# Report on

# Intellectual Property Rights (IPR's)

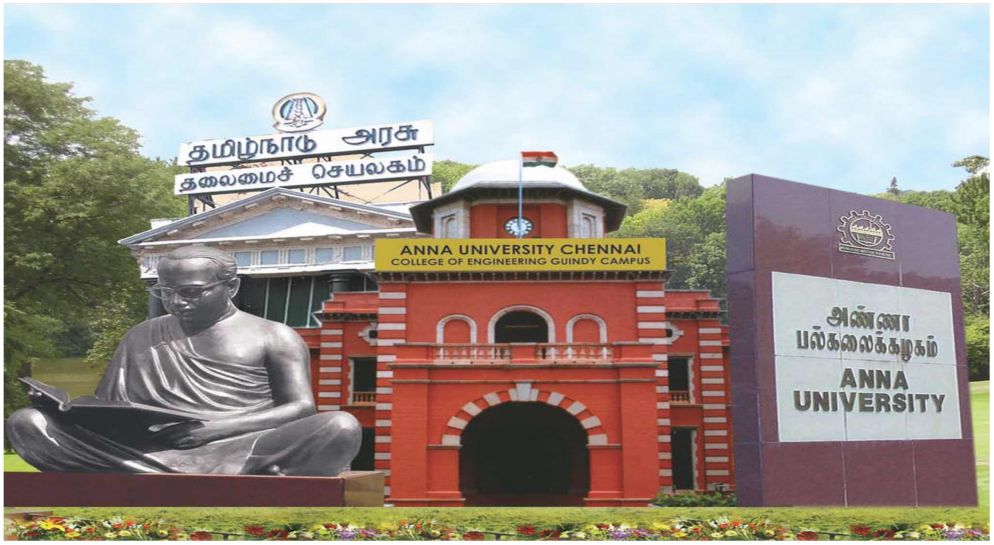
## of

## Anna University, Chennai

## (upto December 2019)

## &

## Constituent Colleges of Anna University




**Centre for Intellectual Property Rights (CIPR)**

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## PERFACE

Intellectual property (IP) refers to creations of the mind, such as inventions, literary, artistic works, designs, symbols, names and images. It is necessary to protect these creations in order to enable people to earn recognition or financial benefits. Intellectual property rights (IPRs) have become a central issue in economic development, scientific & technological development, economic co-operation between industrialized and developing countries. However, some people believe that only large companies will get benefits from IPRs. But the truth lies on the fact that commercially profitable ideas or any innovations also emerge from every one of us.

There is apprehension particularly in the educational institutions for registration of IPRs. Faculty members prefer to publish technical papers in scientific journal without knowing that the same can be applied for patent before publication in the scientific journals. In this connection, Centre for Intellectual Property Rights (CIPR), Anna University, Chennai has brought out a “Report on Intellectual Property Rights (IPRs)” for the fifth time to the public to create awareness. In this report, we had tried to colligate the list of IPR’s filed by the faculty members, research scholars and students belongs Anna University and its Constituent Colleges upto December 2019. This report will also provide a comprehensive list of patents filed and their current status. The report will give an insight of the innovations developed in the respective fields and allow the emerging innovators to understand the grey area in the current technology, thus encouraging them to develop their novel ideas.

**Director, CIPR**

# Content

## 1. About Anna University

Anna University was established in 1978 as a unitary type of University. It offers higher education in Engineering, Technology and Allied Sciences relevant to the current and projected needs of the society. Besides promoting research and disseminating knowledge gained therefrom, it fosters cooperation between the academic and industrial communities.

## 2. About Centre for Intellectual Property Rights (CIPR)

The CIPR, Anna University was established in the year 2005 to create awareness and offer assistance to Academicians, Researchers, Entrepreneurs and Innovators to identify, protect and manage Intellectual Property Rights effectively. The CIPR involved jointly with Tamil Nadu Technology Development and Promotion Centre (TNTDPC) of Confederation of Indian Industries (CII) in conducting many certificates courses on Intellectual Property Rights (IPRs).

CIPR, Anna University, Chennai has been recognized as “Facilitator” for ‘Startups’ by the office of the Indian Patent office, Government of India, New Delhi and as Technology Innovation Support Center (TISC) by World Intellectual Property Office (WIPO) through the Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce & industry, Government of India. CIPR has signed Memorandum of Understanding (MoU) with National Research Development Corporation (NRDC) to establish NRDC-AU-Innovation Facilitation Centre (IFC).

**Objectives of CIPR**

- To promote awareness on IPRs among students, research scholars, research & development establishments, faculties of educational institutions, SMEs, large enterprises, Startups, etc.
- To organize short-term courses, seminars, workshops and conferences on IPRs and related activities.

- To protect Intellectual creations of students, research scholars, faculties, scientists, entrepreneurs, industries and others through a streamlined procedure to register their patents, trademark, copyrights and others IPRs in an effective manner.

## Services of CIPR

**i. Patents**

CIPR carries out extensive Patent Search using free and paid database. We have expertise and experienced professionals to do patent searches, patent specification drafting, patent claims drafting, patent filings and other related works.

**ii. Industrial Design**

CIPR carries out search and filing services of Industrial design for shape, configuration, pattern, composition of lines, colours, etc. applied to any product(s).

**iii. Trademarks**

CIPR carries out trademark search and trademark application filing for logo, symbol, design, image, sound, colour, slogan, smell, word, phrase or combination of these elements.

**iv. Copyrights**

CIPR assists in copyrights filing related to the original work of literary (like poems, books, etc), artistic (like painting, sculptures, photographs, etc), dramatic, musical work, cinematographic films, sound recording, software programme, etc.

**v. Conduct of IPR Awareness Programme and Certificate Courses**

The CIPR regularly conducts several Awareness program and Certificate Courses to educate the importance of IPRs to students, research scholars, faculties and scientists of R&D institution, Universities, SMEs and large establishments.

## Details of IPRs as on December 2019

## (Department / Centre wise)

## (1) Aerospace Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Registrar, Anna University, Chennai | Dr.K. M. Parammasivam, G. Sivaraj, & S. Senthil Kumar | Aerodynamic drag reduction of a hatch back car using base bleed | 3777/CHE/2010 & 10/12/2010 | Granted |
| 2 | Registrar, Anna University, Chennai | Dr.K. M. Parammasivam, G. Sivaraj, & S. Senthil Kumar | Optimization of vortex generator for "sedan" car model for reduction of aerodynamic drag | 3778/CHE/2010 & 10/12/2010 | Amended |
| 3 | Anna University, Chennai | Dr. K. Senthil Kumar, & A. Mohamed Rasheed | Rotary wing unmanned aircraft system, guidance and control method thereof | 5535/CHE/2012 & 31/12/2012 | Amended |
| 4 | Anna University, Chennai | Dr. K. Senthil Kumar, R. Krishna Kumar, & A. Mohamed Rasheed | Vertical takeoff & horizontal transition unmanned aircraft system guidance & nbsp;and control method thereof | 6190/CHE/2013 & 31/12/2013 | Awaiting Examination |

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|---|---|---|---|---|---|
| 5 | Dr.S.Thanigalarasu,<br>Dharmahiner Singh Chand,<br>&<br>R. Asad Ahmed | Dr. S. Thanigalarasu,<br>Dharmahiner Singh Chand,<br>&<br>R. Asad Ahmed | Method and device for controlling sonic under -expanded jets | 3765/CHE/2015<br>&<br>22/07/2015 | Amended |
| 6 | Dr. C. Senthil Kumar,<br>&<br>M. Ramakrishna | Dr. C. Senthil Kumar,<br>&<br>M. Ramakrishna | Saw toothed leading edge delta wings | 201641018606<br>&<br>31/05/2016 | Amended |
| 7 | Dr. C. Senthil Kumar,<br>&<br>M. Ramakrishna | Dr. C. Senthil Kumar,<br>&<br>M. Ramakrishna | Sinusoidal toothed leading edge delta wings | 201641018605<br>&<br>31/05/2016 | Awaiting Examination |
| 8 | Dr. K. M. Parammasivam,<br>&<br>B. Navin Kumar | Dr. K. M. Parammasivam<br>&<br>B. Navin Kumar | Aerodynamic braking system for wind turbine using chordwise spacing | 201641016085<br>&<br>09/05/2016 | FER Issued |
| 9 | A. Saravana kumar | B. Madhankumar,<br>K. Saravanakumar,<br>&<br>R. Souhith | Ground testing apparatus for solar sails | 201841031722<br>&<br>24/08/2018 | Awaiting Examination |
| 10 | S. Thanigaiarasu,<br>&<br>K. Rajaguru Nathan | S. Thanigaiarasu,<br>&<br>K. Rajaguru Nathan | Aerodynamically designed variable trailing edge serrations for vertical axis wind turbine blades | 201841033139<br>&<br>04/09/2018 | Awaiting Examination |
| 11 | S. Thanigaiarasu,<br>&<br>K. Rajaguru Nathan | S. Thanigaiarasu,<br>&<br>K. Rajaguru Nathan | Aerodynamically shaped feathered winglets for vertical axis wind turbine | 201841033159<br>&<br>04/09/2018 | FER Issued |

