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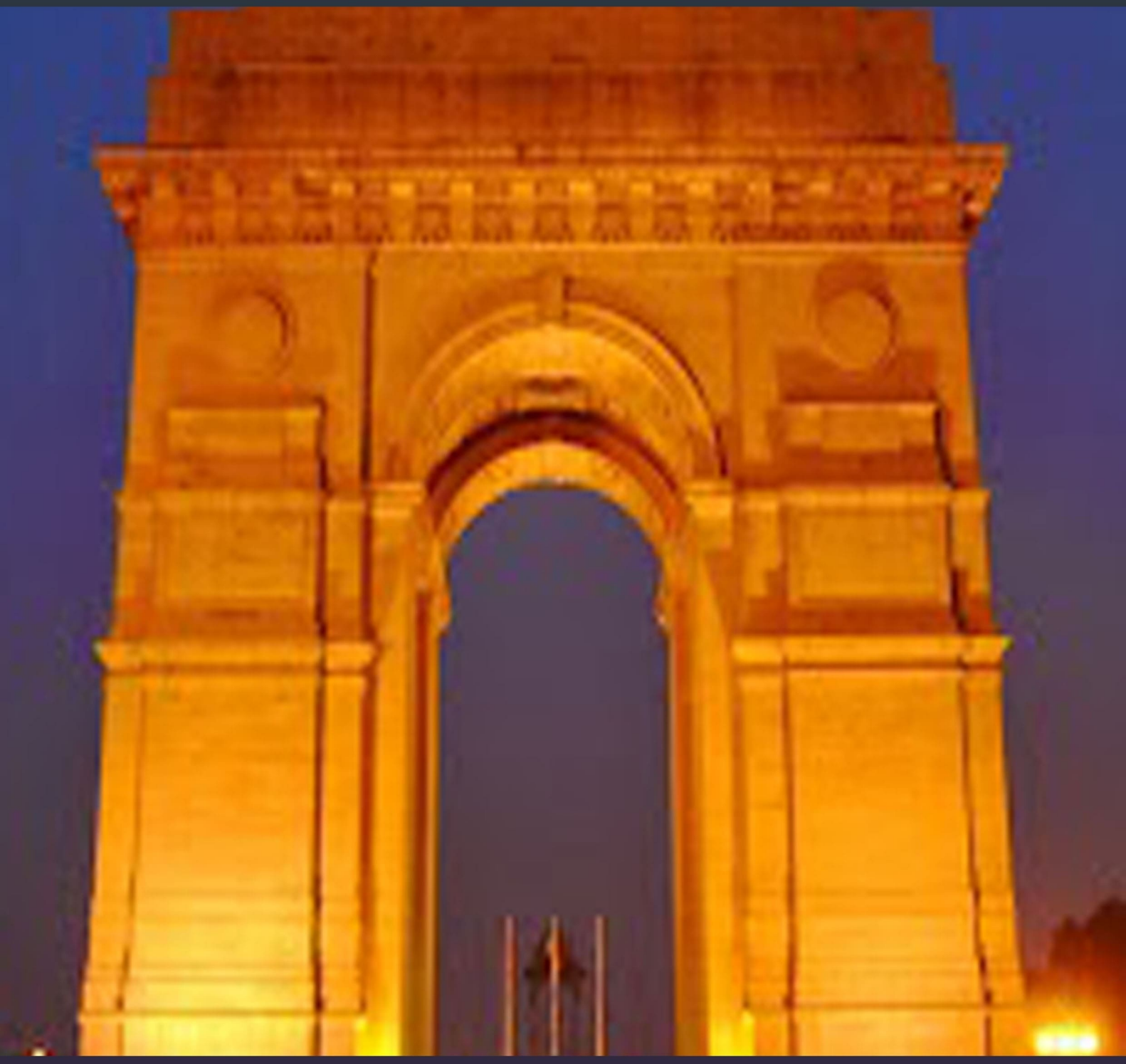
AIM BEYOND THE HORIZON



Dr. Mahalingam College of Engineering and Technology
Department of Civil Engineering

VISION AND MISSION OF THE INSTITUTION

Vision

We develop a globally competitive workforce and entrepreneurs

Mission

Dr. Mahalingam College of Engineering and Technology, Pollachi endeavors to impart high quality, competency based technical education in Engineering and Technology to the younger generation with the required skills and abilities to face the challenging needs of the industry around the globe. This institution is also striving hard to attain a unique status in the international level by means of infrastructure, state-of-the-art computer facilities and techniques

VISION AND MISSION OF THE DEPARTMENT

VISION

To develop Competent Civil Engineers to meet the infrastructure challenges of India and the world.

