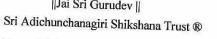


||Jai Sri Gurudev ||







SJB Institute of Technology

(Affiliated to VTU, Accredited by NAAC with 'A' Grade, Approved by AICTE- New Delhi, Accredited by NBA) No. 67, BGS Health & Education City, Dr. Vishnuvardhana Road, Kengeri, Bangalore-560060.



Department of Civil Engineering

Course Outcomes and CO-PO-PSO Articulation Matrix - Batch 2018-22

Semester-I/II

| Subject: | Elem | ents of | civil e | enginee | ering a | | | | | Subj | ect Co | ode:18 | CV14 | | |
|-----------------|------|-----------|---------|----------|---------|-----------|----------|----------|----------|----------|----------|----------|---------|------|-----|
| | | | | | | Cou | rse Ot | itcome | S | | | | | | |
| CO1 | Out | line the | variou | is field | s in Ci | vil En | gineeri | no and | ita im | monton | | | | | |
| CO ₂ | Ana | lyse the | force | system | appli | ed to the | ha ctm | otumol - | 118 1111 | portano | e on in | nfrastri | icture. | | |
| CO3 | Ana | lyse eff | ect of | forces | on sve | tem | ne su u | ciurai | nembe | ers und | er stati | c cond | ition. | | |
| CO4 | Eva | luate the | e effec | t of cer | nter of | gravit | v and r | nom | 1 - C: | | | | | | |
| CO5 | Ana | lyse the | force | system | and d | vnami | c cond | ition | t of in | ertia to | r giver | 1 struct | ure | | |
| | | | | | | |)-PSO | | inσ | | | | | | |
| COs | | | | | | | Os | тарр | S | | - | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 10 | | 1308 | |
| CO1 | 2 | | | | | | <u> </u> | - | | 10 | -11 | 12 | I | 2 | _3 |
| CO ₂ | 3 | 3 | | 5-20- | | | | | | | | | | | |
| CO3 | 3 | 3 | | | | | | | | | | | | | |
| CO4 | 3 | 3 | | | _ | | | | | | | | | | |
| CO5 | 2 | 2 | | | | | | | | | | | - | | u . |
| Average | 2.6 | 2.75 | | | -1 | | - | | | | | | | | |

Semester-III

| | | | | | | 2 | semes | ter-III | | | | | | 0.55 | |
|-----------------|-------|--------------------|-----------------|---------------------|------------------------------|--|-------------------------------|----------------------------|----------------------------|---------|---------|----------|------------------|----------------|----------|
| Subject: | Engin | eering | Mathe | matics | -III | | | | | Sub | iect C | ode:18 | MAT | 21 | |
| | | | | | | Cou | rse O | utcom | es | | | | | 100 | |
| CO1 | | | TOTAL. | | | signals | and | Fouri | er seri | | | | | | |
| CO2 | Exp | ain the g the F | gener ourier | al linea transfo | r syste | em theo d z-trar | ry for | contin | ous - ti | me sig | nals an | d digita | ıl sign | al pro | cessing |
| CO ₃ | Emp | loy ap | propria | ite num | nerical | metho | ds to s | olve al | gehrai | o and t | ***** | J 1 | | nontana. | |
| CO4 | Tipp | y Ole | on s me | orem. | Diver | gence t | heorer | n and | Staken | thoone | | | equati applic | ons. cation | s in the |
| CO5 | Utili | ze the | conce | ermals | of fur function, synth | nctional onal ar nesis an CO-PO | l and s id thei d optii | olve thir varia mizatio | e simp tions on of d | ole pro | blems | for calc | ulus of con | of var | iations. |
| | | | | | | | Os | Mapp | ing | | | | | | |
| COs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | | 10 | | | | PSO | ls |
| CO1 | 3 | 2 | | - | 3 | 0 | , | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO2 | 3 | 2 | | 1000 | | | | | - | | - | - | | - | - |
| CO3 | 3 | 2 | | | | | | - | | - | - | | | | |
| CO4 | 3 | 2 | | | | | | | | | | | | | - |
| CO5 | 3 | 2 | | | | | | | | | - | | | - | |
| | | | | | | 1 | | 1 | | | | | | 1 | 1 |

Page 1 of 20

Commen Head of Department

| Subject: | Streng | gth of | Materia | ıls | | | | | | Sub | iect C | ode: 18 | PCV22 | , | |
|-----------------|--------|--------------------|--------------------|---------|----------|----------|----------|----------|---------|-------------------------|---------|----------|--------|----------|---------|
| | | | | | | Cou | rse Ou | itcom | AG . | | | | | | |
| CO1 | Exp | lain th es, tan | e basic gential | concer | ots of s | tress a | nd stra | in, stre | ength o | f differ | rent m | aterials | exper | riencing | g axial |
| CO2 | Eval | uate th | ne inter | nal for | ces and | l resist | ance m | echan | ism for | r one d | imensi | onal ar | ıd two | -dimen | sional |
| CO ₃ | | | ending a | | earing | stresse | e induc | and day | | e de Montago de de Cons | | - | | | |
| CO4 | Dete | rmine | slope a | nd def | lection | e in he | ome by | ed due | to rep | resent | ative I | oads or | ı beam | ıs. | |
| CO ₅ | Estin | nate th | ne stren | gth of | torsion | memi | allis by | Jumpa | le inte | gration | metho | od. | | | |
| | | | | | (| CO-PC |)-PSO | Mann | ing | ruts. | | | | | |
| COs | | | | | | | Os | Tixepp | ing_ | | _ | | | PSOs | 10 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | F-12 | |
| CO ₁ | 3 | 3 | 1 | | | - | | | | 10 | 11 | 1000000 | 1 | 2 | 3 |
| CO ₂ | 3 | 3 | 2 | | | | | | | - | | 3 | 3 | | |
| CO3 | 3 | 3 | 2 | | | | - W-10 | | | | | 2 | 3 | | |
| CO4 | 3 | 3 | 2 | | | | | | | | | 2 | 3 | | |
| CO5 | 3 | - | | - | | | | | | | | 1 | 3 | | |
| | | 3 | 2 | | | | | | | | | 1 | 3 | | |
| Average | 3 | 3 | 1.8 | | | | | | | | | 1.8 | 3 | | |

| Subject: | Fluid | Mech | anics | | | | | | | Sub | iect C | ode: 18 | CV22 | | | |
|---|-------|--|---------|----------|-----------|-----------|---------|--------|----------|--------|---------|-------------|---------|------|--|--|
| | | 1000 | | | | Con | rse Oı | itcom | AC | Dub | jeere | oue. 18 | C V 33 | | | |
| CO1 | Iden | tify th | e prope | erties c | of fluid | 25 2 00 | ntinuu | m | CS | | | igari 🛌 🛌 | | | | |
| CO ₂ | Solv | e Prot | olems o | n hydi | rostatic | inclu | ding pr | notice | 11! | | | | | | | |
| CO3 | Dem | Solve Problems on hydrostatic, including practical applications Demonstrate apply the principles of continuity, moment and energy as apply to fluid Determine the flow measurements and various losses in flow through pipes | | | | | | | | | | | | | | |
| CO4 | Dete | rmine | the flo | w mea | sureme | ente an | d vorio | ny, m | oment a | na en | ergy as | apply | to flui | d | | |
| CO5 | | | | ., .,, | war offic | nis an | u vario | us 108 | ses in I | low th | rough | pipes | | | | |
| | | | | | (| CO-PC |)-PSO | Man | nina | | | | | | | |
| | | | | 101 | | A Section | Os | map | hrug | | | | | | | |
| COs | 1 | 2 | 3 | 4 | 5 | | 7 | 0 | To | | | World World | | PSOs | | |
| CO1 | 2 | 2 | 1 | 1 | 3 | 6 | 1 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | | |
| CO2 | 2 | $\frac{2}{2}$ | 1 | 1 | | 1 | 1 | | 1 | - | 1 | 2 | 1 | 2 | | |
| | | | 2 | 1 | 1 | 2 | 1 | | 1 | | 2 | 1 | 1 | 1 | | |
| CO3 | 2 | 2 | 1 | | | 2 | | | 2 | | 2 | 1 | 1 | 1 | | |
| CO4 | 2 | 2 | 1 | | 1 | 1 | 2 | | 1 | | 1 | 1 | | 1 | | |
| CO5 | | | | | | | 2.2 | | | | 1 | 1 | 1 | 1 | | |
| NAME OF THE PARTY | | | - | | | | | _ | 1 | | | 1 | () | | | |

| ubject: | Dullul | ng Ma | teriais | and Co | onstruc | tion | | | | Subj | ect Co | de: 18 | CV34 | | |
|-----------------|--------|---------------------|---------|---------|---------|----------|--------|---------|---------|----------|---------|-----------|----------|--------|-------|
| | _ | | | | | Cou | rse Ou | itcome | S | | | | | | |
| CO1 | Deve | elop kn truction | owled | ge of n | nateria | l scien | ce and | behav | iour of | variou | s build | ling ma | iterials | used i | n |
| CO ₂ | Ident | ify the | constr | uction | mater | ials red | mired | for the | accion | ed wor | 1. | - | | | |
| CO ₃ | Prov | ide pro | cedura | l know | vledge | of the | simple | testing | assigii | ods of | K. | 4 1: | 1 | | |
| CO4 | Adop | t suita | ble rep | air and | l main | tenanc | e work | to enh | ance d | lurabili | ty of h | ı, illine | and co | ncrete | etc |
| | | | | | (| CO-PC |)-PSO | Марр | ing | uraum | ty of b | unamg | ,S. | | |
| COs | | | | | | 2000000 | Os | - 11 | - 0 | | | | | PSOs | 11.00 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 13 |
| CO ₁ | 2 | | | | | | | | 161 | | | | 2 | | |
| CO2 | 2 | | | | | | 1 | | | | | | | - | |
| CO3 | 2 | | | | | | 1 | | | | | | 2 | 1 | |

| CO4 | 2 | | | -TT | _ | | | _ |
|---------|---|--|---|---------|-------|------|---|---|
| Average | 2 | | 1 | | 1 | | | |
| | | | | | 1 | 1.66 | 1 | |

| Subject: | Basic | Survey | ing | | | | | | | Subi | ect Co | ode: 12 | RCV35 | | - |
|-----------------|-------|----------|--------|---------|----------|---------|----------|---------|----------|------------|---------|---------|---------|-------------|---|
| | | | | | | Cou | rse Ou | itcome | 2 | | | | JC V 33 | 9) | - |
| CO1 | Outl | ine the | funda | mental | princi | nles of | fsurve | vina | | | | | | | |
| CO ₂ | Utili | ize line | ar and | angula | r meas | ureme | ent to s | olve ba | cio cui | T (Ox in a | 1.1 | | | - | _ |
| CO3 | Mak | e use o | f geod | etic da | ta to so | lve cu | Imay n | mahlam | isic sui | veymg | g probl | ems | | | |
| CO4 | Ana | lyze ob | tained | snatial | data a | nd cor | n vey p | hagen | IS 1 | | | | | | |
| | | | | spatial | (data a | CO-PC | D-PSO | Mann | as and | volum | es | | | | |
| COs | | | | | | | Os | mapp | ıng | | | | - | DOO | _ |
| COS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 0 | 10 | 11 | 10 | | PSOs | |
| CO1 | 2 | 2 | 3F3 | - | - | - | 1 | O | 9 | 10 | 11 | 12 | 1 | 2 | |
| CO2 | 2 | 2 | | - | | | | | | | | 1 | 2 | 2 | |
| CO3 | 2 | 3 | | 2 | | | | | | | | | 2 | 2 | |
| CO4 | 2 | | | 2 | | | | | | | | | 1 | 1 | |
| | | 2 | | | | | 3 | 1 | | | | | 2 | 2 | |
| CO5 | | a Land | | | | | | | | | | | | | |
| Average | 2 | 2.2 | | 2 | | | 3 | 1 | | | | 1 | 1.7 | 1.7 | _ |