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| 12 | S. Thanigaiarasu,<br>&<br>S. A. Dawn Pradeeb | S. Thanigaiarasu,<br>&<br>S. A. Dawn Pradeeb | Effect of nozzle rotation on mixing characteristics of subsonic jets | 201841033156<br>&<br>04/09/2018 | Awaiting Examination |
| 13 | S. Thanigaiarasu,<br>&<br>S. Venkataramanan | S. Thanigaiarasu<br>&<br>S. Venkataramanan | Vortex generators in Increasing the mixing characteristics of high speed jets | 201841033145<br>&<br>04/09/2018 | Awaiting Examination |
| 14 | Anna University, Chennai | A. Saravana Kumar,<br>&<br>A. Kaviyarasu | Software defined radio-based ground receiving station system for low earth orbit satellites communication | 201941027752<br>&<br>11/07/2019 | Awaiting Examination |

## (2) Applied Science and Technology

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | R. Ramakrishnan<br>Noel Jacob Kaleekkal<br>T. Sivakumar<br>&<br>D. Mohan | R. Ramakrishnan<br>Noel Jacob Kaleekkal<br>T. Sivakumar<br>&<br>D. Mohan | Mixed matrix polymeric membrane catalytic reactor for carbohydrate valorization and separation and method thereof | 201841027725<br>&<br>24/07/2018 | Awaiting Examination |
| 2 | Anna University, Chennai | S. Kalaiselvam,<br>P. Karuppasamy,<br>&<br>S. Sivanesan | Laser flash thermal diffusivity analyser for the measurement of thermal properties of solid material | 201941010365<br>&<br>18/03/2019 | Awaiting Examination |

## (3) Bio-Technology

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Dr. K. Sankaran, A. Alagumarutha nayagam, & A. R. Pavankumar | Dr. K. Sankaran, A.Alagumaruthanayagam & A. R. Pavankumar | A method to detect the microbial resistance using fluorescence | 239/CHE/2009 & 04/02/2009 | In order for grant u/s 43, awaiting NBA Approval |
| 2 | Registrar, Anna University, Chennai | T. Elavaransan, A.Alagumaruthanayagam & Dr. K.Sankaran | A method to detect bacterial growth and antibacterial resistance based on fluorescence quenching | 1891/CHE/2010 & 02/07/2010 | Granted |
| 3 | Registrar, Anna University, Chennai | Dr. K. Sankaran, & Shruthi Hamsanathan | A process to enhance the sensitivity of human interferon y detection in elisa using bacterial lipid modification | 2569/CHE/2010 & 03/09/2010 | Granted |
| 4 | Registrar, Anna University, Chennai, | Dr. P. Kaliraj, Dr. J. Madhumathi, & Dr. Prince R. Prabhu | Chimeric peptide vaccines for filariasis | 1366/CHE/2011 & 20/04/2011 | Granted |
| 5 | Registrar, Anna University, Chennai, | Dr. P. Kaliraj, Dr. J. Madhumathi, Dr. G. Anugraha, & Dr. Prince R. Prabhu | Immunogenic composition for lymphatic filarial vaccine | 1367/CHE/2011 & 20/04/2011 | Granted |
| 6 | Registrar, Anna University, Chennai | Dr. P. Kaliraj, Dr. K. Sankaran, Dr. Sharmila Sam, & Dr. I. Christiana | A bacterial lipid modification of a filarial protein to enhance the immune-prophylactic efficacy in animal & humans | 2035/CHE/2011 & 15/06/2011 | Granted |
| 7 | C. Ramachandran, R. Sudha Rani, & Dr. Usha Antony | C. Ramachandran R. Sudha Rani & Dr. Usha Antony | A new method to ensure shelf life enhancement and bio- fortification of idli batter | 354/CHE/2014 & 28/01/2014 | Amended |

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|---|---|---|---|---|---|
| 8 | C. Ramachandran,<br>R. Sudha Rani,<br>S. R. Nivaz,<br>Prince R. Pravhu,<br>&<br>Dr. Usha Antony | C. Ramachandran,<br>R. Sudha Rani,<br>S. R. Nivaz,<br>Prince R. Pravhu,<br>&<br>Dr. Usha Antony | A new method of encapsulation using leguminous protein for food and pharmaceutical applications | 6135/CHE/2014<br>&<br>05/12/2014 | Awaiting Examination |
| 9 | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | A new method to incorporate lactobacillus reuteri in millet 8ermentation as a probiotic for enrichment with vitamin b12 | 3785/CHE/2014<br>&<br>01/08/2014 | Amended |
| 10 | R. Sudha Rani,<br>C. Ramachandran,<br>S.Senthil Kumaran,<br>&<br>Dr. Usha Antony | R. Sudha Rani,<br>C. Ramachandran,<br>S.Senthil Kumaran,<br>&<br>Dr. Usha Antony | A new method to extend the shelf life of yogurt | 1134/CHE/2015<br>&<br>09/03/2015 | FER Issued |
| 11 | Dr. K. Sankaran,<br>&<br>T. Elavarasan | Dr. K. Sankaran,<br>&<br>T. Elavarasan | Simple rapid method for estimation of milk protein | 1496/CHE/2015<br>&<br>24/03/2015 | FER Issued |
| 12 | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | Semi-cooked and dried ready-to-cook porridge from processed finger millet (eleusine coracana) | 201641040735<br>&<br>29/11/2016 | Awaiting Examination |
| 13 | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | Ready-to-cook, bio-fortified, fermented batter with extended shelf-life and heat-stable probiotics | 201641040736<br>&<br>29/11/2016 | Awaiting Examination |
| 14 | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | C. Ramachandran,<br>R. Sudha Rani,<br>&<br>Dr. Usha Antony | Incorporation of heat stable probiotics and bioactive compounds into semi-dried ready-to-cook food | 201641040751<br>&<br>29/11/2016 | Awaiting Examination |

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|---|---|---|---|---|---|
| 15 | Sakthi Sugars Ltd, Chennai, & Centre for Biotechnology, Anna University, Chennai, | Arun Balakrishnan, Periyasamy Giridharan, Ram Asrey Vishwakarma, & Panangadan Shanker Narayan Nallankandy | A substituted flurochromenon0e derivative exhibiting anti-cancer and anti-proliferative properties | PCT/IN2001/ 000156 & 11/09/2001 | Application Published |
| 16 | J. K. Pallavi | J. K. Pallavi, R. Sangeetha, & Dr. Usha Antony | Dia-dahi: a prebiotic formulation of milk/curd/yoghurt/buttermilk that can regulate blood glucose | 201741032819 & 16/09/2017 | Application Published |
| 17 | S. Ramalingam, | G. Padmapriya, Y. Anitha Janet Roshni, T. Akila, J. Tamilselvan, Pandiraj Suppuram | Production of 2-oxobutanoate using alternative isoleucine biosynthetic pathway | 201941000814 & 08/01/2019 | Awaiting Examination |

## (4) Chemistry

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Mark Crocker, Rodney Andrews, A. Pandurangan & Dali Qian, | Mark Crocker, Rodney Andrews, A. Pandurangan, & Dali Qian | Method for production of germanium nanowires encapsulated within multi-walled carbon nanotubes | US12942396 & 09/11/2009 | Granted |
| 2 | Dr. A. Pandurangan & S. Chandrakishore | Dr. A. Pandurangan & S. Chandrakishore | Novel catalyst-free self seeded method for the production of C-SI-GE and nanotubes by CVD | 5605/CHE/2014 & 07/11/2014 | Amended |

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|---|---|---|---|---|---|
| 3 | Research & Development Division, Chennai Petroleum Corporation Limited | Perumal Tamizhdurai, Subramanian Sivasanker, Melcureraj Lavanya, Arunachalam Meenakshsundaram, Raman Krishnamurthy, & Kannan Shanthi | A catalyst composite using mesoporous material supported ionic liquids for isomerization of alkanes and process related thereto | 201841003040 & 25/01/2018 | FER Issued |

## (5) Chemical Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Dr. M. Alagar, & S. Devaraju | Dr. M. Alagar, & S. Devaraju | One pot synthesis of novel skeletal modified diamine used as a curative and impact modifier for epoxy resins | 3637/CHE/2014 & 25/07/2014 | Granted |
| 2 | Dr. K.V. Radha, & P. Thyriyalakshmi | Dr. K.V. Radha, & P. Thyriyalakshmi | Synthesis of FMPC and preparation of chitosan – FMPC particles | 5144/CHE/2014 & 14/10/2014 | Amended |
| 3 | Dr. K.V. Radha, & V. Thamilselvi | Dr. K.V. Radha, & V. Thamilselvi | Biosynthesis of silver nanoparticles loaded corncob for effluent treatment | 201641009242 & 17/3/2016 | Granted |
| 4 | Noel Jacob Kaleekkal, & D. Mohan | Noel Jacob Kaleekkal, & D. Mohan | Method of preparing fouling resistant polyetherimide mixed matrix membranes | 201741031660 & 07/09/2017 | Awaiting Examination |

## (6) Civil Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | B. Dhayalini,<br>&<br>R. Senthil | B. Dhayalini,<br>&<br>R. Senthil | A biodegradable acoustic panel from small millets husk | 201741004535<br>&<br>08.02.2017 | Amended |

## (7) Computer Technology

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Anna University,<br>Chennai | Dr. S. Thamarai Selvi,<br>R. Kumar,<br>P. Balakrishnan,<br>K. Rajender,<br>J. S. Swarnapandian,<br>G. Kannan,<br>R. Rajiv,<br>E. Mahendran,<br>&<br>C. A. Prasath | A system and a method to assess the trustworthiness of a resource provider | 593/CHE/2007<br>&<br>23/03/2007 | Granted |