MISSION

• To become one of the reputed departments offering Civil Engineering Program in the country.
• To produce excellent engineers to cope up with the changes through dynamic, innovative and flexible curriculum.
• To provide a conducive environment for teaching & learning and to develop leaders with effective communication skills.
• To conduct quality research driven by industry & societal needs and provide affordable engineering solutions.
The Programme Educational Objectives (PEOs) of our department are,

The Programme Educational Objectives (PEOs) of our department are,

The Graduate will

PEO 1 Technical Expertise: Have successful professional careers dealing with analysis, design and management of construction projects globally.
PEO 2 Lifelong learning: Exhibit attitude, professionalism, ability to communicate with team members and adapt to the latest trends by engaging themselves in continuous learning.
PEO 3 Ethics: Ethically apply their engineering knowledge and skills considering, societal, economic and environmental factors.

PROGRAMME OUTCOMES (POs)

The graduates of Civil Engineering Programme will be able to:

PO1.Engineering knowledge: Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization in the field of Civil Engineering.

PO2. Problem analysis: Identify, formulate, analyse and solve complex problems in construction industries using principles of mathematics, natural sciences and engineering sciences.

PO3. Design/development of solutions: Design a solution for complex civil engineering problems and design system processes to meet specific needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO4. Conduct investigations of complex problems: Conduct investigations of complex problems including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusion.

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understanding the impact of engineering solutions in social environment and demonstrate the knowledge for sustainable expansion.

PO8. Ethics: Apply ethical principles and commit to professional ethics and the norms of engineering practices.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

PO10. Communication: Communicate with engineers and society to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions related to civil engineering professionals.

PO11. Project management and finance: Demonstrate and apply the knowledge of engineering and management principles to one's own work, as a team leader or a member to manage project in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the ability to engage in independent and life-long learning in the context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

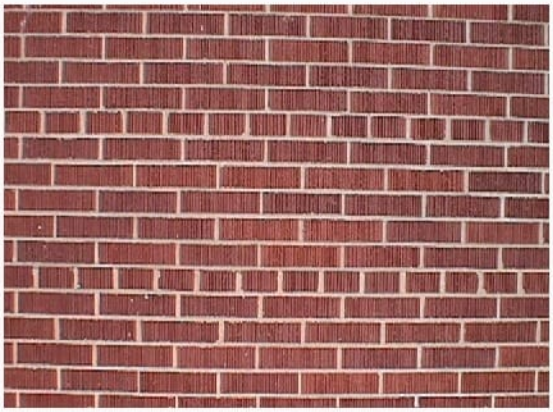
PSO1. Design process:Design the fundamental elements of civil engineering systems, system components and processes considering safety, quality and cost consideration.

PSO2. Quality and standards:Able to plan and prepare design and construction documents such as specifications, contracts, engineering drawings and construction schedules

TYPES OF BRICK BOND

FACING BOND:

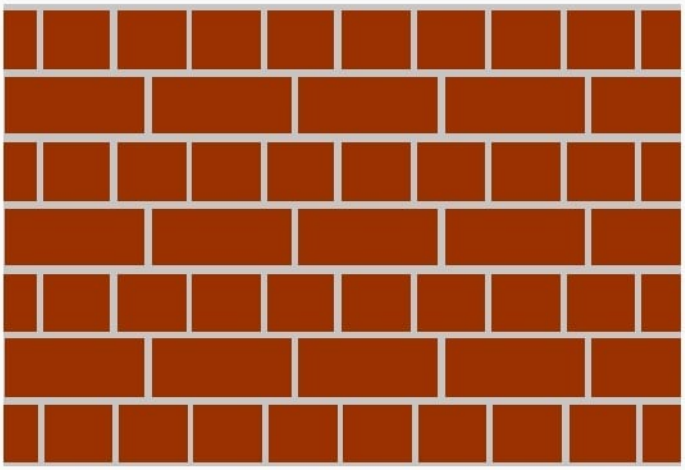
This arrangement of bricks is adopted for thick walls, where the facing and backing are desired to be constructed with bricks of different thickness. This bond consists of heading and stretching courses so arranged that one heading course comes after several stretching courses. Since the number of joints in the backing and the facing differ greatly, the load distribution is not uniform. This may sometimes lead to unequal settlement of the two thickness of the wall.