| Subject: | Engir | eering | Geolo | gy | | | | | | Sub | iect Co | ode: 18 | CV36 | | |
|--------------------------|----------------|------------------|--------------------|---------|----------------------|------------------|-------------------------|----------|---------|----------|----------|-------------------|---------|---------------|--------|
| | | | | | | Cou | rse Ou | itcome | S | | | | | 8 | |
| CO1 | App | ly geol | ogical | knowl | edge in | differ | rent civ | il engi | neerin | g pract | ice | | | | |
| CO2 | acqu | ire kno | wledg | e on di | ırabilit terials. | y and | compet | tence o | f foun | dation | rocks, | and con | nfiden | ce end | ough t |
| CO3 | comp | petent of | enough | for th | e safet | y, stab | ility, e | conom | y and | life of | the stru | ctures | that tl | ney | - |
| CO4 | solve are o | variou | us issu infront | es rela | ted to g | ground | l water er prob | exploi | ration, | build t | ıp dam | s, brid | ges, tı | nnels | whic |
| | | | | | | | | | | | | | | | |
| CO5 | apply | GIS, | GPS a | nd rem | ote sen | sing a | s a late | est tool | in diff | ferent c | ivil en | gineeri | ing co | nstruc | tion. |
| CO5 | apply | GIS, | GPS a | nd rem | ote sen | ising a | s a late | st tool | | ferent c | ivil en | gineeri | ing co | nstruc | tion. |
| | apply | GIS, | GPS a | nd rem | ote sen | sing a | s a late O-PSO Os | st tool | | ferent c | ivil en | gineeri | ing co | | |
| COs | apply | GIS, | GPS at | nd rem | ote sen | sing a | s a late | st tool | | ferent c | ivil en | | ing co | PSO | |
| | apply | GIS, | GPS a | nd rem | ote sen | sing a | s a late D-PSO Os | est tool | ing | | | 12 | | PSO 2 | |
| COs | apply | GIS, | GPS a | nd rem | ote sen | CO-PC P | O-PSO Os 7 2 | est tool | ing | | | 12 2 | | PSO 2 2 | |
| COs | apply 1 2 | 2 2 | GPS a | nd rem | ote sen | CO-PC PC 6 3 | s a late O-PSO Os 7 | est tool | ing | | | 12 | | PSO 2 | |
| COs CO1 CO2 | 1 2 2 2 | 2 2 2 | GPS a | nd rem | ote sen | CO-PC PC 6 3 2 | O-PSO Os 7 2 2 | est tool | ing | | | 12 2 2 2 | | PSO 2 2 2 2 2 | |
| COs CO1 CO2 CO3 | 1 2 2 2 2 | 2 2 2 2 | GPS a | nd rem | ote sen | CO-PC PC 6 3 2 2 | O-PSO Os 7 2 2 3 | est tool | ing | | | 12 2 2 | | PSO 2 2 2 2 | |

| Subject: | Computer Aided Building Planning and Drawing | Subject Code: 18CVL37 |
|----------|---|---|
| | Course Outcomes | |
| CO1 | Prepare, read and interpret the drawings in a professi | onal set up. |
| CO2 | Know the procedures of submission of drawings and I for building. | Develop working and submission drawings |
| CO3 | Plan and design are residential or public building as p | per the given requirements. |
| | CO-PO-PSO Mapping | |
| | | |

Page **3** of **20**

| | | | | | P | Os | | | | | | | PSOs | |
|---|------------------|-------------------|-----------------------|--|--|-------------|---|-----------------|-------------------|---------------------|---------------|---------------|----------------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 0 | 10 | 11 | 10 | | 1 505 | T = |
| 1 | 2 3 | | | | 1 | | - | | 10 | 11 | 12 | | 2 | 3 |
| 1 | | | | | 1 | | 1 | | | | 1 | 1 | | |
| 1 | | | | | 1 | | 1 | | | | 1 | 1 | | |
| 1 | | - | | | 1 | | 1 | | | | _1 | _1_ | | |
| ֡ | 1 1 1 1 | 1 2 1 1 1 1 | 1 2 3 1 1 1 1 1 | 1 2 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 2 3 4 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 2 3 4 5 6 | POs 1 2 3 4 5 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 2 3 4 5 6 7 0 | 1 2 3 4 5 6 7 0 0 | 1 2 3 4 5 6 7 9 9 1 | 1 2 3 4 5 6 5 | 1 2 3 4 5 6 5 | 1 2 3 4 5 6 7 8 0 40 | 1 2 3 4 5 6 7 8 0 10 H |

| - Lajeeti | Buildi | ng Ma | terials | Testin | g Labo | ratory | | | | Subj | ect Co | de: 18 | CVL3 | 8 | |
|-----------|--------|---------------------|--------------------|------------------|--------------------|-----------------|-----------------|-------------|---------------|---------------------|-----------------|----------|--------|---------|-------|
| | | | | | | Cou | rse Ou | itcome | es | | | | | 100 | |
| CO1 | Appl | ly the l rials u | basic k nder th | nowle e actio | dge of on of te | Engin nsion, | eering compr | and Mession | lathem, bendi | atics to ng, she | study ar and | the be | havioi | r of bu | ildin |
| CO2 | Estin | nate the | e hardr | iess an | d impa | ct strei | igth of | variou | s meta | ls such | as mil | d steel, | alumi | num, c | oppe |
| COA | Eval | rata th | ol | . 1 | omny many a | | 300 | | | | | | | | |
| CO3 | Lvan | | e pnysi | icai pro | opertie | s of ag | gregate | es and | their in | npact o | on cons | structio | n Indu | ıstry. | |
| CO3 | Lvan | | e physi | icai pro | | | | | | npact o | on cons | structio | n Indu | ıstry. | |
| | Lvan | uate in | e physi | ical pro | | CO-PC | | | | npact (| on cons | structio | n Indu | | |
| COs | 1 | 2 | 3 | 4 | | CO-PC | -PSO | | | | | | n Indu | PSOs | _ |
| | 1 2 | | | | (| Po-Po | -PSO | Mapp | ing 9 | npact o | on cons | structio | 1 | | 3 |
| COs | 1 | 2 | | | (| Po-Po | -PSO | 8 2 | 9 3 | | | | 1 2 | PSOs | _ |
| COs | 1 2 | 2 2 | | | (| Po-Po | -PSO | Mapp 8 | ing 9 | | | | 1 | PSOs | _ |

Semester-IV

| Subject: | Engin | eering | Mathe | matics | -IV | | 1000 | | | Sub | ject Co | ode:18 | MAT4 | 11 | |
|-----------------|---------------|--------------------|--------------------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|--------------------|--------------------|---------------------|-------------------|--------------------|-----------|
| | | | | | | Cou | rse O | utcom | es | | | 1000 | | | - |
| CO1 | - | TITUTUD | and sector | ivilval | HICHIC | IUS: | | | | | | | | | |
| CO2 | Solv | eprobl | lems of dinatesy | quant | um me | chanic | s empl re's po | loying lynom | Bessel ials rel | 's funct | ion rel | ating to | o cycli lar co | indrica ordinat | l te |
| CO3 | the o | y and | the an | magne | tuc the | orv De | escribe | conto | rmal ar | nd hilim | compl ear tra | ex potensform | entials ation | in fiel arising | d in |
| CO4 | prob | e prob ability | lems or distrib or feasi | າ proba utions | ability and sto | distrib ochasti | utions | relatin | o to di | gital ci | gnal pr ultivar | ocessin | ng, De rrelati | termie on | joint |
| CO5 | Dray or re | v the v jecting | alidity the hy elated t | of the pothes | hypoth is, Def | esis pr inetrar | isition | probal | bility n | n samp natrix c | ling di of a Ma | istribut arkov c | ion in hain a | accept nd solv | ing ⁄e |
| | | | | | | | | Mapp | | | | | | | 1999 |
| COs | S | | | | | | Os | - PP | ****5 | | | - | | PSOs | _ |
| COS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 3 | 2 | | | | | | | | 3,472 | | 12 | | 4 | 3 |
| CO ₂ | 3 | 2 | | | | | | | | | | | | | |
| CO3 | 3 | 2 | | | | | | | | | | | | | |
| | 2 | 2 | 111 | | | | | | | | | | | | |
| CO4 | 3 | 4 | | | | | | | | | | | | | |
| CO4 CO5 | 3 | 2 | | | | | | | | | | | | | |

| Subject: | Analys | sis of I | Determ | inate S | Structu | res | | | | Subi | ect Co | de: 18 | CV42 | | |
|-------------------|----------------|----------|------------------|---------|---------|---------|-----------------------|-----------|----------|---------|----------|---------|----------|---------|------|
| | | | | | | Cou | rse Ou | tcome | S | | | | · | | |
| CO1 | Desc | ribe th | e basic | conce | pts of | structu | ral ana | lvsis a | nd typ | es of s | tructur | es | | | |
| CO ₂ | Cons | truct I | nfluen | ce line | diagra | m for | various | movi | ng load | ls on d | etermi | nate be | ame at | ad truc | 000 |
| CO3 | Dete | rmine 1 | the def | lection | of det | ermina | ite bea | ms by | mome | nt area | and co | njugat | e hean | ac met | bode |
| CO4 | Appl trusse | y energ | gy prin | ciples | to dete | rmine | the de | flectio | n of de | termin | ate bea | ms, be | nt fran | nes an | d |
| CO5 | Appl suspe | y the c | oncept cables | s of E | nginee | ring M | echani | cs to d | etermi | ne the | stress r | esultar | its of a | rches | and |
| | | | | | - | 70 DO | and the second second | | | | | | | | |
| | | | | | (| CO-PC | -PSO | Mapp | ing | | | | 10.99 | | |
| COs | | | | | | | os | Mapp | ing | | | | | PSOs | N. |
| COs | 1 | 2 | 3 | 4 | 5 | | | Mapp 8 | ing 9 | 10 | 11 | 12 | 1 | PSOs | 3 |
| COs | 1 3 | 2 | 3 | 4 | - | P | os | | | 10 | 11 | 12 | 1 2 | S13/ | |
| | 1 3 3 | - 75 | 3 | 4 | - | P | os | | | 10 | 11 | 12 | 1 2 2 | S13/ | |
| CO1 | _ | 3 | 3 | 4 | - | P | os | | | 10 | 11 | 12 | 2 | S13/ | |
| CO1 | 3 | 3 | 3 | 4 | - | P | os | | | 10 | 11 | 12 | 2 2 | S13/ | |
| CO1 CO2 CO3 | 3 | 3 3 | 3 | 4 | - | P | os | | | 10 | 11 | 12 | 2 | S13/ | |

