed-Wing Aircraft	IEEE Access (Volume:8), 07 December 2020	IEEE	CO3, CO4
46	Vibration Control for Electric Vehicles With In-Wheel Switched Reluctance Motor Drive System	IEEE Access (Volume:8), 07 January 2020	IEEE	CO3, CO4
47	Reduction of Contact Force Fluctuation for Rotary Wear Test Apparatus	IEEE/ASME Transactions on Mechatronics (Volume: 25, Issue: 1, Feb. 2020)	IEEE	CO3, CO4
48	A Traveling-Wave Linear Ultrasonic Motor Driven by Two Torsional Vibrations: Design, Fabrication, and Performance Evaluation	IEEE Access (Volume:8), 03 July 2020	IEEE	CO3, CO4
49	Analysis of Mode Interaction in Ultra-low Frequency Oscillation Based on Trajectory Eigenvalue	Journal of Modern Power Systems and Clean Energy (Volume:8, Issue:6, November.2020)	IEEE	CO3, CO4
50	Stabilization of infinite-dimensional un-damped second order systems by using a parallel compensator	IMA Journal of Mathematical Control and Information (Volume:21, Issue:1, March.2004)	IEEE	CO3, CO4

51	Parametric Analysis of the Car Body Suspended Equipment for Railway Vehicles Vibration Reduction	IEEE Access (Volume:7), 24 May 2019	IEEE	CO3, CO4
52	Stability and accuracy analysis for Taylor series numerical method	Tsinghua Science and Technology (Volume:9, Issue:1, Feb.2004)	IEEE	CO3, CO4
53	Self-Excitation and Stability at Speed Transients of Self-Excited Single-Phase Reluctance Generators	IEEE Transactions on Sustainable Energy (Volume: 4, Issue:1, Jan.2013)	IEEE	CO3, CO4
54	A dynamic analysis of the LO noise transfer mechanism in a Rb-cell frequency standard	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:47, Issue:2, March.2000)	IEEE	CO3, CO4
55	1/f Magnetic Noise Dependence on Free Layer Thickness in Hysteresis Free MgO Magnetic Tunnel Junctions	IEEE Transactions on Magnetism (Volume:44, Issue:11, Nov.2008)	IEEE	CO3, CO4
56	Modal Analysis and Structure Optimization of Permanent Magnet Synchronous Motor	IEEE Access (Volume:8), 18 August 2020	IEEE	CO3, CO4
57	Reliability and Modal Analysis of Key Meta-Action Unit for CNC Machine Tool	IEEE Access (Volume:7), 15 February 2019	IEEE	CO3, CO4
58	A Vibrational Technique for In Vitro Intraoperative Prosthesis Fixation Monitoring	IEEE Transactions on Biomedical Engineering (Volume:67, Issue:10, Oct.2020)	IEEE	CO3, CO4
59	Identification Method of Modal Parameters of Machine Tools Under Periodic Cutting Excitation	IEEE Access (Volume:8), 01 July 2020	IEEE	CO3, CO4
60	Dynamic Characteristic Optimization of Ball Screw Feed Drive in Machine Tool Based on Modal Extraction of State Space Model	IEEE Access (Volume:7), 09 April 2019	IEEE	CO3, CO4

61	A Novel Approach of Identifying Railway Track Rail's Modal Frequency From Wheel-Rail Excitation and Its Application in High-Speed Railway Monitoring	IEEE Access (Volume:7), 13 December 2019	IEEE	CO3, CO4
62	MATLAB-Based Programs for Power System Dynamic Analysis	IEEE Open Access Journal of Power and Energy (Volume:7), 19 November 2019	IEEE	CO3, CO4
63	Nonlinear Modal Decoupling of Multi-Oscillator Systems With Applications to Power Systems	IEEE Access (Volume:6), 25 December 2025	IEEE	CO3, CO4
64	Time Domain Characteristic Mode Analysis for Transmission Problems	IEEE Open Journal of Antennas and Propagation (Volume:1), 09 July 2020	IEEE	CO3, CO4
65	A Method for Constructing Automatic Rolling Bearing Fault Identification Model Based on Refined Composite Multi-Scale Dispersion Entropy	IEEE Access (Volume:9), 14 June 2021	IEEE	CO3, CO4
66	Enabling Free Movement EEG Tasks by Eye Fixation and Gyroscope Motion Correction: EEG Effects of Color Priming in Dress Shopping	IEEE Access (Volume:6), 22 October 2018	IEEE	CO3, CO4
67	Wavelet Denoising for the Vibration Signals of Wind Turbines Based on Variational Mode Decomposition and Multiscale Permutation Entropy	IEEE Access (Volume:8), 24 February 2020	IEEE	CO 5
68	An Integrated Approach for Instability Analysis of Lattice Brake System Using Contact Pressure Sensitivity	IEEE Access (Volume:8), 06 January 2020	IEEE	CO 5
69	A Multi-Point Iterative Analysis Method for Vibration Control of a Steering Wheel at Idle Speed	IEEE Access (Volume:7), 03 July 2019	Air Force Association	CO11
70	Design and Development of a Movable and Self-Extensible Apparatus for Substation Construction and Maintenance	IEEE Access (Volume:8), 02 June 2020	IEEE	CO 5