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|---|---|---|---|---|---|
| 2 | Anna University, Chennai | Dr. S. Thamarai Selvi,<br>R. Kumar,<br>P. Balakrishan,<br>K. Rajendar,<br>G. Kannan,<br>&<br>R. Rajiv | A system and a method thereof for scheduling and supporting virtual resource management in a grid network | 3027/CHE/2010<br>&<br>13/10/2010 | Granted |
| 3 | Anna University, Chennai | Dr. S. Thamarai Selvi,<br>K. Senthil Kumar,<br>G. Kannan,<br>&<br>A. Mohamed Rashee | Cloud based control, guidance and management of unmanned aircraft systems | 5536/CHE/2012<br>&<br>31/12/2012 | Amended |
| 4 | Mirnos Berthad, Malaysia,<br>&<br>Madras Institute of Technology, Anna University, Chennai | Dr. S. Thamarai Selvi,<br>Mohd Amril Nurman,<br>Mohd Sidek,<br>Mohammad- Fairus,<br>&<br>K. Rajendar | A method and system of extending computing grid resources | PCT/MY2012<br>/000152<br>&<br>28/02/2012 | Application Published |
| 5 | K. Senthil Kumar,<br>&<br>S. Thamarai Selvi | K. Senthil Kumar,<br>S. Thamarai Selvi,<br>A. Mohamed Rasheed,<br>&<br>C.U. Hari | Ground object position annotation using standalone on-board embedded system | 201841042082<br>&<br>08/11/2018 | Awaiting Examination |
| 6 | K. Senthil Kumar,<br>&<br>S. Thamarai Selvi | K. Senthil Kumar,<br>S. Thamarai Selvi,<br>A. Mohamed Rasheed,<br>&<br>C.U. Hari | Tethered aerial platform | 201841042078<br>&<br>08/11/2018 | Awaiting Examination |

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|---|---|---|---|---|---|
| 7 | K. Senthil Kumar,<br>S. Thamarai Selvi,<br>&<br>A. Mohamed Rasheed | K. Senthil Kumar,<br>S. Thamarai Selvi,<br>A. Mohamed Rasheed,<br>C.U. Hari,<br>S. Abdul Jawad,<br>S. Arul,<br>R. Vasantharaj,<br>V. Mathavan,<br>&<br>M. Murthuselvam | An arming and guidance switch for an unmanned aerial vehicle and a method of operating thereof | 201841032030<br>&<br>29/01/2018 | Awaiting Examination |

## (8) Computer Science and Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | S. Chitrakala | S. Chitrakala | Automatic scene understanding assistive system with refreshable tactile device including voice for visually impaired people | 201841031721<br>&<br>24/08/2018 | Awaiting Examination |

## (9) Crystal Growth

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Registrar, Anna University, Chennai | Dr. J. Kumar,<br>Dr. K. Sankaran,<br>M. Jaya Prakasan,<br>&<br>T. Dhinesh Kumar | A process to characterize biochemical reactions using sensor instrumentation based on capacitance and conductance change | 3064/CHE/2010<br>&<br>18/10/2010 | Granted |
| 2 | K. Thanigal Arul,<br>S. Narayana Kalkura,<br>J. Ramana Ramya,<br>&<br>E. Manikandan | K. Thanigal Arul,<br>S. Narayana Kalkura,<br>J. Ramana Ramya,<br>&<br>E. Manikandan | Bionanocomposite coating and its method thereof | 201741031668<br>&<br>07/09/2017 | Awaiting Examination |
| 3 | Dr. J. Kumar,<br>&<br>C. Bagavath | Dr. J. Kumar,<br>&<br>C. Bagavath | Disposable nitric oxide sensor construction using gallium nitride nanowires and its method thereof | 201741043550<br>&<br>05/12/2017 | Amended |
| 4 | Shubra Singh,<br>Suchita,<br>&<br>Vavilapalli Durga Sankar | Shubra Singh,<br>Suchita,<br>&<br>Vavilapalli Durga Sankar | Method for developing Ca2Fe2O5 Nanoparticles for Enhanced Photocatalysis under direct Sunlight | 201841028665<br>&<br>31/07/2018 | Amended |
| 5 | Shubra Singh,<br>&<br>Vavilapalli Durga Sankar | Shubra Singh,<br>&<br>Vavilapalli Durga Sankar | Method for synthesis of sillenite bi12feo20 single crystals | 201841028670<br>&<br>31/07/2018 | Awaiting Examination |
| 6 | D. Arivuoli<br>&<br>Preethi Ramadoss | D. Arivuoli<br>&<br>Preethi Ramadoss | Biodegradable sanitary napkin for personal and environmental hygiene and method thereof | 201841044636<br>&<br>27/11/2018 | Awaiting Examination |

## (10) Environmental Studies

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Anna University, Chennai | Dr.N.Vasudevan | A process for the biological treatment of an industrial effluent | 1675/CHE/2006 & 13/09/2006 | Granted |
| 2 | Dr. N. Vasudevan, & R. Kanimozhi | Dr.N.Vasudevan, & R. Kanimozhi | A process for the treatment of distillery waste water using aerobic sequencing batch reactor | 587/CHE/2009 & 16/03/2009 | Granted |
| 3 | Dr. N. Vasudevan, & R. Kanimozhi | Dr.N.Vasudevan, & R. Kanimozhi | A synthetic carrier for biofilm attachment for wastewater treatment | 711/CHE/2009 & 30/03/2009 | Granted |
| 4 | Dr. N. Vasudevan, & Veenagayathri | Dr. N. Vasudevan, & Veenagayathri | A method for biodegradation of chlorophenols by a halotolerant bacterial consortium under saline conditions | 1164/CHE/2010 & 27/04/2010 | Granted |
| 5 | Dr. N. Vasudevan, & V. R. Manoj | Dr. N. Vasudevan, & V. R. Manoj | A method for the treatment and recirculation of aquaculture wastewater | 1645/CHE/2010 & 14/06/2010 | Granted |
| 6 | Dr. S. Kanmani, & V. Preethi | Dr. S. Kanmani, & V. Preethi | Gas-phase recovery of hydrogen from hydrogen sulphide using photocatalysis | 870/CHE/2015 & 24/02/2015 | Granted |
| 7 | Dr. N. Vasudevan & G. Sunantha | Dr. N. Vasudevan & G. Sunantha | Method for detecting PFOA and PFOS in water samples using Genetically Engineering Bacterial Biosensor | 201841015253 & 23/04/2018 | Awaiting Examination |
| 8 | Anna University, Chennai | N. Vasudevan & A. Jayshree | A method to manufacture copper nanoparticles by aqua-chemical reduction of copper based salts | 201941013817 & 05/04/2019 | Awaiting Examination |
| 9 | Anna University, Chennai | N. Vasudevan & A. Jayshree | A method for detection of phthalate esters in drinking water and beverages | 201941042605 & 21/10/2019 | Awaiting Examination |

## (11) Electronics & Communication Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Registrar, Anna University, Chennai | Dr. K. Malathi,<br>M.Gulam Nabi Alsath,<br>&<br>A. K. Shrivastav | Dual band notched dielectric resonator reflect array for c/x band | 1374/CHE/2012<br>&<br>04/04/2012 | Amended |
| 2 | Dr. K. Malathi,<br>Aswathy K Sarma,<br>A. Henridass,<br>C. Raviteja,<br>V. Sangeetha,<br>&<br>M. Gulam Nabi Alsath | Dr. K. Malathi,<br>Aswathy K Sarma,<br>A. Henridass,<br>C. Raviteja,<br>V. Sangeetha,<br>&<br>M. Gulam Nabi Alsath | Mutual coupling reduction in MIMO antenna with serpentine type structure resonator | 2660/CHE/2014<br>&<br>30/05/2014 | Amended |
| 3 | Dr. K. Malathi,<br>&<br>M. Gulam Nabi Alsath | Dr. K. Malathi,<br>&<br>M. Gulam Nabi Alsath | Shared aperture multi-service design for automotive communications | 6413/CHE/2014<br>&<br>19/12/2014 | Amended |
| 4 | Dr. K. Malathi,<br>K .P. Jayaram,<br>&<br>M. Gulam Nabi Alsath | Dr. K. Malathi,<br>K .P. Jayaram,<br>&<br>M. Gulam Nabi Alsath | A UHF RFID reader antenna integrated with near field and far field operations | 5336/CHE/2015<br>&<br>06/10/2015 | Granted |
| 5 | Dr. K. Malathi,<br>M. Gulam Nabi Alsath,<br>&<br>Livya Lawrance | Dr. K. Malathi,<br>M. Gulam Nabi Alsath,<br>&<br>Livya Lawrance | A device and method for fabrication of ultra-wide band micro strip grid array antenna (GAA) | 5337/CHE/2015<br>&<br>06/10/2015 | Amended |
| 6 | Dr. K. Malathi,<br>R. Vimal Samsingh,<br>&<br>S. Esther Florence | Dr. K. Malathi,<br>R. Vimal Samsingh,<br>&<br>S. Esther Florence | Method and apparatus for non-destructive testing of composites using planar sensor | 5338/CHE/2015<br>&<br>06/10/2015 | Amended |

