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COURSE OUTCOMES

DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CV32	COURSE ID	C302
COURSE TITLE		18CV32 Strength of Materials					
COURSE OUTCOME NO							
C302.1		Describe and evaluate stresses and strains of engineering materials					
C302.2		Describe and evaluate compound stresses. Analyse thick and thin cylinders.					
C302.3		Evaluate the Bending moment and shear force in determinate beams.					
C302.4		Evaluate bending and shear stresses in beams. Determine mechanical properties in circular shafts.					
C302.5		Evaluate the slope and deflection in determinate beams. Determine the Buckling loads for columns.					

DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CV33	COURSE ID	C303
COURSE TITLE		18CV33 Fluid Mechanics					
COURSE OUTCOME NO							
C303.1		Able to describe fundamental properties of fluids, fluid pressure and its applications.					
C303.2		Able to explain Hydrostatic laws and application to practical problem solving.					
C303.3		Able to apply basic principles of Kinematics and Hydro-Dynamics.					
C303.4		Able to analyze discharge measuring devices, pipe networks considering flow and its losses					

DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CV34	COURSE ID	C304
COURSE TITLE		18CV34 Building Materials and Construction					
COURSE OUTCOME NO							
C304.1		CO1- Select Suitable materials for buildings and adopt suitable construction techniques					
C304.2		CO2- Decide suitable type of foundation based on soil parameters					
C304.3		CO3- Describe the requirements of various building components					
C304.4		CO4- Exhibit the knowledge of various finishing processes					

DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CV35	COURSE ID	C305
COURSE TITLE		18CV35 Basic Surveying					
COURSE OUTCOME NO							
C305.1		Describe principles of surveying and maps. Able to measure linear distances.					
C305.2		Will be able to conduct compass surveying and traversing.					
C305.3		To carry out levelling and compute elevations and profile.					
C305.4		Carry out plane table surveying and develop maps.					
C305.5		Compute areas and volumes for infrastructure projects. Able to plot contours for construction.					

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DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CV36	COURSE ID	C306
COURSE TITLE		18CV36 Engineering Geology					
COURSE OUTCOME NO							
C306.1		CO1:Able to apply geology in civil engineering and mineralogical properties in selection of materials for engineering raw materials.					
C306.2		CO2: Able to apply Petrology in site selection for Civil Structure and rock as material for construction.					
C306.3		CO3: Able to analyze Structural geological features & their effect on civil structures through Rock Mechanics.					
C306.4		CO4: Able to analyze water potential zone & their diversity of fluctuations related to uncontrolled urbanization					
C306.5		CO5: Able to analyze Earthquake related engineering problems & their link with natural disasters and their mitigations					

DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CVL37	COURSE ID	C307
COURSE TITLE		18CVL37 Computer Aided Building Planning & Drawing					
COURSE OUTCOME NO							
C307.1		Understand the tools in AUTOCAD					
C307.2		Develop plan and schedule building project using AUTO CAD					
C307.3		Design the component of the structure using auto CAD					

DEPARTMENT	CV	SEMESTER	3	COURSE CODE	18CVL38	COURSE ID	C308
COURSE TITLE		18CVL38 Building Materials Testing Laboratory					
COURSE OUTCOME NO							
C308.1		Understand the test procedures for construction materials.					
C308.2		Determine the behavioural characteristics of test on the construction materials.					

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DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CV42	COURSE ID	C402
COURSE TITLE	18CV42 Analysis of Determinate Structures						
COURSE OUTCOME NO							
C402.1	Describe structural systems and their analysis methods.						
C402.2	Analyze the determinate beams for moving loads..						
C402.3	Evaluate the slope and deflection in determinate beams using moment area method and conjugate beam method.						
C402.4	Describe and Analyze slope and deflection in determinate beams using Energy principle and energy theorem.						
C402.5	Analyze Arches and cables.						

DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CV43	COURSE ID	C403
COURSE TITLE	18CV43 Applied Hydraulics						
COURSE OUTCOME NO							
C403.1	Express the Types of Dimensional analysis, Model Studies, Buoyancy and flotation.						
C403.2	Describe Open Channel flows, economical channel sections and parameters of specific energy curve.						
C403.3	Derive expressions for hydraulic jump, gradually varied flow and description of curves and profile slopes.						
C403.4	Explain general layout of hydroelectric power plant, components, velocity triangles and working proportions of pelton turbine						
C403.5	Explain components, velocity triangles, working of kaplan turbine and centrifugal pump.						

DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CV44	COURSE ID	C404
COURSE TITLE	18CV44 Concrete Technology						
COURSE OUTCOME NO							
C404.1	CO1: Describe material characteristics and their influence on concrete						
C404.2	CO 2: Explain concrete manufacturing procedure and its behavior based on its fresh state						
C404.3	CO 3: Explain concrete behavior based on its hardened state						
C404.4	CO 4: Compute the proportions of ingredients of concrete to arrive at most desirable mechanical properties of concrete using professional codes						
C404.5	CO 5: Explain special concrete and its properties						

DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CV45	COURSE ID	C405
COURSE TITLE	18CV45 Advanced Surveying						
COURSE OUTCOME NO							
C405.1	Apply the knowledge of geometrical principles to solve the surveying problems						
C405.1	Classify the triangulation system, marking of stations.						
C405.1	Design and implement the different types of curves for deviating type of alignments.						
C405.1	Capture geodetic data to process and perform analysis for survey problems with the use of electronic instruments						
C405.1	Use modern instruments to obtain geo-spatial data and analyse the same to appropriate engineering problems.						

DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CV46	COURSE ID	C406

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COURSE TITLE	18CV46 Water Supply & Treatment Engineering
COURSE OUTCOME NO	
C406.1	Estimate average and peak water demand for a community.
C406.2	Evaluate available sources of water, quantitatively and qualitatively and make appropriate choice for a community.
C406.3	Evaluate water quality and environmental significance of various parameters and plan suitable treatment system.
C406.4	Design a comprehensive water treatment and distribution system to purify and distribute water to the required quality standards.

DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CVL47	COURSE ID	C407
COURSE TITLE	18CVL47 Engineering Geology Laboratory						
COURSE OUTCOME NO							
C407.1	CO1: Students will be able to identify the minerals, rocks and utilize them in civil engineering practices.						
C407.2	CO2: Students will be able to analyze subsurface information including weathered zone, dynamic Features like Fault, Joints by Satellite Image Interpretations.						
C407.3	CO3: Students will be able to interpret subsurface extension of rock type details with known data of dip And strike.						
C407.4	CO4: Students will be able to interpret the geological condition of the area by converting the geological map into typical cross sections for feasibility of civil engineering projects.						

DEPARTMENT	CV	SEMESTER	4	COURSE CODE	18CVL48	COURSE ID	C408
COURSE TITLE	18CVL48 Fluid Mechanics and Hydraulic Machines Laboratory						
COURSE OUTCOME NO							
C408.1	Understand the working of various flow measuring devices and hydraulic machines.						
C408.2	Conduct experiment on flow measuring devices and hydraulic machines						
C408.3	Determine hydraulic co-efficient of flow measuring devices and efficiency of hydraulic machines.						
C408.4	Determine major and minor losses.						

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DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV51	COURSE ID	C501
COURSE TITLE	17CV51 Design of RC Structural Elements						
COURSE OUTCOME NO							
C501.1	CO1-Describe the principles of limit state method of design of RC elements and calulate the deflection parameters						
C501.2	CO2- Analyse RC Rectangular sections for deflection, shear and flexure						
C501.3	CO3- Design Rectangular RC beams						
C501.4	CO4- Design RC Slabs and Stairs						
C501.5	CO5- Design RC Columns and Footings						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV52	COURSE ID	C502
COURSE TITLE	17CV52 Analysis of Indeterminate Structures						
COURSE OUTCOME NO							
C502.1	CO1 Analyze indeterminate structures using slope deflection method.						
C502.2	CO2 Analyze indeterminate structures using moment distribution method.						
C502.3	CO3 Analyze indeterminate structures using Kani's method.						
C502.4	CO4 Develop the flexibility matrix to analyze the indeterminate structures by system approach.						
C502.5	CO5 Develop the stiffness matrix to analyze the indeterminate structures by system approach.						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV53	COURSE ID	C503
COURSE TITLE	17CV53 Applied Geotechnical Engineering						
COURSE OUTCOME NO							
C503.1	Plan & Execute geotechnical site investigation in civil engineering projects.						
C503.2	Describe the stress distribution in subsoil beneath the loaded footings.						
C503.3	Apply the effect of soil particle interaction to predict the ground response under different Loading conditions.						
C503.4	Analyze problems of bearing capacity in soil and able to proportionate footings for uniform bearing pressure.						
C503.5	Estimate the load carrying capacity of single and group of piles.						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV54	COURSE ID	C504
COURSE TITLE	17CV54 Computer Aided Building Planning and Drawing						
COURSE OUTCOME NO							
C504.1	Demonstrate commands in Auto CAD as applied to building drawings						
C504.2	Draft components of building using Auto-CAD						
C504.3	Plan Residential and nonresidential building using local bylaws						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV551	COURSE ID	C551

