



FACULTY OF ENGINEERING & TECHNOLOGY

**DEPARTMENT OF TELECOMMUNICATION
ENGINEERING**

(Enabling Your Success in Telecommunications)



SRM UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF TELECOMMUNICATION ENGINEERING

ABOUT THE SRM UNIVERSITY

SRM University, ranked India's No. 1 Multiple Stream University, is the most preferred institution for Engineering, Medical & Health Sciences, Management and Science & Humanities, with over 32,000 students and 2,800 faculty members across campuses in Chennai and Delhi. It is also known for its World Class Infrastructure, sprawling 550 acres across three campuses, hi-tech facilities, eminent faculty, flexible and dynamic curriculum with stimulating learning environment.

What sets SRM Apart?

SRM stands apart by striking excellence in academics, research, global connections and building students' future.

Ranking and Accreditations

Ranked India's No. 1 Multiple Streams Private University by India Today 2011 and The Education Times (The Times of India) in 2009. The Accreditation of the University by NAAC, gives the institute a premier position in the league of World's Best Universities.

Diversity and Campus life

It is truly an exciting and a stimulating safe environment with diversity of students, 20% from TN and 80% from other states and international students from 48 countries. A variety of student driven activities - Cultural Events, Sports, Student Clubs, Tech Events, Nobel Quest, Innovation, and others, unfold the talents, unleash students' energy and build vibrancy.

Academic and Innovation

The academic rigor and applied research leads to innovation and success stories of students at SRM, to quote a few are the launch of Nano-Satellite with tracking ground station in campus, winning of Green Airplane design award at NASA, USA, both designed and built by SRM students.

Nobel Quest @ SRM

It is a unique initiative designed to inspire the next generation of young scientists, students and faculty, by providing them an opportunity to intersect and interact with Nobel Laureates

International Advisory Board (IAB)

SRM University's International Advisory Board (IAB), with members drawn from MIT, Harvard, Stanford, Carnegie, Madison, Cornell, NUS and others, is actively involved in building a stronger international dimension - in curriculum, research and teaching methodologies.

Corporate Advisory Board (CAB)

This allows students and faculty to connect and constantly interact with over 175 Chairman, Presidents and top executives of companies. It provides an stimulating learning experience, staying current with industry.

Study Abroad

The Semester Abroad Program (SAP) and Dual / Twinning programs enables as much as 25% of SRM students go to World's Best Universities for higher studies. SRM sponsors hundreds of students, under SAP, to study at MIT, Harvard, Carnegie Mellon, Cornell, Madison, University of California, Warwick and others.

Placement

SRM is the most preferred institution for 175 top companies, both from India and abroad, to recruit over 4,500 students every year on campus . This includes Accenture, IBM, Microsoft, Amazon, Oracle, SAP, Flextronics, Ford, Hyundai, TATA, L&T, Reliance, CITI Bank, ICICI Bank , Apollo, Biocon ,Ranbaxy , HLL and ITC.

ABOUT THE DEPARTMENT

Telecommunications landscape is changing rapidly and currently undergoing tremendous growth. From ordering a pizza to the high tech radar on a jet, we see telecommunications making wonders. The convergence of the computer and telecommunications technology promises innovative products and services that will revolutionize life and work. With leaps and bounds in technology, telecommunications has been acknowledged as a vital ingredient of economic growth. Telecommunication engineers are much in demand, as a nation's hopes of development rests on their shoulders. Keeping in view of this ever green technology importance and huge demand for Telecommunication Engineer's for the nation needs, Dept. of TCE @

SRM University playing vital role in enabling telecommunication student's success in Telecommunications domain.

RESOURCES

Experienced faculty are available with TCE Department who are from various areas of specialization like electronics, digital signal processing, microwave & satellite communications, optical engineering, mobile/wireless communications, wireless information networks & security, Information theory and software programming for telecommunications (Java, .NET & Symbian OS).