| Subject: | Applie | d Hyd | lraulics | 1 | | | | · · · | | Subi | iect Co | de: 18 | CVA2 | | |
|-----------------|---------------|---------|---------------------|--------|----------|--------|--------|--------|---------|------|----------|--------|-----------------|--------|---|
| | | | | 888 | | Cou | rse Ou | itcome | S | | | | | | |
| CO1 | Princ Buoy | iples o | of dime and floa | nsiona | al analy | sis to | design | the hy | draulio | mode | l, to kr | own th | ne con | cept o | f |
| CO ₂ | | gn the | | | | | | | | | | | | | |
| CO3 | | | the co | ncent | of imp | act of | iet | | | | | - | | | |
| CO4 | Desig | gn of c | entrifu | gal pu | mps | uct OI | joi | | | | | | | | |
| | | | | | | CO-PC |)-PSO | Mann | ing | | | | V. 24 - 10 - | - | |
| COs | | | -0 | | | | Os | TT | | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 1308 | |
| CO1 | 1 | 1 | | | | | 2 | | | 10 | - 11 | 12 | | | 3 |
| CO ₂ | 2 | 1 | | | - | | 2 | | | | | ,, | | 2 | |
| CO3 | 2 | 1 | | | | | | | | | | | | 2 | |
| CO4 | 1 | 1 | | | | | 2 | | | | | | | 2 | |
| | 1.5 | 1 | | | | | 2 | | | | | | | 2 | |
| Average | 1.3 | 1 | | | | | 2 | | N. | 0 | | | | 2. | |

| Subject: | Concr | ete Tec | hnolo | gy | | | | | | Subi | ect Co | de: 18 | CV44 | | |
|--|-------|--------------------|---------|----------|---------|----------|----------|----------|---------|---------|---------|----------|---------|---------|----|
| | | | | | 3500 | Cou | rse Ou | ıtcome | S | | | | | | |
| CO1 | Unde | erstand | mater | ial cha | racteri | stics ar | nd their | r influe | ence or | micro | etructi | ire of c | onarat | | |
| CO ₂ | Disti | nguish | concr | ete beh | avior l | based o | on its f | resh an | d hard | ened n | roperti | 01 0 | onciel | е. | |
| CO3 | Desi | gn of d essiona | ifferen | it types | of con | ncrete | mixes | for req | uired f | resh ar | d hard | ened p | roperti | es usin | ıg |
| THE CONTRACTOR OF THE CONTRACT | | | | | | CO-PC |)-PSO | Марр | ing | | | | | | |
| COs | | | | | | | Os | | - 6 | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | 2 | | | | | | | | | | 14 | 2 | 4 | 3 |
| CO ₂ | 2 | 2 | | | | | | | - 1378 | | | | | | |
| CO3 | 2 | 2 | 2 | 2 | | | | 2 | | | | | 2 | | |
| Average | 2 | 2 | 2 | | | | | 1000 | | | | | 2 | | |
| Average | 2 | 2 | 2 | 2 | | | | 2 | | | | | 2 | | |

| Subject: A | Advan | ced Su | rveyin | ıg | | | | | | Subj | ect Co | de: 18 | CV45 | | |
|-----------------|----------|---------|-------------------|---------|---------|----------|-------------|-----------|----------|----------|--------|---------|--------|-----------|-------|
| | | | | | | | rse Ou | | | | | | | | 2.30 |
| CO1 | App | ly the | knowl | edge o | f geon | netric p | rincipl | es to a | rrive a | t surve | ving n | roblem | C | | - |
| CO ₂ | Ana | lyse th | e obta | ined ge | eo-spat | tial dat | a to an | propri | te eno | ineerin | o prob | lame | 3 | - | |
| CO ₃ | Desi | gn and | d imple | ement | the dif | ferent 1 | vnes o | f curve | es for | deviatir | a type | ofalia | ·nmon | ta | - |
| CO4 | Proc | ess an | d perf instrur | orm ar | nalysis | to sur | vey pr | oblems | for C | apture | d geod | etic da | ta wit | h the i | ise o |
| | | | | | - | TO DO | TOO | 7.5 | | | | | | | |
| | | | | | • | LU-PU | -PSO | Mapp | ing | | | | | | |
| COs | | | | | | | PSO Os | Mapp | ing | | - | | | PSOs | |
| COs | 1 | 2 | 3 | 4 | 5 | | | Mapp 8 | ing 9 | 10 | 11 | 12 | 1 | PSOs | - |
| COs | 1 2 | 2 2 | 3 2 | 4 | 1 | P | | | | 10 | 11 | 12 | 1 2 | PSOs | 3 |
| | 1 2 2 | | | 4 | 1 | P | | | | 10 | 11 | | 1 2 | PSOs 2 | - |
| CO1 | 8/0/2012 | 2 | 2 | 4 | 1 | P | | | | 10 | 11 | 2 | 2 | PSOs | - |
| CO1 | 2 | 2 2 | 2 2 | 2 | 1 | P | | | | 10 | 11 | | 200 | PSOs 2 | - |

| Subject: | water | Suppl | y and ' | Freatm | ent En | gineer | ing | | | Subi | ect Co | ode: 18 | CV46 | | |
|-----------------|----------------|----------|---------|------------------|----------|---------|---------|----------|---------|----------|---------|----------|-------------------|---------|-------|
| | | | | | | Cou | rse Ou | itcome | S | | | 3401 10 | C 1 10 | | |
| CO1 | Estin | nate av | erage | and pe | ak wat | er den | and fo | r a cor | nmuni | 17 | | | | | |
| CO2 | Ident water | ify the | sourc | es of w | ater su | ipply a | nd to a | pply p | roper s | amplir | ng tech | niques | for the | e analy | sis o |
| CO3 | Appl | y drinl | cing w | ater qu | ality st | andar | ds and | to illus | trata a | valitati | | lysis of | | | |
| CO4 | Desig | sii a cc | unpren | ensive red qu | water | treatm | ent and | d distri | bution | system | to pu | rify and | water d distri | ibute | |
| CO5 | Desig | gn proj | oer con | veyan | ce syst | ems fo | r raw a | and tre | ated w | ator | | | | | -201 |
| | | | | | (| O-PC |)-PSO | Mapp | ing | atci. | | | | | |
| COs | | | | | | | Os | T.F. | 8 | | | | | PSOs | _ |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 1503 | 3 |
| CO1 | 2 | | | | | | 3 | | | 10 | | 1 | | 2 | 3 |
| CO ₂ | 2 | | 2 | | | | 3 | | | | | 1 | | 2 | |
| CO3 | 1 | 1 | | 1 | | | 3 | | | - | | 1 | | 2 | |
| CO4 | 1 | | | | | | | | | | | 1 | | 2 | |
| Average | 1.5 | 1 | 2 | 1 | | | 3 | | | | | 1 | | 2 | |
| rorage | 1.5 | 1 | | 1 | | | 3 | | | | | 1 | | 2 | |

| Subject: | Engin | eering | Geolo | gy Lab | orator | y | | | | Sub | ect Co | ode: 18 | CVL4 | 17 | |
|-----------------|-------|-------------------|---------|----------|---------|----------|---------|---------|----------|---------|---------|---------|---------|----------|--------|
| | | | | | | Cou | rse O | utcom | es | | | | | • | |
| CO1 | Iden | tify the | mine | rals, ro | cks an | d utiliz | ze them | effect | tively i | n civil | engine | ering p | mostic | | |
| CO2 | mei | pret an | ia unae | erstand | the ge | ologic | al con | ditions | of the | area fo | or impl | ementa | tion o | f civil | |
| CO3 | Inter | | bsurfa | ce info | rmatic | n such | as thi | ckness | of soil | , weath | nered z | one, de | epth of | f hard 1 | rock |
| CO4 | Acqu | ire tec struct | hnique | es in th | e inter | pretati | on of I | LAND | SAT In | nagerie | s to fi | nd out | the lin | eamen | ts and |
| THE SECOND | | | | | | |)-PSO | Mapr | oing | | | | | - | |
| COs | | | | | | | Os | | | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | | | | | 2 | 2 | | 2000 | 2 | | 1 | 8270 | 2 | _ |
| CO ₂ | 2 | | | | | 2 | 2 | | 177 | 2 | | 1 | | 2 | - |
| CO3 | 2 | | | | | 2 | 2 | | | 2 | | 1 | | 5000 | |
| CO4 | 2 | | | | | 2 | 2 | | | 2 | | 1 | | 2 | |
| | | | - | | | | | | | 4 | | 1 | | 2 | l |

| Subject: F | luid M | 1echai | nics La | borato | ry | | | | | Subj | ect Co | de: 18 | CVL4 | 8 | 7516 |
|------------|--------|--------|---------|---------|---------|--------|-----------|--------|--------|-----------------|---------|---------|---------|-------------|-------|
| | | | | | | Cou | rse Ou | tcome | S | | | | | | |
| CO1 | Prop | erties | of flui | ds and | use of | vario | us instru | ıment | for fl | uid flo | w mea | curama | nto | | |
| CO2 | Wor | king o | f hydr | aulic n | nachine | es und | er vario | us cor | dition | s of we | rking | and the | in abo | raatari | 4: |
| -1,3=7 | | | | | (| CO-PC |)-PSO | Mapp | ing | S OI WC | nking . | and the | ii Ciia | ractern | stics |
| COs | | | | | 10000 | | Os | | - | 200 0 00 | | | | PSOs | |
| CO3 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | 2 | | | | | 1 | | | | | 1 | | 1 | |
| CO2 | 2 | 2 | | | | | 2 | | | | | 1 | | 1 | |
| Average | 2 | 2. | | | | | 1.5 | | | | - | 1 | | 1 | |

Semester-V

| Subject: | Const | uction | Manag | ement | and E | ntrepre | neursh | ip | 50 16 | Sub | ject Co | de: 18 | CV51 | | |
|-----------------|---------------|------------|---------|----------|---------|---------|---------|---------|------------------|--|-----------|---------|--------|-------------|-----|
| 1 | | | | | | Cou | rse Ou | itcome | e e | | 1000 | ue. 10 | CVJI | | |
| CO1 | Outl | ine the | constru | iction 1 | manag | ement | nrocess | r | | | | | | - | |
| CO2 | Asse dutie | ss vario | ous iss | ues tha | it are | encoun | tered b | y ever | y profe | ssiona | l in disc | chargin | g prof | esiona | 1 |
| CO3 | Ident | ifying | the pro | fessio | nal obl | igation | effect | ively v | with al | sha1 | 41 1 | | | | |
| | | | | | (| CO-PC |)-PSO | Mann | ing | obai ou | tlook | | | | |
| 200 | | | | | | | | марр | ıng | | | | | | |
| COs | 1 | 2 | 2 | | | F | Os | | | | | | | PSOs | |
| 001 | 1 | _ <u>L</u> | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 1 | | | | 1 | | | 1 | 1 | | 1 | 1 | | | - 3 |
| CO ₂ | 1 | 1 | | | | | 000 | - | | | 1 | 1 | | 2 | |
| CO3 | 1 | | | | | | | - | | | L | | | _ 2 | |
| Average | 1 | 1 | | - | | | | | | | 2 | 1 | | 2 | |
| Average | 1 | 1 | | | _ 1 | | | 1 | 1 | | 1.5 | 1 | | 2 | |

