



KMCT
POLYTECHNIC COLLEGE, KUTTIPPURAM

COURSE OUTCOMES OF REVISION 2015



COURSE OUTCOMES

Course Code: C 101	English for Communications- I
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C101.1	Read, listen to and comprehend the idea contained in articles, essays, and technical writings of various kinds
C101.2	Familiarised with the different techniques of writing and use them effectively in business correspondences
C101.3	Communicate effectively and present their views in a logical and convincing way.
C101.4	Internalises different language functions like agreeing, permitting, apologizing, negating and so on and applies them effectively in daily communication
C101.5	Acquires proficiency in correct usage of English words and grammar

Course Code: C 102	Engineering Mathematics- I
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C102.1	Explain the concept of right angle triangle and to solve simple problems
C102.2	Explain the concept of trigonometry and to solve simple problems
C102.3	Evaluate the limit of a function and derivative of a function with simple applications
C102.4	Explain the concept of differentiation of functions and to solve simple problems

Course Code: C 103	Engineering Physics- I
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C103.1	List different Physical quantities and Understand concepts of force, Linear momentum.
C103.2	Understand vectors and scalars and apply concept of circular motion and rotational motion
C103.3	Demonstrate basic ideas of elasticity and interpret fluid flow.
C103.4	Understand Simple Harmonic Motion, wave motion.



Course Code: C 104

Engineering Chemistry- I

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C104.1	Explain the fundamental concepts of atom and to correlate these to advanced technology like Nanotechnology
C104.2	Apply the knowledge of basic chemistry in industrial applications like Catalysis.
C104.3	Identify different concepts of acids and bases, its importance in the field of industry
C104.4	Apply the fundamentals of analytical chemistry including the skill of solving problems
C104.5	Examine the types, implications and control of hardness of water and to evaluate different processes to make potable water

Course Code: C 105

Health & Physical Education

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C105.1	To introduce the fundamentals of the health ,physical education, fitness and sports
C105.2	To provide knowledge and understanding regarding the scientific basis of fitness
C105.3	To enable the students to lead a healthy lifestyle based on concepts of fitness and wellness
C105.4	To impart knowledge regarding health and nutrition, and to equip the students to provide first aid measures and manages and common injuries

Course Code: C 106

Computing Fundamentals

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C106.1	Utilize the basic functions and features of computer, Operating System and Internet applications.
C106.2	Make use of Stand-alone and Cloud-based office tools to prepare documents, spreadsheet and presentations.



C106.3	Develop algorithms and flowcharts for solving simple problems.
C106.4	Develop Python programs to solve simple problems.

Course Code: C 107	English for Communications II
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C107.1	Read, listen to and comprehend the idea contained in articles, essays, and technical writings of various kinds
C107.2	Familiarised with the different techniques of writing and use them effectively in business correspondences
C107.3	Communicate effectively and present their views in a logical and convincing way.
C107.4	Internalises different language functions like agreeing, permitting, apologizing, negating and so on and applies them effectively in daily communication
C107.5	Acquires proficiency in correct usage of English words and grammar

Course Code: C 108	Engineering Mathematics II
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C108.1	Make use of Determinants and Matrices in finding the solutions of a linear system
C108.2	Identify the concept of scalar and vector quantities and apply it in engineering problems
C108.3	Build the concept of integration as the inverse operation of differentiation.
C108.4	Apply integration techniques to solve different engineering problems and differential equations.
C108.5	Make use of Determinants and Matrices in finding the solutions of a linear system



Course Code: C 109

Engineering Physics II

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C109.1	Student will be able to calculate characteristics of waves
C109.2	Student will be able to compute the power of lens.
C109.3	Student will be able to convert galvanometer into ammeter and voltmeter.
C109.4	Students will be able to explain the basic principles of semiconductor physics, photoelectric effect, LASER action and Nano science.

Course Code: C 110

Engineering Chemistry II

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C110.1	Explain the basic concepts of atom model , theoretical concepts of orbitals and chemical bonding
C110.2	distinguish and justify different materials based on conductivity in Science and Technology
C110.3	Explain the concept of corrosion and its after effects, solve the practical problems related to it
C110.4	Explain fundamental ideas of organic chemistry and different types of refractories
C110.5	List out the concepts of fuels and to identify and relate the impact of environmental pollution in daily life and to point out the remedial steps for it.