HUMAN RESOURCES

| S. no | Name | Degree | Designation |
|-------|-----------------------|------------------|--------------------|
| 1 | Dr. T. Rama Rao | Ph. D | Prof & Head |
| 2 | Ms. M. S. Vasanthi | M. Tech. (Ph. D) | Asst. Prof (S.G) |
| 3 | Ms. C. T. Manimegalai | M. Tech. (Ph. D) | Asst. Prof (S.G) |
| 4 | Ms. M. Susila | M. Tech. | Asst. Prof (Sr. G) |
| 5 | Mr. K. Vijayan | M.E | Asst. Prof (Sr. G) |
| 6 | Ms. B. Priyalakshmi | M.E, MBA | Asst. Prof (Sr. G) |
| 7 | Mr. N. Thangadurai | ME., MBA | Asst. Prof (Sr. G) |
| 8 | Ms. S. Ranjani | M. Tech. | Asst. Prof (Sr. G) |
| 9 | Ms. Kavitha Narayanan | M. E | Asst. Prof (Sr. G) |
| 10 | Ms. T. Deepa | M. Tech. (Ph. D) | Asst. Prof (O. G) |
| 11 | Ms. K. Harisudha | M. Tech. | Asst. Prof (O. G) |
| 12 | Ms. S. Murugaveni | M. Tech. | Asst. Prof. (O. G) |
| 13 | Mr. S. Vijayananth | M. Tech. | Asst. Prof (O. G) |
| 14 | Ms. N. Showme | M.E | Asst. Prof (O. G) |
| 15 | Mr. Vemula Ramkishore | M.S | Asst. Prof (O. G) |
| 16 | Mrs. C. Vimala | M.E | Asst. Prof (O. G) |
| 17 | Mrs. A. Zeenath | M. Tech. | Asst. Prof (O. G) |
| 18 | Ms. Sathiyabhama | M.S | Asst. Prof (O. G) |
| 19 | Mrs. Rashmita Routray | M. Tech. | Asst. Prof (O. G) |
| 20 | Mr. D. Balachander | M.S | Research Scholar |
| 21 | Mr. Nishesh Tiwari | M. Tech. | Research Scholar |
| 22 | Ms. Purva Srivastava | M. Tech. | Research Scholar |

PROGRAMMES OFFERED

TCE offering under graduate degree program, **“B.Tech. - Information & Telecommunication Engineering”**; a post graduate program, **“M.Tech – Telecommunication Networks”** and **PhD** Programs which have been formulated to give a firm grounding on the principles of telecommunications technology.

ACTIVITIES & ACHIEVEMENTS

The students and the faculty of the department take part in national/international conferences as well as workshops and seminars in their areas of interest. This gives them a valuable insight into global trends and advances in the telecommunications field. The telecommunication engineering department initiated **“TEA - Telecommunication Engineers Association”**. The TEA will provide a platform for the students to develop skills across the horizon; Exposure in extracurricular activities and interaction among intra and inter college/university students; and helping the students to have a proper technical knowledge particularly in the field of telecommunications by conducting various events at National level and Guest lecturers on specialized topics and workshops on topics related to Telecommunications. Very recently, with the support of **IEEE, USA**, the TCE Dept. started **IEEE Communications Society Student Branch** for the benefit of Student community. **IEEE Comsoc @ SRM** plays vital role in the careers of all Telecommunication Engineering Students at SRM University.

CAREERS

There are opportunities galore in information and telecommunication sectors. Students can build a career in mobile/wireless communications/networks, information technology, satellite communications, cable networks, and communication devices development etc. And, those with a flair for higher education can pursue ME/M.Tech and Ph.D.

Engineers are in demand in public & private sectors and the real thrust in recent times has been in information and telecommunications arena. More than 80% of TCE students were placed during 2010-2011 in reputed IT & Telecom companies through our campus & off campus recruitment.

