5.1.2

Circular EEC/BME/Association/2021-22/10 Date: 02.09.2021

EXCEL ENGINEERING COLLEGE

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KOMARAPALAYAM - 637303

DEPARTMENT OF BIOMEDICAL ENGINEERING **02.09.2021**

Circular

Our department is planned to conduct **Seminar on "Role of Gate exam in Career Building"** on **04.09.2021 (Saturday) at 09.30 am-04.30 pm at Kandasamy Seminar Hall**. The Resource person will be DR.B. BALASUBRAMANIAN, HOD/BME at Excel Engineering College. We request all the students for kind co-operation to conduct the event in an effective manner. On behalf of our department, all the students are invited.

Coordinator

HOD

To

1. Department Notice Board

Copy To,

1. Circulated to all faculty members
2. File

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B.E. - AERO, MECH, CSE, ECE

Date

04.09.2021

Time

09.30 a.m.

–

04.30 p.m.

DEPARTMENT OF BIOMEDICAL ENGINEERING

Seminar on

"Role of Gate exam in Career Building"

Dr.B.BALASUBRAMANIAN
HOD/BME,
Excel Engineering College.

T.SASIKALA
AP/BME
Program Co-Ordinator

Venue: Kandasamy Seminar Hall

T.SASIKALA
Activity Coordinator

Dr.B. Balasubramanian
Head of the Department

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DEPARTMENT OF BIOMEDICAL ENGINEERING

"Role of Gate exam in Career Building"

Students Attended

We the department of Biomedical Engineering, Excel Engineering College have conducted a "**Seminar on "Role of Gate exam in Career Building** "on 0**4.09.2021 (Saturday) at 09.30 am-04.30 pm at Kandasamy Seminar hall**. The entire sessions were handled by **Dr.B. BALASUBRAMANIAN; HOD/BME.** Around 58 students 3rd & final year students attended the seminar.

SL NO.	Reg. No.	Name of Student	04.09.2021
1	730919121003	AKSHAI KRISHNA	P
2	730919121004	ALEENA JOSHY	P
3	730919121005	ANSHAD P	P
4	730919121006	ARTHI K	P
5	730919121007	ASHWINI .R	P
6	730919121008	ATHUL K.V	P
7	730919121009	BHUPEASH C	P
8	730919121011	CHANDAN KUMAR THAKUR	P
9	730919121013	DILIPKUMAR K	P
10	730919121014	DINESH S	P
11	730919121015	GAJENDRAN K	P
12	730919121016	GAYATHRI T	P
13	730919121017	GOKULKUMAR M	P

14	730919121018	GOPIKA M	P
15	730919121019	GUNASEKARAN E	P
16	730919121020	HARI PRASATH SRININIVASAN .	P
17	730919121021	HARSHINI SRI.S .	P
18	730919121022	JAYAVARTHINI M	P
19	730919121023	JITESH KUMAR .	P
20	730919121024	KAVIYA K	P
21	730919121025	KAVIYA R	P
22	730919121026	KIRUTHIGA M	P
23	730919121027	KRISHNAVENI S	P
24	730919121029	MOHANRAJA R	P
25	730919121030	MONISHA.N .	P
26	730919121031	MUHAMMAD NOUFAL T.P	P
27	730919121034	PIRYADHARSHINI.T .	P
28	730919121035	POOVIZHI T	P
29	730919121036	PRAVEEN V	P
30	730919121037	REVANTH P	P
31	730919121038	SABITHA M	P
32	730919121040	SHARON SHAJI DOMINIC S	P
33	730919121041	SHIVANI S	P
34	730919121042	SRIKAVIN S	P

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35	730919121044	SURENDAR G	P
36	730919121047	THOUFEEQ SINAN.M.K .	P
37	730919121048	VASUDEVAN C	P
38	730919121049	VIJRENDRA GOSWAMI .	P
39	730919121051	VITHYA A	P
40	730919121501	MOULIDHARAN A	P

SL NO.	Reg. No.	Name of Student	04.09.2021
1	730918121001	ABINAYA M	P
2	730918121002	ABISHEK R	P
3	730918121003	AKASH M	P
4	730918121004	ANITHA S	P
5	730918121005	ARUN KUMAR V	P
6	730918121006	HARI PRASANTH R	P
7	730918121007	JANAKIRAMAN C	P
8	730918121008	KAVIPRIYA S	P
9	730918121009	LAVANYA S	P
10	730918121010	MEGALADEVI T	P

11	730918121012	MUNIYAN S	P
12	730918121014	PARTHIBAN B	P
13	730918121016	RANJITHA R	P
14	730918121017	SANGEETHA S	P
15	730918121019	SRIDHAR M	P
16	730918121020	SURESHSAMY D	P
17	730918121021	SUSINDAR SINGH AKASH C S	P
18	730918121022	VALLARASU K	P

Coordinator

HOD

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DEPARTMENT OF BIOMEDICAL ENGINEERING

"Role of Gate exam in Career Building"
Students Name list

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HOD

BM	Biomedical Engineering

Engineering Mathematics:

Linear Algebra: Matrix algebra, systems of linear equations, Eigenvalues and Eigenvectors.