| Subject: | Allaly | 313 01 | maeter | mmate | Struct | tures | | | | Sub | ject C | ode: 18 | CV52 | | |
|--------------------------|------------------|---------------------|-------------------|---------------|-------------------|--------------------|------------|---------|---------|----------|----------|----------|------------------|--------|-------|
| | | | | | (LOX | Cou | rse O | ıtcom | es | | | Over | | | - |
| CO1 | Dete defle | rmine ection | the sup | oport n l. | nomen | ts of in | detern | ninate | beams | and rig | gid fran | nes usi | ng slo | pe | |
| CO2 | Dete sway | rmine using | the sup | port n | noment ributio | ts of in n meth | determ | inate 1 | oeams | and rig | id fran | nes wit | h non- | -sway | and |
| CO3 | Cons Kani | struct b 's meth | ending nod. | g mom | ent and | l shear | force | diagrai | ns for | contin | uous be | eams a | nd rigi | d fram | es by |
| CO4 | Cons | truct b | ending ibility | momo metho | ent and | shear | force (| diagran | ns for | continu | ious be | eams ar | nd rigi | d fram | es by |
| | | | | 100000 | | | | | | | | | | | |
| CO5 | Anal | yse co | ntinuo | ıs bear | ns, rigi | id fram | es and | plane | trusses | s by sy | stem st | iffness | metho | od. | - |
| CO5 | Anal | yse co | ntinuo | ıs bear | | | | | | s by sy | stem st | tiffness | metho | od. | |
| | Anal | yse co | ntinuoı | is bear | | CO-PO | | | | s by sy | stem st | iffness | metho | | |
| COs | 1 | 2 | ntinuoi | us bear | | CO-PO | -PSO | | | s by sy. | stem st | iffness | metho | PSOs | 1 |
| COs | | 1 | | | (| CO-PO | -PSO Os | Mapp | ing | | | | 1 | PSOs | 3 |
| COs | 1 | 2 | | | (| CO-PO | -PSO Os | Mapp | ing | | | | 1 2 | PSOs | 1 |
| COs | 1 3 | 2 3 | | | (| CO-PO | -PSO Os | Mapp | ing | | | | 1 2 2 | PSOs | 1 |
| COs CO1 CO2 | 1 3 3 | 2 3 3 | | | (| CO-PO | -PSO Os | Mapp | ing | | | | 1 2 2 2 | PSOs | 1 |
| COs CO1 CO2 CO3 | 1 3 3 3 | 2 3 3 3 | | | (| CO-PO | -PSO Os | Mapp | ing | | | | 1 2 2 | PSOs | 1 |

| Subject: | Design | of RC | Struct | ural E | lemen | ts | | | | Subj | ect Co | de: 18 | CV53 | | |
|-----------------|--------|--|---------|--------|---------|---------|---------|---------|---------|--------|---------|--------------|---------|------|---|
| | | | | | | Cou | rse Ou | itcome | S | | | | | | |
| CO1 | Appl | Apply the design philosophies and principles of the codal provisions. | | | | | | | | | | | | | |
| CO ₂ | Anal | Apply the design philosophies and principles of the codal provisions. Analyse and design of the beam elements for flexure, shear and torsion. | | | | | | | | | | | | | |
| CO3 | Anal | yse and | d desig | n of t | he slat | and s | taircas | e usino | the k | nowled | ge of | odal n | rovigio | | - |
| CO ₄ | Desig | gn of th | he colu | ımn aı | nd foot | ting us | ing the | e desig | n princ | inles | ge or c | Jouan p. | OVISIC | nis. | |
| | | | | | | | | Mapp | | rpics | | | | | |
| COs | | | | | | | Os | | | | | - 17 - X - 1 | | PSOs | |
| COS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | |

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| CO1 | 2 | 1 | | | | | |
|----------|------|---|-----|---|------|---|--|
| CO2 | 3 | 3 | 3 | 3 | 1 | 2 | |
| CO3 | 3 | 2 | 3 | 3 | 2 | 2 | |
| CO4 | 3 | 2 | 3 | 3 | 2 | 2 | |
| Average | 2.75 | 2 | 25 | 3 | 2 | 2 | |
| riverage | 2.13 | | 2.5 | 3 | 1.75 | 2 | |

| Subject: | Dasic | Geote | chnica | I Engi | neerin | g | | | | Subj | ect Co | de: 18 | CV54 | | |
|-----------------|-------|----------|---------|----------|---------|----------|----------|---------|--------|---------|---------|---------|--------|------|---|
| | | 4 | | | | Cou | rse Ou | tcome | S | | | | | | |
| CO1 | Ident | ify the | type o | f soil l | pased o | on phy | sical pr | opertie | 20 | | | _ | | | |
| CO ₂ | Inter | pret the | hydra | ulic co | onduct | ivity o | f the so | ile | 73 | | | | | | |
| CO ₃ | Com | pute th | e effec | tive st | resses | of the | soil str | oto | | | | | | - | |
| CO4 | Evalu | ate the | e engin | eering | prope | rties ar | nd failu | ire beh | aviour | of soil | in terr | ns of s | hear a | nd | |
| | | | | | (| CO-PC | -PSO | Mapp | ing | | | | - | | |
| COs | | | | | | - 12 | Os | | | | | | | PSOs | - |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 1 | - |
| | | _ | | | | L . | | _ | | 10 | LL | 14 | | 2 | 3 |
| CO1 | 3 | 2 | | | | | | | | | | | _ | 22.7 | _ |
| CO1 | 3 | 1-153 | | | 1 | | | | | | | | 2 | | |
| CO ₂ | 3 | 2 | | | 1 | | | | | | | | 2 | | |
| CO2 CO3 | 3 | 2 2 | | | 1 | | | | | | | | | | |
| CO ₂ | 3 | 2 | | | 1 | | | | | | | | 2 | | |

| Subject: | Munic | ipal V | Vastev | vater I | Engine | ering | | | | Subj | ect Co | de: 18 | CV55 | | |
|----------|----------------|---------|---------|---------|---------|----------|----------|------------------|----------|----------|---------|-------------------|----------|-----------|-----|
| | | 200 | | | | Cou | rse Ou | tcome | S | | | | | | |
| CO1 | Estin appu | nate th | e wast | e water | r and s | torm w | aterd 1 | lows | and ap | ply the | conce | pt of se | wer | | |
| CO2 | Desig proce | gn the | differe | nt unit | operat | tions a | nd unit | proces | sses in | volved | in was | te wate | er trea | tment | |
| CO3 | Appl | y the c | oncept | and d | esign c | of vario | ous phy | sico-c | hemics | al and l | oiologi | cal trea | tmont | | |
| CO4 | Appl | y the c | oncept | of var | ious a | dvance | waste | water | and lo | w-cost | treatm | ent pro | cess for | or rura | 1 |
| | , and | | | | (| O-PC | DOO | | UEO | | | | | | |
| | | | | | | O-I C | 1-P5U | Mapp | ing | | | | | | |
| COs | | - | | | | | Os | Mapp | ing | | | | | PSOs | |
| COs | 1 | 2 | 3 | 4 | 5 | | | Марр 8 | ing 9 | 10 | 11 | 12 | 1 | PSOs 2 | T : |
| COs | 1 2 | 2 | 3 | 4 | | P | Os | | | 10 | 11 | 12 | 1_ | 2 | [3 |
| | 1 2 2 | 2 | 3 | 4 | | P | Os 7 | | | 10 | 11 | 12 | 1 | 2 2 | |
| CO1 | - | 2 | = | 4 | | P | Os 7 3 3 | | | 10 | 11 | 1 1 | 1 | 2 2 2 | 3 |
| CO1 | - | 1 | = | 1 | | P | Os 7 3 | | | 10 | 11 | 12 1 1 1 | 1 | 2 2 | 3 |

| subject: | Highway Engineering | Subject Code: 18CV56 |
|----------|--|--|
| | Course Outco | omes |
| CO1 | Understand the importance & characteristics of and propose alignment based on planning princ | road transport system, classification of roads |
| CO2 | Apply aspects of road geometrics and suitably of systems. | design road geometric elements and drainage |
| CO3 | Evaluate the engineering properties of the mate pavement construction. | rials and provide suitable guidelines for |
| CO4 | Analyse the highway economics and impart the | knowledge on highway financing concents. |

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| | | | | | (| CO-PC | -PSO | Mapp | ing | | 2- | | | - | |
|-----------------|------|---|----|---|---|-------|------|------|-----|----|----|-----|---|------|---------|
| COs | - | | | | | | Os | | | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 1 2 |
| CO ₁ | 3 | | | | | | | | | 10 | | 1.2 | | 2 | 3 |
| CO ₂ | 3 | | 2. | | | | | 1 | | | | | | 2 | |
| CO3 | 3 | | | | | | 1 | 1 | | | | | | 2 | |
| CO4 | 2 | | | - | | | 1 | 1 | | | | | | 2 | |
| | 2 75 | | 2 | | | | | | | | 1 | | | 2 | 0.1==== |
| Average | 2.75 | | 2 | | | | 1 | 1 | | | 1 | | | 2 | |

| Subject: S | urveyi | ng Prac | ctice | | | | | | 8: | Subj | ect Co | de: 18 | CVL5 | 7 | |
|-----------------|------------------|-------------|-------------|---------|--------|----------|---------|----------|---------|---------|---------|-----------|---------|--------------|-----|
| | | | | | | Cou | rse O | utcome | S | | | | | - | _ |
| CO1 | Appl | y the b | asic r | rincip | les of | Engine | erino | survey | for lin | ear and | langul | D# ## 0.0 | | 2007 | |
| CO ₂ | Mak | e use of | ffield | proce | edures | require | ed for | a profes | cciona | Car and | angui | ai illea | surem | ents | |
| CO3 | Choc | se app | ropria | ate tec | hnique | s, skill | ls and | conven | tional | survey | ing ins | trumen | ts nece | essary | for |
| | | | | | (| CO-PC |)-PSO | Марр | inσ | | | | | | |
| | | | | | | | ~ ~ | TATOOLIA | иши 🚐 | | | | | | |
| COs | | | | | | | POs | тирр | ····s | - | | | | PSOs | |
| COs | 1 | 2 | 3 | 4 | 5 | | | 8 | 9 | 10 | 11 | 12 | 1 | PSOs | T - |
| COs | 1 1 | 2 | 3 | 4 | т — | H | POs 7 | 8 | 9 | 10 | 11 | 12 | 1 | PSOs | T - |
| | 1 1 1 | 2 1 2 | 3 1 1 | 4 | т — | H | POs 7 2 | 8 2 | 9 2 | 10 | 11 | 12 | 1 | PSOs 2 1 | T - |
| CO1 | 1 1 1 2 | 2 1 2 | 3 1 1 | 4 | т — | H | POs 7 | 8 | 9 | 10 | 11 | 12 | 1 | PSOs 2 1 1 1 | 3 |

| Subject: (| concre | ete and | Highv | vay M | aterials | s Labo | ratory | | | Subj | ect Co | de: 18 | CVL5 | 8 | |
|-----------------|--------|--------------------|---------|---------|----------|----------|---------|----------|---------|----------|------------|---------|--------|------|---|
| | | | | | | Cou | rse Ou | tcome | S | | 33800 | 130 | | | |
| CO1 | Dete | rmine | quality | and s | uitabil | ity of o | ement | in con | structi | on wor | k | - | - | | |
| CO ₂ | Desi | gn app | propria | te conc | rete m | ix and | detern | nine w | orkahi | lity and | ctrone | th of a | onarat | ^ | |
| CO3 | Test | the roa | ad agg | regates | and b | itumer | for the | eir suit | ahility | as roa | d mate | riol | oncrei | е | |
| CO4 | Eval | uate th | e soil | suitabi | lity as | a pave | ment s | uhorad | le soil | as Iva | u mate. | liai | | | - |
| | | | | | | |)-PSO | | | 1.20 | CE TOTAL | | | | |
| Cos | | | | | | | os | | - | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 3 | | | | | 1 | 1 | 1 | | | A-00-030-1 | | | 1 | - |
| CO ₂ | 3 | | | | | 1 | 1 | 1 | | | | | | 1 | |
| CO3 | 3 | | 1 | | | 1 | 1 | 1 | | | | | | 1 | |
| CO4 | 3 | | - | | | 1 | 1 | 1 | | | | | | 1 | |
| Average | 3 | er er allege er er | | | | 1 | 1 | 1 | | | | | | _ 1 | |

