


**Sri Sai Ram Engineering College**  
**Department of Humanities and Sciences**

Name : <b>Dr. G. PUTHILIBAI</b>	
Designation :	PROFESSOR
Qualification :	M.Sc., M.Phil., B.Ed., PGDCA., Ph.D.,
Area of Specialization	Inorganic Chemistry
Experience :	Teaching : UG : 26 yrs PG : 4 yrs
	Industry :-
No. of Workshop / Conference / FDP / Seminar / SDP / STTP attended	100+
Publication :	<p><b>Journals</b> Total No of publications : 44 National : 03 International : 41 (33 Published) (8 Accepted)</p> <p><b>Patent</b> : 31 (23 Utility + 8 Design) <b>Books</b> : 03 + 01 (Book Chapter) <b>Conferences</b> National : 11 International : 28</p>
Research Guidance :	<ul style="list-style-type: none"> <li>➤ <b>Recognized research supervisor</b> (Ph.D and MS) by Anna University, Chennai, (Ref. No. 20.799.57).</li> <li>➤ <b>Recognized research supervisor</b> by Bharathiyar University, Chennai, (Ref. No. CHE-GU3166).</li> <li>➤ <b>Recognized research supervisor</b> by Bharath University, Chennai, (Ref. No. R13CH01).</li> <li>➤ <b>Recognized research supervisor</b> by Vels University, Chennai, (Ref. No. Sl.no. 19).</li> <li>➤ <b>Recognized research supervisor</b> by Hindustan University, Chennai.</li> <li>➤ <b>Doctoral Committee member.</b></li> <li>➤ <b>Journal/Book reviewer.</b></li> </ul>

	<ul style="list-style-type: none"> <li>➤ No. of research students guided or guiding : 10</li> <li>➤ R&amp;D Cell member.</li> <li>➤ <b>Captain:</b> IPR Cell of the college.</li> <li>➤ Acted as <b>Session chair</b> for conferences several times.</li> <li>➤ <b>Coordinator</b> - NIRF</li> <li>➤ Organized symposium / seminar / workshop / Conference.</li> </ul>
General :	<ul style="list-style-type: none"> <li>➤ <b>Resource person</b> for FDP / Seminar / Conference / Webinar / Workshop.</li> <li>➤ <b>Convener / SPOC</b> – KAPILA, IIC – AICTE.</li> <li>➤ Having many sports and games certificates.</li> <li>➤ Actively participated in Horticultural activity society and National Service Scheme (NSS).</li> <li>➤ Acted as <b>Jury</b> for the science exhibitions at different levels several times.</li> <li>➤ <b>Team Lead</b> – Products and Patents (Innovation Cell)</li> <li>➤ Acted as <b>book reviewer</b>.</li> <li>➤ Acted as Mentor and Judge for Toyathon.</li> <li>➤ Undergone <b>Post doctoral research</b> (PDF) at People Friendship University of Russia, Moscow, Russia.</li> <li>➤ Acted as <b>Academic council board member</b>, Bharath University, Chennai.</li> <li>➤ Acted as <b>Chemistry board chairman</b> for the Anna University central evaluation several times.</li> <li>➤ Acted as a member of <b>Pre-valuation board meeting and Results pass board meeting</b>, Anna University, Chennai.</li> <li>➤ Acted as <b>panel/expert committee member</b> in the interview for the recruitment of Ad hoc teaching staff recruitment conducted by HRD Ministry several times.</li> <li>➤ Certified internal auditor of ISO:9001:2008 and ISO: 9001:2015 for Quality management system and Audit training.</li> <li>➤ RO water quality parameters testing and maintenance of display board.</li> <li>➤ <b>ATAL AIM Mentor of change</b>.</li> <li>➤ Member of professional societies ISTE, IEEE, RSCS &amp; IFERB.</li> </ul>

	<ul style="list-style-type: none"> <li>➤ <b>Member</b> BOS &amp; DAB</li> <li>➤ Question paper/answer key was set both for Anna university theory/practical examinations.</li> <li>➤ <b>Consultant</b> – SRI SAI FUSION TECNO WORKS - For designing and choice of materials for weld overlay for corrosion prevention.</li> <li>➤ <b>Coordinator</b> – Criteria VII.</li> <li>➤ Mentor - NITTTR</li> <li>➤ Acted as event coordinator for cultural.</li> <li>➤ Motivation meet presentation delivered several times.</li> <li>➤ Acted as <b>Team lead</b>-Culinary club.</li> <li>➤ Successfully completed the Technology Entrepreneurship Development program (TEDP) sponsored by the Department of Science and Technology (DST) conducted by IITM HTIC MedTech Incubator.</li> </ul>
Staff Achievements:	<ul style="list-style-type: none"> <li>➤ Produced 100% results in Engineering Chemistry-I, Engineering Chemistry-II &amp; Environmental Science and Engineering several times.</li> <li>➤ College topper in Chemistry at UG level.</li> <li>➤ University Rank at PG level.</li> <li>➤ Won Championship for sports at UG level.</li> <li>➤ Honored by AICTE-MoEs IIC as <b>“Innovation Ambassador(Advanced level)”</b>.</li> <li>➤ Successfully participated as <b>“Keynote speaker”</b> and <b>“Session Chair”</b> for the <b>“World Record”</b> event of 150 hours continuous presentation. (<b>“World Book of Record” holder</b>).</li> <li>➤ Recognized by India book of record for the achievement <b>“Maximum patents filed together in a single day by an individual”</b> for various innovative inventions. (<b>“India book of record” holder</b>).</li> <li>➤ Received <b>“Young Woman Scientist Award”</b> from Dr. Kalam Educational Trust.</li> <li>➤ Received <b>“Award of Excellence”</b> from Raman &amp; Ramanujam Awards 2020 of Rathinam College of Arts and Science, Coimbatore.</li> <li>➤ Successfully completed NPTEL MOOC course(Patent drafting) as a <b>NATIONAL TOPPER</b>.</li> </ul>

	<ul style="list-style-type: none"> <li>➤ Successfully completed 120+ <b>online courses</b>.</li> <li>➤ Received “<b>Mentor of Appreciation</b>” for motivating students to participate actively in Ideathon.</li> <li>➤ Received “<b>Mentor of Appreciation</b>” for initiating the evaluation process of Toycathon event.</li> <li>➤ 50+ Invited talk / Key note speech / Expert Talk delivered.</li> <li>➤ <b>Properiator</b> – Innotech Advanced Solutions.</li> <li>➤ Acted as Jury / Panel member / Chair person / Resource person.</li> <li>➤ Received “<b>Mentor of Appreciation</b>” from Swayam-NPTEL two times.</li> <li>➤ Number of <b>Patents</b> (Utility+Design) Filed / Published / Granted: 02/19/10.</li> </ul>
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**Educational Qualification: M.Sc., M.Phil., B.Ed., PGDCA., Ph.D.,**

Category	Name of the Degree	Specialization	Year of Passing	Name of the College	Name of the University	% of Marks / Grades obtained	Class obtained
UG	B.Sc.	Chemistry	1992	SBK College	Madurai Kamaraj university	85%	I Class with distinction
PG	M.Sc.	Chemistry	1994	School of Chemistry	Madurai Kamaraj university	67%	I Class
	M.Phil.	Chemistry	1995	School of Chemistry	Madurai Kamaraj university	70%	I Class
Ph.D.	Ph.D	Chemistry	2009	Dept of Chemistry	Bharath University	Highly commended	

**Academic Experience:**

Name of the College	Designation	Joining Date	Relieving Date	Experience		
				Years	Months	Days
Sri Sai Ram Engineering College	Professor	01.02.2012	Till date	10	-	28
Sri Sai Ram Engineering College	Asst Prof	01.08.2011	31.01.2012	-	5	31
Sri Sai Ram	Senior	13.06.2008	31.07.2011	3	1	18

Engineering College	Lecturer					
Bharath University	Senior Lecturer	03.09.2001	11.06.2008	6	9	8
Thangavelu Engineering College	Lecturer	09.02.2001	03.09.2001	-	6	26
St. Paul's Junior College	Lecturer	12.09.1999	31.01.2001	1	4	19
Devangar College	Lecturer	01.07.1995	31.07.1999	4	1	-
				26	5	3

### **PATENTS (Granted/Published)**

- NOVEL MIXED LIGAND RUTHENIUM (III) COMPLEXES, ITS PRODUCTION METHOD AND USE IN CANCER THERAPY (Granted).
- RUTHENIUM-HYDRAZONE COMPLEX CATALYSTS : PRECURSORS, PROCESS FOR THE PREPARATION AND THEIR USE (Granted)
- SYNTHESIS ROUTE FOR THE PREPARATION OF RECYCLABLE RUTHENIUM (II) CARBONYL SCHIFF BASE CATALYSTS WITH TRIPHENYL PHOSPHINE /ARSINE (Granted).
- SYNTHESIS OF BIOLOGICALLY ACTIVE MULTI TARGETED ISATIN BASED SHIFF BASE COMPLEX (Filed).
- AMMONIA GAS LEAKAGE MONITORING SYSTEM USING IOT (Published).
- PIEZO-ELECTRIC ENERGY HARVESTING IN PAVEMENTS (Published).
- IOT BASED AUTOMATED TOILBOTS (Published).
- THE SMART SYSTEM FOR PRE-DETECTION OF CARDIAC ISSUES (Published).
- CARITEETH-HANDHELD DEVICE FOR TOOTH CAVITY DETECTION (Published).
- METAL MATRIX ELECTRIC KETTLE (Granted)
- IOT BASED PROCESS CONTROL FOR METALLIC COATING ON METALLIC/NON-METTALIC SURFACE (Filed).
- DESIGN AND CONFIGURATION OF MULTIPURPOSE ALLOY CONTAINER. (Granted)
- POWER PRODUCTION FROM WASTE WATER USING MICROBIAL FUEL CELL HAVING CONDUCTIVE POLYMER ELECTRODES (Published).
- CERAIC MATRIX LIGHT WEIGHT VASE (Granted)
- VOICE OPERATED INTELLIGENT WHEELCHAIR (Published).