71	Modal and Dynamic Analysis of a Tether for a Nonequatorial Space Elevator	IEEE Access (Volume:6), 26 November 2018	IEEE	CO 5
72	Vibration Characteristics Analysis of Human- Robot Coupled System for Walking Posture of Elderly-Assistant Robot	IEEE Access (Volume:9), 17 March 2021	IEEE	CO 5
73	Application of the Variational Mode Decomposition-Based Time and Time-Frequency Domain Analysis on Series DC Arc Fault Detection of Photovoltaic Arrays	IEEE Access (Volume:7), 02 September 2019	IEEE	CO 5
74	Overview of Harmonic and Resonance in Railway Electrification Systems	IEEE Transactions on Industry Applications (Volume:54, Issue:5, Sept.-Oct.2018)	IEEE	CO 5
75	Modeling and Experimental Study on the Micro-Vibration Transmission of a Control Moment Gyro	IEEE Access (Volume:7), 13 June 2019	IEEE	CO 5
76	Dynamic Modeling of Multistage Gearbox and Analysis Method of Resonance Danger Path	IEEE Access (Volume:7), 30 September 2019	IEEE	CO 5
77	Manipulation Skill Acquisition for Robotic Assembly Based on Multi-Modal Information Description	IEEE Access (Volume:8)	IEEE	CO 5
78	A study of shock-resistance design of suspension subjected to impulsive excitation	IEEE Transactions on Magnetics (Volume:37, Issue:2, March.2001)	IEEE	CO 5
79	Estimating the Frequency Response of an Excitation System and Synchronous Generator: Sinusoidal Disturbances Versus Empirical Transfer Function Estimate	IEEE Power and Energy Technology Systems Journal (Volume:5, Issue:2, June.2018)	IEEE	CO 5
80	Modeling and Control of Drill-String System With Stick-Slip Vibrations Using LPV Technique	IEEE Transactions on Control Systems Technology (Volume:29, Issue:2, March.2021)	IEEE	CO 5

81	Improvement of Design and Motion Control for Motion Platform Based on Spherical Wheels	IEEE/ASME Transactions on Mechatronics (Volume:24, Issue:5, Oct.2019)	IEEE	CO 5
82	Whirl Mode Suppression for AMB-Rotor Systems in Control Moment Gyros Considering Significant Gyroscopic Effects	IEEE Transactions on Industrial Electronics (Volume:68, Issue:5, May.2021)	IEEE	CO 5
83	Tree Based Trajectory Optimization Based on Local Linearity of Continuous Non-Linear Dynamics	IEEE Transactions on Automatic Control (Volume:61, Issue:9, Sept.2016)	IEEE	CO 5
84	A linear coupling controller for plate vibration	IEEE/ASME Transactions on Mechatronics (Volume:9, Issue:2, June.2004)	IEEE	CO 5
85	Extracting Signals Robust to Electrode Number and Shift for Online Simultaneous and Proportional Myoelectric Control by Factorization Algorithms	IEEE Transactions on Neural Systems and Rehabilitation Engineering (Volume:22, Issue:3, May.2014)	IEEE	CO 5
86	Robust Adaptive Sliding-Mode Control of a Permanent Magnetic Spherical Actuator With Delay Compensation	IEEE Access (Volume:8), 09 July 2020	IEEE	CO 5
87	Modeling and control of active suspensions for MDOF vehicle	Tsinghua Science and Technology (Volume:8, Issue:2, April.2003)	IEEE	CO 5
88	Power links with Ireland-excitation of turbine-generator shaft torsional vibrations by variable frequency currents superimposed on DC currents in asynchronous HVDC links	IEEE Transactions on Power Systems (Volume:10, Issue:3, Aug.1995)	IEEE	CO 5
89	Thickness resonances dispersion characteristics of a lossy piezoceramic plate with electrodes of arbitrary conductivity	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:54, Issue:12, December.2007)	IEEE	CO 5

