2018.4.14 शैक्षिक सत्र 2018-19 के आड सेमेस्टर के समस्त एम0टेक0/एम0बी0ए0/एम0सी0ए0/एम0एस0सी0 पाठ्यक्रमों हेतु बोर्ड आफ स्टडीज द्वारा संस्तुत परीक्षकों की सूची का अवलोकन एवं विभिन्न विभागो द्वारा परास्नातक पाठ्यक्रमों के सैलेबस में किये गये संशोधनो एवं सत्र 2019-20 से प्रारम्भ हो रहे **M.Sc. Mathematics (Specialization in Computing)** के क्रेडिट स्ट्क्चर तथा प्रथम वर्ष के पाठ्यक्रम का अनुमोदन।

शैक्षिक सत्र 2018-19 के आड सेमेस्टर के समस्त एम0टेक0/एम0बी0ए0/एम0सी0ए0/एम0एस0सी0 पाठ्यक्रमों हेतु बोर्ड आफ स्टडीज द्वारा संस्तुत लिखित एवं प्रायोगिक परीक्षा का पैनल प्राप्त किया गया, जिसे माननीय कुलपति महोदय के अनुमोदनोपरान्त परीक्षा नियंत्रक को अग्रिम कार्यवाही हेतु प्रेषित किया गया।

निम्न विभागो से प्राप्त प्रस्ताव विद्या परिषद के अनुमोदनार्थ निम्न प्रस्ताव प्रस्तुत है:-

विद्युतकण एवं संचार अभि0 विभाग

New Course Proposed

विषय कोड	विषय का नाम	प्रभावी होने का सत्र
MEC-160	Fundamental of Nanoscale Transistor	2019-20
MEC-169	Introduction & Design of Photovoltaic Systems	2019-20

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Modification in Credit Structure

विषय कोड	विषय का नाम	पूर्व क्रेडिट	नया क्रेडिट
MCA-102	Data Structure & Application	4 Credit (3-1-0)	5 Credit (3-1-2)

प्रयुक्त विज्ञान विभाग

Approval of Syllabus and Credit Structure

कोर्स	पाठ्यक्रम/क्रेडिट स्ट्क्चर/वर्ष	प्रभावी होने का सत्र
M.Sc. Physics	Syllabus of Second Year (III & IV Semester)	2019-20
M.Sc. Mathematics	Syllabus and Credit Structure of First Year (I & II Semester)	2019-20

विद्या परिषद के माननीय सदस्यों के अवलोकनार्थ पृष्ठ संख्या 237 से पृष्ठ संख्या 287 पर प्रस्तुत है।

विद्या परिषद के माननीय सदस्यों से अनुरोध है कि कृपया उक्त का अनुमोदन प्रदान करने की कृपा करें।

Department of Electronics & Communication Engineering
M.M.M. University of Technology,
Gorakhpur

No.ECE/ 634 /2018 Date: 29/09/2018

Dean (PGS & R&D)

The BOS meeting of Electronics & Communication Engineering Department held in the chamber of HOD on dated 29/09/2018 at 11.30 A.M.

The following members were present:-

1.	Prof S.K.Soni	HOD/ Chairman
2.	Prof Y.N. Singh	External Member
3.	Sri Rahul Singh	External Member
4.	Prof. R. K. Chauhan	Member
5.	Sri G.S.Tripathi	Member
6.	Dr. Manish Kumar	Member
7.	Dr Rajan Mishra	Member
8.	Sri Gagandeep Bharti	Member
9.	Dr. Sudhanshu Verma	Member
10.	Dr Pooja Lohia	Member
11.	Dr. Dharmendra Kumar	Member
12.	Sri Anupam Sahu	Member
13.	Dr. B.P.Pandey	Member

Following matters were discussed and finalized.

1. The Panel of Theory/Practical Examiners of M.Tech. (Digital Systems) and M.Tech. (Communication Engg.) Odd semester session 2018-2019 is finalized.

2. Following new course are proposed

   (i) Fundamental of Nanoscale Transistor (MEC-160) (to be run from session 2019-20)
   (ii) Introduction and Design of Photovoltaic Systems (MEC-169) (to be run from session 2019-20)

Meeting ended with thanks to the chair.

