

Application Guidelines of the Delta Young Technology Scholar Award

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1. To promote the development of technology fields such as sustainable energy and smart manufacturing, and to continue channeling corporate resources into research innovation and talent cultivation, Delta Group intends to establish the “Delta Young Technology Scholar Award” to reward and recognize outstanding young scholars who are actively engaged in research and talent development. These guidelines are hereby established for compliance purposes.
2. **Eligibility**
Applicants must be below the age of forty-five (inclusive) as of the application deadline and must hold a position of assistant professor or higher, or an equivalent qualification, within domestic public or private colleges and universities. Those who are seconded, enrolled in full-time study, on sabbatical leave, or on unpaid leave are not eligible to apply. Part-time faculty members must comply with the “Concurrent Employment Guidelines for Teachers of Public Institutions” in order to be eligible to apply.
3. **Application Fields** (Each applicant is limited to applying for one field per year. The application must describe how the applicant’s research and teaching development align with the field’s core technologies, application scopes, and key objectives, and how it can provide meaningful contributions to the field.)

Application Fields	Core Technologies	Application Scope	Key Objectives
Power Electronics	1. Power Conversion Architectures and Control Technologies 2. Power Device Design 3. Analysis and Design of Power Magnetic Components 4. Power Management IC Design 5. Motor Drives	1. Switched-Mode Power Supply (SMPS) Industry 2. Power and Energy Industry Applications 3. Smart Grid Applications 4. Motor Drives	1. High-Power / High-Performance Converters 2. High-Efficiency / High Power-Density Converters 3. High-Frequency Switching 4. Enhancement of drive efficiency, system performance, and reliability
Power and Energy	1. Novel Circuit Topologies and Control Strategies for Power Electronics Integration in Power Systems 2. Dynamic Analysis and Control of Power Systems 3. Real-Time Resilient Control and Scheduling of	1. Grid-Side Power Conversion 2. Intelligent and Autonomous Control of Grid-Side Devices 3. Energy Trading and Energy Management Systems (EMS) 4. Distributed Grid Architectures (AC and DC Coupled) with DERs and Renewable	1. High-Efficiency and High Power-Density Power Conversion Methods 2. Power System Stability Control under High Penetration of Inverter-Based Resources (IBRs) 3. Carbon Footprint Reduction and Deep Energy Savings

	Microgrids (AC Coupled, DC Coupled); Self-Healing Mechanisms in Microgrids; Development and Diagnosis of Microgrid System Modeling Platforms; Power Grid Fault Modeling and Diagnosis 4. Emerging energy technologies, including ammonia, hydrogen, energy storage, and energy management	5. Energy Sources 5. Energy conversion, energy storage, energy dispatch, and smart management	4. Adaptation of AC and DC Microgrids and Dynamic Scheduling and Correction Strategies for Strong and Weak Grids 5. Data centers and energy infrastructure, improving energy efficiency, grid resilience, and energy transition.
Electric Vehicles	1. Development and Modeling of 1200V Wide Bandgap (WBG) Devices 2. Advanced Thermal Management Solutions and Materials 3. Classification and Applications of Practical Neural Networks (NNs) 4. Edge/Zone Computing and Software Architecture for Software-Defined Vehicles (SDVs) 5. Fault Modeling of Drive Systems 6. Modeling of High-Voltage Batteries 7. Autonomous Driving Technologies 8. EV Batteries and Battery Management Systems (BMS) 9. On-Board Charger (OBC) 10. Wireless Power Transfer (WPT) 11. Ultra-High-Speed Motor Technologies 12. Cell or Module	1. Power Modules and System-Level Packaging 2. Predictive Analysis of Drive Systems 3. Battery Management Systems (BMS) and Battery Thermal Management 4. Applicable to All Electric Vehicles (EVs), Including Aircraft, Ships, etc. 5. Applicable to Electric Vehicles Beyond Cars – Encompassing All Mobile Transportation Platforms with Demanding Powertrain or Battery Requirements	1. Power Density: On-Board Charger (OBC) Achieving 6 kW/L; Drive System Achieving 100 kW/L 2. Prediction of Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI) 3. Lifetime Prediction, Diagnostics, and Digital Twin Technologies 4. Focus on Technologies Related to Power Conversion (Excluding Materials or Autonomous Driving)