Calculus: Mean value theorems, theorems of integral calculus, partial derivatives, maxima and minima, multiple integrals, Fourier series, vector identities, line, surface and volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order linear and nonlinear differential equations, higher order linear differential equations with constant coefficients, method of separation of variables, Cauchy's and Euler's equations, initial and boundary value problems, solution of partial differential equations.

Analysis of complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent's series, residue theorem.

Probability and Statistics: Sampling theorems, conditional probability, mean, median, mode and standard deviation, random variables, discrete and continuous distributions: normal, Poisson and binomial distributions. Tests of Significance, statistical power analysis, and sample size estimation. Linear Regression and correlation analysis;

Numerical Methods: Matrix inversion, numerical solutions of nonlinear algebraic equations, iterative methods for solving differential equations, numerical integration.

Electrical Circuits:

Voltage and current sources - independent, dependent, ideal and practical; v-i relationships of resistor, inductor and capacitor; transient analysis of RLC circuits with dc excitation; Kirchoff's laws, superposition, Thevenin, Norton, maximum power transfer and reciprocity theorems; Peak, average and rms values of ac quantities; apparent, active and reactive powers; phasor analysis, impedance and admittance; series and parallel resonance, realization of basic filters with R, L and C elements, Bode plot.

Signals and Systems:

Continuous and Discrete Signal and Systems - Periodic, aperiodic and impulse signals; Sampling theorem; Laplace and Fourier transforms; impulse response of systems; transfer function, frequency response of first and second order linear time invariant systems, convolution, correlation. Discrete time systems - impulse response, frequency response, DFT, Z - transform; basics of IIR and FIR filters.

Analog and Digital Electronics:

Basic characteristics and applications of diode, BJT and MOSFET; Characteristics and applications of operational amplifiers - difference amplifier, adder, subtractor, integrator, differentiator, instrumentation amplifier, buffer, filters and waveform generators. Number systems, Boolean algebra; combinational logic circuits - arithmetic circuits, comparators, Schmitt trigger, encoder/decoder, MUX/DEMUX, multi-vibrators; Sequential circuits - latches and flip flops, state diagrams, shift registers and counters; Principles of ADC and DAC; Microprocessor- architecture, interfacing memory and input- output devices.

Measurements and Control Systems:

SI units, systematic and random errors in measurement, expression of uncertainty -accuracy and precision index, propagation of errors; PMMC, MI and dynamometer type instruments; dc potentiometer; bridges for measurement of R, L and C, Q-meter. Basics of control system - transfer function.

Sensors and Bioinstrumentation:

Sensors - resistive, capacitive, inductive, piezoelectric, Hall effect, electro chemical, optical; Sensor signal conditioning circuits; application of LASER in sensing and therapy. Origin of biopotentials and their measurement techniques - ECG, EEG, EMG, ERG, EOG, GSR, PCG, Principles of measuring blood pressure, body temperature, volume and flow in arteries, veins and tissues, respiratory measurements and cardiac output measurement. Operating principle of medical equipment - sphygmomanometer, ventilator, cardiac pacemaker, defibrillator, pulse oximeter, hemodialyzer Electrical Isolation (optical and electrical) and Safety of Biomedical Instruments.

Human Anatomy and Physiology:

Basics of cell, types of tissues and organ systems; Homeostasis; Basics of organ systems - musculoskeletal, respiratory, circulatory, excretory, endocrine, nervous, gastro-intestinal and reproductive.

Medical Imaging Systems:

Basic physics, Instrumentation and image formation techniques in medical imaging modalities such as X-Ray, Computed Tomography, Single Photon Emission Computed Tomography, Positron Emission Tomography, Magnetic Resonance Imaging, Ultrasound.

Biomechanics:

Kinematics of muscles and joints - free-body diagrams and equilibrium, forces and stresses in joints, biomechanical analysis of joints, Gait analysis; Hard Tissues - Definition of Stress and Strain, Deformation Mechanics, structure and mechanical properties of bone - cortical and cancellous bones; Soft Tissues - Structure, functions, material properties, viscoelastic properties, Maxwell & Voight models; Biofluid mechanics - Flow properties of blood in the intact human cardiovascular system.

Biomaterials:

Basic properties of biomaterials - Metallic, Ceramic, Polymeric and Composite; Fundamental characteristics of implants - biocompatibility, bioactivity, biodegradability; Basics of drug delivery; Basics of tissue engineering. Biomaterial characterization techniques - Rheology, Atomic Force Microscopy, Electron Microscopy, Transmission Electron Microscopy Fourier Transform Infrared Spectroscopy.

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