

**A-Professional Preparation: Degrees, Training and Certifications**

- x Diploma in Chemical Engineering, Universidad Nacional del Litoral, Santa Fe, Argentina, 1977
- x Training, National Council of Research, CONICET, Postgraduate Studies, 1978
- x Certificate of English Studies, Anglo Continental School of English, Bournemouth, UK, 1981
- x Master of Science, Chemical Engineering, Purdue University, West Lafayette, IN 47907
- x Ph. D., Chemical Engineering, Purdue University, West Lafayette, IN, 1990
- x Regents Academic Leadership Certificate, Chair Academy and Tennessee Board of Regents, 2007
- x Certificate of Advanced Academic Leadership, Chair Academy, 2010.
- x Certificate of Provost Leadership Developm

**E-Professional Societies Membership and Service**

1 American Society of Engineering Education (ASEE) Member (pending) Chair of the Administrative Division of the ASEE- 2. American Institute of Chemical Engineers (AIChE) Member Sigma Xi, The Research Society- 4. The Chair Academy; Life Member Society of Hispanic Professional Engineers (SHPE) Society of Women Engineers (SWE) Purdue Alumni Association Member Royal Society of Chemistry, Cambridge, UK The Association of Environmental Engineering and Science (AEESP) Former member of the American Electrophoresis Society (AES) his time as a member of the AES Board of Directors, he played a vital role in the society to become financially stable. As part of this effort, AES established a fund within the AIChE where young professionals interacted with more senior members. As part of these efforts, also been the facilitator of numerous educational and technical workshops for these international organizations Member of numerous review panels from the NSF and the onsite visiting team, ERC-NSF Program

**F- Publication Board of Peer Reviewed Journals**

1. Journal of Chemical Engineering Education consecutive years- 2. Brazilian Journal of Chemical Engineering (current member) 3. Frontiers in Chemistry (MDPI, current member) 3. Patent Patents in Biotechnology (Bentham House Publishers, current member) 4. Critical Conversations (Tennessee Board of Regents, TBR).

**G-Publications and Other Releases**

Dr. Arce has authored authored more than one hundred and fifty publications, technical proceedings, and invited book chapters in his focused areas of research and engineering education delivered more than three hundred fifty technical and educational presentations (with students and colleagues) more than seventy invited, keynote or plenary lectures in the United States of America, Five of his publications in engineering education have received the prestigious Thomas C. Evans Award from the ASEE for the most outstanding paper in engineering education making him the only faculty in the history of the award to receive it five times. Dr. Arce is the inventor of five patents disclosures with his students and collaborators and he has numerous public release communications from his educational innovation and mentoring.

**H- Honors, Awards and Distinctions (Selected)**

1. Royal Society of Chemistry, Cambridge UK Fellow for extensive contributions to education, research, and service to the chemical engineering (2022).
2. Tennessee Technological University Scholar Mentor Award for excellent scholarly and student/faculty mentoring effort (2022).
3. Davidson School of Chemical Engineering, Purdue University, West Lafayette IN Chemical Engineer Alum Award for role in the new type of engineering Renaissance Foundry Model of innovative centered education (2021).
4. American Society of Engineering Education, SE: Thomas C. Evans Award Outstanding Paper in Engineering Education (1994, 2001, 2008; 2014, and 2021).
5. American Society for Engineering Education (ASEE) Best Paper Award for the development of Renaissance Foundry Model (2015).
6. Tennessee Technological University, most prestigious award for excellence in research (2015).
7. Chair Academy, DUUH \$ZDUG IRU RXWV(2000-2010) J 3 2 Q & D P S X V / H D
8. National Science Foundation Engineering Research Center Annual Keynote Lecturer 3 7 K H & R P S R V H 6 W \ O H ( Q J L Q H H U D V D , W A S H I N G T O N D C ) Q Q R Y D W L R Q '
9. Board of Regents, Florida University System. Teaching Incentive Program Award (TIPA) for Excellence Most prestigious award for Excellence in Teaching, 1994
- 10 Fulbright Faculty Developmental Program for Latin America. Invited Lecturer Chile, Paraguay, and Uruguay), 1994.