Semester-VI

| Subject: | Desig | n of st | eel str | uctura | l elem | ents | - 100 | | | Sub | iect Co | de: 18 | CV61 | | |
|-----------------|-------|----------|---------|----------|---------|---------|---------|---------|---------|--------|----------|---------|---------|----------|----|
| | | | | | | Cou | rse Ou | itcome | es | M. 155 | | | | N 1971 N | _ |
| CO1 | Exp | lain the | e basic | s conce | epts of | steel s | tructur | es, ste | el code | provis | ions a | nd plas | tic bel | havior | of |
| CO ₂ | Desi | gn of t | olted a | and we | lded c | onnect | ions | | | | | | | | - |
| CO3 | Desi | gn of c | compre | ssion r | nembe | rs bui | lt-un c | olumn | c and a | olumn | | | | | |
| CO4 | Anal | yze an | d desig | gn of st | teel me | embers | under | flevur | and C | olumn | s splice | es | | | |
| | | | | | | CO-PC | | | | | | | | | |
| COs | | | | | | | Os | гирр | | | - | | Farm | PSOs | |
| 000 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | - | rsus | |
| CO ₁ | 3 | 3 | 3 | | | | | 3 | | 10 | 11 | 12 | | 2 | 3 |
| CO ₂ | 3 | 3 | 3 | | | | | | | - | | 3 | 3 | | |
| CO3 | 3 | 3 | 3 | F- F | | | | 3 | | | | 3 | 3 | | |
| CO4 | 3 | 3 | 3 | | | | | 3 | | | | 3 | 3 | | |
| Average | 3 | 3 | 3 | | | | | 3 | | | | 3 | 3 | | |
| relage | 3 | 3 | 3 | | | | | 3 | | | | 3 | 3 | | |

| Subject: | Appli | ed Geo | otechn | ical E | nginee | ring | | | | Subi | ect Co | de: 18 | CV62 | | |
|----------|-------|---------|---------|----------|---------|----------|---------|---------|---------|---------------|----------|---------|--------|---------|-------|
| | | | | | | Cou | rse Ou | tcome | S | | × | | 0 1 02 | | |
| CO1 | Exec | ute ge | otechn | ical sit | e inve | stigatio | n prog | ram fo | r diffe | rent civ | ıil engi | incorin | ~ ~~: | | |
| CO2 | ESUI | nate st | resses | in soils | s, load | carryin | ng capa | city of | shalle | w and y soils | deen f | oundat | ion an | d resul | ting |
| CO3 | Eval | uate th | e safet | v facto | rs aga | inst fai | lure of | slopes | and h | earing | failma | - F C- | 1 | - | -0.55 |
| CO4 | Pred | ict the | distrib | ution o | f later | al pres | sure be | hind th | e retai | ining w | volle | or rou | ndatio | n | |
| | | | | | (| CO-PC |)-PSO | Mapn | ing | ming w | alls | | | | |
| COs | | | | | | | Os | R R | - 8 | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 3 | 2 | | 2 | | | | | | 10 | | 12 | 2 | - | 3 |
| CO2 | 3 | 2 | | 2 | 1 | | - | | | | | | | | _ |
| CO3 | 3 | 2 | 2 | 2. | | | | | | | | | 2 | | |
| CO4 | 3 | 2 | | 2 | 1 | | | | | | | | 2 | | |
| Average | 3 | 2 | 2 | 2 | 1 | | | | | | | | 2 | | |

| Subject: | Hydro | ology a | nd Irr | igatio | n Engi | ineerir | ıg | | and an analysis of the same of | Subj | ect Co | de: 18 | CV63 | | |
|-----------------|-------|-----------|----------|---------|------------------------|---------|---------|----------|--|----------|----------|---------|--------|---------|---|
| | | | | | | | rse Ou | | | | | | | | |
| CO1 | Unde | erstand | the im | portan | ce of l | vdrolo | ogy and | l its co | mnone | ente | | | | | |
| CO ₂ | Meas | sure pr | ecipitat | tion an | d anal | vze the | data a | nd ana | lyze tl | ne losse | e in n | ecinite | tion | | |
| CO3 | Estin | nate ru | noff an | d deve | lop un | it hydr | norani | 15 | ij Zo ti | 10 10330 | os in pi | сстрпа | tion. | | - |
| CO4 | quan | tity irri | gation | water | require | ement | and fre | dilenci | of in | rigation | forvio | | | | |
| | | | | | (| CO-PC | -PSO | Mapp | ing | igation | i ior va | rious c | rops. | 1012 | |
| COs | | | | | | 79-70 | Os | | | | | | | PSOs | s |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | 2 | | | | 2 | 2 | | | | | 2 | - | 2 | + |
| CO2 | 2 | 2 | | | 80 - 11 - 1 | 2 | 2 | | | - | - | 2 | | 2 | + |
| CO3 | 2 | 2 | | | | 2 | 2 | | | | | | | (35-56) | - |
| CO4 | 2 | 2 | | | | 2 | 2 | - | | | | 2 | 780.00 | 2 | |
| Average | 2 | 2 | - | | | | | 2 | | | | 2 | | 2 | |
| Average | 2 | 2 | | | | 2 | 2 | | | | | 2 | | 2 | 1 |

Page **11** of **20**

| CO1 Evaluate the structural systems and apply the concepts of flexibility and stiffness matrices simple problems. CO2 Identify, formulate and solve engineering problems with respect to flexibility matricies as applied to continuous beams, frames and trusses. CO3 Identify, formulate and solve engineering problems with respect to stiffness matricies as applied to continuous beams, frames and trusses. CO4 Identify, formulate and solve engineering problems with respect to direct stiffness method applied to continuous beams, frames and trusses. CO4 Identify, formulate and solve engineering problems with respect to direct stiffness method applied to continuous beams, frames and trusses. CO6 PO6 PSO Mapping CO6 PO6 PSO Mapping CO7 PO7 PSO Mapping CO8 PO8 PSOS AU 2 3 3 4 5 6 7 8 9 10 11 12 1 2 CO1 3 3 3 | Subject: 1 | viatrix | Metho | ds of S | tructura | al Anal | ysis | | | | Sub | ject Co | ode: 18 | CV64 | 1 | - |
|--|---------------|---------|---------------------|------------------|----------|-------------|------------------|-------------------|------------------|---------|---------|----------|----------|--------|----------|------|
| Identify, formulate and solve engineering problems with respect to flexibility matricies as applied to continuous beams, frames and trusses. CO3 Identify, formulate and solve engineering problems with respect to stiffness matricies as applied to continuous beams, frames and trusses. CO4 Identify, formulate and solve engineering problems with respect to direct stiffness method applied to continuous beams, frames and trusses. CO-PO-PSO Mapping CO5 POS POS PSOS 1 2 3 4 5 6 7 8 9 10 11 12 1 2 CO2 3 3 3 | | _ | | | | | Cou | rse Ou | itcome | S | | | | | | |
| CO3 Identify, formulate and solve engineering problems with respect to stiffness matricies as applied to continuous beams, frames and trusses. | CO1 | 31111 | hie hic | orems | • | | | | | | | | | | | |
| Identify, formulate and solve engineering problems with respect to stiffness matricies as applied to continuous beams, frames and trusses. CO4 | CO2 | Ide: | ntify, f lied to | ormula contin | ite and | solve eams, | engine frames | ering p | problem | ns witl | n respe | ct to fl | exibilit | y matr | ricies a | S |
| CO4 Identify, formulate and solve engineering problems with respect to direct stiffness method applied to continuous beams, frames and trusses. CO-PO-PSO Mapping PSOs PSOs 1 | CO3 | Ide | itify, f | ormula | ite and | solve | engine | ering p | roblen | ns with | respec | ct to st | iffness | matric | cies as | |
| COs POs PSOs CO1 3 3 4 5 6 7 8 9 10 11 12 1 2 CO2 3 3 3 2 2 2 CO3 3 3 2 2 2 Average 3 3 3 2 2 | CO4 | Ider | itify, fo | ormula | te and | solve o | engine frames | ering p and tr | roblen usses. | | respec | et to di | rect sti | ffness | metho | d as |
| CO1 3 3 4 5 6 7 8 9 10 11 12 1 2 CO2 3 3 3 CO3 3 3 CO4 3 CO4 3 CO4 3 CO4 | | _ | | | | | CO-PO | -PSO | Mapp | ing | | | | | | - |
| 1 2 3 4 5 6 7 8 9 10 11 12 1 2 CO1 3 3 2 2 2 CO2 3 3 2 2 CO3 3 3 2 2 Average 3 3 3 2 | COs | | | | | | P | Os | | | | | | | PSO | - |
| CO1 3 3 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | T - | 3 |
| CO2 3 3 3 2 2 2 2 3 3 3 4 4 4 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | CO1 | 3 | 3 | | | | | | HES. | (450) | 120 | ** | 1.24 | 2 | 4 | 3 |
| CO3 3 3 3 2 2 2 Average 3 3 3 2 2 | CO2 | 3 | 3 | | | | | | | | | | | | | |
| CO4 3 3 Average 3 3 2 | COZ | | | | | | 1387 | | | | | | | 2 | | ı |
| Average 3 3 | C110 1996 199 | 3 | 3 | | | | | | | | | | | ^ | | |
| | CO3 | | | | | | | | | | | | | | | |

| Subject: 1 | Railw: | ays, H | arbou | r, Tun | neling | and A | irpor | ts | | Subj | ect Co | de: 18 | CV64 | 5 | |
|-----------------|--------|----------|-------------------|------------------|---------------------|------------------|---------|----------|----------|---------|---------|----------|---------|----------|------|
| | | | | | | | rse Ou | | | | | | | | - 10 |
| CO1 | Out | line the | e impo ts in R | rtance ailway | of plans and A | ning, Airport | constru | iction | aspects | and n | ainten | ance o | fvario | us | |
| CO2 | Des | ign and | d plan | railway | y syste isual ai | m, airr | ort lay | out, fa | cilities | requir | ed for | run-wa | ıy, tax | iway a | nd |
| CO3 | App | ly desi | ign fea | tures o | f featu | res of | tunnels | s, harbo | ours in | cluding | g neces | sary na | vigat | ional ai | ids |
| | | | | | (| CO-PO | -PSO | Марр | ing | Tontal | onside | ciation. | | | |
| COs | | | | | | 77. | Os | | 0 | | | | | PSOs | - |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO ₁ | 3 | | | | | 1 | | | | | | 12 | | 2 | 3 |
| CO2 | 3 | 2 | | | | 1 | | 1 | | | | | | | |
| CO3 | 3 | 2 | | | | 1 | | 1 | | | - | | | 2 | |
| Average | 3 | 2 | | | | 1 | | 1 | | | | | | 1 | |
| 5 | | | | | 10 | 1 | 1 | 1 | | 10 56 | | V. III | | 1.6 | |

| Subject: | Solid | Waste | Mana | gemen | it | | | | | Subj | ect Co | de: 18 | CV64: | 2 | |
|-----------------|-------|------------|----------|----------|---------|--------|---------|--------|----------|-------|--------|--------|-------|------|-------|
| | | | | | | Cou | rse Ou | tcome | S | | | 0.7 | | | |
| CO1 | Anal | yze ex | isting S | SWM s | system | & to i | dentify | their | drawba | icks | | | | | - 100 |
| CO ₂ | Eval | uate di | fferent | eleme | nts of | SWM | system | S | | · · · | | | | | |
| CO ₃ | Sugg | est sui | table n | nethods | s for S | WM el | ements | 3 | | | | | - | | |
| CO4 | Desig | gn suita | able pr | ocessin | ng syst | em & | evaluat | e disp | osal sit | es | | | | | |
| | | | - | | (| CO-PC | -PSO | Mapp | ing | .03 | | | | | |
| COs | | | | | | 120 | Os | | | | | | | PSOs | - |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | A Property | | | | | 3 | | | | | 3 | | 3 | _ |
| CO ₂ | 2 | | | | | | 3 | | | 1000 | | 3 | - | 3 | |
| CO3 | 2 | | | - 1947 · | | | 3 | | W | | | 3 | | | |
| CO4 | 3 | | | | | | 3 | | | | | | | 3 | |
| | | | | - | | | ر ا | | | | | 3 | | 3 | |