RESEARCH & CONSULTANCY

RESEARCH

Ongoing:

Title of the Project: **“Near-Ground RF Propagation Studies for Wireless Sensor Communications”**

Principal Investigator: **Dr. T. Rama Rao**

Total Financial Outlay: **38 Lakhs**

Duration: 3 years (2010 – 2013)

Funding Agency: **Department of Science & Technology (DST), Govt. of India**

Objectives: To characterize near-ground / near-to-earth surface radio wave propagation for short-path scenarios at various indoor/outdoor environments/terrains at VHF/UHF frequencies (ISM bands 41 MHz, 152 MHz, 174 MHz, 315 MHz, 433 MHz, 868 MHz, 915 MHz & 2.45-GHz)with different modulation techniques, different transmitted powers (milli watt / 1 watt) and at various transmitting & receiving antenna heights utilizing RF propagation measurements & simulations for Wireless Sensor Communications (WSC).

Title of the Project: **“Millimeter-Wave Antenna Circuitry and Network Planning/Deployment Studies for Future Ubiquitous Broadband Wireless Systems”**

Principal Investigator: **Dr. T. Rama Rao**
Total Financial Outlay: **37 Lakhs**
Duration: 3 years (2011 – 2014)
Funding Agency: **DRDO, Govt. of India**

Objective: Research & Development of innovative active smart antenna based receiver system for future millimeter-wave (MMW) broadband ubiquitous wireless networks and investigating issues related to MMW based Wireless Network Planning & Deployment in realistic Indoor Environments utilizing Multi-Layered Substrate-Integrated Waveguide (SIW) Technology using 3D commercial simulators, Ansoft Designer + CST MW Studio + Agilent - Advanced System Design and Remcom's Wireless Insite.

Completed Project:

Pilot Research Project: **“Radio Channel Characterization at 70/80 GHz for Gigabit Wireless Communications”**

Principal Investigator: **Dr. T. Rama Rao**
Total Financial Outlay: **Rs.25,000/-**
Duration: 10 Months (2008 – 2009)
Funding Agency: SRM University



The above projects objectives will be executed through **RADMIC – Radio Communications Millimeter Wave Research Center**, a research wing of the Dept. of Telecommunications

Engineering, SRM University in collaboration with **Dr. Vladimir A Labay** of **Gonzaga University, USA**.

RADMIC is also enjoying collaborative research work with **Dr. Kent Chamberlin**, Ph.D Professor, Dept. of Electrical & Computer Engineering, University of New Hampshire, USA and a very special rapport with **Dr. Ramjee Prasad**, Professor & Director, Center for TeleInFrastruktur (CTIF), a world-wide research center with headquarters at Aalborg University (AAU), Denmark.

INSTITUTE - INDUSTRY INTERACTION ACTIVITIES.

Dept. of Telecommunication Engineering through its research wing, **“RADMIC – Radio Communications Millimeter Wave Research Center”** collaborated with **Agilent Technologies**, Bangalore/Chennai (World's No.1 Measurement Equipment Company - www.agilent.com) in research & teaching activities, especially in Mobile/Wireless Communications/Networks.

INFRASTRUCTURE

Department of Telecommunication Engineering is fully equipped with latest RF Measurement Equipment, Software and Telecommunication Training Kits in the following labs

A) **RADMIC – Radio Communications Millimeter Wave Research Center**

a) **RF Transmitter** : Vector Signal Generator – Agilent’s N5182A - 503 with option 651 & 431 (N5182A MXG RF Vector Signal Generator – www.agilent.com)



Specifications:

Frequency range from 250 KHz to 3GHz; Internal baseband generator (30 Msa/s, 8 Msa); Custom Digital Modulation with Documentation on CD (Symbol rates from 1 ksp/s to 62.5 Msp/s; Multicarrier with up to 100 carriers; Modulation types PSK, QAM, FSK, MSK and ASK)

b) **RF Receiver** : Signal Analyzer: Agilent’s N9010A with option 503 (N9010A EXA Signal Analyzer)



Specifications:

Frequency range: 9 kHz to 3.6 GHz (Bench Top) with tracking generator & documentation in CD ROM

c) **CST Microwave Studio:**



CST MICROWAVE STUDIO® <http://www.cst.com>

CST MICROWAVE STUDIO® (CST MWS) is a specialist tool for the 3D EM simulation of high frequency components. CST MWS enables the fast and accurate analysis of high frequency (HF) devices such as antennas, filters, couplers, planar and multi-layer structures and SI and EMC effects. Exceptionally user friendly, CST MWS quickly gives you an insight into the EM behavior of your high frequency designs.