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COURSE TITLE	17CV551 Air pollution and Control
COURSE OUTCOME NO	
C551.1	Identify the major sources of air pollution and understand their effects on health and environment.
C551.2	Evaluate the dispersion of air pollutants in the atmosphere and to develop air quality models
C551.3	Evaluate sampling techniques for atmospheric and stack pollutants.
C551.4	Design control techniques for particulate and gaseous emissions.

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV552	COURSE ID	C552
COURSE TITLE	17CV552 Railways, Harbours, tunneling and Airports						
COURSE OUTCOME NO							
C552.1	Understand the basics Railway, Airport, Tunnels and Harbours engineering.						
C552.2	Explain the layout and types Railway, Airport, Tunnels and Harbours engineering.						
C552.3	Solve problems involved in various parameters in Railways, Airport, Tunnels and Harbours engineering.						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV561	COURSE ID	C561
COURSE TITLE	17CV561 Traffic Engineering						
COURSE OUTCOME NO							
C561.1	Describe the scope and importance ,management, and safety in traffic engineering						
C561.2	Interpret the traffic data and its use in planning						
C561.3	Determine the traffic parameters for its effectiveness						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CV563	COURSE ID	C563
COURSE TITLE	17CV563 Remote Sensing and GIS						
COURSE OUTCOME NO							
C563.1	Define terminologies in Remote sensing and GIS.						
C563.2	Describe basic concepts of remote sensing, satellite imagery to extract the required units, GIS data and data projection, concepts of data models.						
C563.3	Utilize the concepts of data models and concepts of Remote sensing and GIS in various fields.						

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CVL57	COURSE ID	C507

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COURSE TITLE	17CVL57 Geotechnical Engineering Laboratory
COURSE OUTCOME NO	
C507.1	Identify the soils based on field investigations through geotechnical engineering practice.
C507.2	Demonstrate suitable laboratory compaction and in-place density test for fill quality control.
C507.3	Determine index and engineering properties of soil as per IS Codal procedures.
C507.4	Analyse and interpret soil design parameters by performing laboratory tests.

DEPARTMENT	CV	SEMESTER	5	COURSE CODE	17CVL58	COURSE ID	C508

COURSE TITLE	17CVL58 Concrete and Highway Materials Laboratory
COURSE OUTCOME NO	
C508.1	Ability to identify the type of test required for cement, aggregates, concrete and bitumen.
C508.2	Ability to describe its physical and strength properties based on the experimental data.
C508.3	Ability to interpret and summarize the results and draw the conclusion from them.

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV61	COURSE ID	C601

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COURSE TITLE	17CV61 Construction Management and Entrepreneurship
COURSE OUTCOME NO	
C601.1	Apply management principles to originate new business.
C601.2	Apply management concepts to generate project plans and schedules.
C601.3	Employ quality control and safety procedures during construction process.
C601.4	Apply the concepts of engineering economics to compare the available alternatives and recommend the feasible solution.
C601.5	Exercise human values and professional ethics as a professional/ an entrepreneur in an endeavor of his choice.

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV62	COURSE ID	C602
COURSE TITLE		17CV62 Design of Steel Structural Elements					
COURSE OUTCOME NO							
C602.1		1. To describe the importance of type of load combination in structural members, codal provisions, and plastic behavior of structural steel.					
C602.2		2. To design bolted and welded connections.					
C602.3		3. To analyse and design compression members in steel structure.					
C602.4		4. To analyse and design tension members in steel structure.					
C602.5		5. To design different type of beam connections.					

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV63	COURSE ID	C603
COURSE TITLE		17CV63 Highway Engineering					
COURSE OUTCOME NO							
C603.1		Gain knowledge of different modes of transportation systems, history, development of highways and the organizations associated with research and development of the same in INDIA.					
C603.2		Understand Highway planning and development considering the essential criteria's (engineering and financial aspects, regulations and policies, socio economic impact).					
C603.3		Get insight to different aspects of geometric elements and train them to design geometric elements of a highway network					
C603.4		Understand pavement and its components, pavement construction activities and its requirements.					
C603.5		Gain the skills of evaluating the highway economics by B/C, NPV, IRR methods and also introduce the students to highway financing concepts.					