90	Inertial vibration damping control of a flexible base manipulator	IEEE/ASME Transactions on Mechatronics (Volume:8, Issue:2, June.2003)	IEEE	CO 5
91	Charging port for autonomous drone swarms hundreds of drones can recharge autonomously on unmanned ground vehicles	Tech Briefs, Issue: Mar., 2021	IEEE	CO 5
92	Research on the Control Strategy of Hydraulic Shaking Table Based on the Structural Flexibility	IEEE Access (Volume:7), 22 March 2019	IEEE	CO 5
93	Comparative Study on Dynamic Characteristics of Two-Stage Gear System with Gear and Shaft Cracks Considering the Shaft Flexibility	IEEE Access (Volume:8), 15 July 2020	IEEE	CO 5
94	Output stabilization of flexible spacecraft with active vibration suppression	IEEE Transactions on Aerospace and Electronic Systems (Volume:39, Issue:3, July.2003)	IEEE	CO 5
95	Impact of shaft torsionals in steam turbine control	IEEE Transactions on Energy Conversion (Volume:4, Issue:2, Jun.1989)	IEEE	CO 5
96	Analysis of shaft torsional phenomena in governing large steam turbine generators with non-linear valve stroking	IEEE Transactions on Energy Conversion (Volume:14, Issue:3, Sep.1999)	IEEE	CO 5
97	Transverse Vibration Control of Axially Moving Membranes by Regulation of Axial Velocity	IEEE Transactions on Control Systems Technology (Volume:20, Issue:4, July.2012)	IEEE	CO 5
98	Recent Advances and Tendency in Fiber Bragg Grating-Based Vibration Sensor: A Review	IEEE Sensors Journal (Volume:20, Issue:20, Oct.15, 15 2020)	IEEE	CO 5
99	Measurement of the longitudinal and transverse vibration frequencies of a rod by speckle interferometry	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:40, Issue:3, May.1993)	IEEE	CO 5

100	Boundary Vibration Control of Variable Length Crane Systems in Two-Dimensional Space With Output Constraints	IEEE/ASME Transactions on Mechatronics (Volume:22, Issue:5, Oct.2025)	IEEE	CO 5
101	A Diaphragm Type Fiber Bragg Grating Vibration Sensor Based on Transverse Property of Optical Fiber With Temperature Compensation	IEEE Sensors Journal (Volume:17, Issue:4, Feb.15, 15 2025)	IEEE	CO 5
102	Fretting in Electrical Connectors Induced by Axial Vibration	IEEE Transactions on Components, Packaging and Manufacturing Technology (Volume:5, Issue:3, March.2015)	IEEE	CO 5
103	Theoretical, numerical, and experimental investigation on resonant vibrations of piezoceramic annular disks	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:52, Issue:8, Aug.2005)	IEEE	CO 5
104	Dynamic vibration analysis of switched reluctance motor using magnetic charge force density and mechanical analysis	IEEE Transactions on Applied Superconductivity (Volume:12, Issue:1, Mar.2002)	IEEE	CO 5
105	Modeling and Vibration Control for a Nonlinear Moving String With Output Constraint	IEEE/ASME Transactions on Mechatronics (Volume:20, Issue:4, Aug.2015)	IEEE	CO 5
106	Non-Contact Vibration Monitoring of Power Transmission Belts Through Electrostatic Sensing	IEEE Sensors Journal (Volume:16, Issue:10, May15, 2016)	IEEE	CO 3
107	Open-Loop Vibration Control of an Underwater System: Application to Refueling Machine	IEEE/ASME Transactions on Mechatronics (Volume:22, Issue:4, Aug.2017)	IEEE	CO 3

108	Theoretical analysis and experimental measurement for resonant vibration of piezoceramic circular plates	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:51, Issue:1, Jan.2004)	IEEE	CO 3
109	A Microgyroscope With Piezoresistance for Both High-Performance Coriolis-Effect Detection and Seesaw-Like Vibration Control	Journal of Microelectromechanical Systems (Volume:15, Issue:6, Dec.2006)	IEEE	CO 3
110	Similarity laws of the internal damping of stranded cables in transverse vibrations	IEEE Transactions on Power Delivery (Volume:7, Issue:3, Jul.1992)	IEEE	CO 3
111	Transformation of wind tunnel data on aeolian vibrations for application to random conductor vibrations in a turbulent wind	IEEE Transactions on Power Delivery (Volume:3, Issue:1, Jan.1988)	IEEE	CO 3
112	Effects of the intensity of precipitation and transverse wind on the corona-induced vibration of HV conductors	IEEE Transactions on Power Delivery (Volume:7, Issue:2, Apr.1992)	IEEE	CO 3
113	Time-frequency analysis of skeletal muscle and cardiac vibrations	Proceedings of the IEEE (Volume:84, Issue:9, Sept.1996)	IEEE	CO 3
114	Vibration analysis of angle-ply laminated composite plates with an embedded piezoceramic layer	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:50, Issue:9, Sept.2003)	IEEE	CO 3
115	Biaxial Fiber Bragg Grating Accelerometer Using Axial and Transverse Forces	IEEE Photonics Technology Letters (Volume:26, Issue:15, Aug.1, 1 2014)	IEEE	CO 3
116	Proper orthogonal decomposition-based control of transverse beam vibrations: experimental implementation	IEEE Transactions on Control Systems Technology (Volume:10, Issue:5, Sep.2002)	IEEE	CO 3