Course Code: C 111

Surveying I

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C111.1	Apply the knowledge of basic concepts, principles and types of surveying
C111.2	Explain the methodology of field work compass
C111.3	Explain the methodology for calculating the elevations of different points
C111.4	Describe contour map preparation and reservoir capacity calculations
C111.5	Explain errors, corrections and permanent adjustments of dumpy level



Course Code: C 112

Engineering Graphics

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C112.1	Demonstrate the ability to use the drafting instruments properly and improve their lettering and dimensioning skills.
C112.2	Perform basic geometrical constructions, curves used in engineering practices
C112.3	Demonstrate the concept of projection and acquire visualization skills, projection of points
C112.4	Draw multi view orthographic and other projections including isometric, sectional and perspective

Course Code: C 113

Workshop Practice

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C113.1	Make use of various tools, instruments and devices required to make carpentry, foundry & casting.
C113.2	Make use of various tools, instruments and power tools used in the smithy, forging & fitting.
C113.3	Utilise different Sheet metal tools and measuring instruments to make sheet metal joints.
C113.4	Make use of various tools, machines, instruments and power tools used in the Welding shop to make welding joints.

Course Code: C 114

ENGINEERING SCIENCE LAB

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C114.1	Measure volume of a cylinder using vernier calipers and screw gauge Determine focal length of a convex lens by displacement method
C114.2	Determine the velocity of a sound air at room temperature using resonance column and the relative density using U-tube apparatus Determine the mass of a body by parallelogram method and by Lami's theorem
C114.3	Estimation of HNO ₃ , Estimation H ₂ SO ₄ , Estimation of Oxalic acid, Standardization of KMnO ₄ Determine acceleration due to gravity using simple pendulum



C114.4 | Standardize NaOH Double Titrations Estimate NaOH ,KOH,Na₂ CO₃,etc

Course Code: C 115

Survey Practical I

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C115.1	Compute area of land by using chain survey
C115.2	Plot land area by using plane table survey
C115.3	Demonstrate ability to determine land area using compass survey
C115.4	Determine level difference between different stations

Course Code: C 116

Life Skill

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C116.1	Self-Awareness and Empathy Logical Thinking and Creative Thinking
C116.2	Decision Making And Problem Solving
C116.3	Effective Communication
C116.4	Inter Personal Relations Coping with Stress and Emotion

Course Code: C 201

Theory of Structures I

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C201.1	Identify the different types of loading and calculate the geometrical properties of structural sections
C201.2	Identify the mechanical properties of sections and calculate strain energy for different applications of loading
C201.3	To analyze the effects of loading on beams
C201.4	Calculate power transmission, permissible shear stress for the circular shaft and internal stresses in thin cylinder.



Course Code: C 202

Surveying II

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C202.1	Operate of Theodolite in any civil engineering projects
C202.2	Explain how to Perform Tacheometric survey in the field
C202.3	Illustrate setting out of curve
C202.4	Apply the knowledge of basic concepts and principles of : Total station, , GPS and GIS in surveying

Course Code: C 203

Construction Materials & Engineering

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C203.1	Identify different types of building materials
C203.2	Identify Ornamental material for finishing and various miscellaneous materials for making building
C203.3	Give the instruction for execution of various construction works
C203.4	Identify various building components of building

Course Code: C 204

Environmental Science and Disaster Management

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C204.1	Explain the importance of various natural resources and the issues related to that.
C204.2	Identify the structure of an ecosystem and functions of various components of various ecosystem
C204.3	Explain the cause, effect and control measures of different kinds of environmental pollution
C204.4	Categories various Hazards and Disasters and their mitigation measures and the related legislation.

Course Code: C 205

Building Plan and Drawing

After successful completion of the course, the students should be able to:



CO NO	COURSE OUTCOME
C205.1	Identify main components of building.
C205.2	Illustrate codal provisions for building drawings as per the specified guidelines.
C205.3	Ability to prepare drawings of building components as per the specified guidelines.
C205.4	Prepare building drawings as per the specified guidelines.

Course Code: C 206	Survey Practical II
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C206.1	Demonstrate ability to conduct Longitudinal leveling
C206.2	Demonstrate ability to measure horizontal angles by general methods
C206.3	Demonstrate ability to measure vertical angles by general methods
C206.4	Demonstrate ability to conduct contouring

Course Code: C 207	Construction Engineering Lab
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C207.1	Demonstrate ability to perform various civil engineering procedures like masonry practices
C207.2	Demonstrate ability to perform painting practices and plumbing
C207.3	Ability to perform setting out of buildings
C207.4	Demonstrate ability to perform electrical practices

Course Code: C 208	Concrete Lab
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C208.1	Demonstrate ability to test material properties of cement
C208.2	Demonstrate ability to conduct workability tests on concrete
C208.3	Demonstrate ability to conduct material properties of fine and coarse aggregate
C208.4	Develop ability to determine compressive strength of concrete



Course Code: C 209

Theory of Structures II

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C209.1	Calculate the load carrying capacity of a column, and sketch the stress distribution diagrams under the base of a column
C209.2	Analyse perfect frames
C209.3	Analyse the dams and retaining walls for water/earth pressure
C209.4	Find the slope and deflection in beams with uniform and symmetrical loading
C209.5	Analyse the fixed and continuous beams for finding the support moments, span moments, shear forces, deflection and draw SFD and BMD.