- BIO DEGRADABLE LIGHT WEIGHT UTILITY CONTAINER (Granted)
- URINAL MICROBIAL FUEL CELL: ELECTRICITY GENERATION AN ECO FRIENDLY APPROACH (Published).
- CERAMIC HANDLE HOLDER (Granted)
- PREDICTING THE HARMFUL LEVEL OF CARBON EMISSION IN VEHICLES USING MACHINE LEARNING WITH SENSOR SYSTE (Published).
- BIO DEGRADABLE LIGHT WEIGHT UTILITY CONTAINER (Granted)
- COMPUTATION AND GOVERNANCE OF DRIVER'S PERFORMANCE USING MACHINE LEARNING (Published).
- MULTIPURPOSE CONTAINER. (Granted)
- CHALLENGE OPERATING SYSTEM (Published).
- FABRICATION OF AXIAL FAN BLADE WITH GLASS FIBER AND HUMAN HAIR COMPOSITE (Published).
- CRATUS-THE BAG OF FUTURE (Published).
- CAUSTIC SODA TREATED BANANA FIBRES HYBRID COMPOSITE (Published).
- ACOUSTIC FIRE EXTINGUISHINGROBOT (Published).
- EXPERIMENTAL INVESTIGATION ON HYBRID DOUBLE SLOPE SOLAR STILL INTEGRATED WITH PV/T SYSTEM (Published).
- INFLUENCE OF IOT IN MICROBIAL FUEL CELL FOR MASS PRODUCTION OF ELECTRICITY (Published).
- EXPERIMENTAL INVESTIGATION ON HYBRID SQUARE PYRAMID SOLAR STILL INTEGRATED WITH PV/T SYSTEM (Published).

## **PUBLICATIONS**

### **BOOKS PUBLISHED**

- “Management Education Post Covid 19” (Book Chapter) by Dr. G. Puthilibai, Bestow Edutrex, February 2021. (ISBN-978-93-90153-00-8)
- “Engineering Chemistry – I” by G. Puthilibai, Chaurulatha Publications, First Edition, May 2007. (ISBN-978-81-904915-6-3)
- “Applied Chemistry - I” by G. Puthilibai, Chaurulatha Publications, First Edition, June 2006. (ISBN-978-904915-3-2)

- “Environmental Science and Technology” by G. Puthilibai, Gotari Publications, First Edition, May 2005.

## **INTERNATIONAL JOURNALS**

- “Optimization of Metal-Matrix Composites by W-EDM with CNT”, in the journal **Key Engineering Materials, 2022.**
- “Investigation of Surface Roughness in Machine using Artificial Intelligence Techniques”, **IEEE Explore, 2022.**
- “Investigation of enhancing the performance and deposition characteristics of Copper(II) Methane Sulphonate salt complexed with D-Mannitol Bath”, in the journal **Rasayan Journal of Chemistry, In Press, 2022.** (Accepted for publication).
- “Optimization to augment the mechanical properties for various joints of friction stir aluminium alloys”, in the journal **Advances in Material Science and Engineering, In Press, 2021.** (Accepted for publication).
- “Study on the impact of twisted tapes on the water temperature enhancement in solar water heater”, in the journal **Materials Today: Proceedings, In Press, 2021.** (Available on line 20/12/21).
- “Hydro-informatics for Drainage Management in a Smart City using Artificial Intelligent, IoT and Machine Learning”, **AIP Conference Proceedings, 2021.** (Accepted for publication).
- “Mechanical behavior of nano ceramic particles reinforced aluminium matrix composite”, in the journal **Materials Today: Proceedings, In Press, 2021.** (Accepted for publication).
- “Thwart power failure attacker node in Daihaodv Manet with directional Antennas”, in the journal **ECS Transactions: IOP Science, In Press, 2021.** (Accepted for publication)
- “Mechanical Strengthening of Light Weight Aluminum alloys through Friction Stir Process”, in the journal **Advances in Material Science and Engineering, In Press, 2022.** (Accepted for publication).
- “Study on Developments in Protection Coating Techniques for Steel”, in the journal **Advances in Material Science and Engineering, Vol 2022, Article ID 2843043.**

- “Mechanical and tribological properties of TiC nano particles reinforced polymer matrix composites”, in the journal **Materials Today: Proceedings**, In Press, 2021. (Available on line 20/12/21)
- “Efficacy study of doped and undoped europium oxide nanoparticles in the photocatalytic degradation of methylene blue dye”, **AIP Conference Proceedings**, In Press, 2021. (Accepted for publication)
- “Synthesis, Spectral and Electrochemical Characterization of Novel series of Ruthenium(III) Complexes”, **AIP Conference Proceedings**, In Press, 2021. (Accepted for publication)
- “Utilisation possibilities of waste medium-density fiberboard: A material recycling process” in the journal **Materials Today: Proceedings**, In Press, 2021. (Available on line 20/12/21)
- “Investigating the influence of nanoparticle disbanded phase changing material (NDPCM) on the working of solar PV” in the journal **Materials Today: Proceedings**, In Press, 2021. (Available on line 06/12/21)
- “A review on medicinal plant adhatodai- therapetic choice for the management of COVID 19”, **International Journal of Botany Studies**, Volume 6, Issue 4, 2021, Page No. 988-992, ISSN: 2455-541X.
- “An Effective Parkinson's Disease Prediction Using Logistic Decision Regression and Machine Learning with Big Data”, **Turkish Journal of Physiotherapy and Rehabilitation**, 32(3), ISSN 2651-4451 | e-ISSN 2651-446X, 2021, 778 –786.
- "Urinal Microbial Fuel Cell: Electricity Generation — An Eco friendly Approach," 2020 International Conference on Power, Energy, Control and Transmission Systems, 2020, pp. 1-6, **(IEEE Explore)**.
- "Piezoelectric Pavement," 2020 International Conference on Power, Energy, Control and Transmission Systems, 2020, pp. 1-6, **(IEEE Explore)**.
- "Power Production by Microbial Fuel Cell having Conductive Polymer Electrode and Bio Catalysts," 2020 International Conference on Power, Energy, Control and Transmission Systems, 2020, pp. 1-4, **(IEEE Explore)**.
- “Study on nano particles of Aluminium oxide and Magnesium oxide used counter flow heat exchanger heat transfer, effectiveness enhancement”, **Materials Today Proceedings**, 33(7), 4586-4591, 2020.



- “Simple study on behavior of composites with augmentation of Silicon carbide on Al6061 Aluminium alloy based on mechanical properties”, **Materials Today Proceedings**, 2020, 33, pp. 4573–4577.
- “Experimental Research on Glass Fibres / Caustic soda Treated Banana Fibers Hybrid Composite”, **Materials Today Proceedings**, Proceedings Volume 33, Part 7, 2020, Pages 4408-4411.
- “Characterizations on Hybrid of Caustic treated Natural and Glass Fiber Composites”, **Materials Today Proceedings**, 33(7), 4424-4427, 2020.
- “Heat Transfer Enhancement Analysis of Al<sub>2</sub>O<sub>3</sub> and MgO through counter flow in Heat Exchanger”, **Materials Today Proceedings**, 33(7), 4412-4416, 2020.
- “Enhancing Heat Transfer Rate in Heat Exchanger Using Nano Particles of the Natural Glay”, **Materials Today Proceedings**, 33(7), 4402-4407, 2020.
- “Electrochemical behaviour of Ni-Ti (Superelastic) Alloy in artificial saliva in the presence of Phexin”, **Materials Today Proceedings**, 36(1), 878-882, 2021.
- “Synthesis, spectral, electrochemical and DNA binding properties of Ruthenium (III) complexes of Schiff bases containing N,O Donor atoms”, **Materials Today proceedings**, 36, 809-813, 2021.
- “Experimental investigation regarding emissivity of black nickel coated on aluminium surface”, **Materials Today Proceedings**, Volume 37, Part 2, 2021, Pages 248-251.
- “Effects on the Crystal Structure, Magnetic and Optical Properties Nd doped Co<sub>3</sub>O<sub>4</sub> Nanoparticles Prepared by Microwave Synthesis”, **Journal of Superconductivity and novel Magnetism**, Vol 32, No4, pp1-7, 2019.
- “Influence of structural, Thermoelectric power and Catalytic Efficiency of Nd doped Mn<sub>3</sub>O<sub>4</sub>, “**Asian Journal of Chemistry**’ Vol.32, 147-152, 2020.
- “Study of the effect of photoluminescence structural and Magnetic Properties of Nd doped Nd<sub>x</sub>Ni<sub>1-x</sub>O<sub>x</sub> hexagonal Particles”, **Physica E: Low-Dimensional Systems and Nanostructures**, Vol.118, 2020.
- "Implementation of Ammonia Gas Leakage Detection & Monitoring System using Internet of Things, **IEEE Explore**, 2019, pp. 778-781.
- “Synthesis, Properties and Catalytic Applications of Co<sub>3</sub>O<sub>4</sub> Nano Materials with Photoluminescence Emission spectra for Oxygen Vacancies”, **Journal of Advanced Science Engineering and Medicine**, 11(7) (2019) 600-605.