	Balancing Technologies		
Robotics	1. New Applications of Novel or Existing Materials 2. Structural Mechanisms and Their Mechanics 3. Actuated Joint Module Technologies 4. Perception Technologies 5. Artificial Intelligence (Machine Learning, Generative AI, etc.) 6. Control Technologies (e.g., Reflex Protection, Dynamic Balancing) 7. Task Planning and Decision-Making 8. Dexterous Hand Design and Development 9. Hand-Eye-Force Coordination Technologies 10. Human-Machine Interaction (e.g., Vision, Language, Collaboration) 11. Digital Twin Technologies	1. Implementation in Production Lines and Services (Single and Dual-Hand Operations) 2. Various Types of Motion Generation (Legged, Wheeled, Aerial, etc.) 3. Various Service Applications (Human-Machine Interaction) 4. Technology Verification and Planning (Cyber-Physical Integration)	1. Integration of Multiple Technologies to Enable Robots to Perform a Wide Range of Tasks Autonomously or Semi-autonomously within Acceptable Limits of Cost, Manufacturability, and Safety, thereby Solving Real-world Problems or Extending Human Capabilities.
Smart Manufacturing	1. Internet of Things (IoT) Technologies 2. Operational Technology (OT) 3. Edge Computing 4. AI Modeling 5. Digital Twin and Optimization Technologies 6. Generative AI for Synthetic Data Generation 7. Cyber-Physical System (CPS) Technology 8. IT Cybersecurity Technologies	1. Electronics Manufacturing Industry 2. Power Module Packaging Industry 3. Infrastructure Solutions Industry, such as Energy Saving, Data Centers, and Related Solutions 4. Automotive Solutions Industry, including Electric Motors + Traction Inverters and Automotive-Related Electronics and Energy Management	1. Process Optimization and Enhanced Manufacturing Capability 2. Flexible and Lean Production 3. Optimized Scheduling and Production Flow for Enhanced Quality Control 4. Enabling Production Line Resilience 5. Virtual Design and Deployment 6. Energy Saving and Carbon Reduction 7. Cost Optimization

	9. Data Governance, Processing, and Management Technologies 10. Sensors and Applications 11. Resilient Manufacturing Technologies	5. Industrial/Building Automation Products, Systems, and Solutions Industry 6. Other Manufacturing Industries	8. Practical Application Case Studies and Outcomes
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4. Award Mechanism

- (1) The award is a three-year cycle, and the annual award amount for each winner is NT\$1,000,000, totaling NT\$3,000,000 in award money.
- (2) Each winner can be awarded for a maximum of two cycles. The award cycle starts from January 1st of the year following the announcement of the winner's list.

5. Rights and Responsibilities

- (1) During the award cycle, Delta Group may engage in positive interactions with the winners, such as technical consultations, keynote speeches, and joint research and development projects, based on the winners' expertise. If a winner exhibits non-cooperation or a refusal to cooperate, Delta Group reserves the right to revoke their award unconditionally.
- (2) If additional expenses arise due to the aforementioned interactions, such as technical keynote speeches, international travels, or technical consultations, Delta Group will provide separate payments according to standards. These expenses will not be deducted from the total award amount. If Delta Group and the winner agree to initiate a joint research and development project, both parties will formulate an industry-academia research and development contract to govern their rights and responsibilities. Progress reports and outcome presentations will proceed according to the project schedule, and funding will be provided according to the contract, without deduction from the total award amount.

6. Selection Process

- (1) Delta Group invites renowned scholars along with internal experts to form the Selection Committee.
- (2) The application and selection process is managed by the Selection Committee. One scholar will be selected from each field annually, for a total of five scholars. If there is no suitable candidate for a particular field, that field may remain vacant.
- (3) Evaluation criteria:
 - A. Academic performance (40% weight)
 - B. Research foresight (30% weight)
 - C. Potential for future research collaboration with Delta Group (30% weight)
- (4) Upon the Selection Committee's decision, the list of winners will be announced in November of the application year, and an award ceremony will be held on a designated date for public recognition.

7. Payment Mechanism

- (1) The first-year award of NT\$1,000,000 will be transferred to the winner's designated bank account provided before January 1st of the year following the announcement of the winner's list.
- (2) Delta Group will convene a project meeting at the end of each year to review whether the qualifications of the winners have violated these guidelines during the award period. If approved,

the winners will continue to receive the award money for the next year within the award period.

8. Application Process

Applicants should complete data entry and upload relevant documents through the lecture's online form before the application deadline. The provided content should include the following information and other information required by Delta Group:

- (1) Application form
- (2) Curriculum Vitae
- (3) Proof of current employment as faculty.
- (4) Copy of national ID card or passport

9. If a winner engages in academic misconduct or adversely affects the reputation of the enterprise, including but not limited to plagiarism, data manipulation, false advertising, or other behaviors contrary to good customs, or if there are violations of Article 5, Delta Group has the right to suspend the payment of the prize until the Selection Committee investigates the veracity and severity of the mentioned behaviors. If the lecture's Selection Committee determines that the situation is serious, Delta Group can not only revoke the winner's qualification but also request the winner to return the awarded grant within a specified period. The winner agrees to cooperate unconditionally and without objections.

10. For matters not covered by these guidelines, Delta Group will follow relevant regulations.

11. These guidelines come into effect from the approval date, and the same applies to revisions.