(Prof S.K.Soni)

Head

4/10/2018

MEC-160: Fundamental of Nanoscale Transistors (3-1-0)

Course category	: Programme Electives (PE1 & PE2)
Pre-requisite Subject	: NIL
Contact hours/week	: Lecture : 3, Tutorial : 1 , Practical: 0
Number of Credits	: 4
Course Assessment methods	: Continuous assessment through tutorials, attendance, home assignments, quizzes, practical work, record, viva voce and One Minor tests and One Major Theory Examination
Course Outcomes	: The students are expected to be able to demonstrate the following knowledge, skills and attitudes after completing this course

1. Acquired knowledge about basic concepts of the Nanoelectronics based devices.
2. Explore the capabilities of the nanoscale MOSFET under different conditions.
3. Acquired the knowledge about the Nanowire and carbon nanotube based MOSFETs.
4. Explore the GNRFETs and TMDFETs for the high speed nanodevices.

UNIT I

Basic Concepts: Distribution functions. 1D, 2D, and 3D Carriers, Density of states and carrier densities, Diffusive and Ballistic transport, The NEGF formalism, Scattering theory of MOSFET.

UNIT II

Introduction to MOSFET, 1D and 2D MOS Electrostatics, Current-Voltage characteristics of MOSFET, Physical view of the nanoscale MOSFETs. The ballistic MOSFET, Ballistic MOSFET under nondegenerate and degenerate conditions.

UNIT III

Nanowire Field Effect Transistors: Introduction, Silicon nanowire MOSFETs, The I-V characteristics for nondegenerate and degenerate carrier statistics, Carbon nanotubes, Carbon nanotube MOSFETs and its characteristics.

UNIT IV

Introduction to Graphene Nanoribbons Field Effect Transistors(GNRFETs), Transfer and output characteristics of GNRFETs, Introduction to Transition Metal Dichalcogenides Field Effect Transistors(TMDFETs), Transfer and output characteristics of TMDFETs.

Books & References:

1. Mark S. Lundstrom, Nanoscale Transistors, Springer.
2. Supriyo Datta, Lessons from Nanoelectronics: A New Perspective on Transport— Part A: Basic Concepts, 2nd Ed, World Scientific Publication.
3. Website for Online Video "www.nanohub.org"

MEC-169 Introduction & Design of Photovoltaic Systems

Course category	: Programme Electives (PE3 & PE4)
Pre-requisite Subject	: NIL
Contact hours/week	: Lecture : 3, Tutorial : 1 , Practical: 0
Number of Credits	: 4
Course Assessment methodshome	: Continuous assessment through tutorials, attendance, assignments, quizzes, practical work, record, viva voce and One Minor tests and One Major Theory Examination
Course Outcomes	: The students are expected to be able to demonstrate the following knowledge, skills and attitudes after completing this course

1. Acquired knowledge about Photovoltaic system and its equivalent circuit.
2. Explore the capabilities of the different combinations of PV cell with availability of the wide range of solar energy.
3. Acquired the knowledge of PV system design on various parameters.
4. Explore the current and future applications of the Photovoltaic system.

UNIT I

Evolution of the Photovoltaic cell, PV cell characteristics and equivalent circuit, Model of PV cell, Short Circuit, Open Circuit and peak power parameters, Cell efficiency, Effect of temperature, Fill factor, General design tools used for PV cell.

UNIT II

Series and Parallel Interconnection:Identical and Non-identical cells in series and parallel, Protecting cells in series and parallel. Energy From Sun: Insolation and irradiance, Solar geometry, Sunrise and sunset hour angles. Incident Energy Estimation: Energy on a tilted flat plate, Atmospheric effects, Air Mass, Energy with atmospheric effects, and Clearness index.

UNIT III

Sizing of PV cell: Sizing PV for applications without batteries, Batteries - Capacity, C-rate, Efficiency, Battery selection, Batteries in series and parallel configurations. PV system design-Load profile, Days of autonomy and recharge, Battery size, PV array size, MPPT concept, MPPT algorithms, PV-Battery Interfaces: Direct PV-battery connection, Charge controller.

UNIT IV

Peltier device-principle, Peltier element, Peltier cooling, Thermal aspects- Conduction, Convection, A peltier refrigeration example. PV and Water Pumping: Water pumping principle, Hydraulic

energy and power. PV-Grid Interface: Grid connection principle, PV to grid topologies, AC to DC transformations, DC to AC transformations.

Books & References:

1. Augustin M C Evoy, Tom Markvart, Luis Castañer "Practical Handbook of Photovoltaics Fundamentals and Applications," 2nd Edn. Elesvier.(Text Book)

2. Chenming, H. and White, R.M., Solar Cells from B to Advanced Systems, McGraw Hill Book Co, 1983
3. Ruschenbach, HS, Solar Cell Array Design Hand Varmostrand, Reinhold, NY, 1980
4. Proceedings of IEEE Photovoltaics Specialists Conferences, Solar Energy Journal.