- “Synthesis, DNA Binding, Anticancer and Cytotoxic Evaluation of Novel Ruthenium (II) Isatin based Schiff base complex”, **Rasayan Journal of Chemistry**, 12(2) (2019) 855-859.
- “A new Understanding of Mn<sub>3</sub>O<sub>4</sub> catalysts Different Fuels for Highly Selective Oxidation of Cyclohexane”, **Sensor Letters**, 17(7) 2019 530-537.
- “A starch-assisted innovative synthesis of spinel-structured and ferromagnetic behavior of Fe<sub>3</sub>O<sub>4</sub> nanoparticles catalytic activity evaluated in the selective oxidation”, **SN Applied Sciences.**, 1(5) 2019 472.
- “4-(4-Methoxy phenyl) naphtha [2,3-b]-thiophene”, **Acta Crystallographica Section E**, E68, 2012, o875-o876.
- “Synthesis, spectroscopic Characterization, Electrochemical behavior and Antibacterial activity of Ru(III) complexes with 2-[(4-N,N'-dimethyl amino phenylimino)-methyl]-4-halophenol”, **Spectrochimica Acta Part A : Molecular and Biomolecular spectroscopy**, 72 (2009) 796–800.
- “2-Bromo-4-chloro-6-(4-fluoro phenyl imino methyl) phenol”, **Acta Crystallographica Section E**, E64, 2008, o1333.

#### **NATIONAL JOURNALS**

- “Green Synthesis and catalytic applications of Fe<sub>2</sub>O<sub>3</sub> nonomaterials, **SSEC Tech Journal**, VOL 11, 2011, 11-16 (ISSN 0975-2846).
- “Biological importance of indole nucleus”, **SSEC Tech Journal**, VOL 9, 2011, 25-29 (ISSN 0975-2846).
- “Transition metal complexes-An overview”, **SSEC Tech Journal**, VOL 8, 2009, 69-73 (ISSN 0975-2846).

#### **RESOURCE PERSON**

- ❖ Acted as **panel/expert committee member** in the interview panel for the recruitment of Ad hoc teaching staff recruitment conducted by Kendriya Vidyalaya Sangatan (HRD Ministry) held at Kendriya Vidyalaya No 1, AFS, Tambaram, Chennai-73 on 18.03.2022.

- ❖ Delivered an expert talk in the Workshop on "**Intellectual Property Rights and IP Management for Start Up**" through Webinar conducted by Institute Innovation Council of Panimalar Institute of Technology, Chennai on 23.02.2022.
- ❖ Acted as a **Guest Speaker** and delivered an Invited talk on "Synthesis, Chemical, Electrochemical and Biological Characterization of Metal Complexes in the International Conference on Engineering, Medicine, Management, Arts and Science 'EMMA 2021' Organized by Chendur Research Foundation during December 24, 2021 and December 26, 2021.
- ❖ Acted as a **Session Chair** in the International Conference on Engineering, Medicine, Management, Arts and Science 'EMMA 2021' Organized by Chendur Research Foundation during December 24, 2021 and December 26, 2021.
- ❖ Acted as a **Session Chair** in the Second International Conference on Emerging Trends in Materials, Computing and Communication Technologies 'ICETMCCT 2021' Organized by Annai Vailankanni College of Engineering, AVK Nagar, Pottalkulam during December 9, 2021 and December 10, 2021.
- ❖ Conducted an "**Ideation Workshop on Creativity and Innovation**" jointly organized by Institution Innovation Council & Department of Science and Humanities, RMK College of Engineering and Technology (Autonomous), Chennai on 20.11.2021.
- ❖ Delivered **Expert Talk on "Intellectual Property Rights"** through Webinar conducted by IPR Cell, IIC and Department of Artificial Intelligence and Data Science Sri Sairam Engineering College (Autonomous), Chennai on 20.11.2021.
- ❖ Organised "**Intellectual Property Rights Clinic (IP Clinic)**" through Webinar conducted by IPR Cell, IIC and Department of Electronics and Communication Engineering, Sri Sairam Engineering College, Chennai on 15.11.2021 and 16.11.2021.
- ❖ Organised "**Intellectual Property Rights Clinic (IP Clinic)**" through Webinar conducted by IPR Cell, IIC and Department of Electronic and Instrumentation Engineering, Sri Sairam Engineering College (Autonomous), Chennai on 13.11.2021.
- ❖ Delivered a "**Talk on Scope and Importance of Intellectual Property Rights in Medical Research**" organized by Sri Siddha Medical College & Research Centre, Chennai on 21.10.2021.

- ❖ Delivered **Expert Talk on “Intellectual Property Rights”** through Webinar conducted by Department of Civil Engineering in association with IETE, IIC and IPR Cell, Sri Sairam Engineering College (Autonomous), Chennai on 24.09.2021.
- ❖ Acted as **panel/expert committee member** in the interview panel for the recruitment of Ad hoc teaching staff recruitment conducted by Kendriya Vidyalaya Sangatan (HRD Ministry) held at Kendriya Vidyalaya No 1, AFS, Tambaram, Chennai-73 on 11.08.2021.
- ❖ Workshop on **“Intellectual Property Rights and IP Management for Start-Up”** conducted by IPR Cell, IIC and Department of Electronic and Instrumentation Engineering, Sri Sairam Engineering College (Autonomous), Chennai on 29.07.2021.
- ❖ Delivered **Expert Talk on “Fuel Cell Technology-Status and Future Prospects”** conducted by IPR Cell, IIC and Department of Electrical and Electronics Engineering, Sri Sairam Engineering College (Autonomous), Chennai on 30.07.2021.
- ❖ Delivered **Expert Talk on “Project Based Learning and Patenting”** in the one week FDP on Technical Pedagogy for Empowering Sustainable Advances in Higher Education conducted by T John College, Bengaluru on 19.07.2021.
- ❖ Delivered **Expert Talk on “Fuel Cell as an alternative energy source”** conducted by Easwari Engineering College, Chennai on 01.07.2021.
- ❖ Delivered **Expert Talk on “Research Methodology-Introduction to Research and various Research Opportunities”** in the three days workshop organized by Annai Vailankanni College of Engineering, Kanyakumari on 02.06.2021.
- ❖ Acted as **Judge** for the Cluster level Jawaharlal Nehru National Science, Mathematics and Environment Exhibition held at KV NO 1, AFS, Tambaram, Chennai on 05.04.2021.
- ❖ Acted as a session chair in **National e-Conference on Innovations in Civil Engineering through Sustainable Technologies (NICEST-2021)** Organized by Department of Civil Engineering, Mahatma Gandhi Institute of Technology (MGIT), Gandipet, Hyderabad, held during 26-27 March, 2021.
- ❖ Delivered an expert talk on **“Patent drafting, Filing, and Execution Procedure in India”** organized by IPR Cell & IQAC Cell, CMS College of Engineering and Commerce (Autonomous), Coimbatore, on 20.03.2021.

- ❖ Delivered a guest lecture on **“Agreements and Legislations in Intellectual Property Rights”** organized by IPR Cell, Department of ECE, Sri Sairam Institute of Technology (Autonomous), in association with ISTE, Coimbatore, on 20.03.2021.
- ❖ Delivered **Expert Talk on “Identifying Intellectual Property Components at the early stage of Innovation”** in the one week FDP on Technical Pedagogy for Empowering Sustainable Advances in Higher Education conducted by CMS College of Engineering and Commerce (Autonomous), Coimbatore on 27.02.2021.
- ❖ Delivered an expert talk on **“Intellectual Property Rights with Focus on Patents in Mathematics” in the FDP** organized by the Department of Mathematics, Sri Sairam Engineering College (Autonomous), Chennai, on 03.02.2021.
- ❖ Delivered a webinar on **“Intellectual Property Rights with Focus on Patents & Copy Right”** organized by the PG and Research Department of Chemistry, Jamal Mohamed College (Autonomous), Tiruchirappalli - 620 020, on 21.01.2021.
- ❖ Conducted an **“Orientation programme for Faculty and Students by an Innovation Ambassador”** conducted by S J C Institute of Technology, Bengaluru on 09.12.2020.
- ❖ Delivered a webinar as a resource person on **“Marine Biodiversity of India: Status and Challenges”** organised by Flora and Fauna Asia Facebook Group & Department of Botany, Seva Bharati Mahavidyalaya, Kapgari, Jhargram, W.B in collaboration with Drishticon Organization, West Bengal on 26.10.2020.
- ❖ Delivered an expert talk on **“Importance of IPR & Filing Process”** through webinar organized by Internal Quality Assurance Cell (IQAC) of Rathinam College of Arts and Science, Coimbatore on 24.10.2020.
- ❖ Delivered awareness talk on **“Importance of Intellectual Property Rights and Patenting”** as a part of AICTE, MHRDs IIC KAPILA: Kalam Program for IP Literacy and Awareness (National Intellectual Property Literacy Week) organized by Sri Sairam Engineering College, Chennai on 19.10.2020.
- ❖ Delivered Key Note Speech and acted as session chair in the **“World Record event of 150 hours continuous presentation in the International Conference on**

**Multidisciplinary Research and Innovation**” organized by ESN publications in association with Universal Digital University-USA between 03.09.2020 - 09.09.2020.