**I-Fund Raising Efforts (Highlights)**

Dr. Arce has been awarded private, state, federal and international sources approximately \$8M USA dollars for supporting his research and educational efforts. Examples most relevant to academic efforts include: 1. 9 H Q W X U H : H B O F o u n d r y D e s i g n L e a r n i n g B i o i n s p i r e d B i o m i m i c r y t o A d v a n c e E n v i r o n m e n t a l a n d S o c i a l S u s t a i n a b l e I n n o v a t i o n i P r o t o t y p e s D e v e l o p e d i n F o u n d r y U n d e r g r a d u a t e C h e m i c a l E n g i n e e r i n g C o u r s e ( \$ 3 0 K , S u m m e r 2 0 2 0 . F u n d e d ) . P l e a s e s e e I n t e r v i e w / a t [venturewell.org/chemicaleng21](http://venturewell.org/chemicaleng21) T B R S E R S , T h e H o l i s t i c F o u n d r y U n d e r g r a d u a t e E n g a g e d L e a r n e r s ( S u m m e r 2 0 2 0 R e n a i s s a n c e F o u n d r y R e s e a r c h C o u r s e \$ 5 0 K , F u n d e d ) . 3 . T h e N a t i o n a l S c i e n c e F o u n d a t i o n W H I F T 3 ( Q J H Q G H U L Q J W K H 6 S E n e r g y W R W H U D P G X J X L V D V T o t a l \$ 3 M x 5 y r s . A w a r d e d S t a r t i n g d a t e : J u l y 1 , 2 0 2 2 . P l e a s e s e e P R a t <https://www.tntech.edu/news/23/cases/22-awarded-3-million-grant-for-work-in-food-energy-and-water-resources-rural-communities> ) . p h p

**J-Areas of Research Focus:**

Dr. Arce key area of research is **Environmental Catalysis** with applications to the wastewater decontamination via advanced oxidation methods of particular interest is that from water of organic and biopharmaceutical. He is the Director of the newly funded **Q Y L U R Q P H Q W D O L a b o r a t o r y O n E n v i r o n m e n t a l C a t a l y s i s** at Jacksonville State University that houses state of the art equipment to conduct research on electrocatalysis as well as in the application of pulsed corona discharge to the oxidation of the contaminants. \$ U F H 1 V U H V H D U F K J U R F X S L V F U for the elimination of large molecular weight contaminants. The use of water approaches for soil decontamination and the engineering modelling for materials used in electric vehicles.

Other areas of research interest are **NANOSTRUCTURED MATERIALS** Functional Performance in Health Care Engineering Applications: Hydrogels for clinical diagnostics, wound healing, tissue scaffolds and drug delivery. **MATHEMATICS ASSISTED MEDICINE APPROACHES (MAMA)** Applications to Biophysical Systems: Microcirculatory and renal system pathologies, kidney failure, cancer treatment by hypertension and chemotherapy. **ENGINEERING EDUCATION** (Onlaborative Creative and Innovative Learning; Constructionistic Approaches; Study Partnerships).

**K-Research Philosophy and Mentoring**

The twenty-first century has accentuated the new reality: **Engineering Solutions to Grand Challenges** (USA 2017) and professional adaptability to the globalization of the economy across countries with high resources (Florida, R., 2012). This requires a completely different strategy for the development of a new Technology, Engineering, and Math (STEM) professional at the postsecondary level. It has a stable, **L P S D F W I X O W R V R F L H W 1 V F K D O O H Q J H V D Q G H Q W U H S U H Q H X U L D** Sochacka et al., 2016). To respond to this challenge, Dr. Arce (with students) focused on building a