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| 7 | Dr. K. Malathi,<br>S. Esther Florence,<br>&<br>R. Vimal Samsingh | Dr. K. Malathi,<br>S. Esther Florence,<br>&<br>R. Vimal Samsingh | A method to fully integrate multi-layer woven electro-textile patch antenna | 5620/CHE/2015<br>&<br>19/10/2015 | Amended |
| 8 | Dr. K. Malathi,<br>S. Ramparabhu,<br>&<br>M. Balaji | Dr. K. Malathi,<br>S. Ramparabhu,<br>&<br>M. Balaji | A method and device for a passive reconfigurable frequency selective surface | 5621/CHE/2015<br>&<br>19/10/2015 | Amended |
| 9 | Dr. K. Malathi,<br>&<br>S. Ramprabhu | Dr. K. Malathi,<br>&<br>S. Ramprabhu | Polarization independent reconfigurable 3D frequency selective surface and method thereof | 201641032341<br>&<br>22/09/2016 | Amended |
| 10 | Dr. K. Malathi,<br>&<br>K. P. Jayaram | Dr. Malathi,<br>&<br>K. P. Jayaram | A multiservice chipless RFID transponder | 201641032342<br>&<br>22/09/2016 | Awaiting Examination |
| 11 | Dr. Malathi,<br>R. Vimal Samsingh,<br>S. Sangeetha,<br>P. Yogeshwari,<br>&<br>Saffrine Kingsly | Dr. Malathi,<br>R. Vimal Samsingh,<br>S. Sangeetha,<br>P. Yogeshwari,<br>&<br>Saffrine Kingsly | Electromagnetic nondestructive material characterization of dielectrics deploying planar EBG based transmission line sensor | 201641032343<br>&<br>22/09/2016 | Awaiting Examination |
| 12 | Dr. K. Malathi,<br>&<br>K. P. Jayaram | Dr. Malathi,<br>&<br>K. P. Jayaram | A magnetic coupling UHF near field RFID reader antenna deploying CSRR elements | 201641032344<br>&<br>22/09/2016 | Amended |
| 13 | Dr. K. Malathi,<br>V. Sangeetha,<br>Saffrine Kingsly,<br>&<br>P. Yogeshwari | Dr. Malathi,<br>V. Sangeetha,<br>Saffrine Kingsly,<br>&<br>P. Yogeshwari | Planar quad-band rat-race coupler with spurious pass-band suppression | 201641032345<br>&<br>22/09/2016 | FER Issued |
| 14 | Dr. K. Malathi,<br>Yogeshwari Panneer Selvam,<br>P. Sandeep Kumar,<br>Saffrine Kingsly,<br>&<br>Sangeetha Subbaraj | Dr. K. Malathi,<br>Yogeshwari Panneer Selvam,<br>P. Sandeep Kumar,<br>Saffrine Kingsly,<br>&<br>Sangeetha Subbaraj | Dual mode polarization diverse antenna array | 201641024647<br>&<br>19/07/2016 | Awaiting Examination |

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| 15 | Dr. K. Malathi,<br>&<br>N. Rajesh | Dr. K. Malathi,<br>&<br>N. Rajesh | Integrated VIVALDI antenna with switchable radiation pattern | 201741008376<br>&<br>10/03/2017 | Awaiting Examination |
| 16 | Dr. K. Malathi,<br>P. Sandeep Kumar,<br>E. Lavanya,<br>P. Yogeshwari,<br>S. Sangeetha,<br>&<br>Saffrine Kingsly | Dr. K. Malathi,<br>P. Sandeep Kumar,<br>E. Lavanya,<br>P. Yogeshwari,<br>S. Sangeetha,<br>&<br>Saffrine Kingsly | Rhombic compound reconfigurable antenna | 201741008383<br>&<br>10/03/2017 | Awaiting Examination |
| 17 | Malathi Kanagasabi,<br>Lavanya Elumalai,<br>Yogeshwari Panneer Selvam,<br>M. Gulam Nabi Alsath,<br>Sandeep Kumar Palaniswamy,<br>Safffrine Kingsly,<br>Sangeetha Subbaraj<br>&<br>Yeragudipati Venkata Ramana Rao | Malathi Kanagasabai,<br>Lavanya Elumalai,<br>Yogeshwari Panneer Selvam,<br>M. Gulam Nabi Alsath,<br>Sandeep Kumar Palaniswamy,<br>Safffrine Kingsly,<br>Sangeetha Subbaraj<br>&<br>Yeragudipati Venkata Ramana Rao | Compound reconfigurable antenna array | 201741028261<br>&<br>09/08/2017 | Awaiting Examination |
| 18 | Malathi Kanagasabai,<br>Vimal Samsingh.R,<br>&<br>Esther Florence. S | Malathi Kanagasabai,<br>Vimal Samsingh.R,<br>&<br>Esther Florence. S | Planar microwave sensor for fracture detection in human bones | 201741029503<br>&<br>21/08/2017 | Awaiting Examination |

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| 19 | M. Gulam Nabi Alsath, Saffrine Kingsly, Malathi Kanagasabai, B. Sridhar, P. Sandeep Kumar, V. Sangeetha, K. Indhumathi, N. Rajesh, S. Ramprabhu, Jayaram Kizhekke Pakkathillam, Sangeeth Subbaraj, Yogeshwari Panneer Selvam & Yeragudipati Venkata Ramana Rao | M. Gulam Nabi Alsath, Saffrine Kingsly, Malathi Kanagasabai, B. Sridhar, P. Sandeep Kumar, V. Sangeetha, K. Indhumathi, N. Rajesh, S. Ramprabhu, Jayaram Kizhekke Pakkathillam, Sangeeth Subbaraj, Yogeshwari Panneer Selvam & Yeragudipati Venkata Ramana Rao | A method to achieve compound reconfiguration in microstrip filters and the device thereof | 201741029509 & 21/08/2017 | Awaiting Examination |

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| 20 | M. Gulam Nabi Alsath, Sangeetha Subbaraj, Malathi Kanagasabal, K. Indhumathl, V. Sangeetha, B.Sridhar, P. Sandeep Kumar, S. Ramprabhu, N.Rajesh, Jayaram Kizhekke Pakkathillam, Saffrine Kingsly, Yogeshwari Panneer Selvam, & Yeragudipati Venkata Ramana Rao | M. Gulam Nabi Alsath, Sangeetha Subbaraj, Malathi Kanagasabal, K. Indhumathl, V. Sangeetha, B.Sridhar, P. Sandeep Kumar, S. Ramprabhu, N.Rajesh, Jayaram Kizhekke Pakkathillam, Saffrine Kingsly, Yogeshwari Panneer Selvam, & Yeragudipati Venkata Ramana Rao | A design to achieve multi-band operation in miniaturized antennas and device thereof | 201741029510 & 21/08/2017 | Awaiting Examination |
| 21 | Sangeetha Subbaraj, Malathi Kanagasabai, S. Padmathilagam, M. Gulam Nabi Alsath, Saffrine Kingsly, Yogeshwari Panneer Selvam, T. Deepa, S. Ramprabhu, N. Rajesh, B. Sridhar, & K. Indhumathi | Sangeetha Subbaraj, Malathi Kanagasabai, S. Padmathilagam, M. Gulam Nabi Alsath, Saffrine Kingsly, Yogeshwari Panneer Selvam, T. Deepa, S. Ramprabhu, N. Rajesh, B. Sridhar, & K. Indhumathi | Multiband mimo antenna for tablet applications | 201841001232 & 11/01/2018 | Awaiting Examination |

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| 22 | Dr. K. Malathi, Thipparaju Ram Rao, Sandeep Kumar Palaniswamy, Saffirine Kingsly, Mohammed Gulam Nabi Alsath, Deepa Thangarasu, Padmathilagam Sambandam, Sangeetha Subbaraj & Yogeshwari Panneer Selvam | Dr. K. Malathi, Thipparaju Ram Rao, Sandeep Kumar Palaniswamy, Saffirine Kingsly, Mohammed Gulam Nabi Alsath, Deepa Thangarasu, Padmathilagam Sambandam, Sangeetha Subbaraj & Yogeshwari Panneer Selvam | Multiband reconfigurable microwave filtenna | US15/904,323 & 24/02/2018 | Granted |
| 23 | Malathi Kanagasabai, Saffrine Kingsly, P. Sandeep Kumar, M. Gulam Nabi Alsath, T.Deepa, Sangeetha Subbaraj, Yogeshwari Panneer Selvam, S. Ramprabhu, & S.Padmathilagam | Malathi Kanagasabai, Saffrine Kingsly, P. Sandeep Kumar, M. Gulam Nabi Alsath, T.Deepa, Sangeetha Subbaraj, Yogeshwari Panneer Selvam, S. Ramprabhu, & S.Padmathilagam | Tunable band notched Filtenna | 201841021702 & 11/06/2018 | Awaiting Examination |

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| 24 | Endhi Ram Innovaions LLP | Malathi Kanagasabai, Sandeep Kumar Palaniswamy, Sangeetha Subbaraj, Mohammed Gulam Nabi Alsath, Rama RaoThipparaju, Padmathilagam Samban dam, Saffrine Kingsly, Yogeshwari Panneer Selvam, & Deepa Thangarasu | Multiband folded antenna for tablet computers | 201841039028 & 15/10/2018 | Amended |
| 25 | Anna University, Chennai | Dr.S. Poonguzhali, & Ms. Neela Harish | A hand gesture recognition system for speed impaired people and a method thereof | 201941040877 & 10/10/2019 | Awaiting Examination |

## (12) Electronics Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Tata Consultancy Services, & Anna University, Chennai | Sethna,Behram Dr. John Mala, Palaniappan Prasath, & Ganapathi Sumitira | A system and method for classification of moving object during video surveillance | 2162/MUM/2010 & 29/07/2010 | Granted |
| 2 | Tata Consultancy Services & Anna University, Chennai | Behram Sethna, Dr. Mala John, Prasath Palaniappan, & Sumitira Ganapathi | System and method for classification of moving object during video surveillance | JP2012033152 & 20/06/2011 | Granted |