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV64	COURSE ID	C604
COURSE TITLE		17CV64 Water Supply and Treatment Engineering					
COURSE OUTCOME NO							
C604.1		Estimate average and peak water demand for a community.					
C604.2		Evaluate available sources of water, quantitatively and qualitatively and make appropriate choice for a community.					
C604.3		Evaluate water quality and environmental significance of various parameters and plan suitable treatment system.					
C604.4		Design a comprehensive water treatment and distribution system to purify and distribute water to the required quality standards.					

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DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV652	COURSE ID	C652
COURSE TITLE		17CV652 Matrix Method of Structural Analysis					
COURSE OUTCOME NO							
C652.1		CO1	Able to write element flexibility and stiffness matrix for beam and truss members.				
C652.2		CO2	Able to analyse indeterminate structures by matrix flexibility method using element approach.				
C652.3		CO3	Able to analyse indeterminate structures by matrix stiffness method using element approach.				
C652.4		CO4	Able to analyse by matrix flexibility and stiffness method with temperature effect.				
C652.5		CO5	Able to assemble overall stiffness matrix and analyse structure using direct stiffness method.				

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV61	COURSE ID	C601
COURSE TITLE							
COURSE OUTCOME NO							
C601.1							

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV661	COURSE ID	C661
COURSE TITLE		17CV661 Water Resource Management					
COURSE OUTCOME NO							
C661.1		CO1: Understand & apply the knowledge of Water Resources Management					
C661.2		CO2: Interpretation of IWRM after understanding the Global Water Resources					
C661.3		CO3: Interpret the various aspects of water governance & Various techniques of water harvesting.					
C661.4		CO4: Determine yield from a catchment & dimensions of various water harvesting structures					

DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CV662	COURSE ID	C662
COURSE TITLE		17CV662 Environmental Protection and Management					
COURSE OUTCOME NO							
C662.1							

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DEPARTMENT	CV	SEMESTER	6	COURSE CODE	17CVL67	COURSE ID	C607
COURSE TITLE		17CVL67 Software Application Laboratory					
COURSE OUTCOME NO							
C607.1		Analyze and interpret the given data suitably for the given project using Staad Pro.					
C607.2		Develop plan and schedule building project using MSP.					
C607.3		Design the component of the structure using MS Excel.					

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV71	COURSE ID	C701

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COURSE TITLE	15CV71 Municipal and Industrial Waste Water Engineering
COURSE OUTCOME NO	
C701.1	1. Select the appropriate sewer appurtenances and materials in sewer network.
C701.2	2. Design the sewers network and understand the self purification process in flowing water.
C701.3	3.Deisgn the varies physic- chemical treatment units
C701.4	4. Design the various biological treatment units
C701.5	5. Design various AOPs and low cost treatment units.

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV72	COURSE ID	C702
COURSE TITLE		15CV72 Design of RCC and Steel Structures					
COURSE OUTCOME NO							
C702.1		Classify RC elements subjected to flexure and shear by codal provisions.					
C702.2		Interpret different structural element and its working behaviour and apply the same in the design.					

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV73	COURSE ID	C703
COURSE TITLE		15CV73 Hydrology and Irrigation Engineering					
COURSE OUTCOME NO							
C703.1		Define all the terminologies in Hydrology & Irrigation engineering					
C703.2		Describe the process of precipitation, hydrological abstractions & water requirement of crops.					
C703.3		Calculate the hydrological losses, canal dimensions & reservoir parameters.					
C703.4		Interpret the precipitation, hydrograph data & reservoir data.					

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV741	COURSE ID	C741
COURSE TITLE		15CV741 Design of Bridges					
COURSE OUTCOME NO							
C741.1		Knowledge on bridges					
C741.2		Classify the bridges					
C741.3		Solve the problem on bridges					

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV743	COURSE ID	C743
COURSE TITLE		15CV743 Design Concepts of Building Services					

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COURSE OUTCOME NO	
C743.1	CO1: Describe the basics of water supply & plumbing system and select suitable solid waste disposal method.
C743.2	CO2: Identify suitable HVAC system for health and comfort of the occupants.
C743.3	CO3: Select efficient electrical and firefighting components for proper functioning of building.
C743.4	CO4: Decide the suitable engineering service required as per user needs.
C743.5	CO5: Develop house plumbing and firefighting plans.