RAKING BOND:

This is a bond in brick work in which the bonding bricks are laid at any angle other than zero or ninety degrees. This arrangement helps to increase the longitudinal stability of thick walls built in English bond. In this arrangement of bonding, the space between the external stretchers of a wall is filled with bricks inclined to the face of the wall. This bond is introduced at certain intervals along the height of a wall.

TYPES OF BRICK BOND

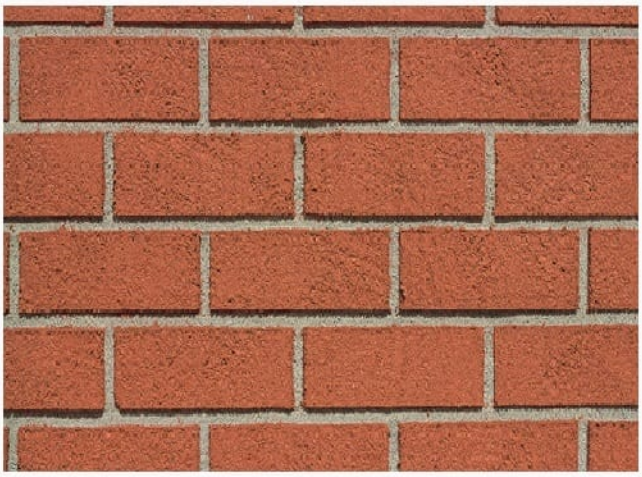


DUTCH BOND:

This bond is a modification of the old English cross bond and consists of alternate courses of headers and stretchers. In this arrangement of brick work, each stretching course starts at the quoin with a three-quarter bat and every alternate stretching course has a header placed next to the three-quarter

STRETCHING BOND:

In this arrangement of bonding, all the bricks are laid as stretchers. The overlap, which is usually of half brick, is obtained by commencing each alternate course with a half brick bat. Stretching bond is used for half brick wall only. This bond is also termed as running bond and is commonly adopted in the construction of half brick thick leaves of cavity walls, partition walls, etc. Since there are no headers, suitable reinforcement should be used for structural bond.



M GOUTHAM (14BCE020)

Concrete: Engineering Information

Concrete is a basic building block of our everyday world. It's used in almost every type of structure that we build today. This engineering guide to concrete will give you a variety of information about concrete, including some best practices for various situations.

Concrete is one of the most prevalent building materials known to man. From roadways to houses and just about everything in between, you'll find concrete in it somewhere. Many people believe that cement and concrete are the same thing. They aren't. Each has properties that make it distinct from the other, and these properties are what make them useful in different applications. When concrete is poured, being basically a liquid, it needs something to keep it in the shape that you want or need. You'll read about what these are and how they are used and cared for. The process by which concrete solidifies is known as curing. How curing occurs and what occurs during the curing process will be discussed. Advanced concrete building concepts such as pre-cast homes and expansion joints will be discussed in detail. How do you know how much concrete a specific job will require? You'll find out how to make this determination. Concrete by itself is pretty strong, but there are ways to make it even stronger, and these will be discussed below. The use of concrete in areas that experience seismic activity is very prevalent, but there are certain precautions that must be taken in this type of area that aren't required in other areas. Concrete is affected by weather and environmental conditions. Concrete preservation is important and you'll read about some methods for concrete preservation. This Engineering Guide to Concrete will present you with some best practices to make your use of concrete more efficient and productive by giving you a more thorough understanding of concrete.

KARUNYA GRACE (14BCE003)
T KANIMOZHI (14BCE049)