- ❖ Delivered lecture on **“Project Based Learning and Patenting”** through Webinar in the International FDP on **“EDUCATION 4.0”** The future ahead conducted by Sri Sairam College of Engineering, Bengaluru on 16.05.2020.
- ❖ Hands on Training on **“Intellectual Property Rights (IPR) and Patent Practices in India-Research Innovations in to patents”** through Webinar series held during 01.06.2020-05.06.2020 conducted by Sri Sairam Engineering college, Chennai-44.
- ❖ Delivered lecture on **“Patent Drafting and Filing Procedure”** through Webinar conducted by Sri Sairam Engineering college (Autonomous), Chennai-44 on 16.05.2020.
- ❖ Acted as **panel/expert committee member** in the interview panel for the recruitment of Ad hoc teaching staff recruitment conducted by Kendriya Vidyalaya Sangatan (HRD Ministry) held at Kendriya Vidyalaya No 1, AFS, Tambaram, Chennai-73 on 16.03.2020.
- ❖ Delivered lecture on **“Roadmap for Patent creation”** in the Research Oriented Faculty Development Training Program (RO-FDP) held on 07.02.2020 conducted by MIT Campus, Anna University Chennai.
- ❖ Invited talk on **“Patenting in Algebra”** in the National Seminar held on 31.01.2020 conducted by Queen Mary’s College, Chennai.
- ❖ Delivered lecture on **“Patent Landscape on Desalination”** during the AICTE sponsored 15 days faculty development program (FDP) entitled **“The Global Challenges of Desalination”** held during 25.11.2019-08.12.2019 conducted by Department of Chemical Engineering, St Joseph’s College of Engineering, and Chennai.
- ❖ Delivered lecture on **“Renewable energy resources-Fuel Cells”** in the ISTE sponsored faculty development program(FDP) held during 22.07.2019-26.07.2019 conducted by Department of Electrical and Electronics Engineering, Sri Sairam Engineering college, Chennai-44.

- ❖ Acted as **Judge** for the Maths and Science Exhibition entitled “Ganith Vigyan Mela 2019” held at MNC Vivekananda Vidyalaya, Kundrathur, and Chennai - 69 on 06.07.2019.
- ❖ Acted as **Chair Person** for the National conference on Chemistry & Materials (NCCM-2019), Department of Chemistry, Saveetha Engineering College, Chennai, on 22/03/2019.
- ❖ Acted as **Panel/Expert Committee Member** in the interview for the recruitment of Ad hoc teaching staff recruitment conducted by HRD Ministry at KV I, AFS, Tambaram, Chennai-73 on 27.02.2019.
- ❖ Acted as **Expert Committee Member** in the interview for the recruitment of Ad hoc teaching staff recruitment conducted by HRD Ministry at KV, Anna Nagar, Chennai on 24.02.2019.
- ❖ Acted as **Session Chair** for the national level symposium in association with ISTE held at Sri Sairam Institute of Technology, Chennai-44 on 16.02.2018.
- ❖ Acted **panel/Expert committee member** in the interview for the recruitment of contractual teachers’ recruitment held at KV I, AFS, Tambaram, Chennai-73 on 15.03.2018.
- ❖ Acted as **Panel Member** as a subject expert in the interview for the recruitment of Ad hoc teaching staff recruitment conducted by HRD Ministry at KV II, AFS, Tambaram, Chennai-73 on 14.03.2017.
- ❖ Acted as **Judge** for the Regional Science Exhibition held at KV, Minambakkam, Chennai on 04.02.2016.
- ❖ Acted as **Judge** for the National Level Science and Maths exhibition held at SRDF Vivekananda Vidyalaya, Chennai on 24.08.2016.
- ❖ Acted as **Judge** for the National Level Science Exhibition held at KV I, AFS, Tambaram, Chennai-73 on 21.01.2013.
- ❖ Presented seminar on “**Spectral Characterization of Transition metal Complexes**” at Edusat Hall, Bharath University, Chennai-73 on 06.04.2006.

## PROGRAMS ORGANISED

- ❖ Organizing committee member, **International Conference on Multidisciplinary Research ICMR 2021** organized by ESN publications on 26-27.11.21.
- ❖ Organized expert talk on **“Innovation, Patents and Entrepreneurship”** on behalf of Intellectual Property Rights (IPR) Cell in association with institutions Innovation Council(IIC), Sri Sairam Engineering College (Autonomous), Chennai-44 on 26.08.2021.
- ❖ Organized expert talk on **“Importance and Scope of IPRs in Academic Research”** on account of World Intellectual Property Day by Intellectual Property Rights (IPR) Cell of Sri Sairam Engineering College (Autonomous), Chennai-44 on 26.04.2021.
- ❖ Organized knowledge session on **“Identifying Intellectual Property Components at the Early Stage of Innovation”** on behalf of Intellectual Property Rights (IPR) Cell in association with Institutions Innovation Council (IIC) & Department of Chemistry, Sri Sairam Engineering College (Autonomous), Chennai-44 on account of MoEs IIC-KAPILA IP Awareness on 17.12.2020.
- ❖ Organized knowledge session on **“Awareness and Culture at Educational Institute”** on behalf of Intellectual Property Rights (IPR) Cell in association with Institutions Innovation Council (IIC), Sri Sairam Engineering College (Autonomous), Chennai-44 on account of MoEs IIC-KAPILA IP Awareness on 20.10.2020.
- ❖ Organized webinar on **“Copyright is an Intellectual Property”** on behalf of Intellectual Property Rights (IPR) Cell in association with Computer Science and Engineering, Sri Sairam Engineering College (Autonomous), Chennai-44 on 24.06.2020.
- ❖ Organized National webinar on **“Research and Innovations in Defence Sectors”** on behalf of Intellectual Property Rights(IPR) Cell in association with Research and Development(R&D), Sri Sairam Engineering College (Autonomous), Chennai-44 on 24.06.2020.
- ❖ Organised as a Convener the one day Workshop on **“Intellectual Property Rights & Innovations”** on behalf of Department of Research and Development, Sri Sairam Engineering College, Chennai-44 on 20/07/2019.



- ❖ Organised as a Convener the one day Workshop on “**Demo on IPR Arena – A Patent Drafting Software**” on behalf of Department of Research and Development, Sri Sairam Engineering College, Chennai-44 on 21/06/2018.
- ❖ Organised as a Convener the one day Seminar on “**Patent Awareness – Searching & Drafting Principle**” on behalf of Department of Research and Development, Sri Sairam Engineering College in association with IPR Arena, Chennai-44 on 27/02/2018.
- ❖ Organised as a Convener the one day 17<sup>th</sup> State Level “**Symposium “Convergence-2017”**” on behalf of Department of Humanities & Sciences, Sri Sairam Engineering College, Chennai - 44 on 21/06/2018.
- ❖ Organised as a Team-Lead, the inaugural activities and special lecture on “**Healthy Food**” on behalf of Culinary Club, Sri Sairam Engineering College, Chennai - 44 on 08/08/2017.

## **CONFERENCE PAPER PRESENTED / PROCEEDINGS**

### **INTERNATIONAL**

- ❖ “Investigation of Surface Roughness in Machine using Artificial Intelligence Techniques”, **IEEE International Conference on Communication, Computing Internet of Things (IC3IoT2022)** conducted by Sri Sairam Engineering College, Chennai-44, from 10/03/2022 to 11/03/2022.
- ❖ “Maternal health remote monitoring system” in the **International Conference on Engineering, Medicine, Management, Arts and Science ‘EMMA 2021’** Organized by Chendur Research Foundation during December 24, 2021 and December 26, 2021.
- ❖ “Implementing Augmented reality and Virtual reality by using Face detection, Recognition and Motion Tracking” in the **International Conference on Engineering, Medicine, Management, Arts and Science ‘EMMA 2021’** Organized by Chendur Research Foundation during December 24, 2021 and December 26, 2021.
- ❖ “Application controlled home automation through Raspberry Pi” in the **International Conference on Engineering, Medicine, Management , Arts and Science ‘EMMA 2021’**, Organized by Chendur Research Foundation during December 24, 2021 and December 26, 2021.