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| 3 | Tata Consultancy Services<br>&<br>Anna University, Chennai | Behram Sethna,<br>Dr. Mala John,<br>Prasath Palaniappan,<br>&<br>Sumitira Ganapathi | A system and method for classification of moving object during video surveillance | EP11169344A<br>&<br>09/06/2011 | Granted |
| 4 | Tata Consultancy Services<br>&<br>Anna University, Chennai | Dr. Mala John,<br>Prasath Palaniappan,<br>&<br>Sumitira Ganapathi | A system and method for classification of moving object during video surveillance | CN102346855<br>&<br>21/06/2012 | Granted |
| 5 | Tata Consultancy Services,<br>&<br>Anna University, Chennai | Behram Sethna,<br>Dr. Mala John,<br>Prasath Palaniappan,<br>&<br>Sumitira Ganapathi | System and method for classification of moving object during video surveillance | US 13/194,706<br>&<br>29/07/2015 | Granted |

## (13) Electrical & Electronics Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Registrar, Anna University, Chennai | Dr. B. Umamaheswari,<br>&<br>J. Kavitha | Homopolar axial flux hub stepper motor | 5589/CHE/2013<br>&<br>04/12/2013 | Amended |

## (14) Information Science and Technology

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | R. Muthuraj | R. Muthuraj | Crime evidence provider cum help seeker | 1733/CHE/2013 & 19/04/2013 | Amended |

## (15) Instrumentation Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | K. Kamalanand, & A. Paramasivam | A. Paramasivam, K. Kamalanand, C. Emmanuel & P. Mannar Jawahar | An apparatus for generation of gastric electric waveforms in normal and abnormal conditions | 201841033641 & 07/09/2018 | Awaiting Examination |
| 2 | Anna University, Chennai | T. Thyagarajan, Sabitha Ramakrishnan, & G. Anand | Automated external defibrillator system with intelligent ecg detection and automatic vernacular language assistance | 201941011910 & 27/03/2019 | Awaiting Examination |

## (16) Mechanical Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Indian Institute of Technology Madras, Chennai | Dr. R. Saravanan | A bubble pumps absorption cooler | 1009/MAS/1998 & 12/05/1998 | Granted |
| 2 | Dr. N. V. Mahalakshmi, & R. Karthikeyan | Dr. N. V. Mahalakshmi, & R. Karthikeyan | Turpentine blend composition with diesel oil | 1951/CHE/2005 & 29/12/2005 | Granted |
| 3 | The Director General, Defence Research & Development Organization (DRDO), New Delhi | Annappan Vinayagam, Pallikonada Lakshmanan Sathyanarayanan, & Dr.N.V Mahalakshmi | Flow straightener-throttle for fan testing rig | 3376/DEL/2005 & 15/12/2005 | Granted |
| 4 | Dr. N.V. Mahalakshmi, & Dr.P.K. Devan | Dr. N.V. Mahalakshmi, & Dr. P.K. Devan | New poon oil composition-diesel blend as alternative fuel for diesel engine | 2279/CHE/2007 & 10/10/2007 | Granted |
| 5 | Dr. D. Sangeetha, & Swaminathan Elamathi | Dr. D. Sangeetha, & Swaminathan Elamathi | A process for preparation of sulphonated polymer membrane | 2734/CHE/2008 & 07/11/2008 | Granted |
| 6 | Anna University, Chennai & University of Hyderabad | Dr. A.K. Padmanabhan, Ghanashyam Krishna Mamidipudi, Sri rama Narasimha, & Kiran Mangalampalli | Non-stoichiometric titanium nitride films | PCT/IN2008/ 000789 & 27/11/2008 | Application Published |

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|---|---|---|---|---|---|
| 7 | Dr. D. Sangeetha,<br>Santhanam Senthil Kumar,<br>Srinivasan Guhan,<br>&<br>Lakshmanan Babu | Dr. D. Sangeetha,<br>Santhanam Senthil Kumar,<br>Srinivasan Guhan,<br>&<br>Lakshmanan Babu | Design and development of a proton exchange membrane fuel cell stack | 1544/CHE/2010<br>&<br>03/03/2010 | Amended |
| 8 | Registrar, Anna University, Chennai | Dr. D. Sangeetha,<br>&<br>A. Sivasankaran | A method of performance of a cation exchange membrane in a microbial fuel cell to generate electricity | 321/CHE/2011<br>&<br>11/02/2011 | Amended |
| 9 | Registrar, Anna University, Chennai | Dr. D. Sangeetha,<br>&<br>R. Vinodh | A novel anion exchange membrane for fuel cell application | 580/CHE/2011<br>&<br>28/02/2011 | Amended |
| 10 | Dr. S. Madhavan,<br>Dr. S. Balasivandha Prabu,<br>&<br>Dr. K. A. Padmanabhan | Dr. S.Madhavan,<br>Dr. S. Balasivandha Prabu,<br>&<br>Dr. K.A. Padmanabhan | A sintered in-situ Titanium diboride ceramic cutting tool and method of making the same | 2503/CHE/2012<br>&<br>18/06/2012 | Amended |
| 11 | Registrar, Anna University, Chennai | Dr. S. Madhavan,<br>Dr. S. Balasivandha Prabu,<br>Dr. K.A. Padmanabhan<br>&<br>Dr. L. Karunamoorthy | A resinod bonded in situ TIB2 based ceramic grinding wheel and method of making the same | 3494/CHE/2013<br>&<br>02/08/2013 | Amended |
| 12 | University of Hyderabad,<br>&<br>Anna University, Chennai | Dr. S.Madhavan,<br>Dr. S. Balasivandha Prabu,<br>&<br>Dr. K.A. Padmanabhan | Sintered in-situ titanium carbide ceramic cutting tool and method of making the same | 2506/CHE/2014<br>&<br>20/05/2014 | FER Issued |
| 13 | Dr. D.Sangeetha,<br>&<br>Ayyaru Sivasankaran | Dr. D.Sangeetha,<br>&<br>Ayyaru Sivasankaran | Sulphonated polyether –ether-ketone/ sulphonated tio2 composite as proton exchange membrane for microbial fuel cell | 3031/CHE/2014<br>&<br>23/06/2014 | Granted |
| 14 | K. Vigneshwaran,<br>&<br>A. Sureshkumar | K. Vigneshwaran,<br>&<br>A. Sureshkumar | Footboard accident prevention system | 201641024483<br>&<br>18/07/2016 | Amended |

## (17) Manufacturing Engineering

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Anna University, Chennai & Department of Atomic Energy, Mumbai | Dr. M. Kanthababu, Dr. S. HosiminThilagar, V. Vidyaa, Dr. S. Gowri, Dr. R. Balasubramaniam, Prabhat Ranjan, & Debanik Roy | Mechanical grippers for handling plurality of micro components | 201641005129 & 15/02/2016 | Amended |
| 2 | Dr. M. Kanthababu, Dr. S. Gowri, & M. Venkateshwaran | Dr. M. Kanthababu, Dr. S. Gowri, & M. Venkateshwaran | Focusing nozzle condition monitoring system of abrasive water jet machine comprising accelerometer | 201641018235 & 27/5/2016 | Amended |
| 3 | Dr. M. Kanthababu, Dr. S. Gowri, & M. Venkateshwaran | Dr. M. Kanthababu, Dr. S. Gowri, & M. Venkateshwaran | Focusing nozzle condition monitoring unit of abrasive water jet machine comprising sound sensor | 201641018236 & 27/5/2016 | Amended |
| 4 | Dr. M. Kanthababu, V. Mohan Kumar, V. Sailesh, & G. Anuradha | Dr. M. Kanthababu, V. Mohan Kumar, V. Sailesh, & G. Anuradha | Smart seat belt system | 201641020717 & 17.06.2016 | Amended |
| 5 | Dr. M. Kanthababu, & R. Giri | Dr. M. Kanthababu, & R. Giri | A method for operating optimal assembly sequence in an indexing table using genetic algorithm | 201741012118 & 04/04/2017 | Awaiting Examination |

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|---|---|---|---|---|---|
| 6 | Dr. M. Kanthababu,<br>Dr. S. Gowri,<br>R. Prabhakaran,<br>K. R. Sunilkumar,<br>&<br>M.S. Ajmal Deen Ali | Dr. M. Kanthababu,<br>Dr. S. Gowri,<br>R. Prabhakaran,<br>K. R. Sunilkumar,<br>&<br>M.S. Ajmal Deen Ali | Condition monitoring system for focusing nozzle wear in abrasive waterjet machine comprising acoustic memission sensor | 201741016668<br>&<br>12/05/2017 | Amended |
| 7 | Dr. M. Kanthababu,<br>Dr. S. Gowri,<br>R. Prabhakaran,<br>K. R. Sunilkumar,<br>&<br>M.S. Ajmal Deen Ali | Dr. M. Kanthababu,<br>Dr. S. Gowri,<br>R. Prabhakaran,<br>K. R. Sunilkumar,<br>&<br>M.S. Ajmal Deen Ali | Condition monitoring system for focusing nozzle wear in abrasive waterjet machine comprising cutting force dynamometer | 201741016669<br>&<br>12/05/2017 | Amended |
| 8 | Dr. M. Kanthababu,<br>&<br>V. Vidyaa | Dr. M. Kanthababu,<br>&<br>V. Vidyaa | Fatigue testing machine for mechanical microgrippers | 201741046617<br>&<br>26/12/2017 | Amended |
| 9 | Dr. M. Kanthababu,<br>&<br>V. Vidyaa | Dr. M. Kanthababu,<br>&<br>V. Vidyaa | Micro arc welding machine | 201741046610<br>&<br>26/12/2017 | Amended |
| 10 | Dr. M. Kanthababu, | Dr. M. Kanthababu,<br>S. Anish Kumar,<br>M. S. Ajmal Deen Ali,<br>&<br>R. Madhumathi | Iot enabled online condition monitoring of the exhaust gas emission system of the automobiles using | 201741046614<br>&<br>26/12/2017 | Awaiting Examination |
| 11 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>S. Akash,<br>M. Jeeva,<br>B. Manikandan<br>&<br>Shreyas M Kabirdass | Internet of things based cam actuated bell | 201841013438<br>&<br>09/04/2018 | Awaiting Examination |
| 12 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>K. R. Sunil Kumar<br>&<br>A. Sarath Kumar | IOT enabled tool wear condition monitoring system for cnc turning comprising sound sensor | 201841022038<br>&<br>13/06/2018 | Awaiting Examination |

