SYNOPSES OF COURSES FOR ENGINEERING PROGRAMME

ESM 1114  MATHEMATICS I - PRECALCULUS I  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on graphs and equations; functions and their graphs; polynomials and rational functions; exponential and logarithmic functions; trigonometric functions.

ESM 1124  MATHEMATICS II - PRECALCULUS II  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on applications of trigonometric functions; polar coordinates and vectors; analytic geometry; system of equations; sequences and probability; statistics.

ESM 1134  MATHEMATICS III - CALCULUS I  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on limits and continuity; derivatives; applications of derivatives; integration; applications of integration; inverse trigonometric and hyperbolic functions.

ESM 1144  MATHEMATICS IV - CALCULUS II  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on numerical methods; further applications of integration; techniques of integration; series; partial derivatives; differential equations.

ESM 1214  PHYSICS I  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on motion in one dimension; motion in two dimensions; force and motion; uniform circular motion and gravitation; work and energy; linear momentum; combining conservation of energy and momentum; rigid bodies and rotational motion.

ESM 1224  PHYSICS II  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on fluids; thermal physics; gas laws and kinetic theory; thermodynamics; periodic motion; wave motion; geometrical optics; optical instruments.

ESM 1234  PHYSICS III  
CREDIT HOURS: 4 / CONTACT HOURS: 5  
The course covers topics on electric charge and electric field; electric potential and electric field; electric current and resistance; magnetism; electromagnetic induction; alternating current circuits; wave optics; electronics, modern physics.

ESM 1211  PHYSICS LAB I  
CREDIT HOURS: 1 / CONTACT HOURS: 3  
The laboratory component will complement material discussed in ESM 1214, ESM 1224.
ESM 1221  PHYSICS LAB II  
CREDIT HOURS: 1 / CONTACT HOURS: 3

The laboratory component will complement material discussed in ESM 1214, ESM 1224, ESM 1234.

ESM 1314  CHEMISTRY I  
CREDIT HOURS: 4 / CONTACT HOURS: 5

This course will provide the general principles and methodologies of chemistry. It covers topics on physical chemistry; atoms, molecules and ions; atomic and electronic structure; stoichiometry; periodic table of elements; chemical bonding; molecular geometry; states of matter: gaseous, liquids and solids; chemical kinetics.

ESM 1324  CHEMISTRY II  
CREDIT HOURS: 4 / CONTACT HOURS: 5

The course is divided into two parts, namely: physical chemistry and organic chemistry. Continuation of physical chemistry are chemical equilibria, thermodynamics, electrochemistry. Topics on organic chemistry are stereochemistry, isomerism, hydrocarbons and halogen derivatives; hydroxy compounds; carbonyl compounds; carboxylic acids and derivatives.

PREREQUISITE : ESM 1314

ESM 1311  CHEMISTRY LAB I  
CREDIT HOURS: 1 / CONTACT HOURS: 3

The lab component will complement materials discussed in ESM 1314.

ESM 1321  CHEMISTRY LAB II  
CREDIT HOURS: 1 / CONTACT HOURS: 3

The lab component will complement materials discussed in ESM 1324.

ESM 1513  COMPUTER II  
CREDIT HOURS: 3 / CONTACT HOURS: 5

The course covers topics on problem-solving and flow charts; fundamentals of programming; procedures; decisions; repetitions; arrays; files; graphical display of data.