- ❖ “A review on removal of pollutant from textile dye wastewater by oxidation – coagulation process” in the **Second International Conference on Emerging Trends in Materials, Computing and Communication Technologies ‘ICETMCCT 2021’** Organized by Annai Vailankanni College of Engineering, AVK Nagar, Pottalkulam during December 9, 2021 and December 10, 2021.
- ❖ “Aanevaluation on antiviral and immunomodulatory effect of withania somnifera against coronavirus- sars covid – 2”, **International Conference on Multidisciplinary Research ICMR 2021** organized by ESN publications on 26-27.11.21.
- ❖ “IoT Based Electricity Generation Monitoring System” in **National e-Conference on Innovations in Civil Engineering through Sustainable Technologies (NICEST-2021)** Organized by Department of Civil Engineering, Mahatma Gandhi Institute of Technology (MGIT), Gandipet, Hyderabad, held during 26-27 March, 2021.
- ❖ “Unmodified Fuller’s Earth Reinforced Elastomeric Composites” in **National e-Conference on Innovations in Civil Engineering through Sustainable Technologies (NICEST-2021)** Organized by Department of Civil Engineering, Mahatma Gandhi Institute of Technology (MGIT), Gandipet, Hyderabad, held during 26-27 March, 2021.
- ❖ “Power production monitoring system using IoT” in **AICTE Sponsored International conference on Advances in Mechanical Engineering(ICAME’21)** Organized by Department of Mechanical Engineering, Sri Sairam Engineering College, Chennai-44, held during 27-28 January, 2021.
- ❖ “Synthesis, thermal and mechanical properties of fuller’s earth reinforced polymer matrix composites” in **AICTE Sponsored International conference on Advances in Mechanical Engineering (ICAME’21)** Organized by Department of Mechanical Engineering, Sri Sairam Engineering College, Chennai-44, held during 27-28 January, 2021.
- ❖ “Power Production by Microbial Fuel Cell having conductive polymer electrode and Bio Catalysts”, **IEEE International Conference on Power, Energy, Control and Transmission Systems (ICCST2020)** conducted by Sri Sairam Engineering College, Chennai-44, from 10/12/2020 to 11/12/2020.

- ❖ “Piezoelectric Pavement”, **IEEE International Conference on Power, Energy, Control and Transmission Systems (ICCST2020)** conducted by Sri Sairam Engineering College, Chennai-44, from 10/12/2020 to 11/12/2020.
- ❖ “E-Urinals”, **IEEE International Conference on Power, Energy, Control and Transmission Systems (ICCST2020)** conducted by Sri Sairam Engineering College, Chennai-44, from 10/12/2020 to 11/12/2020.
- ❖ "Power Production from Waste Water Using Microbial Fuel Cell" in the **6<sup>th</sup> International conference on Chemical and Environmental Research (ICCER-2020)**, organized by the PG and Research Department of Chemistry, Jamal Mohamed College (Autonomous), Tiruchirappalli - 620 020, on 12.11.2020.
- ❖ "Synthesis, spectral, antibacterial, dna binding and anti cancer studies of copper (II) complex" in the **6<sup>th</sup> International conference on Chemical and Environmental Research (ICCER-2020)**, organized by the PG and Research Department of Chemistry, Jamal Mohamed College (Autonomous), Tiruchirappalli - 620 020, on 12.11.2020.
- ❖ "Pee-power: an electricity-generating sanitation solution for decentralized areas." in the **6<sup>th</sup> International conference on Chemical and Environmental Research (ICCER-2020)**, organized by the PG and Research Department of Chemistry, Jamal Mohamed College (Autonomous), Tiruchirappalli - 620 020, on 12.11.2020.
- ❖ “IoT based soil monitoring system in agriculture”, **2nd International Conference on Computational Science and Technology (ICCST2020)** conducted by Sri Sairam Engineering College, Chennai-44, from 05/03/2020 to 06/03/2020.
- ❖ “IoT in agriculture-Irrigation system”, **2nd International Conference on Computational Science and Technology (ICCST2020)** conducted by Sri Sairam Engineering College, Chennai-44, from 05/03/2020 to 06/03/2020.
- ❖ “Synthesis, DNA Binding, Anticancer and Cytotoxic Evaluation of Novel Isatin Based Ru(II) Complex”, **7<sup>th</sup> International Conference on Contemporary Engineering and Technology 2019, organized by Organization of Science & Innovative Engineering and Technology (OSIET)**, Chennai, from 09/03/2019 to 10/03/2019.
- ❖ “Synthesis, DNA binding, Anticancer and Cytotoxic evaluation of Novel Ruthenium(II) Isatin based Schiff base complex”, **International Conference from Mechanical,**

**Materials and Manufacturing Systems (ICMMMS '16)** conducted by Sri Sairam Engineering College, Chennai-44, from 24/02/2016 to 25/02/2016.

- ❖ “A facile combustion synthesis and opto-magnetic characterizations of magnetically reusable spinel  $\text{Ni}_x\text{Zn}_{1-x}\text{Fe}_2\text{O}_4$  ( $x = 0.0$  to  $1.0$ ) nano-photocatalysts”, **International conference on Recent Trends in Analytical Chemistry (ICORTAC-2015)** organized by the Department of Analytical Chemistry, University of Madras, Chennai-25, from 28/12/2015 to 29/12/2015. (Received best paper award)
- ❖ “Synthesis, DNA Binding, Anticancer and Cytotoxic Evaluation of novel mononuclear Ru(II) complex”, **Indo - Australian Conference on Biomaterials, Tissue Engineering, Drug Delivery System and Regenerative Medicine (BiTERM-2015)** organized by the Department of Chemistry, Anna University, Chennai-25, on 05/02/2015.
- ❖ **Medicinal Chemistry Conference (MEDCHEM-2013) - Advances in Anticancer Drug Discovery and development** organized by the Department of Chemistry, Indian Institute of Technology Madras, Chennai-36 from 25/10/2013 to 26/10/2013.
- ❖ “Analysis and Identification of Natural Copper Ore”, **International Symposium for Research Scholars (ISRS 2008) on Metallurgy, Material Science and Engineering**, conducted by Indian Institute of Technology Madras, Chennai, from 10/12/2008 to 12/12/2008.
- ❖ “Synthesis, Structure and Catalytically Active Ru(II) Complex Formation of Schiff Base 2-Bromo-4-Chloro-6-(4-Fluoro phenyl imino methyl) Phenol”, International conference on **Functional Materials-Controlled Synthesis, Discrete molecular processes and Engineering (FM 2008)**, organized by the Department of Chemistry, Indian Institute of Technology Madras, Chennai, from 27/11/2008 to 29/11/2008.
- ❖ “Novel Ruthenium(III) complexes: Synthesis, Structure and DNA Binding Studies”, International Symposium on **Recent Trends in Macromolecular Structure and Function**, organized by Department of Chemistry, University of Madras, Chennai, from 07/01/2008 to 11/01/2008.

- ❖ “Synthesis and Characterization of Metal complexes”, **International Conference on Biophysical Organic and Inorganic Chemistry (ICBOIC)**, organized by the Department of Chemistry, Bharath University, Chennai, from 26/08/2007 to 30/08/2007.
- ❖ “Synthesis, Spectroscopic, Magnetic and Redox behavior of Copper(II) and Ruthenium (III) complexes”, **International Conference on Biophysical Organic and Inorganic Chemistry (ICBOIC)**, organized by the Department of Chemistry, Bharath University, Chennai, from 26/08/2007 to 30/08/2007.

### **NATIONAL**

- ❖ “Synthesis, spectral, electrochemical and DNA binding properties of Ruthenium (III) complexes of Schiff bases containing N,O Donor atoms”, **National conference on Chemistry & Materials (NCCM-2019)**, organized by Department of Chemistry, Saveetha Engineering College, Chennai, on 22/03/2019.
- ❖ “Synthesis, Spectral, Anti bacterial and DNA binding studies of copper(II) complex”, **National conference on Chemistry & Materials (NCCM-2019)**, organized by Department of Chemistry, Saveetha Engineering College, Chennai, on 22/03/2019.
- ❖ “Synthesis and DNA Binding studies of Ru(II) Schiff base complex with CO and AsPh<sub>3</sub> as CO-ligands”, **National conference on Emerging Trends in Communicative English & Applied Sciences**, conducted by Bharath University, Chennai, on 14/03/2008.
- ❖ “Ligand Influence on the Redox properties of Copper (II) complexes with Phenolic ligands”, **National conference on Emerging Trends in Communicative English & Applied Sciences**, conducted by Bharath University, Chennai, on 14/03/2008.
- ❖ “Synthesis, Spectroscopic, Magnetic and Redox behaviour of Copper(II), Cobalt(II), Nickel(II) and Ruthenium(III) bidentate Schiff base complexes of N-,O- donors”, 12<sup>th</sup> Biennial Symposium on **Modern Trends In Inorganic Chemistry (MTIC-XII)**, organized by the Department of Chemistry, Indian Institute of Technology Madras, Chennai, from 06/12/2007 to 08/12/2007.

- ❖ “Bio-remediation—Nature’s Cleaner Technology”, **National conference on Recent trends in Science and Communicative English**, conducted by Bharath University, on 28/02/2007.
- ❖ “Cheminformatics- Past, Present and Future”, **National Conference on Recent Trends in Advanced Computing (NCRTAC-07)**, conducted by Bharath University, Chennai, on 15/02/2007.
- ❖ “Synthesis and Characterization of New Ruthenium Complexes of Bidentate Schiff Base Ligands”, **Silver Jubilee Conference organized by Indian Council of Chemists**, conducted by Birla College, Kalyan, from 27/10/2006 to 29/10/2006.
- ❖ “Niobium Chloride (NbCl<sub>5</sub>): A Highly Efficient Catalyst for Solvent-Free Cyanosilylation of Aldehydes”, **Silver Jubilee Conference organized by Indian Council of Chemists**, conducted by Birla College, Kalyan from 27/10/2005 to 29/10/2006.
- ❖ “Mild and Efficient Silylcyanation of Ketones Catalysed by KF”, **National seminar on novel products and processes for Chemical Engineering and Biotechnology**, conducted by St. Joseph’s college of Engineering, Chennai, from 21/03/2005 to 22/03/2005.
- ❖ “Advanced Tertiary Treatment for Domestic Sewage (A Case study in Madras Fertilizers Limited)”, **National seminar on novel products and processes for Chemical Engineering and Biotechnology**, conducted by St. Joseph’s college of Engineering, Chennai, from 21/03/2005 to 22/03/2005.