Course Code: C 210

Quantity Surveying I

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C210.1	Compare different types of estimate and units of measurements in construction
C210.2	Estimate the exact quantities of all items for different types of buildings
C210.3	Estimate the quantities of all finishing items ,water supply and sanitary items
C210.4	Evaluate abstract cost for different types of buildings

Course Code: C 211

Hydraulics

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C211.1	Identify importance of fluid properties and compute the total hydrostatic pressure and Centre of pressure
C211.2	Describe the principles of pressure measuring devices and compute fluid pressure
C211.3	Explain about various discharge measuring devices and the working principles of hydraulic machines
C211.4	Explain about the various flow conditions and design of channel sections

Course Code: C 212

Irrigation Engineering

After successful completion of the course, the students should be able to:



CO NO	COURSE OUTCOME
C212.1	Summarize the basic method of irrigation and water requirement of crop and explain movement of water in the earth
C212.2	Illustrate the head works for a diversion scheme
C212.3	Illustrate the head works for a storage scheme
C212.4	Explain different canal distribution works and soil erosion problems

Course Code: C 213

Survey Practical III

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C213.1	Demonstrate ability to conduct height and distance by tacheometer
C213.2	Demonstrate setting out of curve
C213.3	Demonstrate ability to determine tacheometric constants
C213.4	Develop ability to perform experiments using modern survey instruments

Course Code: C 214

Hydraulics Lab

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C214.1	Determine the coefficient of discharge of orifice and notches and its calibration. Understand Bernoulli's theorem
C214.2	Determine the coefficient of discharge of venture meters
C214.3	Determine Darcy's and Chery's constant through pipe friction apparatus.
C214.4	Demonstrate the ability to determine efficiency of turbines

Course Code: C 215

Computer Aided Drafting Lab

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C215.1	Develop ability to conduct preliminary settings of CAD worksheet
C215.2	Demonstrate ability to develop engineering drawings of buildings.
C215.3	Demonstrate ability to develop 3D drawings of objects and buildings.
C215.4	Demonstrate ability to develop detailing of structural elements



Course Code: C 216

Mini Project

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C216.1	To apply engineering knowledge of surveying in measuring , investigating and collection of data to prepare topographical map of a plot
C216.2	To apply engineering knowledge to analyse the problem and develop viable solutions and results
C216.3	To develop skills in verbal/written communication, report preparation effectively as an individual and as a team
C216.4	To work effectively and efficiently as a team and provide solution for the engineering problem selected within the constraint of time.

Course Code: C 301

**Construction Management and Safety
Engineering**

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C301.1	Describe the various aspects of construction projects
C301.2	Explain about various project management tool
C301.3	Explain about the various terms in project execution
C301.4	Distinguish about various aspects of management of human resources, stores and construction equipments
C301.5	Summarize various quality management systems and importance of entrepreneurship.

Course Code: C 302

Structural Design I

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C302.1	Describe the properties of ingredients of concrete
C302.2	Apply the concept of Limit State Method for design of RCC members.
C302.3	Illustrate and application of IS code provisions for design of RCC members
C302.4	Identify and design various RCC Structural elements (RC beams, Slab, Column, Footing and stair) under different loading conditions based on



the guidelines of IS 456:2000.