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV742	COURSE ID	C742
COURSE TITLE		15CV742 Ground Water & Hydraulics					
COURSE OUTCOME NO							
C742.1		Define all the terminologies in GROUNDWATER AND HYDRAULICS					
C742.2		Describe the process of well hydraulics, groundwater exploration and recharge techniques.					
C742.3		Calculate the aquifer parameters under steady and unsteady flow condition.					
C742.4		Interpret the types of groundwater exploration					

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV751	COURSE ID	C751
COURSE TITLE		15CV751 Urban Transportation and Planning					
COURSE OUTCOME NO							
C751.1		Recall basic concepts and methods of UTP in India					
C751.2		Summarize methods of designing, conducting and administering surveys to provide the data required for transportation planning					
C751.3		Examine and apply travel demand modelling, Mode choice modelling and traffic assessment modelling					
C751.4		Formulate the need of land use modelling and illustrate land use models for UTP					

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CV71	COURSE ID	C701
COURSE TITLE							
COURSE OUTCOME NO							
C701.1							

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CVL76	COURSE ID	C706
COURSE TITLE		15CVL76 Environmental Engineering Laboratory					

COURSE OUTCOME NO	
C706.1	Acquire capability to conduct experiments and estimate the concentration of different parameters.
C706.2	2. Compare the result with standards and discuss based on the purpose of analysis.
C706.3	3. Determine type of treatment, degree of treatment for water and waste water.
C706.4	4. Identify the parameter to be analyzed for the student project work in environmental stream.

DEPARTMENT	CV	SEMESTER	7	COURSE CODE	15CVL77	COURSE ID	C707
COURSE TITLE		15CVL77 Computer Aided Detailing of Structures					
COURSE OUTCOME NO							
C707.1		Outline different sectional view of RC and steel elements.					
C707.2		Develop detailed working drawings of RC structural elements					
C707.3		Develop detailed working drawings of steel structural elements					

DEPARTMENT	CV	SEMESTER	8	COURSE CODE	15CV81	COURSE ID	C801

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COURSE TITLE	15CV81 Quantity Surveying and Contracts Management
COURSE OUTCOME NO	
C801.1	Understand the importance of cost estimation and quantity estimation in any type of construction work.
C801.2	Estimate the quantities of work, develop the bill of quantities and arrive at the Cost of civil engineering Project
C801.3	Understand and apply the concept of Valuation for Properties
C801.4	Understand, Apply and Create the Tender and Contract document.

DEPARTMENT	CV	SEMESTER	8	COURSE CODE	15CV82	COURSE ID	C802
COURSE TITLE		15CV82 Design of Pre Stressed Concrete Elements					
COURSE OUTCOME NO							
C802.1		CO1:- Describe and analyze the stresses encountered in PSC elements.					
C802.2		CO2:- Describe and analyze the losses of stresses in PSC elements.					
C802.3		CO3:- Analyze and design at ultimate flexural strength in PSC elements.					
C802.4		CO4:- Analyze and design the components of shear resistance and modes of failure in PSC elements.					
C802.5		C05:- Analyze and design the flexural and shear strength for composite sections.					

DEPARTMENT	CV	SEMESTER	8	COURSE CODE	15CV832	COURSE ID	C832
COURSE TITLE		15CV832 Hydraulic Structures					
COURSE OUTCOME NO							
C832.1		Describe various aspects, design principles, elementary and practical profiles gravity dams.					
C832.2		Describe causes, failures of earthen dam and determination of phreatic line with quantity of seepage.					
C832.3		Describe various types of spillways, diversion head works and design of ogee spillway, apron's using different theories.					
C832.4		Explain various types of cross drainage works, design of protection works and aqueduct.					
C832.5		Explain canal regulation works function, types and its necessity.					

DEPARTMENT	CV	SEMESTER	8	COURSE CODE	15CV833	COURSE ID	C833
COURSE TITLE		15CV833 Pavement Design					
COURSE OUTCOME NO							
C833.1		Identify and categorize the factors affecting the design and performance of pavements.					
C833.2		Explain the basic concepts used to analyse flexible and rigid pavements					
C833.3		Explain different design methods for flexible and rigid pavement design.					