#### **FDP / STTP / SDP ATTENDED**

- ❖ Faculty Development Programme on “**Artificial Intelligence in Health Care**” organized by Sri Sairam Engineering College, Chennai-44 in association with ISTE from 21.02.2022 to 25.02.2022.
- ❖ AICTE Training And Learning (ATAL) Academy Faculty Development Programme on “**Design Thinking**” organized by Bharati Vidyapeeth College of Engineering, from 21.06.2021 to 25.06.2021.
- ❖ AICTE Training And Learning (ATAL) Academy Faculty Development Programme on “**Design Thinking to nurture Creativity and Innovation leading to Entrepreneurship**” organized by Dr D Y Patil Institute of Management & Research, from 14.06.2021 to 18.06.2021.

- ❖ AICTE Training And Learning (ATAL) Academy Faculty Development Programme on **“Innovation Management”** organized by Shiv Nadar University, from 10.10.2020 to 14.10.2020.
- ❖ AICTE Training And Learning (ATAL) Academy Faculty Development Programme on **“Sensors Technology”** organized by Tripura University, from 21.09.2020 to 25.09.2020.
- ❖ Faculty Development Programme on **“Advancements in Applied Chemistry (AAC 2020)”** organized by St. Joseph's College of Engineering, Chennai from 06.07.2020 to 08.07.2020.
- ❖ Faculty Development Programme on **“Recent Innovations in Electrical, Electronics, Instrumentation, Automation and Teaching Pedagogy”** organized by Sri Sairam Engineering College, Chennai-44 from 18.05.2020 to 30.05.2020.
- ❖ Faculty Development programme on **“Insights in to Quality Research and Innovation”** organized by R&D Cell and IIC of Vivekanandha College of Engineering for Women from 13.05.2020 to 20.05.2020.
- ❖ Faculty Development Programme on **“Renewable energy systems”** organized by Sri Sairam Engineering College, Chennai-44 from 22.07.2019 to 26.07.2019.
- ❖ Faculty Development Programme on **“Outcome Based Education”** organized by Internal Quality Assurance Cell of (IQAC), Sri Sairam Engineering College, Chennai-44 on 05.04.2019.
- ❖ Faculty Development Programme on **“Engineering Teaching Pedagogy and Effective Learning Process”** held at Sri Sairam Engineering College, Chennai-44 from 03/12/2018 to 07/12/2018.
- ❖ AICTE sponsored Staff Development Programme on **“Fundamentals of Nano science and Technology”**, conducted by Anna University, Chennai-25 from 07/12/2011 to 21/12/2011.
- ❖ AICTE sponsored Staff Development Programme on **“Instructional Design & Delivery”**, conducted by Sri Sairam Engineering College, Chennai-44 on 11/02/2009.
- ❖ AICTE sponsored Faculty Development Programme on **“Impact of Globalisation and Liberalisation in the cultural values of BPO/ITES Employee”**, conducted by Sri Sairam Institute of Management Studies, Chennai from 04/12/2008 to 10/12/2008.
- ❖ Short Term Training Programme on **“Recent Trends in Analytical Instrumentation”** organized by the Department of Chemistry, SRM University, Chennai from 01/04/05 and 02/04/05.

- ❖ Faculty Development Programme, on “**Principles of Environmental science and Engineering**” conducted by Madras Institute of Technology (MIT), Chrompet, Chennai, from 06/12/04 to 10/12/04.

#### **WORKSHOP / SEMINAR / CONFERENCE / SYMPOSIUM ATTENDED**

- ❖ Participated in the event of **Global Entrepreneurship Summit** conducted by St. Francis Institute of Management and Research (PGDM) in association with Global Entrepreneur Grid (GEG) on 12th June, 2021.
- ❖ “Six days national workshop on **Research methodology** (QNVWRM-2021)” organized by Queens College of Arts and Science for Women, Punalkulam held during 19<sup>th</sup> to 24<sup>th</sup>, April 2021.
- ❖ Webinar on “**Fresh water algal biodiversity of india: An overview**” organized by Flora and Fauna Asia Facebook Group, Department of Botany, Seva Bharati Mahavidyalaya, Kapgari, Jhargram, West Bengal, on 26.11.2020.
- ❖ Webinar on “**Ecological restoration of degraded habitats: An approach towards biodiversity conservation**” organized by Flora and Fauna Asia Facebook Group, Department of Botany, Seva Bharati Mahavidyalaya, Kapgari, Jhargram, West Bengal, on 07.11.2020.
- ❖ Webinar on “**Biodiversity in Coral Reef Ecosystem**” organized by Flora and Fauna Asia Facebook Group, Department of Botany, Seva Bharati Mahavidyalaya, Kapgari, Jhargram, West Bengal, on 31.10.2020.
- ❖ International Virtual Conference on **Advances in Chemical Sciences - 2020** organised by Eswari Engineering College, Chennai held on 13th & 14th August 2020.
- ❖ International Webinar Series on “**Basic Sciences-2020**”, organized by Sathyasayee Institute of Technology, Trichy on 19.08.2020.
- ❖ Webinar on “**Patent prosecution strategies and challenges in India**” organized by The Frontiers legal and Turnip innovations on 25.07.2020.
- ❖ Webinar on “**Introduction to IPR and Importance of Incubation Centre**” organized by Mahaveer Institute of Science and Technology on 08.06.2020.



- ❖ Webinar on “**India's First Leadership Talk with Shri Shashi Shekhar (CEO- Prasar Bharti)**”, organized by MHRD's Innovation Cell on 11.07.2020.
- ❖ National Webinar on “**Research and Innovations in Defence Sectors**”, organized by Sri Sairam Engineering College on 24.06.2020.
- ❖ Webinar on “**India's First Leadership Talk with Mr. Shridhar Venkat CEO Akshaya Patra Foundation**”, organized by MHRD's Innovation Cell on 20.06.2020.
- ❖ National Webinar on “**COVID 19: Yesterday, Today and Tomorrow**”, organized by R M K Engineering College on 14.06.2020.
- ❖ Webinar on “**R&D Proposal Writing for Faculties**”, organized by Sri Sairam Engineering College on 12.06.2020.
- ❖ Webinar on “**Reprogramming your mind**”, organized by Sri Venkateswaraa College of Technology on 11.06.2020.
- ❖ International Webinar Series on “**Futuristic of Medicinal and Materials Chemistry (FMCM-2020)**”, organized by B. S. Abdur Rahman Crescent Institute of Science and Technology from 09.06.2020 to 13.06.2020.
- ❖ Workshop on “**IPR filling process for Science and technology Faculty**”, organized by Sri Sairam Engineering College on 09.06.2020.
- ❖ Webinar on “**Leadership Talk**”, organized by MHRD's Innovation Cell on 06.06.2020.
- ❖ Workshop and Quiz on “**Principles of Spectroscopy**”, organized by K.S. RANGASAMY COLLEGE OF ARTS & SCIENCE (Autonomous) on 04.06.2020.
- ❖ Workshop on “**Skycampus Digital Knowledge Series 2020 - Season 7: CELERATING INDUSTRY 4.0 - A POST COVID PARADIGM**”, organized by ICT Academy on 30.05.2020.
- ❖ Hands on Workshop on “**Patent Searching, Drafting and Filing**”, organized by Exilyze Intellectual Services, IEEE Computer Society and Computer Society of India of Panimalar Institute of Technology from 29.05.2020 to 02.06.2020.
- ❖ Webinar on “**NAAC Accreditation Management system demo**”, organized by InPods Ed-tech on 27.05.2020.

- ❖ Webinar on **“Modern Patent Research: Capitalizing on information in your organization”**, organized by IPWatchdog Inc on 26.05.2020.
- ❖ Webinar on **“The unprecedented need for e-Education”**, organized by Ma Foi Educational Services Private Limited on 25.05.2020.
- ❖ Webinar on **“Strengthening research capabilities remotely: Empowering Indian Research on COVID-19”**, organized by Alex Schlager, Verizon, Executive Director Product on 24.05.2020.
- ❖ Webinar on **“Security in a 5G World”**, organized by Alex Schlager, Verizon, Executive Director Product on 24.05.2020.
- ❖ Webinar on **“India's First Leadership Talk Series Session with Mr Mahesh Babu CEO Mahindra Electric Mobility Ltd”**, organized by MHRD's Innovation Cell on 23.05.2020.
- ❖ Webinar on **“Interaction with Student Innovators and Entrepreneurs Emerged from Smart India Hackathon (SIH)”**, organized by IIC, MHRD's Innovation Cell on 22.05.2020.
- ❖ Webinar on **“Frugal Innovations and Social Entrepreneurship”**, organized by IIC, MHRD's Innovation Cell on 21.05.2020.
- ❖ Webinar on **“Future of AI”**, organized by IETE-Mumbai in association with PANTECH on 20.05.2020.
- ❖ Webinar on **“Use of Market Data and Application of Marketing Research Tools and Methodology - Increasing Chances of Survivability of Innovation and Venture - Advance Level”**, organized by IIC, MHRD's Innovation Cell on 20.05.2020.
- ❖ Webinar on **“Idea, Entrepreneurship Opportunities, Business Model and Business Plan”**, organized by IIC, MHRD's Innovation Cell on 19.05.2020.
- ❖ Webinar on **“Leadership Talk”**, organized by MHRD's Innovation Cell on 16.05.2020.
- ❖ Webinar on **“Innovation Risk Diagnostic â€” Product Innovation Rubric (PIR)”**, organized by IIC, MHRD's Innovation Cell on 13.05.2020.
- ❖ Webinar on **“Understanding Role and Application of Marketing Research at Idea to Start up Stage - Foundation Level”**, organized by IIC, MHRD's Innovation Cell on 13.05.2020.