CST promotes Complete Technology for 3D EM. Users of our software are given great flexibility in tackling a wide application range through the variety of available solver technologies. Beside the flagship module, the broadly applicable Time Domain solver and the Frequency Domain solver, CST MWS offers further solver modules for specific applications. Filters for the import of specific CAD files and the extraction of SPICE parameters enhance design possibilities and save time. In addition, CST MWS is embedded in various industry standard workflows through the CST design environment.

WIN LAB – Wireless Information Network Lab:

a) LAN Trainer (Benchmark Training Kits)

b) Wireless Digital Communication Training System (WiCOMM-T; Benchmark Training Kits)



The Benchmark Lab Trainer kits are versatile laboratory system that supplements courses on computer communications / networks. Developed by Benchmark Electronic Systems

(<http://www.bss.com.sg>) in collaboration with IIT-Madras.

c) Emona Telecoms-Trainer Kits - ETT-101 (<http://www.ett101.com>)



A Multi-experiment Single Board Telecommunications Trainer. The Emona Telecoms-Trainer 101 (ETT101) is a single board trainer that makes teaching telecommunications much easier for teachers at technical college and technical high school level. Developed by EMONA Instruments Pty Ltd, Australia.

The ETT101 is unrivalled in the wide range of over 29 modern communications topics that can be studied with one compact trainer. The key to the ETT101's versatility is its unique block diagram approach for building experiments. By working at the block diagram level, we are able to achieve many experiments in one system.

FDP'S / INTERNATIONAL / NATIONAL CONFERENCES

1. TeleTarang

Successfully Conducted & Coordinated; **TeleTarang'09 - a National Level Students' Technical Symposium**, was being hosted by the Department of Telecommunications Engineering, SRM University during October 12-13, 2009. The objective of TeleTarang'09 is intended to bring together the students from different institutions to exchange ideas on the latest development in various areas of Electronics & Telecommunication, and to interact with Researchers, Academicians and Application Engineers. **Dr. Santosh Babu**, IAS, MD, ELCOT of Tamil Nadu inaugurated the event as Chief Guest.



2. RAMOCT



Successfully Organized an International Workshop on “**Recent Advances in Microwave and Optical Communication Technology**”- **RAMOCT'09** on 21 December, 2009 at SRM University, in association with the ISRAMT- A Scientific and Technical Non-profit Organization, USA (www.ijmot.org) as a satellite symposium of the International Symposium on Microwave & Optical Technology (ISMOT'09 - www.ismot2009.in). Reputed Professors from USA, Canada, UK, Mexico, Japan, France, Russia and Poland delivered invited lectures on recent & emerging trends in microwave & optical communication technology. **Dr. Prahalada**, Distinguished Scientist and chief controller, R&D (SI), DRDO, Ministry of Defence, Govt. of India, New Delhi was inaugurated the event as Chief Guest.

3. RAWIN



Successfully Organized a Faculty Development Programme, “Recent Advances in Wireless Information Networks – RAWIN’10”, a platform for the exchange of new ideas, thoughts, and realizations on rapidly changing Wireless Communication Technology landscape on October 1 (Friday), 2010 in association with Agilent Technologies, Bangalore/Chennai (World's No.1 Measurement Equipment Company - www.agilent.com) at SRM University, Chennai, India. **Mr. V.V. Pathy**, Business Development Manager, Agilent Technologies, Bangalore, was inaugurated the event as Chief Guest.

4. RaMmCom



Successfully Organized a two day Faculty Development Programme, "Recent Advances in Millimeter Radio Communications - RaMmCom'12", a platform for the exchange of new ideas, thoughts, and realizations on rapidly changing Wireless Communication Technology landscape on February 6 & 7, 2012 in association with IEEE Communication Society Student Branch, Supported by Agilent Technologies & BenchMark. **Dr. A. D Sarma**, Professor & Director, Research & Training Unit for Navigational Electronics, Osmania University, Hyderabad has given inaugural address.