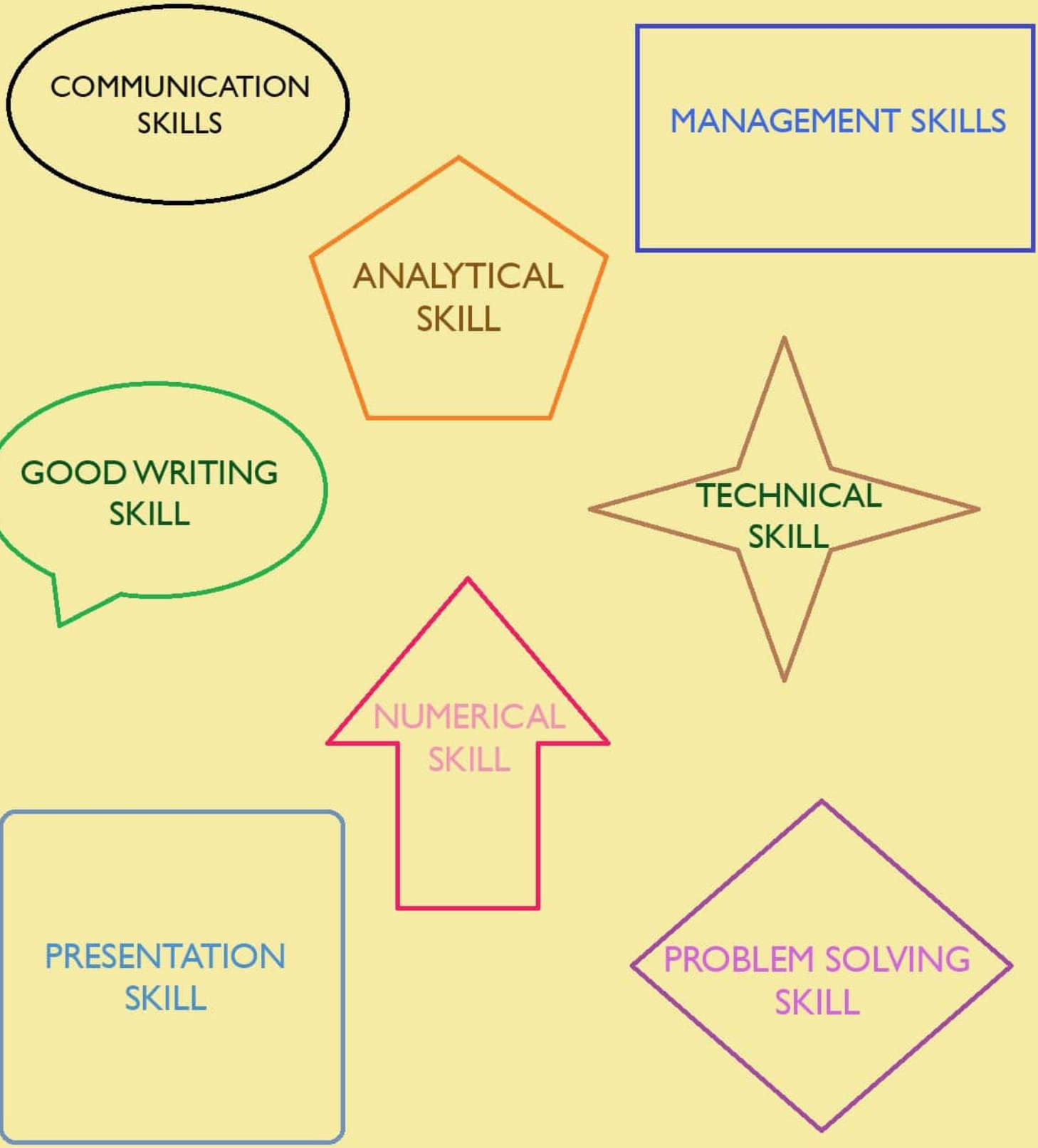
ASSOCIATION ACTIVITIES

TOPIC	RESOURCE PERSON
One Day Masons Training Programme	Mr. S. Gnanavel Murugan, Deputy manager, Ultra Tech Cement Ltd. Chennai Mr. A. Sathish, UltraTech Cement Ltd. Er. S. Ramkumar, ACE, Pollachi.
Seminar on “Roles of Civil Engineer an and Architect”	Prof. Arch. C. K. Jetty
Seminar on “Fly Ash and its Advantages”	Dr. N. Kalidas, Founder of INSWAREB Executive Director of Eco Carbon Pvt. Ltd. Vishakapat-tinam