Romesam

| Average 2.75 | | | |
|--------------|---|---|---|
| 2.70 | 3 | 3 | 3 |

| Subject: | Traff | ic Eng | ineerii | ıg | | | | | | Sub | iect C | ode: 18 | CV65 | :2 | |
|-----------------|-------|----------|----------|----------|---------|---------|---------|--------|-----------------|---------|----------|---------|------|------|-----|
| | | | | | | Cou | rse O | utcom | es | | | | CVU | 12 | |
| CO ₁ | Und | erstand | l and ic | lentify | the fu | ındame | ntal co | mpone | ents of | traffic | enging | Onin a | | | |
| CO2 | Coll | ection | and an | alysis 1 | traffic | survey | data. | | | dame | engine | ering | | | |
| CO3 | | | 200 | | | s types | | | SON AND SON | | | | | | |
| CO4 | Eval | uate tra | affic in | pacts | on env | vironm | ent and | traffi | ons c safety | / measi | ures | | | | |
| CO5 | | | | | | anagen | | | | | | asures | | | - |
| | | | | | | CO-PC | | | | | | | | | |
| COs | | T | | | | | Os | PK | | | | | | PSOs | - |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | | |
| CO1 | 3 | | | | | | | | | 10 | 11 | 12 | _ +_ | 2 | _ 3 |
| CO ₂ | 2 | 2 | | | | | | | | | | | | 1 | |
| CO3 | 3 | 2 | 2 | | | | | 1 | | | | | | 1 | |
| CO4 | 2 | | _ | | | 2 | 2 | 1 | | | | 1 | | 1 | |
| CO5 | 2 | | | | | | 2 | | | | | 1 | | 1 | |
| Average | 2 | 2 | 2 | | | 1 | | | | | | 1 | | 1 | |
| | 4 | - 2 | /. | | | 1.5 | 2 | 1 1 | | | All-re-d | 401 | | | |

| Subject: | Occup | pation | al heal | lth and | l safet | y | | | | Sub | ject Co | ode: 1 | RCV65 | 3 | |
|-----------------|-------|-------------------|-----------------|-----------------|------------------|---------|---------|---------|---------|----------|----------|--------|---------|----------|-----|
| | | | | | | Cou | rse O | utcome | es | | | | 27890 | <i>3</i> | |
| CO1 | Iden | tify ha | zards i | n the w | orkpla | ace tha | t pose | danger | to hes | lth and | cofot | of atl | | | |
| CO ₂ | Cont | rol un | safe, u | nhealth | v haza | rds an | d prop | ose to | elimin | ote her | orda | 01 011 | iers. | | |
| CO3 | Cone | erent a y regu | nalysis | of a p | otentia | l safet | y or he | alth ha | zard c | iting th | e occu | pation | al heal | th and | - H |
| CO4 | Disc | uss the | role o worke | f healtlers and | h and s manag | afety i | n the v | workpl | ace per | rtaining | g to res | ponsib | ilities | of | |
| CO5 | Ident | ify the | decisi | ions rec | quired | to mai | ntain p | rotecti | on of | environ | ment v | vorkpl | ace asv | well as | |
| | | | | | (| CO-PC |)-PSO | Mapp | ing | | | | | | - M |
| COs | | | | | | | Os | | 8 | | - | | | PSOs | į |
| X 13 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 1 | 2 | 2 | | | 00 Dan | 2 | 2 | 2 | 2 | | 2 | 2 | - | 3 |
| CO ₂ | 1 | 2 | 2 | | | | 2 | 2 | 2 | 2 | _ | 2 | 2 | | |
| CO3 | 1 | 2 | 2 | | | | 2 | 2 | 2 | 2 | | 2000 | 200 | | |
| CO4 | 2 | 2 | 1 | | | | 5500 | | _ | - | | 2 | 1 | | |
| | - | ~ | - | | | | 1 | 1 | 1 | 1 | | 1 | 1 | | |
| | 2 | 2 | 1 | | 85.0 | | 1 | 1 | 1 | 1 | | 1 | 1 | | |
| CO5 | 2 | _ | | | | | 1 | | V | | | - | - | | |

| Subject: | Softwa | re App | lication | Lab | | | | | - | Subi | ect Co | de: 18 | CVII C | | |
|-----------------|----------|-------------------|----------|---------------------|--------|---------|----------|--------|--------|--------|---------|--------|--------|---------|----|
| | | | | D RESE | | Cou | rse On | itcome | 9 | Duloj | cci Ct | ue. 18 | CATO | 0 | |
| CO1 | Use time | of soft for co | ware sl | kills in on of w | a prof | essiona | al setup | to aut | tomate | the wo | ork and | thereb | y redu | ice cyc | le |
| | | | | | (| CO-PC |)-PSO | Марр | ing | | | | | | - |
| COs | | | | | | 1 | Os | | | | | | | PSOs | |
| | _ 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 1503 | 1 |
| CO ₁ | 1 | 2 | 2 | | 3 | 1 | | 2 | 2 | 10 | 2 | 12 | _ 1 | L | 3 |
| Average | 1 | 2 | 2 | | 2 | + | | | | | 3 | 2 | 2 | | |
| riviage | 1 | | 1 2 | 1 | 1 3 | | | 1 2 | 2 | 1 | 2 | 0 | ^ | | |

| Subject: | Envir | onme | ntal E | ıginee | ring I | ab | | | | Sub | ect C | ode:18 | CVL | | - 10 |
|-----------------|-------------|-----------------|--------------|---------|---------|----------|---------|--------|---------|---------|--------|----------|---------|--------|------|
| - | | | Dec. | | | | rse Oı | | | | | | | 20-116 | |
| CO1 | Acq para | uire c meter | apabili s | ty to c | onduct | exper | iments | and e | stimate | the co | ncenti | ration c | of diff | erent | |
| CO ₂ | Con | pare | the resu | ılt wit | h stanc | lards a | nd disc | nice h | sed or | the n | Irnogo | of1 | | | |
| CO3 | Dete | ermine | e type o | f treat | ment o | legree | of trea | tment | for wa | ter and | ryests | or anai | ysis | | |
| CO4 | Iden | tify th | ne parai | neter | to be a | nalvse | d for s | tudent | projec | t work | waste | water. | | | |
| CO5 | | *** | | | | inary 50 | u ioi s | tuacin | projec | t WOIK | m env | ironme | ental s | tream | |
| | | | | | (| CO-PC |)-PSO | Mapi | oing | | | | | | |
| COs | | | | | // | | Os | | | | | |) | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 3 | 2 | 1 | 2 | | | 2 | | 2 | 2 | | | | 3 | 3 |
| CO ₂ | 2 | 2 | | | | 2 | 2 | 2 | 1 | 2 | | | | 3 | _ |
| CO3 | 2 | 2 | 2 | 2 | | 2 | 2 | 2 | - | 1 | | | | - | |
| 000 | | | _ | 2 | 2 | 2 | 2 | 2 | 2 | 1 | | 3 | | 3 | |
| CO4 | 2 | 2 | 2 | 2 | /. | | | | | | | | | 2 | |

| Subject: | Extens | ive Sur | vey Pro | oject /C | Camp | | | | | Subj | ect Co | ode: 18 | CVL6 | 8 | |
|-----------------|--------------|------------------|-----------------|-------------------|------------|---------|--------------------|-------------|----------|---|--------------------|---------------|-------------------|----------------|------|
| | | | | | | | rse Ou | | | | | 3333 | | | |
| CO1 | App | y Surv | eying | knowl | edge a | nd too | ls effec | tively | for pro | iects | | - | | | |
| CO2 | Undo towa | erstand | ling Ta mmon | sk env | ironm | ent, Go | oals, re | sponsi | bilities | Task | focus, 1s, tecl | workin | g in T ind bel | eams havior | al |
| CO3 | Appl time | icatior manag | of inc | lividua , comn | l effec | tivenes | ss skill d pres | s in tea | ım and | organi | zation | al conte | ext, go | al sett | ing, |
| CO4 | Profe | ssiona | l etiqu | ettes a | t work | place. | meetin | g and | renera | , <u>, </u> | | | | | |
| CO5 | Estal | lishin | g trust- | based | relatio | nshins | in tear | ns & o | roaniz | ational | enviro | nment | | | |
| CO6 | Oriei | itation | towar | ds con | flicts in | n team | and or | ganiza | tional | enviror | ment, | Unders | standir | ng sou | rces |
| | | | , com. | 100 105 | | |)-PSO | | | | | - | | <u> </u> | |
| Cos | | | | | | P | os | | | | | | | PSOs |); |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | | | | 2 | 2 | 2 | | | | | 2 | 2 | 2 | |
| CO ₂ | 2 | 2 | | | 2 | 2 | 2 | | | | | 2 | 2 | 2 | |
| | 2 | | | | 2 | 2 | 2 | | | | | 2 | 2 | 2 | |
| CO ₃ | | | - | | 11 37 36 3 | 2 | 2 | 2 | | 2 | 2 | 1 | $\frac{2}{2}$ | 2 | - |
| CO3 | 2 | 199 | | | | | | | | | _ 4 | 1 | 2 | | |
| | 9-8 | | | | | | 2 | 2 | | | | 2 | 2 | | - |
| CO4 CO5 | 2 | | | | | 2 | 2 | 2 | | | | 2 | 2 | 2 | |
| CO4 | 2 2 | 2 | | | 2 | | 2 2 2 | 2 2 2 | | 2 | 2 | 2 2 1.8 | 2 2 2 | | |