117	High-frequency resonant characteristics of triple-layered piezoceramic bimorphs determined using experimental measurements and theoretical analysis	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:59, Issue:6, June.2012)	IEEE	CO 3
118	How the Mechanical Properties and Thickness of Glass Affect TPaD Performance	IEEE Transactions on Haptics (Volume:13, Issue:3, July-Sept.1 2020)	IEEE	CO 3
119	Mechanical Performance of Transverse Flux Machines	IEEE Transactions on Industry Applications (Volume:55, Issue:4, July-Aug. 2019)	IEEE	CO 3
120	Vibration analysis for piezoceramic rectangular plates using Ritz's method with equivalent constants	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:53, Issue:2, Feb.2006)	IEEE	CO 3
121	Study of Phase Shift Control in High-Speed Ultrasonic Vibration Cutting	IEEE Transactions on Industrial Electronics (Volume:65, Issue:3, March 2018)	IEEE	CO 3
122	Experimental evaluation of adaptive predictive control for rotor vibration suppression	IEEE Transactions on Control Systems Technology (Volume: 10, Issue: 6, Nov.2002)	IEEE	CO 3
123	Wear Analysis of Tube-Baffle Vibration Interaction in a Tube Bundle	IEEE Access (Volume:7), 13 June 2019	IEEE	CO 3
124	Traveling wave excitation in a flexural vibration ring by using a torsional-flexural composite transducer	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:48, Issue:4, July 2001)	IEEE	CO 3
125	Flexural vibration behavior of piezoelectric heterogeneous bimorph beams	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:49, Issue:7, July.2002)	IEEE	CO 3

126	Adaptive Boundary Control of a Nonlinear Flexible String System	IEEE Transactions on Control Systems Technology (Volume:22, Issue:3, May.2014)	IEEE	CO 3
127	On the sensing and tuning of progressive structural vibration waves	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:52, Issue:9, Sept.2005)	IEEE	CO 3
128	Free vibration analysis of the piezoceramic bimorph with theoretical and experimental investigation	IEEE Access (Volume:7), 13 June 2019	IEEE	CO 3
129	Applying Spatial Orbit Motion to Accelerometer Sensitivity Measurement	IEEE Sensors Journal (Volume:17, Issue:14, July15, 15 2025)	IEEE	CO 4
130	Dynamic Piezoelectric Tactile Sensor for Tissue Hardness Measurement Using Symmetrical Flexure Hinges and Anisotropic Vibration Modes	IEEE Sensors Journal (Volume:21, Issue:16, Aug.15, 15 2021)	IEEE	CO 4
131	Vibration induced in towed linear underwater array cables	IEEE Journal of Oceanic Engineering (Volume:6, Issue:3, Jul.1981)	IEEE	CO 4
132	A high sensitivity hydrostatic piezoelectric transducer based on transverse piezoelectric mode honeycomb ceramic composites	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:43, Issue:1, Jan.1996)	IEEE	CO 4
133	Evaluation of Mode Dependent Fluid Damping in a High Frequency Drumhead Microresonator	Journal of Microelectromechanical Systems (Volume:23, Issue:2, April.2014)	IEEE	CO 4
134	The natural frequencies of the arterial system and their relation to the heart rate	IEEE Transactions on Biomedical Engineering (Volume:51, Issue:1, Jan.2004)	IEEE	CO 4

