SurTech

DR. SUDHIR CHANDRA SUR INSTITUTE OF TECHNOLOGY AND SPORTS COMPLEX

(Formerly known as Dr. Sudhir Chandra Sur Degree Engineering College)

SARADINDU PANDA

Master of Technology- Electronics and Telecommunication

Specialization: Communications

1ST YEAR – 1st SEMEMSTER

Sub Code	Subject Name
MCE 101	Advanced Communication Networks

Course Outcomes:

At the end of this course, students will be able to
· Understand advanced concepts in Communication Networking.
· Design and develop protocols for Communication Networks.
· Understand the mechanisms in Quality of Service in networking.
· Optimise the Network Design

Sub Code	Subject Name
MCE 102	Wireless and Mobile Communication

Course Outcomes:

At the end of this course, students will be able to
· Design appropriate mobile communication systems.
· Apply frequency-reuse concept in mobile communications, and to analyze its effects on interference, system capacity, handoff techniques
· Distinguish various multiple-access techniques for mobile communications e.g. FDMA, TDMA, CDMA, and their advantages and disadvantages.
· Analyze path loss and interference for wireless telephony and their influences on a mobile communication system's performance.
· Analyze and design CDMA system functioning with knowledge of forward and reverse channel details, advantages and disadvantages of using the technology
· Understanding upcoming technologies like 3G, 4G etc.

Sub Code	Subject Name
MCE 103C	Statistical Information Processing

Course Outcomes:

At the end of this course, students will be able to
· Characterize and apply probabilistic techniques in modern decision systems, such as information systems, receivers, filtering and statistical operations.
· Demonstrate mathematical modelling and problem solving using such models.
· Comparatively evolve key results developed in this course for applications to signal processing, communications systems.
· Develop frameworks based in probabilistic and stochastic themes for modelling and analysis of various systems involving functionalities in decision making, statistical inference, estimation and detection.

Sub Code	Subject Name
MCE 104B	RF and Microwave Circuit Design

Course Outcomes:

At the end of this course, students will be able to

· Understand the behaviour of RF passive components and model active components.
· Perform transmission line analysis.
· Demonstrate use of Smith Chart for high frequency circuit design.
· Justify the choice/selection of components from the design aspects.
· Contribute in the areas of RF circuit design.

Sub Code	Subject Name
MCE 105	Research Methodology and IPR

Course Outcomes:

At the end of this course, students will be able to
· Understand research problem formulation.
· Analyze research related information
· Follow research ethics
· Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
· Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
· Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

Sub Code	Subject Name
MCE 106	Audit Course 1

Course objectives:

Students will be able to:
1. Understand that how to improve your writing skills and level of readability
2. Learn about what to write in each section
3. Understand the skills needed when writing a Title
Ensure the good quality of paper at very first-time submission

Sub Code	Subject Name
MCE 191	Advanced Communication Networks Lab

Course Outcomes:

At the end of this course, students will be able to
· Identify the different types of network devices and their functions within a network.
· Understand and build the skills of sub-netting and routing mechanisms.
· Understand basic protocols of computer networks, and how they can be used to assist in network design and implementation.

Sub Code	Subject Name
MCE 192	Wireless and Mobile Communication Lab

Course Outcomes:

At the end of this course, students will be able to
· Understanding Cellular concepts, GSM and CDMA networks
· To study GSM handset by experimentation and fault insertion techniques
· Understating of 3G communication system by means of various AT commands usage in GSM
· Understanding CDMA concept using DSSS kit
· To learn, understand and develop concepts of Software Radio in real time environment

1ST YEAR – 2nd SEMEMSTER

PAPER CODE	SUBJECT
MCE 201	Antennas and Radiating Systems

Course Outcomes:

At the end of this course, students will be able to:
1. Compute the far field distance, radiation pattern and gain of an antenna for given current distribution.
2. Estimate the input impedance, efficiency and ease of match for antennas.
3. Compute the array factor for an array of identical antennas. 4. Design antennas and antenna arrays for various desired radiation pattern characteristics.

PAPER CODE	SUBJECT
MCE 202	Advanced Digital Signal Processing

Course Outcomes:

At the end of this course, students will be able to:
1. To understand theory of different filters and algorithms
2. To understand theory of multirate DSP, solve numerical problems and write algorithms
3. To understand theory of prediction and solution of normal equations
4. To know applications of DSP at block level.

PAPER CODE	SUBJECT
MCE 203A	A. Satellite Communication

Course Outcomes:

At the end of this course, students will be able to:
1. Visualize the architecture of satellite systems as a means of high speed, high range communication system. 2. State various aspects related to satellite systems such as orbital equations, sub-systems in a
satellite, link budget, modulation and multiple access schemes.
3. Solve numerical problems related to orbital motion and design of link budget for the given parameters and conditions.

PAPER CODE	SUBJECT
MCE 204B	B. MIMO System

Course Outcomes:

At the end of this course, students will be able to:
1. Understand channel modelling and propagation, MIMO Capacity, space-time coding, MIMO receivers, MIMO for multi-carrier systems (e.g. MIMO-OFDM), multi-user communications, multi-user MIMO.
2. Understand cooperative and coordinated multi-cell MIMO, introduction to MIMO in 4G (LTE, LTE-Advanced, WiMAX).
3. Perform Mathematical modelling and analysis of MIMO systems.

PAPER CODE	SUBJECT
MCE 205	Audit Course 2

Course Objectives:

Students will be able to:
1. Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
2. To address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
3. To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

PAPER CODE	SUBJECT
MCE 291	Antennas and Radiating Systems Lab

Course Outcomes:

At the end of this course, students will be able to:
1. Determine specifications, design, construct and test antenna.
2. Explore and use tools for designing, analysing and testing antennas. These tools include Antenna design and analysis software, network analysers, spectrum analysers, and antenna pattern measurement techniques.

PAPER CODE	SUBJECT
MCE 292	Advanced Digital Signal Processing Lab

Course Outcomes:

At the end of this course, students will be able to:
1. Design different digital filters in software
2. Apply various transforms in time and frequency
3. Perform decimation and interpolation

2nd YEAR– 1st SEMEMSTER

Sub Code	Subject Name
MCE 301C	Remote Sensing

Course Outcomes:

At the end of this course, students shall be able to

·Understand basic concepts, principles and applications of remote sensing, particularly the geometric and radiometric principles;

·Provide examples of applications of principles to a variety of topics in remote sensing, particularly related to data collection, radiation, resolution, and sampling.

Sub Code	Subject Name
MCE 302E	Composite Materials

Course Outcomes:

Upon completion of this course the student will be able to:

1. Explain the mechanical behavior of layered composites compared to isotropic materials.
2. Apply constitutive equations of composite materials and understand mechanical behaviour at micro and macro levels.
3. Determine stresses and strains relation in composites materials.

Sub Code	Subject Name
MCE381	Dissertation –I

Course Outcomes:

At the end of this course, students will have

·Ability to synthesize knowledge and skills previously gained and applied to an in-depth study and execution of new technical problem.

·Capable to select from different methodologies, methods and forms of analysis to produce a suitable research design, and justify their design.

2nd YEAR – 2nd SEMEMSTER

Sub Code	Subject Name
MCE381	Dissertation –II

Course Outcomes:

·Ability to synthesize knowledge and skills previously gained and applied to an in-depth study and execution of new technical problem.
·Capable to select from different methodologies, methods and forms of analysis to produce a suitable research design, and justify their design.

·Ability to present the findings of their technical solution in a written report.
·Presenting the work in International/ National conference or reputed journals.