Students Cocurricular Activities

C.Vinayagamoorthi (14BCE310) C.Pravin Kishore (14BCE041)	Survekshan I Prize	Bannari Amman Institute of Technology,Sathy
C.Vinayagamoorthi (14BCE310) C.Pravin Kishore (14BCE041)	Modeledo II Prize	Bannari Amman Institute of Technology,Sathy
P.V.Harishsaravana (14BCE040) M.Pravin Kumar (14BCE019) C.Pravin Kishore (14BCE041) M.Pravin Kumar (14BCE019)	Intelligent Engineers II Prize CADD Canny	Bannari Amman Institute of Technology,Sathy Bannari Amman Institute of Technology,Sathy
AL.Meyyammai R.Divyadharshini M.Sandhiya S.Omprakash S.Chandrasekar S.Bharathikumar S.Kavendran	II Prize One day Workshop on “Demonstration on Structural Models and Irrigation Structures	Government College of Technology, Coimbatore
Manoj.K (14BCE053) Muthuganapathy.E (15BCE313) Goutham.M (14BCE020) Balasubramaniyan.N (14BCE044) Satheesh Kumar.R (14BCE043) Samsudeen. M. F (14BCE046)	Surveying I Prize Confloat I Prize Confloat II Prize	Mepco Schlenk College of Engineering, Sivakasi Mepco Schlenk College of Engineering, Sivakasi Mepco Schlenk College of Engineering, Sivakasi

9 SKILLS NECESSARY FOR A SITE ENGINEER



KAVYA (14BCE007)

How to Read a Soil Report?

- Jayant R Row

A design engineer needs to know the condition of the soil beneath the structure proposed to be built and its capacity to support the structure safely. Of main importance to the engineer will be the allowable soil bearing pressure on the soil and the possibilities of settlement in the foundation after loads have been applied on it for a period of time. The existing groundwater table, the possibility of uplift pressures on the foundations because of this, and whether such groundwater needs to be drained away or the structure properly treated to counter any effects of dampness are also points that need consideration

There are times when the general slope of the land can trigger the possibility of a structure sliding once loads are imposed. These are countered by the sliding friction factor inherent in soils and which need to be part of the report. The chemical composition of the soil can quite often have deleterious effects on concrete and steel, and engineers need to be forewarned of these factors beforehand so that they can take action by suggesting different forms of cement or other methods to counter these corrosive effects

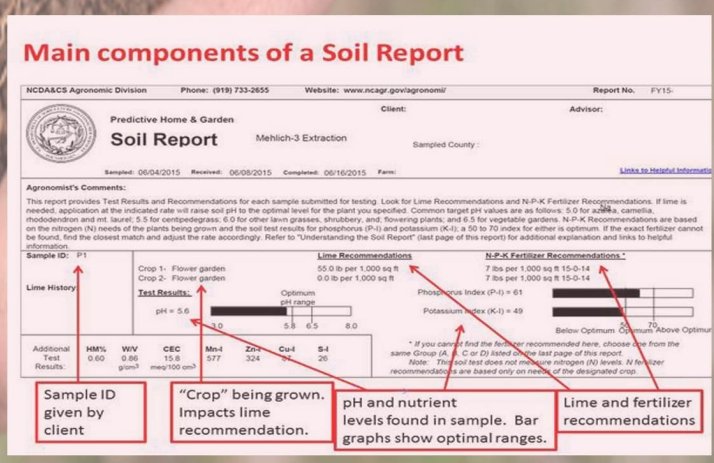
A geotechnical report has to be firm in its recommendation for foundations and the depths at which safe soil bearing capacities will be available. They may also make recommendations for deeper foundations or piling. Geotechnical reports also need to indicate the seismic conditions prevalent in that area and the need for the designer to include these in structural designs

How to read a soil report if you are a contractor: a contractor may look at geotechnical soils reports with a different perspective. The contractor will be concerned with the ground water table and problems that can be encountered in the dewatering of foundations. If rock is present either in sheet form or boulder form, it can hamper the progress of the foundation especially if time consuming drilling, breaking, and blasting is required. The report would also indicate to the contractor whether it will be possible to use rippers and excavators to remove the soil to reach the desired foundation level. Some designers do not permit this beyond a certain depth to prevent disturbance of the ....soil

A soil test report will also indicate safe side slopes for temporary excavation. If these slopes are not steep, it greatly increases the amount of material that requires removal. It may also require sides to be shored up in extreme conditions, and this greatly increases construction costs. A contractor would also need to know from the report whether soil removed from the excavation can be reused for backfill. Soils with poor chemical properties or which are corrosive in nature may require complete removal from the site, thus increasing the cost of transporting this soil out and replacing it with an accepted fill mate-.rial

Items Included in Geotechnical Soil Reports

Geotechnical soils reports will briefly review the geological history of the area coupled with a reconnaissance report of the particular site and its surroundings. The details of sampling will indicate the location of each borehole, its elevation and depth and a rough indication of the soils encountered at each level of the borehole. Groundwater conditions are also noted which allow for estimating future seepage into foundations, uplift pressures on foundations and the need for adequate drainage. The report will give a classification of all the various types of soils encountered along with their strengths as determined in the laboratory or on site. Finally the most important information in these reports will be the bearing ca-,pacity of the soil