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| 13 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>&<br>K. R. Sunil Kumar | IOT enabled tool wear condition monitoring system for cnc turning comprising acoustic emission sensor | 201841022047<br>&<br>13/06/2018 | Awaiting Examination |
| 14 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>&<br>K. R. Sunil Kumar | IOT enabled tool wear condition monitoring system for CNC tuning comprising Accelerometer sensor | 201841022035<br>&<br>13/06/2018 | Amended |
| 15 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>&<br>K. R. Sunil Kumar | IOT enabled tool wear condition monitoring system for CNC tuning comprising multiple sensors | 201841022044<br>&<br>13/06/2018 | Awaiting Examination |
| 16 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>S. Akash<br>&<br>G. Nikitha | An automatic stair climbing unmanned vehicle system for payload delivery | 201941016050<br>&<br>23/04/2019 | Awaiting Examination |
| 17 | Dr. M. Kanthababu | Dr. M. Kanthababu,<br>S. Sri Ranganathan,<br>R. Ranjani,<br>U. Sivaramakrishnan,<br>&<br>N. Naveen Kumar | An interactive lamp system for communication between users without using smart mobile communication devices | 201941027751<br>&<br>11/07/2019 | Awaiting Examination |

## (18) Medical Electronics

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Dr. G. Ravindran,<br>&<br>S. Shenbaga Devi | Dr. G. Ravindran,<br>&<br>S. Shenbaga Devi | Hystero electrical activing mapping | 60/MAS/2001<br>&<br>23/01/2001 | Granted |
| 2 | Dr.S.Shenbaga Devi, | Dr.S.Shenbaga Devi,<br>Ronnie Jacob George,<br>&<br>Parveen Sen | Visual acuity computation using sweep vep | 201941004031<br>&<br>01/02/2019 | Awaiting Examination |

## (19) Physics

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Anna University, Chennai | M. Chitra & I. Davis Jacob | Method of growing metal oxide micro particles on pencil graphite as a binder free electrode for a coaxial asymmetric super capacitor(Casc)&method for fabricating the same | 201941046038 & 13/11/2019 | Awaiting Examination |

## (20) Production Technology

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Indian Institute of Technology Madras, Chennai | Dr. T. Subramaniam Sampath Kumar, Dr. Sekharipuram Krishnamoorthy Seshadri, & Arjunan Siddharthan | A composition containing nanophase calcium deficient hydroxyapatite with Mg, Sr and Si synthesized from egg shell by microwave processing | 848/CHE/2006 & 15/05/2006 | Granted |
| 2 | A. J. D Nanthakumar, & J. Jancirani | A. J. D Nanthakumar, & J. Jancirani | A real time adaptable damper | 201741036049 & 11/10/2017 | FER Issued |
| 3 | J. Jancirani A. Sangeet Sahaya Jeyangel, & G. Anandraj | J. Jancirani A. Sangeet Sahaya Jeyangel, & G. Anandraj | Air curtain side skirt for reducing underbody drag | 201841001033 & 10/01/2018 | Awaiting Examination |

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|---|---|---|---|---|---|
| 4 | A. Rajadurai,<br>&<br>Suresh Patil | A. Rajadurai,<br>&<br>Suresh Patil | Chlorine-doped tin monoxide the p-type transparent conducting particles and manufacturing process | 201841028671<br>&<br>31/07/2018 | Awaiting Examination |
| 5 | J .Jancirani,<br>A.Sangeet Sahaya Jeyangel,<br>&<br>G. Anandraj | J .Jancirani,<br>A.Sangeet Sahaya Jeyangel,<br>&<br>G. Anandraj | Conduit side skirt for underbody drag reduction | 201841039705<br>&<br>22/10/2018 | FER Issued |

## (21) Textile Technology

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | Muthu Paiyan Tamil Selvan,<br>&<br>Krishnan Raghunathan | Muthu Paiyan Tamil Selvan,<br>&<br>Krishnan Raghunathan | Process for categorization of fibres with respect to their physical properties along with existing carded cotton yarn manufacturing sequence of process | 262/CHE/2004<br>&<br>22/03/2004 | Granted |
| 2 | Dr. D. Yuvaraj | Dr. D. Yuvaraj | Method for assessing fabric surface characteristics | 37/CHE/2005<br>&<br>18/01/2005 | Granted |
| 3 | Dr. S. Subramanian, Dr.A. Peer Mohamed,<br>&<br>Paramasivam Dhanapal | Dr. S. Subramanian, Dr.A. Peer Mohamed,<br>&<br>Paramasivam Dhanapal | New method of production of compact yarn | 1097/CHE/2006<br>&<br>28/06/2006 | Granted |
| 4 | Anna University, Chennai | Dr. A. Peer Mohammed, Dr. S. Subramanian,<br>&<br>T. Sureshram | Point fluted bottom rollers for roller drafting system of yarn spinning and preparatory machines | 1231/CHE/2008<br>&<br>21/05/2008 | Granted |

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| 5 | Dr. M. Murugesan,<br>&<br>S. Kuberasampth kumar | Dr. M. Murugesan,<br>&<br>S. Kuberasampth kumar | A new twisting system to twist all kind of fibers/ filaments without using ring and traveller | 1123/CHE/2008<br>&<br>07/05/2008 | Granted |
| 6 | Dr. S. Subramanian,<br>&<br>S. Kubera Sampath Kumar | Dr. S. Subramanian,<br>&<br>S. Kubera Sampath Kumar | Nano material based multilayer wound dressing system | 2285/CHE/2014<br>&<br>08/05/2014 | FER Issued |
| 7 | P. Pathalamuthu,<br>A. Siddharthan,<br>&<br>Dr. V. R. Giridev | P. Pathalamuthu,<br>A. Siddharthan,<br>&<br>Dr. V. R. Giridev | Spirograph based mechanical assembly for fabrication testing and measurement of product with near uniform characteristics | 5603/CHE/2014<br>&<br>07/11/2014 | Amended |
| 8 | Dr. A. Peer Mohamed,<br>Dr. S. Subramanian,<br>P. Kathirvel<br>&<br>V. Preethi | Dr. A. Peer Mohamed,<br>Dr. S. Subramanian,<br>P. Kathirvel<br>&<br>V. Preethi | Devices to reduce inter fibre friction in roller drafting system for yarn manufacture | 201641027276<br>&<br>22/07/2016 | Awaiting Examination |
| 9 | Dr. N. Gobi | Dr. N. Gobi | Construction of polymeric/electro spun composite membrane for water filtration and a method thereof | 201641032148<br>&<br>21/09/2016 | Amended |
| 10 | Dr. S. Subramanian,<br>&<br>Dr. A. Peer Mohamed | Dr. S. Subramanian,<br>&<br>Dr. A. Peer Mohamed | Modified cradle and nose bar for apron drafting system | 201641043615<br>&<br>1/12/2016 | Awaiting Examination |
| 11 | Vaidheeswaran Sivanesan,<br>&<br>Subramanian Sundaramoorthy | Vaidheeswaran Sivanesan,<br>&<br>Subramanian Sundaramoorthy | Leakless facial shape fitting component for respirators | 201741000650<br>&<br>06/01/2017 | Application Examined |
| 12 | N. Gobi<br>&<br>B. Devi | N. Gobi<br>&<br>B. Devi | Method to synthesis tio2 nanoparticles and lycopene - tio2 nanoparticles complex | 201841025473<br>&<br>09/07/2018 | FER Issued |
| 13 | N. Gobi<br>&<br>R. Senthil | N. Gobi<br>&<br>R. Senthil | Blended Suture for Surgical Application and a preparation process thereof | 201841033152<br>&<br>04/09/2018 | Awaiting Examination |

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| 14 | N.Gobi<br>&<br>S.Arun Karthick | N.Gobi<br>&<br>S.Arun Karthick | Multifunctional nanocomposite nanofibrous filter for aerosol filtration, chemical and biological protection | 201841029428<br>&<br>06/08/2018 | FER Issued |