Semester-VII

| Quantity | Surve | eying | and Co | ntract | t Mana | ageme | nt | | | 18C | V71 | | - | | |
|-----------------|-------|---------|-----------|----------|---------|----------|--------|-----------|---------|----------|---------|------------|---|------|---|
| | | | | | | Cou | rse O | utcome | c c | | | - | | | |
| CO1 | Estin | nate t | he quant | tities o | f diffe | rent ite | ems of | work fo | or road | de and l | mildin | 0.0 | | | |
| CO ₂ | Deve | elops s | specifica | ation f | or civi | Engir | neerin | o worke | and n | roposo | oto | gs .1 · | | | |
| CO3 | Inter | pret c | ontract o | locum | ent of | domes | tic an | d intern | and p | lepare | rate an | aiysis | | | |
| CO4 | Deve | lop v | aluation | report | s of bu | ilding | 'S | u micilia | auona | constr | uction | works | | | |
| | | | | . | | 0.00 | 7 | Mappi | inσ | | | | | | |
| Cos | | | | | | | os | upp | mg . | | - | | | PSOs | |
| * | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 3 | 2 | 2 | | | 1 | 1 | 1 | | 10 | 2 | 12 | | 1 | |
| CO ₂ | 3 | | 3 | | | 1 | | 2 | | 1 50 10 | | - | | 1 | |
| CO3 | 2 | 2 | | | | 1 | 8 | | | | 2 | 1 | | 1 | |
| CO4 | 2 | 2 | 3 | - | | 1 | | 2 | | | 2 | 1 | | 1 | |
| Average | 2.5 | 2 | 2.25 | | | 1 | 1 | 2 | | | 2 | 1 | | _1 | |
| | | 4 | 2.23 | | | 1 | L | 1.75 | | | 2 | 1 | | 1 | |

| Subject: | DESIC | IN OF R | CC A | ND S | TEEL | STRU | JCTUI | RES | | Subj | ect Co | ode: 18 | CV72 | | |
|-----------------|---------------|---------------------|------------------|----------|---------|---------|---------|---------|---------|-------------|---------|---------|--------|---------|-------|
| | | | | | | Cour | se Ou | tcome | S | | | | | | |
| CO1 | Appl footi | y basic king and re | nowle taining | dge o | f limit | state r | nethod | and d | esign l | RC stru | ictures | such a | s com | bined | |
| CO ₂ | Adop | ot codal p | rovisio | ons, p | rofess | ional e | thics a | nd des | ion w | ter ten | lea and | | C | | |
| CO ₃ | Evalu | ate the fo | orces a | ecting | on ste | el roo | ftruse | and de | eign b | v follo | KS and | portal | Trame | S | |
| CO4 | Anal | yse and d | esign | steel s | structu | res su | h ac n | late an | d cont | y 10110 | wing t | ne coda | u proc | edure | |
| | | | | | C | O-PO | -PSO | Mappi | ing | ry gnu | ers car | rying n | novin | g loads | |
| COs | | | | | | PO | 210 | 1 1 | -0 | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | 2 | 3 | | | | | 3 | | | | 1 | 2 | - | 3 |
| CO2 | 2 | 3 | 3 | | | | | 3 | | THE RESERVE | | 2 | | | _ |
| CO3 | 2 | 2 | 3 | | | | | 3 | | | | | 2 | | |
| CO4 | 2 | 2 | 3 | | - | | - | 90845 | | | | 2 | 2 | | |
| Average | 2 | | | \vdash | | | | 3 | | | | 1 | 2 | | |
| Average | | 2.25 | 3 | | | | | 3 | | | | 1.5 | 2 | | 337.5 |

| Subject: | Air P | ollutio | n and | Contr | rol | | | | | Sub | ject C | ode:18 | CV73 | 2 | |
|-----------------|---------|----------|---------|----------|---------|---------|---------|---------|---------|----------|---------------|--------|------|------|---|
| | W Estan | | | | | Cou | rse Ou | itcome | es | | Caracia Santa | | 0,75 | | - |
| CO1 | Ider | ntify ar | nd clas | sify th | e sourc | ces of | air pol | lutants | | | | | | | |
| CO ₂ | Pred | lict the | effect | s of ai | r pollu | tants o | n hum | an hea | lth and | d envir | onmer | ıt. | | | |
| CO3 | App | ly and | relate | the sig | gnifica | nce of | variou | s air n | ollutio | n disne | ersion | models | | | - |
| CO ₄ | Ana | lyze th | e air q | uality | and re | late wi | ith air | polluti | on regi | ulation | 0131011 | models | | - | |
| CO5 | Des | ign var | rious a | ir pollu | ution c | ontrol | equipr | nent a | nd eva | luate it | s use | | | | |
| | | | | | | CO-PC | -PSO | Марр | ing | | | | - | | |
| COs | | | | | | P | Os | | | | | | | PSOs | 8 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO ₁ | 3 | 2 | | | | 2 | 2 | | | | | 2 | | 2 | - |
| CO ₂ | 3 | 2 | | | | 2 | 2 | | | | | 2 | | 2 | |
| | 3 | 2 | | | | 2 | 2 | | | | 10 N 17 | 2 | | 2 | |
| CO ₃ | 1 2 | _ | | | | | | | | | | | | | |

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| CO5 | 3 | 2 | | 1 2 | | |
|---------|---|---|---|-----|---|-----|
| | 3 | 2 | | | 2 | 3 |
| Average | 5 | | 2 | 2 | | 2.7 |
| | 0 | | | | 2 | 5 |

| | raven | nent M | lateria | als and | Cons | tructio | n | | | Sub | iect C | ode: 18 | CV73 | 13 | |
|-------------------|-------------|----------|---------------------|----------|-----------------|------------------|-------------------|----------------------------|---------|---------|---------|---------------|----------|----------------|-------|
| | | | | | | Cou | rse O | utcome | S | | | | | | |
| CO1 | | uate an | t Uy U | Jiluuci. | 1112 100 | uncai | ests as | ner | 1120 | manific | - nei | 200 | | | |
| CO2 | LOIH | nulate t | ne pro | portion | ns of d | itteren | CIZAC | of ago | ranta | to | t grada | tion cri | iteria f | or vari | ious |
| CO3 | Diffe | erent hi | ghway | const | ruction | equip | ment v | with the | ir suit | ability | and ad | laptabil | ity in | variou | S |
| CO4 | Com | petent t | to ada _l | pt suita | ible mo | odern t | echniq | ues and | d equip | ment i | for spe | edy and | d econ | omic | |
| | Exec | uto the | aamat. | | 0 | | | | | | | | | | |
| CO5 | contr | ol tests | at dif | ferent s | of em stages | bankm of pave | ent, flo ement | exible, | rigid p | aveme | nt and | perform | n requ | ired q | ualit |
| CO5 | contr | ol tests | at dif | ferent s | stages | or pave | ement | constru | iction | aveme | nt and | perform | n requ | ired q | ualit |
| | contr | ol tests | at dif | ferent s | stages | CO-PO | ement | exible, constru Mapp | iction | aveme | nt and | perform | n requ | | |
| COs | contr | ol tests | at dif | ferent s | stages | CO-PO | -PSO | constru | iction | | + | | | PSOs | |
| | | | at dir | rerent s | (| CO-PO | -PSO Os | Mapp 8 | ing | aveme | nt and | performula 12 | n requ | PSOs 2 | |
| COs | | 2 | at dir | rerent s | (| CO-PO | -PSO Os | Mapp | ing | | + | | | PSOs 2 2 | |
| COs | 1 1 | 2 2 | at dir | 4 | (| CO-PO | -PSO Os | Mapp 8 | ing | | + | 12 1 1 | | PSOs 2 2 2 2 | |
| COs CO1 CO2 | 1 1 1 | 2 2 | at dir | 4 | (| CO-PO | -PSO Os | Mapp 8 | ing | | + | 12 1 1 | | PSOs 2 2 2 2 2 | |
| COs CO1 CO2 CO3 | 1 1 1 | 2 2 | 3 | 4 | (| CO-PO | -PSO Os | Mapp 8 | ing | | + | 12 1 1 | | PSOs 2 2 2 2 | |

| Subject: | Envir | onmen | t Prot | ection | and I | Manage | ement | - NAC | | Subj | ect Co | de: 18 | CV75: | 3 | |
|----------|---------------|-----------------|--------------------|-------------------|-------------------|-------------------|---------|---------|----------|------------|---------|----------|---------|--------|----|
| | | | | | | | | itcome | | | | | 9 | / | - |
| CO1 | Deve syste | lop an ms to | d apply interna | y engir tional | neeriną enviro | g know nmenta | ledge i | in corp | orate a | nd env | ironmo | ental m | anage | ment | - |
| CO2 | Choc | se and opmer | imple | ment p | olluti | on prev | ention | and w | aste m | inimiza | ation o | ptions | for sus | tainab | le |
| CO3 | Lead envir | pollut onmen | ion pre tal ma | ventio nagem | n asse ent sy | ssment stems f | team a | ad devo | elop, in | npleme | ent ma | intain a | ınd aud | lit | |
| | | | | | | CO-PO | | | | | | | | | |
| | | | - 11111 | | | P | | | | | | | | | |
| COs | | | | | | | | | | | | | | PSOG | |
| COs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | PSOs | _ |
| COs | 3 | 3 | 3 | 4 | 5 | 6 2 | 7 2 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | _ |
| | 1 3 3 | | 3 | 4 | | - | 7 | | | 2 | 11 | 2 | 1 | 2 | _ |
| CO1 | | 3 | 3 | 4 | 2 | 2 | 7 2 | 2 | 2 | 150,009,77 | 11 | | 1 | 2 | 3 |

| Subject: 1 | Urban 1 | l ransı | ortati | on and | Plann | ing | | | | Sub | ect Co | ode: 18 | CV74 | 5 | |
|-------------------|---------|---------|---------|---------|---------------------|----------|-----------|----------|---------|----------|----------|-----------|---------|----------|------|
| | | | | | | Cou | rse Ou | itcome | es | | | | | | - |
| CO1 | | | | | | s and c | onduct | necess | ary sur | | | the dat | | | |
| CO2 | Deve | lop tra | vel der | nand m | odels to land us | o deteri | mine fu | ture tri | p gener | ation ra | te, trip | distribu | tion ar | nd mode | el |
| CO3 | Identi | fy urb | an tran | sport c | orridor | s and v | alidate t | the dev | alonad | madal | C 1 | g term tr | | | |
| | -X711 | | | - | (| CO-PC |)-PSO | Mann | ing | moder | or iong | term tr | anspor | tation p | lan. |
| COs | | | | | | 100 | POs | | -8 | | | | 7 | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Q | 10 | 11 | 12 | | 1303 | _ |
| CO1 | 3 | | | | | | - | - | | 10 | 11 | 12 | | 2 | 3 |
| CO2 | 2 | 2 | | | | 1 | | | | | 1 | | | 1 | |
| Light Service Co. | 2 | 2 | | | | 1 | | | | - | 1 | | | 2 | |
| CO3 | | 1 4 | 6 | | | 1 | | | | | 1 | | | 2 | |
| CO3 Average | 2.3 | 2 | | | | 4 | | | | | | | | | |

| Subject: | Geote | chnic | al Engi | ineeri | ng La | borate | ry | | | Sub | ect C | ode:18 | CVL | 77 | |
|---|---------------|-----------------------|-------------|---------|---------|---------|----------|--------|---------|--------|---------|---------|---------|--------|-----|
| | | | | | | Cou | rse Ou | ıtcom | es | | | | | | |
| CO1 | Acqu | iire ca neters | pability | y to co | onduct | experi | ments | and es | stimate | the co | ncentra | ation o | f diffe | erent | |
| CO ₂ | Com | pare t | he resu | lt with | stand | ards ar | nd disc | nee ho | sed on | the nu | | · C - 1 | and the | | |
| CO3 | Dete | rmine | type of | treat | nent d | eoree | of treat | ment | for wet | or end | ipose (| or anar | ysis | | |
| CO4 | Ident | ify th | e paran | eter to | he ar | alveed | of tical | udent | noicet | er and | waste | water. | | | |
| CO5 | | - | - I - water | | o oo ar | iaryset | 1 101 31 | uuciii | project | work | in envi | ronme | ntal s | tream | |
| | | | | | (| CO-PC |)-PSO | Mapi | ping | | | | | | - |
| COs | | CO-PO-PSO Mapping POs | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | PSOs 2 | 3 |
| CO ₁ | 3 | 2 | 1 | 2 | | | 2 | | 2 | 2 | | 12 | 10-00 | 3 | - |
| CO ₂ | 2 | 2 | | | | 2 | 2 | 2. | 1 | 2 | | | | | 100 |
| CO3 | 2 | 2 | 2 | 2 | | 2 | 2 | 2 | 1 | 1 | | | | 3 | _ |
| CO4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | | | | 3 | |
| 100000000000000000000000000000000000000 | - | | | | | | | | | - | | 3 | | 2 | |
| CO ₅ | | | | | | | | | - | | | | | | |

| Subject: | Comp | iter A | ided D | etailing | g of St | ructur | es | | | Subj | ect Co | de:18 | CVL7 | 6 | |
|-----------------|-------|--|---------|----------|---------|---------|---------|--------|---------|-------|--------|-------|------|---|----------|
| | | | | | | Cou | rse Ou | tcome | s | | | | | | |
| CO1 | Acqu | ire pro | oficien | cy ove | r softv | vare sk | tills | | | | | | - | | |
| CO ₂ | Out 1 | ine the | princ | iples as | s per c | odal p | rovisio | n | | | | | | | |
| CO3 | Deve | lop de | tailed | workin | g dray | ving o | f RC a | nd Ste | al etru | turec | | | | | |
| | | ************************************** | | | | | | Mapp | | iuics | 1300 | | | | |
| COs | | | | | | | 200 | | | | PSOs | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | | | No. | | 1 | 2 | 3 | 200 | | | 2 | 3 | 1 | |
| CO ₂ | 3 | 3 | 3 | | | | | 3 | | | | 2 | 3 | 1 | - |
| CO3 | 3 | 3 | 3 | | | | | 3 | | - | | 2. | | 1 | <u> </u> |
| Averag | 2.6 | 3 | | | | | | | | | | | _3 | 1 | |
| e | 6 | 3 | 3 | | | 1 | 2 | 3 | | | | 2 | 3 | 1 | |

