Sri Venkateswara University, Andhra Pradesh B.E./B.Tech CSE Sem 2 syllabus

Engineering Chemistry

UNIT-I:
WATER TREATMENT: Introduction – Effect of water on rocks and minerals – hardness of
water – disadvantages of hard water – boiler feed water – scale and sludge formation in boilers –
caustic embrittlement – boiler corrosion – priming and foaming – softening methods-lime soda,
zeolite and ion exchange process-Specification of potable water and purification of Drinking
water – chemical analysis of water-Hardness, acidity, alkalinity, chloride and dissolved oxygen.

UNIT –II:
ELECTRO CHEMISTRY AND CORROSION: Electrode potential – reference electrodes –
hydrogen, calomel and glass electrode – PH and its determination – batteries – fuel cells –
aluminum air battery – solar battery – lead acid storage cell.-
Corrosion: Types of corrosion –
factors influencing corrosion – theories of corrosion – prevention of corrosion – cathodic
protection – metallic coatings – hot dipping, spraying, cementation, cladding and electro plating.

UNIT –III:
FUELS AND COMBUSTION: Introduction – classification of fuels – calorific value and its
determination – bomb calorimeter – Boy’s gas calorimeter – theoretical calculation of calorific

value of fuel – coal – analysis of coal – metallurgical coke – petroleum

–refining of petroleum-
synthetic petrol – octane and cetane number– combustion – mass analysis from volume analysis and vice versa – analysis of flue gas by Orsat's apparatus.

UNIT –IV:
HIGH POLYMERS: Nomenclature of polymers – types of polymerization-Plastics –
classification of plastics – moulding constituents of plastics– preparation, properties and
applications of polythene, nylon, Teflon, and bakelite – Rubbers – vulcanization of rubber – compounding of rubber- synthetic rubbers- buna-N, thiocol and silicon rubbers- Lubricants-
classification-mechanism-properties of lubricating oils-selection of lubricants for engineering applications.

UNIT–V:
BUILDING MATERIALS: Manufacture-dry and wet processes-setting and hardening of
cement-analysis of cement. Refractories-classification-properties and engineering applications.
Ceramics-classification-properties and engineering applications

Books Recommended:
1. Engineering Chemistry : PC Jain & M Jain-Dhanpat rai publishing company, New Delhi
2. Engineering Chemistry : BK Sharma
3. Engineering Chemistry : SS Dhara
4. Physical Chemistry : Puri & Sharma-Vishal Pulishing Company(VPC), Jalandhar

5. Physical Chemistry : Bahl & Tuli-
6 Polymer Science- :Gowarikar-
7 Physical Chemistry by : Glasstone-

Engineering Graphics

UNIT-I

Scales, plane scale, diagonal scale Practices
Conics- construction of Ellipse, parabola and Hyperbola by

eccentricity method
Ellipse- Concentric circles and Oblong methods, Rectangular hyperbola

UNIT-II

Construction of cycloidal curves- epi cycloid and hypocycloid, Involutes- Circle, Polygon

UNIT-III

Projection of points-Principles of Projections, First and Third angle projections, projections of
points
Projection of Lines- Projection of straight Lines, lines inclined to one plane and parallel to the
other, Lines inclined to both planes, True length and true inclinations, Location of traces

UNIT-IV

Projection of Plane surfaces and solids-Projection of Polygonal surfaces and circular lamina
inclined to both planes. Projection of right regular solids- Projection of simple solids such as
Prisms, Pyramids, Cylinders and Cones with their axes perpendicular to anyone of the Principal
planes and inclined to the other.

UNIT-V

Section of Solids- Sections of above solids in simple vertical position resting on their base, by
cutting planes inclined to one reference plane and perpendicular to the other-True shape of the
sections.
Orthographic Projections- Conversion of Pictorial views into orthographic views of simple
objects.

Text Books:

1. Bhatt N.D. and V.M. Panchal, Engineering Drawing Revised Edition, Charotar Publications, 2001.
2. Dhananjaya A Jolhe, Engineering Drawing with an introduction to Auto CAD, Tata MeGrawhill -
2009
3. K.L.Narayana and P. Kannaih, A text Book of Engineering Drawing, Scitech Publications – 1999.
4. Venugopal,K., Engineering Drawing and Graphics, New Age

International Publishers

Engineering Mathematics – II

Unit – 1

Matrices: rank of a matrix-solution of system of linear equations-eigen values,vectors-cayley-
hamilton theorem-quadratic forms-diagonalization.

Unit – 2

Vector Calculus: Gradient, Divergence, Curl of a vector and related properties - line, surface,
volume integrals - Green's, Stokes's and Gauss Divergence theorems and its applications.

Unit – 3

Fourier Series: Fourier series-even and odd functions, periodic functions-half range sine and
cosine series-harmonic analysis.

Unit – 4

Special Functions I: Gamma and Beta functions-series solutions of differential equations-
ordinary points.

Unit – 5

Special Functions II: Bessel function - recurrence formulae - generating function for Jn(X)-
Lengender polynomials - recurrence formulae - generating function for Pn(X) - Rodrigue's
formula - orthogonality of Lengender polynomials.

Text Books:

1. B S Grewal, Higher Engineering Mathematics, 40th Edition, Khanna Publications, 2007.
2. M K Venkataraman, Engineering Mathematics, National Publishing Company, Chennai.
3. B V Ramana, Higher Engineering Mathematics, 6th Reprint, Tata

McGraw-Hill, 2008.
4. Bali and Iyengar, Engineering Mathematics, 6th Edition, Laxmi Publications, 2006.