## (22) KBC Research Foundation

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | The University of Western Australia,<br>&<br>KBC Research Foundations Private limited, Anna University, Chennai | Arunasalam Dharmarajan,<br>&<br>Survo Chatterjee | Anti-angiogenic agents and methods of their use | US 12/285,713<br>&<br>10/10/2008 | Expired |
| 2 | KBC Research Foundation Pvt. Ltd, Anna University, Chennai | Muthu Sethuraman | Chained checksum error correction mechanism to improve TCP performance over network with wireless links | US 12/487,313<br>&<br>18/06/2009 | Granted |
| 3 | KBC Research Foundation Pvt. Ltd, Anna University, Chennai | Sarad Ammanath Venugopalan,<br>&<br>Srikanth Subramanian | Sub channel formation in OFDMA systems | US-12/645,709<br>&<br>23/12/2009 | Granted |
| 4 | KBC Research Foundation Pvt. Ltd, Anna University, Chennai | Sarad Ammanath Venugopalan,<br>&<br>Srikanth Subramanian | Methods and systems for detecting a preamble of a data packet in wireless communication systems | US 12/716,803<br>&<br>03/03/2010 | Granted |
| 5 | KBC Research Foundation Pvt. Ltd, Anna University, Chennai | Srikanth Subramanian,<br>&<br>Sathish Viswanathan | Methods and systems for synchronizing wireless transmission of data packets | US 12/726,960<br>&<br>02/03/2010 | Expired |

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|---|---|---|---|---|---|
| 6 | KBC Research Foundation Pvt. Ltd, Anna University, Chennai | Sarad Ammanath Venugopalan, & Srikanth Subramanian | Methods and systems for synchronizing wireless transmission of data packets | PCT/IB2010/ 054140 & 14/09/2010 | Application Published |
| 7 | Council of scientific & industrial research | Santosh Bhaskaran, & Suvro Chatterjee | Interplanetary travel gravity simulator (IPTGS) | 591/DEL/2015 & 03/03/2015 | Awaiting Examination |

## (23) Constituent Colleges

| Sl. No | Name of the Applicant (s) | Name of the Inventor (s) | Title | Application No. & Patent Filed Date | Current Status |
|---|---|---|---|---|---|
| 1 | **Villupuram** Dr. R. Senthil, & R. Silambarasan | Dr. R. Senthil, & R. Silambarasan | Nox reducing additive composition for annona biodiesel | 1892/CHE/2015 & 10/04/2015 | Amended |
| 2 | **Villupuram** Dr. R. Senthil, & G. Mohan | Dr. R. Senthil, & G. Mohan | Additive composition for biodiesel to reduce emission in diesel engine | 1869/CHE/2015 & 09/04/2015 | Amended |
| 3 | **Villupuram** DR. D.Gajalakshmi | DR. D.Gajalakshmi | A process of recording conductive chemical substance information as sound signals using data acquisition | 201941016056 & 23/04/2019 | Awaiting Examination |
| 4 | **Coimbatore** R. Nandhakumar, Dr. S. N. Deepa, & B. Arunadevi | R. Nandhakumar, Dr. S. N. Deepa, & B. Arunadevi | Automatically deployable and retractable vehicle sheathe system | 201741041426 & 20/11/2017 | Awaiting Examination |

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| 5 | **Coimbatore**<br>Shrihariprasath Basuvaiyan<br>J. Preethi<br>S. Balamurugan<br>T.S. Selvavel<br>S. Shivasankaran<br>P.K. Sasikumar | Shrihariprasath Basuvaiyan<br>J. Preethi<br>S. Balamurugan<br>T.S. Selvavel<br>S. Shivasankaran<br>P.K. Sasikumar | Design and implementation of smart solar energy management system using internet-of-things | 201941017933<br>&<br>06/05/2019 | Awaiting Examination |
| 6 | **Trichy**<br>National Institute of Technology | G. Venkatesan,<br>G. Swaminathan,<br>S. Lakshmana Prabu | A solid waste barrier liner composition for landfill with clay and microsilica | 201941043080<br>&<br>23/10/2019 | Awaiting Examination |
| 7 | **Trichy**<br>Dr. N.Krishnaraj,<br>Dr.T. Jayasankar<br>&<br>Dr.P.Maheswara Venkatesh | Dr. N.Krishnaraj,<br>Dr.T.Jayasnakar<br>&<br>Dr.P.Maheswara Venkatesh | A novel image compression model and an operation method thereof for underwater environment | 201941046137<br>&<br>13/11/2019 | Application Published |
| 8 | **Trichy**<br>Dr.S.Sudhakar<br>Dr.V.Subramaniya swamy<br>Dr.T.Jayasankar<br>Dr.S.Balamurugan<br>Dr.Viji Vinod<br>Dr.Shruthi Anand<br>Dr. M.Rajesh Babu<br>Dr.N.B.Prakash<br>Dr.G.R.Hemalaksmi<br>Dr.B.Jaishankar<br>Ms.R.P.Shermy | Dr.S.Sudhakar<br>Dr.V.Subramaniya swamy<br>Dr.T.Jayasankar<br>Dr.S.Balamurugan<br>Dr.Viji Vinod<br>Dr.Shruthi Anand Dr. M.Rajesh Babu<br>Dr.N.B.Prakash<br>Dr.G.R.Hemalaksmi<br>Dr.B.Jaishankar<br>Ms.R.P.Shermy | IOT based personalized healthcare system and method thereof | 201941053821<br>&<br>25/12/2019 | Awaiting Examination |
| 9 | **Kancheepuram**<br>Dr.PON.Partheeban<br>Dr.V. Kavitha | Dr.PON. Partheeban,<br>Dr.V. Kavitha | Key based dynamic ciphertext generating system | 201941048083<br>&<br>25/11/2019 | Awaiting Examination |