135	Effect of Surface Stress on Resonance Frequency of Microcantilever Sensors	IEEE Sensors Journal (Volume:18, Issue:18, Sept.15, 15 2018)	IEEE	CO 4
136	A natural modal expansion for the flexible robot arm problem via a self-adjoint formulation	IEEE Transactions on Robotics and Automation (Volume:6, Issue:5, Oct.1990)	IEEE	CO 4
137	Control of lateral motion in moving webs	IEEE Transactions on Control Systems Technology (Volume:11, Issue:5, Sept.2003)	IEEE	CO 4
138	Large-area, real-time imaging system for surface acoustic wave devices	IEEE Transactions on Instrumentation and Measurement (Volume:5, Issue:5, Oct.1996)	IEEE	CO 4
139	A Virtual Model of Spring Reverberation	IEEE Transactions on Audio, Speech, and Language Processing (Volume:18, Issue:4, May.2010)	IEEE	CO 4
140	Electromechanical analysis of a symmetric piezoelectric/elastic laminate structure: theory and experiment	IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Volume:45, Issue:2, March.1998)	IEEE	CO 4
141	Lateral-Mode Vibration of Microcantilever-Based Sensors in Viscous Fluids Using Timoshenko Beam Theory	Journal of Microelectromechanical Systems (Volume: 4, Issue:4, Aug.2015)	IEEE	CO 4
142	Passive control reinforced concrete frame mechanism with high strength reinforcements and its potential benefits against earthquakes	Tsinghua Science and Technology (Volume:11, Issue:6, Dec.2006)	IEEE	CO 4
143	Design and Experiments of a Novel Rotary Piezoelectric Actuator Using Longitudinal–Torsional Convertors	IEEE Access (Volume:7), 08 February 2019	IEEE	CO 4

144	A Novel Rotary Ultrasonic Motor Using the Longitudinal Vibration Mode	IEEE Access (Volume:7), 16 September 2019	IEEE	CO 4
145	Semi-Active Vibration Control for in-Wheel Switched Reluctance Motor Driven Electric Vehicle With Dynamic Vibration Absorbing Structures: Concept and Validation	IEEE Access (Volume:6), 10 October 2018	IEEE	CO 4
146	A New Linear Ultrasonic Motor Using Hybrid Longitudinal Vibration Mode	IEEE Access (Volume:4), 2016	IEEE	CO 4
147	Design and Fabrication of a Skew-Typed Longitudinal-Torsional Composite Ultrasonic Vibrator for Titanium Wire Drawing	IEEE Access (Volume:4), 04 October 2016	IEEE	CO 4
148	An Easily Fabricated Linear Piezoelectric Actuator Using Sandwich Longitudinal Vibrators With Four Driving Feet	IEEE Access (Volume:7), 25 December 2018	IEEE	CO 4
149	Dynamic Inspection of Rail Wear via a Three-Step Method: Auxiliary Plane Establishment, Self-Calibration, and Projecting	IEEE Access (Volume:6), 29 June 2018	IEEE	CO 4
150	Crashworthiness simulation and improvement design of auto-body based on finite element method	Journal of Systems Engineering and Electronics (Volume:15, Issue:4, Dec.2004)	IEEE	CO 4
151	Design and Experiment Evaluation of a Rotatable and Deployable Sleeve Mechanism Using a Two-DOF Piezoelectric Actuator	IEEE Access (Volume:6), 23 October 2018	IEEE	CO 4
152	Modeling and Analysis of Aeroelasticity and Sloshing for Liquid Rocket	IEEE Access (Volume:7), 03 December 2018	IEEE	CO 4
153	Bicycle Simulator Improvement and Validation	IEEE Access (Volume:9), 05 April 2021	IEEE	CO 4
154	Modeling and Analysis of Aeroelasticity and Sloshing for Liquid Rocket	IEEE Access (Volume:7), 03 December 2018	IEEE	CO 4

155	A Fixed-Wing Aircraft Simulation Tool for Improving DoD Acquisition Efficiency	Computing in Science and Engineering (Volume:18, Issue:1, Jan.-Feb.2016)	IEEE	CO 4
156	Aeroelastic and Trajectory Control of High Altitude Long Endurance Aircraft	IEEE Transactions on Aerospace and Electronic Systems (Volume: 54, Issue: 6, December 2018)	IEEE	CO 4
157	Structural dynamic analysis of turbine blade	2025 First International Conference on Recent Advances in Aerospace Engineering (ICRAAE)	IEEE	CO 4
158	Research of a fault diagnosis algorithm for aerospace dynamic system based on analytic hierarchy process	IEEE The 2nd International Conference on Information Science and Engineering	IEEE	CO 4
159	The Characterization of Impact Dynamics in Aerospace Structures — The Case of Deformable Impactors	IEEE 2023 10th International Conference on Recent Advances in Air and Space Technologies (RAST)	IEEE	CO 4
160	An overview on dynamics and controls modelling of hypersonic vehicles	IEEE (2009 American Control Conference)	IEEE	CO 4

Course Coordinator:
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HOD, AE