- ❖ Webinar on **“Innovating Self- Screen and Identify right opportunities”**, organized by IIC, MHRD's Innovation Cell on 13.05.2020.
- ❖ Webinar on **“Legal and Ethical Steps - Productive Entrepreneurship and Startup”**, organized by IIC, MHRD's Innovation Cell on 12.05.2020.
- ❖ Webinar on **“Understanding Angel and Venture Capital Funding - What is there for Early Stage innovator & Entrepreneurs”**, organized by IIC, MHRD's Innovation Cell on 08.05.2020.
- ❖ Workshop on **“Pizhaindri Ezhutha”** Conducted by Sri Krishna Institutions, Coimbatore on 07.05.2020.
- ❖ Workshop on **“Measures of Central Tendency and Correlation”** Conducted by Sri Krishna Institutions, Coimbatore on 07.05.2020.
- ❖ Webinar on **“Intellectual Property (IP) Management at Early Stage of Innovation and Start-ups”**, organized by IIC, MHRD's Innovation Cell on 07.05.2020.
- ❖ Webinar on **“How to Identify Right Problem and Solution using the Double Diamond Approach in Design”**, organized by IIC, MHRD's Innovation Cell on 06.05.2020.
- ❖ Webinar on **“Entrepreneurship, Business Idea and Business Model Canvas”**, organized by IIC, MHRD's Innovation Cell on 05.05.2020.
- ❖ Webinar on **“Hangout with Successful Startup Founder”**, organized by IIC, MHRD's Innovation Cell on 04.05.2020.
- ❖ Workshop on **“Elemental Arts: Evolution of Modern Periodic Table”** Conducted by Sri Krishna College of Engineering and Technology, Coimbatore between 01.05.2020 to 02.05.2020.
- ❖ Webinar on **“Role of Network Enablers in driving I&E in HEIs - A Case of TiE, India”**, organized by IIC, MHRD's Innovation Cell on 01.05.2020.
- ❖ Webinar on **“Hangout with Emerging Innovator & Entrepreneurs Supported through MIC & AICTE”**, organized by IIC, MHRD's Innovation Cell on 30.04.2020.
- ❖ Webinar on **“Role and Importance of Pre-Incubators, Incubators and Accelerators in HEIs - Harnessing Innovation and Entrepreneurial Potential of**

**Students and Faculties at Early Stage**", organized by IIC, MHRD's Innovation Cell on 29.04.2020.

- ❖ Webinar on **"National Innovation and Startup Policy for Students and Faculty 2019 - A Guiding Framework for HEIs for Implementation"**, organized by IIC, MHRD's Innovation Cell on 28.04.2020.
- ❖ Webinar on **"IP Strategy and Valuation' and 'Patent Protection"** Organized by Lawctopus on 26.04.2020.
- ❖ One day Workshop & Quiz on **"Intellectual Property"** Organized by Guru Nanak Centre for Research, Guru Nanak College, Chennai on 26.04.2020.
- ❖ One day Workshop on **"Intellectual Property Rights"** Organized by Eventbrite on 10.04.2020.
- ❖ One day Workshop & Quiz on **"Chemistry in Everyday Life"** Organized by PG and Research Department of Chemistry, R.V.Government Arts College, Chengalpattu, on 06.03.2020.
- ❖ One Day Workshop on **"Intellectual Property Rights and Innovation"** Organized by Sri Sairam Engineering College, Chennai-44 on 20.07.2019.
- ❖ One Day Awareness Workshop on **"Intellectual Property Rights 2019 (IPR 2019)"** on the occasion of World Intellectual Property (IP) day organized by CIPR, Anna University, Chennai-25 on 26.04.2019.
- ❖ National seminar on **"Recent Advances in Nanoscience and Technology"** conducted by Anna University, Chennai-25, from 06/10/2016 to 07/10/2016.
- ❖ Industry-Institute Interaction Event on **"Environment Management in Industrial Sectors-Status and Needs"** held from 24/07/2014 to 25/07/2014.
- ❖ ISTE Sponsored national seminar on **"R&D Issues and Challenges"** conducted by Adhiparasakthi Engineering College, Melmaruvathur, Chennai, from 21/11/2013 to 22/11/2013.
- ❖ CSIR sponsored national seminar on **"Recent Trends in Laser Spectroscopy and its Applications" (RTILSA-13)** conducted by Sri Sairam Engineering College, Chennai-44 on 17/10/2013.

- ❖ AICTE sponsored national seminar on **“Current Trends and Future role of Renewable energy”** conducted by Sri Sairam Engineering College from 08/10/2013 to 09/10/2013.
- ❖ Workshop on **“Art of Journal and Thesis Writing”** conducted by Sri Sairam Engineering College, Chennai-44 on 19/01/2012.
- ❖ AICTE sponsored seminar on **“Environmental Issues and Sustainable Development”** conducted by Sri Sairam Engineering college, Chennai-44 from 11/12/2013 to 12/12/2013.
- ❖ National conference on **“Current Trends in Biomaterials” (sponsored by Department of Biotechnology, New Delhi)**, conducted by Sri Venkateshwara Engineering college, Sriperumpudur, on 18/07/2008.
- ❖ Seminar on **“Awareness programme on nanoscience and technology”** organized by Center for Nanoscience and Technology & Crystal Growth Centre at Anna University, Chennai-25 from 19/09/2007 to 20/09/2007.
- ❖ Workshop on **“Ontology Engineering and Cheminformatics-2006”** conducted by Pondicherry Engineering College, Pondicherry from 15/12/2006 to 16/12/2006.

## **PROJECT PROPOSAL submitted**

- Submitted Project proposal entitled “Studies on the structural, magnetic, dielectric and gas sensing properties of nanoscale metal oxides, metal sulphides and mixed metal oxides (ferrites) synthesized by pyrolysis, spray pyrolysis and hydrothermal method using single source precursors” under DST-SERB-Core Research Grant on 9<sup>th</sup> March 2020.
- Submitted project proposal entitled “Development of pharmacologically enhanced multi targeted dione Schiff base complexes” under DST-TARE on 21<sup>st</sup> March 2020.

## **ON LINE COUESES COMPLETED**

### **ON LINE MOOC (FDP) COURSES COMPLETED: Swayam-NPTEL Platform**

- ❖ **“Patent Search for Engineers and Lawyers”** Eight weeks, Successfully completed with **“Elite”** category, 2019.

- ❖ ***“Patent Drafting for beginners”*** Four weeks, Successfully completed with ***“Elite+Topper”*** category, 2019 (National Topper).
- ❖ ***“Waste water treatment and recycling”*** Twelve weeks, Successfully completed with ***“Elite”*** category, 2018.
- ❖ ***“Manufacturing of composites”*** Eight weeks, Successfully completed with ***“Elite”*** category, 2018.

#### **NASSCOM FUTURE SKILLS Platform**

- ❖ ***“IoT for beginners”*** Weeks, Successfully completed, April 2020.

#### **UDEMY Platform**

- ❖ ***“Inventor 2012 Basic & Advance”*** Weeks, Successfully completed, March 2020.

#### **COURSERA Platform**

- ❖ ***“Patenting in Biotechnology”*** Six Weeks, Successfully completed, May 2020.
- ❖ ***“Protecting Business Innovations via Patent”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Protecting Business Innovations via Trademark”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Protecting Business Innovations via Copyright”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Protecting Business Innovations via Strategy”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Introduction to Molecular Spectroscopy”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Spreadsheets for Beginners using Google Sheets”*** One Week, Successfully completed, May 2020.
- ❖ ***“The Sustainable Development Goals – A global, transdisciplinary vision for the future”*** Four Weeks, Successfully completed, June 2020.
- ❖ ***“COVID-19 Contact Tracing”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“The Science of well-being”*** Six Weeks, Successfully completed, May 2020.
- ❖ ***“Municipal Solid Waste Management in Developing Countries”*** Four Weeks, Successfully completed, May 2020.