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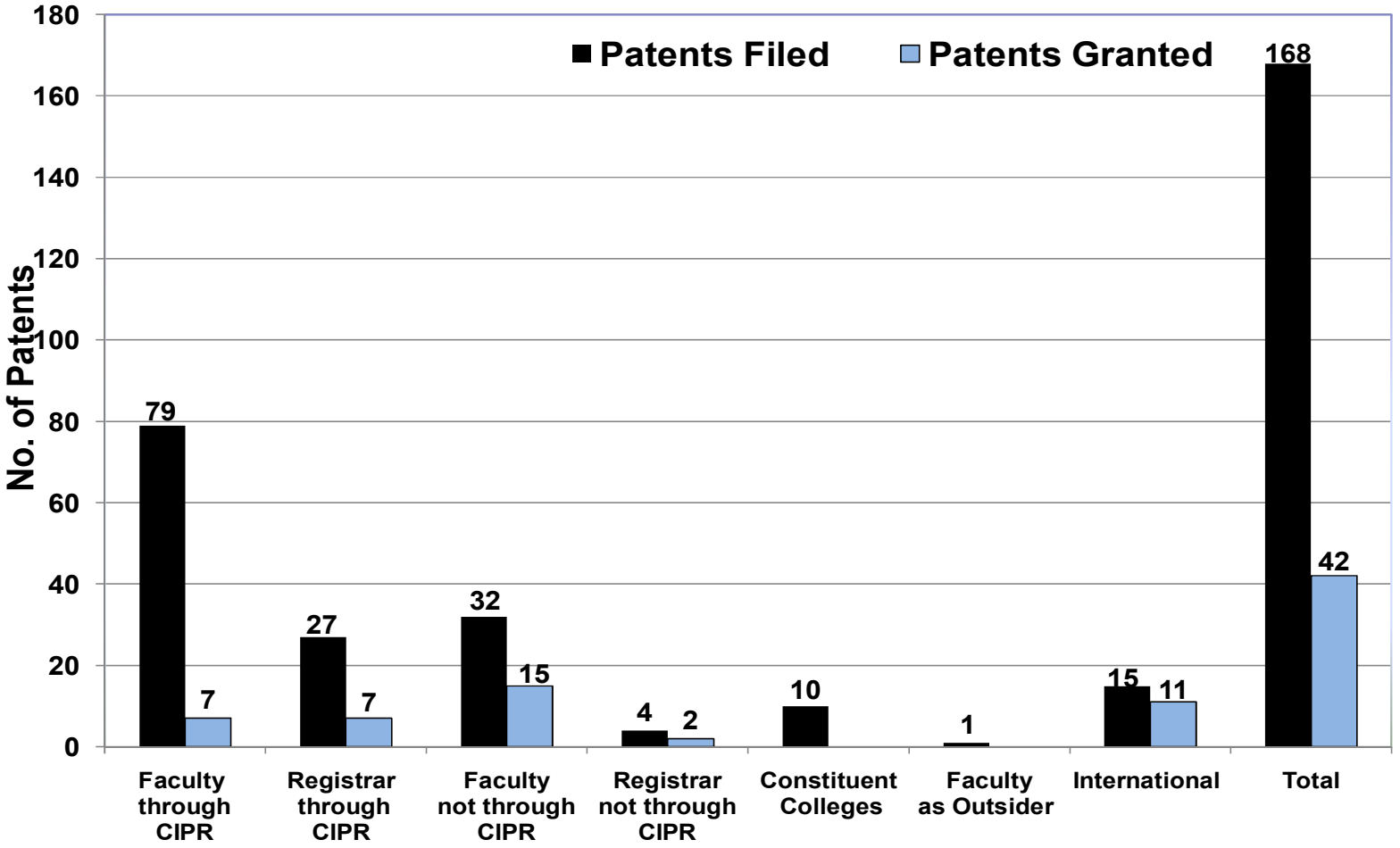
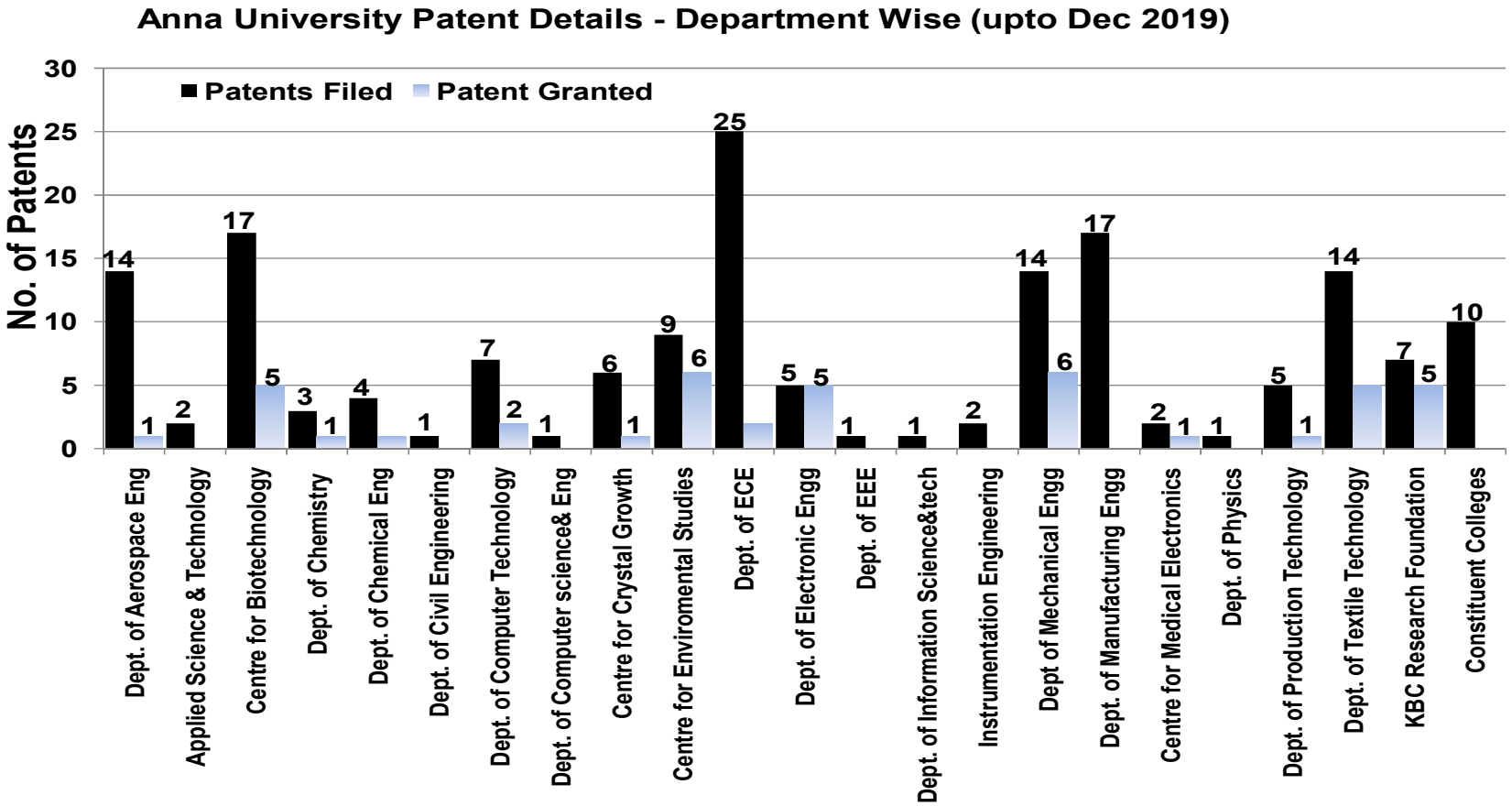
| 10 | **Ramanathapuram**<br>Mr. Sitanath Biswas,<br>Dr. Sujata dash,<br>Ms. Bindu Agarwalla,<br>Dr. Sujit kumar Panda,<br>Mr. Bhupesh Deka,<br>Dr Siva Shankar S<br>&<br>Dr.P.Eswaran | Ms. Sweta Acharya,<br>Mr. Rabi Narayan Behera,<br>Dr. Saroj kumar Rout,<br>Dr.Nikhat Parveen,<br>Dr. Subhendu Kumar Pani,<br>Dr. A.Muthumari,<br>Dr. Trilok Nath Pandey,<br>Dr. S. Sagar Imambi,<br>Dr. P.Vidyullatha<br>&<br>Dr. Anusha Marouthu | IOT Based Integrated Device and System for Health Analysis | 201931039857<br>&<br>02/10/2019 | Application Published |

# Graphical Representation of IPR report

## Details of Patents Filed & Granted of Anna University (upto Dec 2019)




Anna University Patent Details - Department Wise (upto Dec 2019)
Patents Filed
Patent Granted
No. of Patents
30
25
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15
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17
5
3
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4
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7
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Dept. of Aerospace Eng
Applied Science & Technology
Centre for Biotechnology
Dept. of Chemistry
Dept. of Chemical Eng
Dept. of Civil Engineering
Dept. of Computer Technology
Dept. of Computer science& Eng
Centre for Crystal Growth
Centre for Enviromental Studies
Dept. of ECE
Dept. of Electronic Engg
Dept. of EEE
Dept. of Information Science&tech
Instrumentation Engineering
Dept of Mechanical Engg
Dept. of Manufacturing Engg
Centre for Medical Electronics
Dept. of Physics
Dept. of Production Technology
Dept. of Textile Technology
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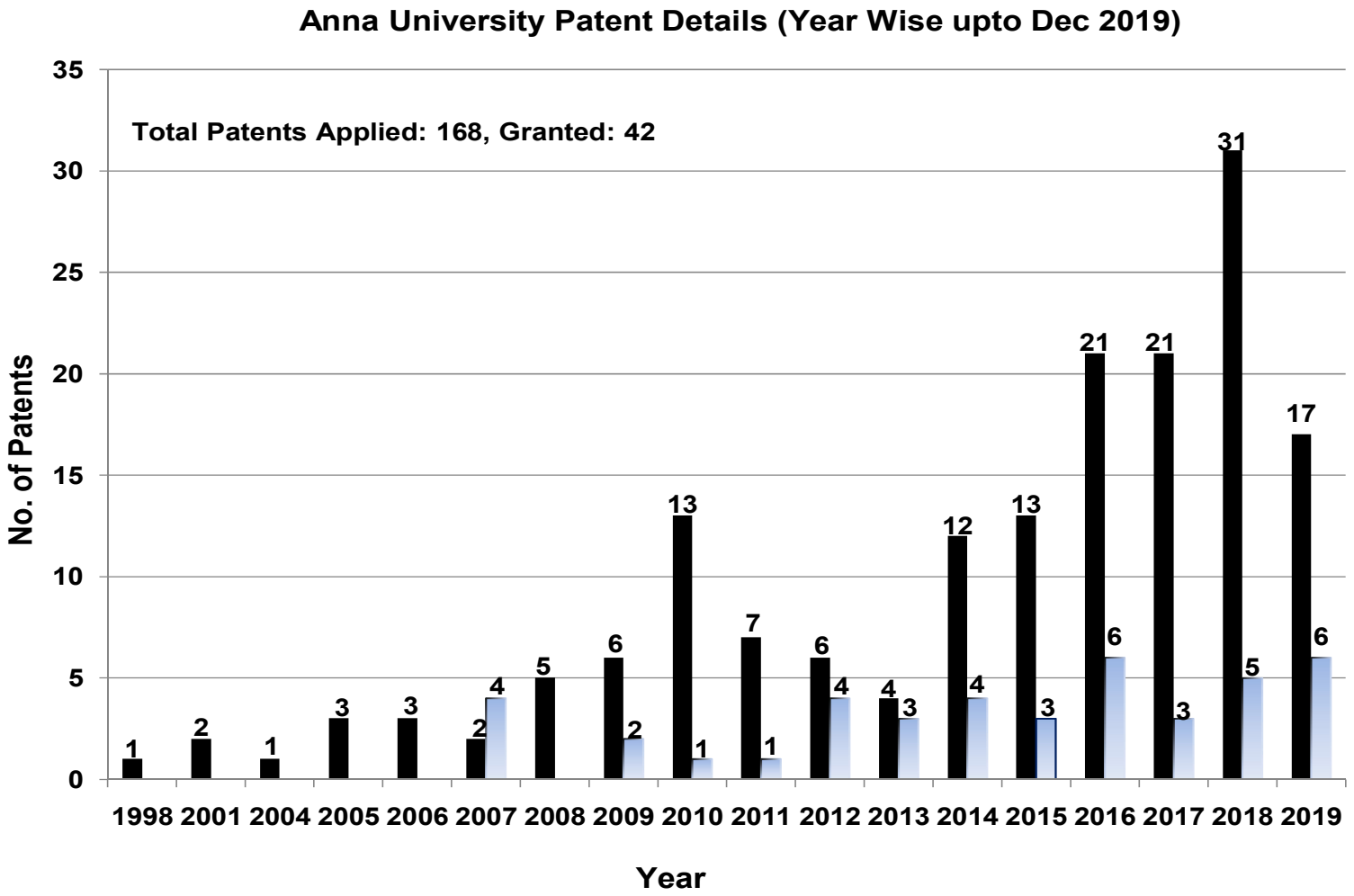
Constituent Colleges


Anna University Patent Details (Year Wise upto Dec 2019)
Total Patents Applied: 168, Granted: 42
No. of Patents
Year
0
5
10
15
20
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35
1998 2001 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
1 2 1 3 3 2 4 5 6 2 13 1 7 1 6 4 4 3 12 4 13 3 21 6 21 3 31 5 17 6