D NIVETHA (13BCE022)

T SIVAPRIYA (13BCE056)

ROMAN CONCRETE

Roman concrete, also called opus caementicium, was a material used in construction during the late Roman Republic until the fading of the Roman Empire. Roman concrete was based on a hydraulic-setting cement. Recently, it has been found that it materially differs in several ways from modern concrete which is based on Portland cement. Roman concrete is durable due to its incorporation of volcanic ash, which prevents cracks from spreading. By the middle of the 1st century, the material was used frequently, often brick-faced, although variations in aggregate allowed different arrangements of materials. Further innovative developments in the material, called the Concrete Revolution, contributed to structurally complicated forms, such as the Pantheon dome, the world's largest unreinforced concrete dome.

Roman concrete was normally faced with stone or brick, and interiors might be further decorated by stucco, fresco paintings, or thin slabs of fancy coloured marbles. Made up of aggregate and cement, like modern concrete, it differed in that the aggregate pieces were typically far larger than in modern concrete, often amounting to rubble, and as a result it was laid rather than poured. Some Roman concretes were able to be set underwater, which was useful for bridges and other waterside construction.It is uncertain when Roman concrete was developed, but it was clearly in widespread and customary use from about 150 BC; some scholars believe it was developed a century before that.

ROMAN CONCRETE

MATERIAL PROPERTIES

Roman concrete, like any concrete, consists of an aggregate and hydraulic mortar – a binder mixed with water that hardens over time. The aggregate varied, and included pieces of rock, ceramic tile, and brick rubble from the remains of previously demolished buildings. Reinforcing elements, such as steel rebar, were not used.

Gypsum and lime were used as binders. Volcanic dusts, called pozzolana or "pit sand", were favored where they could be obtained. Pozzolana makes the concrete more resistant to salt water than modern-day concrete.[6] The pozzolanic mortar used had a high content of alumina and silica.

Concrete, and in particular, the hydraulic mortar responsible for its cohesion, was a type of structural ceramic whose utility derived largely from its rheological plasticity in the paste state. The setting and hardening of hydraulic cements derived from hydration of materials and the subsequent chemical and physical interaction of these hydration products. This differed from the setting of slaked lime mortars, the most common cements of the pre-Roman world. Once set, Roman concrete exhibited little plasticity, although it retained some resistance to tensile stresses.

The setting of pozzolanic cements has much in common with setting of their modern counterpart, Portland cement. The high silica composition of Roman pozzolana cements is very close to that of modern cement to which blast furnace slag, fly ash, or silica fume have been added.

ROMAN CONCRETE

Compressive strengths for modern Portland cements are typically at the 50 MPa level and have improved almost ten-fold since 1860.[7] There are no comparable mechanical data for ancient mortars, although some information about tensile strength may be inferred from the cracking of Roman concrete domes. These tensile strengths vary substantially from the water/cement ratio used in the initial mix. At present, there is no way of ascertaining what water/cement ratios the Romans used, nor are there extensive data for the effects of this ratio on the strengths of pozzolanic cements.

KARTHIK PANDI (13BCE305)
S SUBARNA (12BCE052)

Faculty Contribution to the Department Development

Ms.M. Ranjitham AP/Civil	Seven Days Workshop On "Strength of Materials"
Mr. S.Krishnakumar AP / Civil	3rd National Summit on Sustainable Institute Industry Partnership & SIIP Awards - 2015
Mr. L.Lokesh AP / Civil Mr.P.S.Sathish Kumar AP / Civil Mr. SR.Durai Eshwaran AP (SS) / Civil Ms.Ranjitham AP / Civil	Two Week STTP on "Environmental Studies"
Mrs.C.Latha AP (SS) / Civil Mr. S.Krishnakumar AP / Civil	Technical Letter Writing
Mr. SR.Durai Eshwaran AP (SS) / Civil Mr. A.Manikandan AP / Civil Mr.P.Gowthamramkarthik AP / Civil	Wipro Mission 10X Engineering Faculty Workshop
Mr.A.Manikandan, AP/ Civil Mr.P.S.Sathish Kumar AP/ Civil	Five week ISTE STTP on Technical Communication for STEM faculty (Online Mode)

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