Course Code: C 303

Geotechnical Engineering

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C303.1	Summarize the concept of soil mechanics and properties of soil
C303.2	Explain index and engineering properties of soil and how to conduct test on soil
C303.3	Explain permeability of soil and soil stabilization
C303.4	Explain the basic concept of soil exploration and bearing capacity of soil
C303.5	Distinguish between the type of foundation to be adopted for a particular soil condition

Course Code: C 304

Quantity Surveying II

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C304.1	Prepare a detailed estimate for different items of roofed and RCC two storied building
C304.2	Estimate septic tank and soak pit
C304.3	Prepare detailed estimate for hydraulic structures and RCC structural elements
C304.4	Explain specifications and analyze the process of valuation and rent fixation

Course Code: C 305

Building Services and Maintenance

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C305.1	Describe the various aspects of durability and maintenance of buildings
C305.2	Illustrate the cause, effect, preventive and remedial measures of common defects in buildings
C305.3	Explain the common defects in building service components
C305.4	Familiarising Building services
C305.5	Assess the need and technics of retrofitting and preservation methods



Course Code: C 306 Geotechnical Engineering Lab

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C306.1	Determine ability to test basic properties of Soil
C306.2	Demonstrate particle size gradation of soil
C306.3	Determine ability to test field density of soil
C306.4	Determine ability to test engineering properties of soil

Course Code: C 307 Computer Application Lab

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C307.1	Demonstrate ability to develop estimate of buildings.
C307.2	Demonstrate ability to perform analysis RCC structures using STAAD PRO
C307.3	Demonstrate ability to perform design of RCC structures using STAAD PRO
C307.4	Estimate the time required for completing the project using management software

Course Code: C 308 Industrial Training/Industrial Visit/Collaborative Work

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C308.1	Develop an ability to familiarise with industrial practices
C308.2	Develop ethical practice in engineering data collection and reporting
C308.3	Illustrate the ability to work effectively as the member of a team
C308.4	Write formal technical report & convey engineering message efficiently.

Course Code: C 309 Structural Design II

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C309.1	Describe the properties and types of steel structures
C309.2	Identify and design different types of connections used in steel structures



C309.3	Compute the design strength of steel members by identifying the failure modes.
C309.4	Apply the principles, procedures and current code requirement to the analysis and design of tension, compression members and steel beams.
C309.5	Identify and calculate different loading conditions for steel roof truss and design of masonry wall based on IS specifications

Course Code: C 310 Environmental Engineering

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C310.1	Estimate water demands and select the right water sources
C310.2	Understand the constructional aspects of intake structures and conveyance system
C310.3	Study the water quality and treatment methods for water distribution
C310.4	Know the sewerage system and study the properties of the sewage
C310.5	Understand the features of waste water treatment units.

Course Code: C 311 Transportation Engineering

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C311.1	Describe the history of road development and the fundamental concepts related to roads
C311.2	Describe various aspects of road geometrics and road construction
C311.3	Explain the importance of railway and various components of railway systems
C311.4	Familiarize with the components of various transportation units

Course Code: C 312 Concrete Technology

After successful completion of the course, the students should be able to:



CO NO	COURSE OUTCOME
C312.1	Comprehend the properties of the ingredients of concrete.
C312.2	Understand the properties of concrete in the fresh and hardened state.
C312.3	Design economic mix proportion for different exposure conditions and intended purposes as per the standards.
C312.4	Know about the special concretes and their uses and understand the problems in concreting under special conditions. Also understand the factors affecting durability of concrete.

Course Code: C 313	Structural and Irrigation Engineering Drawing
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C313.1	Illustrate various RCC structural elements in the building and its reinforcement details refer with code provisions.
C313.2	Illustrate various RCC structures and its reinforcement details refer with code provisions.
C313.3	Illustrate various steel structures and structural elements detail refer with code provisions
C313.4	Illustrate irrigation structures and head works.

Course Code: C 314	Material Testing Lab
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After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C314.1	Demonstrate ability to perform material tests on mild steel specimen to determine impact strength, tensile strength and modulus of elasticity.
C314.2	Ability to conduct compression test and bending test on standard specimens
C314.3	Demonstrate ability to determine hardness of standard specimens using brinell and Rockwell test.
C314.4	Demonstrate ability to conduct loading test on closed coil spring.



Course Code: C 315

Environmental Engineering Lab

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C315.1	Demonstrate ability to perform base and acid neutralizing capacity of water
C315.2	Demonstrate ability to determine chlorides and residual chlorine in water
C315.3	Demonstrate ability to determine turbidity and Ph of water
C315.4	Demonstrate ability to determine total solids and hardness of water

Course Code: C 316

Project and Seminar

After successful completion of the course, the students should be able to:

CO NO	COURSE OUTCOME
C316.1	Identify a socially and technologically relevant seminar topics to ensure the importance in the field of Civil Engineering
C316.2	Formulate objectives, methodology and prepare a presentation for the selected seminar based on a finalized seminar report.
C316.2	Identify a socially and technologically relevant project topics and review available literature and collect information about the latest developments, modern tools used on the chosen topic
C316.3	Formulate objectives, methodology, working plan and prepare a presentation for the selected project based on the project report