❖ ***“INTEGRATIVE HEALTH AND MEDICINE”----->5-Courses Specialization.***

- 1) ***“Introduction to Integrative Therapies and Healing Practices”*** Four Weeks, Successfully completed, June 2020.
  - 2) ***“Guided Imagery”*** Four Weeks, Successfully completed, June 2020.
  - 3) ***“Herbal Medicine”*** Four Weeks, Successfully completed, June 2020.
  - 4) ***“Aromatherapy: Clinical Use of Essential Oils”*** Four Weeks, Successfully completed, June 2020.”
  - 5) ***“Mindfulness in Integrative Healthcare”*** Four Weeks, Successfully completed, June 2020.
- ❖ ***“Introduction to Psychology”*** Three Weeks, Successfully completed, May 2020.
- ❖ ***“IoT (Internet of Things) Wireless & Cloud Computing Emerging Technologies”*** One Week, Successfully completed, May 2020.
- ❖ ***“Sports and Society”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Strategy and Sustainability”*** Four Weeks, Successfully completed, May 2020.
- ❖ ***“Transformation of the Global Food System”*** Four Weeks, Successfully completed, June 2020.
- ❖ ***“Introduction to Project Management with ClickUp”*** One Week, Successfully completed, June 2020.
- ❖ ***“Facial Expression Recognition with Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Practical Introduction to the Command Line”*** One Week, Successfully completed, June 2020.
- ❖ ***“Introduction to Google Docs”*** One Week, Successfully completed, May 2020.
- ❖ ***“Create Your First Web App with Python and Flask”*** One Week, Successfully completed, June 2020.
- ❖ ***“Object-Oriented Programming with Java”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create a Resume and Cover Letter with Google”*** One Week, Successfully completed, June 2020.
- ❖ ***“Conjunctions, Connectives, and Adverb Clauses”*** One Week, Successfully completed, August 2020.

- ❖ ***“Beyond the Sustainable Development Goals (SDGs): Addressing Sustainability and Development”*** One Week, Successfully completed, August 2020.
- ❖ ***“Introduction to Relational Database and SQL”*** One Week, Successfully completed, June 2020.
- ❖ ***“Image Processing with Python”*** One Week, Successfully completed, June 2020.
- ❖ ***“Predicting House Prices with Regression using TensorFlow”*** One Week, Successfully completed, June 2020.
- ❖ ***“Classify Radio Signals from Space using Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Introduction to Bash Shell Scripting”*** One Week, Successfully completed, June 2020.
- ❖ ***“Retrieve Data using Single-Table SQL Queries”***One Week, Successfully completed, June 2020.
- ❖ ***“Create Informative Presentations with Google Slides”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create Customer Support Data with Google Sheets”*** One Week, Successfully completed, June 2020.
- ❖ ***“Sentiment Analysis with Deep Learning using BERT”*** One Week, Successfully completed, June 2020.
- ❖ ***“Building Digital Media using Graphic Design in Google Slides”*** One Week, Successfully completed, June 2020.
- ❖ ***“Building Custom Regional Reports with Google Analytics”*** One Week, Successfully completed, June 2020.
- ❖ ***“COVID19 Data Analysis Using Python”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create Employee Management System with When I Work”*** One Week, Successfully completed, June 2020.
- ❖ ***“Analyze Text Data with Yellowbrick”*** One Week, Successfully completed, June 2020.
- ❖ ***“Evaluate Machine Learning Models with Yellowbrick”***One Week, Successfully completed, June 2020.
- ❖ ***“Regression Analysis with Yellowbrick”*** One Week, Successfully completed, June 2020.



- ❖ ***“Introduction to Project Management”*** One Week, Successfully completed, June 2020.
- ❖ ***“Save, Load and Export Models with Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Generando modelos con Auto Machine Learning”*** One Week, Successfully completed, June 2020.
- ❖ ***“Advanced Features with Relational Database Tables Using SQLiteStudio”*** One Week, Successfully completed, June 2020.
- ❖ ***“Marketing Design with Easil”*** One Week, Successfully completed, June 2020.
- ❖ ***“Classification with Transfer Learning in Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Image Classification with CNNs using Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Visual Machine Learning with Yellowbrick”*** One Week, Successfully completed, June 2020.
- ❖ ***“Build a Machine Learning Web App with Streamlit and Python”*** One Week, Successfully completed, June 2020.
- ❖ ***“Predicting Salaries with Simple Linear ”*** One Week, Successfully completed, June 2020.
- ❖ ***“Regression with Automatic Differentiation in TensorFlow”*** One Week, Successfully completed, June 2020.
- ❖ ***“Beginning SQL Server”***, One Week Successfully completed, June 2020.
- ❖ ***“Creating Custom Callbacks in Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Logistic Regression with NumPy and Python”*** One Week, Successfully completed, June 2020.
- ❖ ***“Deep Learning Inference with Azure ML Studio”*** One Week, Successfully completed, June 2020.
- ❖ ***“Machine Learning: Predict Numbers from Handwritten Digits using a Neural Network, Keras, and R”*** One Week, Successfully completed, June 2020.
- ❖ ***“Data Visualization with Plotly Express”*** One Week, Successfully completed, June 2020.

- ❖ ***“Machine Learning with H2O Flow”*** One Week, Successfully completed, June 2020.
- ❖ ***“Predict Future Product Prices Using Facebook Prophet”*** One Week, Successfully completed, June 2020.
- ❖ ***“Classification Trees in Python, From Start To Finish”*** One Week, Successfully completed, June 2020.
- ❖ ***“Getting Started with Power BI Desktop”*** One Week, Successfully completed, June 2020.
- ❖ ***“Machine Learning: Predict Poisonous Mushrooms using a Random Forest Model and the FFTrees Package in R”*** One Week, Successfully completed, June 2020.
- ❖ ***“Stock Analysis: Create a Buy Signal Filter using R and the Quantmod Package”*** One Week, Successfully completed, June 2020.
- ❖ ***“Principal Component Analysis with NumPy”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create basic behavior with C# in Unity”*** One Week, Successfully completed, June 2020.
- ❖ ***“API Security on Google Cloud's Apigee API Platform”*** One Week, Successfully completed, June 2020.
- ❖ ***“Improve Business Performance with Google Forms”*** One Week, Successfully completed, June 2020.
- ❖ ***“Build Multilayer Perceptron Models with Keras”*** One Week, Successfully completed, June 2020.
- ❖ ***“Hiring and Onboarding Employees with ClickUp”*** One Week, Successfully completed, June 2020.
- ❖ ***“Data Analytics: Scraping Data using Hadley Wickam's Rvest package in R”*** One Week, Successfully completed, June 2020.
- ❖ ***“Customer Journey Prototyping in XD”*** One Week, Successfully completed, June 2020.
- ❖ ***“Use WordPress to Create a Blog for your Business”*** One Week, Successfully completed, June 2020.
- ❖ ***“Applying Data Structures to Manipulate Cleansed UN Data”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create Infographics using Piktochart”*** One Week, Successfully completed, June 2020.

- ❖ ***“Use Canva to Create Social Media Marketing Designs”*** One Week, Successfully completed, June 2020.
- ❖ ***“Portfolio Diversification using Correlation Matrix”*** One Week, Successfully completed, June 2020.
- ❖ ***“Control physics with C# in Unity”*** One Week, Successfully completed, June 2020.
- ❖ ***“Use Canva to Create an Interactive Mind Map”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create a Business Marketing Brand Kit Using Canvas”*** One Week, Successfully completed, June 2020.
- ❖ ***“Git + GitHub for Open Source Collaboration”*** One Week, Successfully completed, June 2020.
- ❖ ***“Support Vector Machine Classification in Python”*** One Week, Successfully completed, June 2020.
- ❖ ***“Manipulate Object Properties with C# in Unity”*** One Week, Successfully completed, June 2020.
- ❖ ***“Unsupervised Machine Learning for Customer Market Segmentation”*** One Week, Successfully completed, June 2020.
- ❖ ***“Build a Deep Learning Based Image Classifier with R”*** One Week, Successfully completed, June 2020.
- ❖ ***“Build a Deep Learning Based Image Classifier with R”*** One Week, Successfully completed, May 2020.
- ❖ ***“c”*** One Week, Successfully completed, June 2020.
- ❖ ***“Investment Risk Management”*** One Week, Successfully completed, June 2020.
- ❖ ***“User Experience Design - Creating User Profiles”*** One Week, Successfully completed, June 2020.
- ❖ ***“AutoML for Computer Vision with Microsoft custom vision”*** One Week, Successfully completed, June 2020.
- ❖ ***“Intro to Time Series Analysis in R”*** One Week, Successfully completed, June 2020.
- ❖ ***“Analyzing Market Attractiveness Using Creately”*** One Week, Successfully completed, June 2020.
- ❖ ***“Automatic Machine Learning with H2O AutoML and Python”*** One Week, Successfully completed, June 2020.

- ❖ ***“Tables and Forms in HTML”*** One Week, Successfully completed, June 2020.
- ❖ ***“Build a Relative Layout App in Android Studio”*** One Week, Successfully completed, June 2020.
- ❖ ***“Image Compression and Generation using Variational Autoencoders in Python”*** One Week, Successfully completed, June 2020.
- ❖ ***“Emotion AI: Facial Key-points Detection”*** One Week, Successfully completed, June 2020.
- ❖ ***“Create and Format a Basic Document with Libre Office Writer”*** One Week, Successfully completed, June 2020.
- ❖ ***“Predict Ideal Diamonds over Good Diamonds using a Random Forest using R”*** One Week, Successfully completed, June 2020.
- ❖ ***“Enhance Organizational Communications with Slack”*** One Week, Successfully completed, June 2020.
- ❖ ***“Using Covid-19 Data to Make Supply Chain Logistics Decisions in Spreadsheets”*** One Week, Successfully completed, June 2020.
- ❖ ***“Getting Started in GIMP”*** One Week, Successfully completed, June 2020.
- ❖ ***“Introduction to Agent-based Modeling with NetLogo”*** One Week, Successfully completed, May 2020.
- ❖ ***“Perform Feature Analysis with Yellowbrick”*** One Week, Successfully completed, June 2020.