Comment

Semester-VIII

| Subject: | Design | n of Pr | e-Stres | sed Co | ncrete | Eleme | ents | | | Subj | ect Co | de: 18 | CV81 | | |
|-----------------|--------|---------|----------|---------|---------|---------|-------|-----------|---------|---------|------------------|--------|--------|-------|-----|
| | - | | | | | Cou | rse O | utcome | S | | - An | | - , -, | | |
| CO ₁ | Iden | tify su | itable n | nateria | ls and | metho | ds of | prestress | sing. | | | | | - | |
| CO ₂ | | | | | | | | in the p | | - | | | | | |
| CO3 | Anal | yse an | d desig | n the p | re-stre | essed c | oncre | te memb | pers fo | r Flexu | eams. ire and | Shear | Streng | oth | |
| CO4 | | | | | | | | d block | | | | | Suone | ,uii. | |
| | | | | | (| CO-PC |)-PSC | Mapp | ing | C men | iders. | | | | |
| COs | | | | | | 0000 | Os | | | | | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 1 3 |
| CO ₁ | 2 | 2 | | | | 1000 | | | | 10 | | 14 | 1 | | 3 |
| 72132411 | 3 | 3 | 2 | 100 | | | _ | 2 | | | | | 2 | | |
| CO ₂ | 1 2 | | | | 102.00 | | | | | | | | 2 | | |
| | | 3 | 3 | | W 35 | | | 2 | 12000 | | | 2 | | | |
| CO3 | 2 | 3 | 3 | | | | | 3 | | | | | 2 | | |
| | | 3 | 3 | | | | | 3 2 | | | | | 2 | | |

| Subject: | Rehal | oilitat | ion and | l Retr | ofittin | g of S | tructu | res | | Subj | ect Co | ode:18 | CV82 | 4 | |
|---|-------|----------|----------|---------|----------|--------|------------------------|---------|---------|---------|--------|---------|---------|---------|---|
| | | | | | | Cou | rse Ou | tcome | S | | | | 0 1 02 | | |
| CO1 | Unde | erstan | d the ca | use of | deteri | oratio | n of co | ncrete | structi | irec | | - | | | |
| CO ₂ | Asse | ss the | damag | e of di | fferent | types | of str | ictures | and re | comm | and th | | | 1 | 9 |
| CO3 | Sum | mariz | e the pr | inciple | es of re | nair a | nd reh | hilitat | ion of | ctmietu | ena m | e neces | ssary s | olution | n |
| CO4 | Reco | gnize | ideal n | nateria | l for d | fferen | t renai | r and r | otrofit | ing to | les : | | | | |
| | | <u> </u> | | | (C | O-PO | PSO | Mapp | ing | ing tec | nniqu | 9 | _ | | |
| COs | | | | | | | Os | | | | - | | | PSOs | |
| COLUMN TO THE REAL PROPERTY OF THE PERTY OF | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO ₁ | 2 | 2 | | | | | | | | | | 1.24 | 2 | - | 3 |
| CO2 | 2 | 2 | 3 | | | 1 | 100 | 1 | - | | - | | | | _ |
| CO3 | 2 | 2 | 2 | | | 1 | 7. F IR. 13 | 1 | | | | | 2 | | _ |
| CO4 | 2 | 2 | 2 | | | 1 | | L L | | | | | 2 | | |
| AND THE REAL PROPERTY. | | | _ | | | | | | | | 1 | l | 2 | | |
| Averag | 2 | 2 | 2.3 | | | 1 | | 1 | | | | | 1000 T | | |
| e | | | 3 | | | 1 | | 1 | | | 1 | | 2 | | |

| Subject | Paven | ient D | esign | | | | | | | | Subje | ect Cod | le: 18 | CV825 | |
|-----------------|----------------|--|----------|---------|----------|---------|---------|---------|----------|---------|----------|---------|--------|----------|-----|
| | _, | | | | | | rse Ou | | | | | | | | _ |
| CO1 | Syste Airfi | ematica eld). | ally ge | nerate | and co | mpile | require | d data | 's for c | lesign | of pave | ement (| Highv | vay & | |
| CO ₂ | Anal | yze str | ess, sti | ain and | d defle | ction b | v Bou | ssinesc | ı's Bu | rmister | r's and | Weste | ranard | l'a thaa | w 7 |
| CO3 | Desi | Analyze stress, strain and deflection by Boussinesq's, Burmister's and Westergaard's theory Design rigid pavement and flexible pavement conforming to IRC58-2002 and IRC37-2001. | | | | | | | | | | | | | |
| CO4 | Evalu | late th | e perfo | rmanc | e of the | e pavei | ment a | nd also | devel | ops ma | intena | nce sta | temen | t based | on |
| | | | | | (| CO-PO | -PSO | Марр | ing | | | | 3/// | _ | |
| | | | | | | | Os | | | | 12-12-12 | | | PSOs | |
| COs | | | 0020 | | E | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 7 |
| COs | 1 | 2 | 3 | 4 | 5 | U | , | U | | | | | | | |
| COs | 3 | 2 | 2 | 4 | 3 | 0 | , | 1 | | 10 | | 124 | | 1 | • |

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| CO ₃ | 2 | 2 | 2 | 2 | | | | | |
|-----------------|------|---|---|------|--|--|---|------|--|
| CO4 | | 2 | | 3 | | | 2 | 2 | |
| Average | 2.33 | 2 | 2 | 2.66 | | | | 1 75 | |
| | | | | | | | 2 | 1.75 | |

| Subject: | Intern | ship/Pr | ofessio | onal Pr | actice | | | | | Subj | ect Co | de: 18 | CV84 | | |
|-----------------|--------|----------------|---------|---------|----------|---------|---------|---------|----------|--------|--------|--------|------|----------|---|
| | 4 | excuse | | | | Cou | rse O | utcome | es | | | | | | |
| CO ₁ | Asse | ss inte | rests a | nd abil | ities in | 1 their | field o | f study | 7 | | | | - | | |
| CO ₂ | Lear | n to ap | preciat | e worl | c and i | ts func | tion in | the ec | Onomy | 7 | | - | | | |
| CO3 | Deve | lop co | mmun | ication | , inter | person | al and | other o | critical | skille | | _ | | | |
| | | and the second | | | | CO-P | D-PSO | Mapi | oing | SKIIIS | | | | | |
| COs | | | | | | 2000 | Os | A R | | | 770 | | | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 2 | | 3 |
| CO ₂ | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 2 | <u> </u> | - |
| CO3 | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | | | |
| Average | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 2 | | |

| Subject: | Proje | ct Phase | II | | | | | | | Subj | ect Co | ode: 18 | CVP8 | 3 | |
|-----------------|-------|----------|---------|---------|-----------|---------|----------|---------|---------|---------|--------|-----------|--------------|-------|----------|
| | | | | | N/14 AC-1 | | rse Ou | | | | | | day is solom | | |
| CO1 | For | nulate t | he pro | ject of | bjective | by de | tailed l | iteratu | re revi | ew | | | | | |
| CO ₂ | Con | duct the | expe | riment | al/analy | tical v | work to | achie | ve the | objecti | vec | | | | |
| CO3 | Prep | oare the | detaile | ed rep | ort base | d on t | he expe | erimen | tal/ana | lytical | work | | | | |
| CO4 | Con | nmunica | te and | prese | nt the n | roject | at diff | erent n | latform | ne | WOIK | | | | |
| | | | | _ | C | O-PC |)-PSO | Mapp | ing | 113 | | | | | 1100 |
| COs | | | | | | | Os | | | | | | - Marine | PSOs | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO1 | 2 | 3 | | 1 | 1 | | | | | | | (27-28-7) | 3 | 3 | <u> </u> |
| CO ₂ | | | | 3 | 2 | | | | | | | | 3 | 3 | |
| CO3 | 2 | 2 | 2 | 2 | 3 | | 1 | | | 3 | | | 3 | 3 | |
| CO4 | 2 | 2 | 2 | 2 | 3 | | 1 | | | 3 | | | 3M | 10.55 | |
| Average | 2 | 2.33 | 2 | 2 | 2.25 | | 1 | | | | | | 3 | 3 | |
| an orașe | | 2.55 | 4 | | 2.23 | | I | | | 3 | | | 3 | 3 | |

| ubject: S | Semin | ar | | | | | | | | Subj | ect C | ode:18 | CVS8 | 6 | |
|-----------------|-------|-----------------------|---------|---------|---------|---------|--------|---------|---------|----------|---------|---------|---------|---------|-----|
| | | | | | | | rse Ou | | | | | | | | - |
| CO ₁ | Wo | rk in a | ctual v | vorkin | g envi | ronme | nt and | utilize | techni | cal res | ources | | | - | |
| CO2 | Fine | d appro | opriate | sourc | es that | can be | e sumn | narised | l, give | oral pr | esenta | tions r | elated | to the | wor |
| CO3 | | | indepe | | | | | 27.00 | | | | | | -24-27 | _ |
| CO4 | | | | | | | data. | knowl | edge a | nd resu | ilts of | engine | ering | tudios | - |
| CO5 | Den | nonstra | ate the | ability | to ass | sess an | d repo | rt | -ugo u | 110 1050 | 1113 01 | ongine | cring . | studies | |
| | | | | | | | | - 17 | ing | | - | | *** | | |
| COs | | CO-PO-PSO Mapping POs | | | | | | | | | | | | PSOs | |
| COS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| CO ₁ | 2 | | | | | 2 | 2 | 2 | | | | 2 | 2 | 2 | _ |
| CO ₂ | 2 | | | | | 2 | 2 | 2 | | | | 2 | 2 | 2 | |
| CO3 | 2 | | | | | 2 | 2 | 2 | | | | 2 | 2 | 2 | |
| CO4 | 2 | | | | | 2 | 2 | 2 | | | | 2 | 2 | 2. | |
| | 2 | | | | | 2 | 2 | 2 | | 1 1100 | | 2 | 2 | 2 | |
| CO5 | 4 | | | | | | 1 2 | | | | i | 4 | 4 | / | 1 |

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