

निर्माण प्रबंधन (Construction Management) के सिद्धांत
[Nirman prabandhan (Construction Management) ke Siddhant]

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Lecture – 3
Vishay suchi – II



The banner features the IIT Kanpur logo on the left and the text 'Department of Civil Engineering Indian Institute of Technology Kanpur' in red. Below this, a white box contains the course title 'Principles of Construction Management' and the instructor's name 'Sudhir Misra' along with his department and contact information. At the bottom, it mentions 'भारत सरकार की MOOCs पहल के अंतर्गत पाठ्यक्रम' and 'निर्माण प्रबंधन के सिद्धांत'.

Namaskaar! Aapaka स्वागत है एक बार फिर भारत सरकार के moocs पहल के अंतर्गत पाठ्यक्रम निर्माण प्रबंधन के सिद्धांत में.

(Reference Time 00:27)



The banner features the IIT Kanpur logo on the left and the text 'Department of Civil Engineering Indian Institute of Technology Kanpur' in red. Below this, a white box contains the course title 'पाठ्यक्रम के मॉड्यूल' and the subtitle 'परियोजना प्रबंधन और निर्माण प्रबंधन में क्या अंतर है'. At the bottom, it mentions 'भारत सरकार की MOOCs पहल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत'.

Aaj ham log lecture 3 par hain aur pichhalee baar hamaara kaaryakram tha ki ham paathyakram ke module aur pariyojana prabandhan aur nirmaan prabandhan ke antar par vichaar karen, lekin mai aapase shama maangata hoon ki is bhaag par vichaar nahin ho saka aur hamen apana lecture paathyakram ke module mein hee rokana pada. Ham baakee modules ki charcha karenge aaj aur is bhaag par bhee ant mein charcha karenge.

(Reference Time 00:54)



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पाठ्यक्रम के मॉड्यूल

- परिचय एवं विहंगम छवि/दृश्य
- परियोजना की लागत का अनुमान
- निर्माण अर्थात्कार
- प्लानिंग एवं प्रोड्यूसिंग
- गुणवत्ता प्रबंधन
- सुरक्षा प्रबंधन
- अनुबंध प्रबंधन

Aage badhate hain paathyakram ke modules par. Pichhalee baar ham log in chaar modules par charcha kar chuke hain.

(Reference Time 01:06)



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मॉड्यूल 2 : प्रोजेक्ट की लागत का अनुमान

प्रारम्भिक और विस्तृत अनुमान, वस्तु विवरण, निर्माण उपकरण, इंजिनियरिंग, ओवरहेड्स, अनुबंधों का परिचय तथा बोली प्रक्रिया, मार्क-अप

Company
① Cost - XXX
Profit ②

Lekin aage badhane se pahale mujhe ye laga ki project kee laagat ka anumaan jab is vishay par charcha ho rahee thee to overheads aur mark-up par kuchh baaten theen main aapake saath phir se saajha karana chaahata hoon ki project kee laagat ke anumaan mein overheads aur mark-up ka kya mahatv hai? Overheads kya hote hain? Overheads aur mark-up dono hee anumaan ka ek ang hain aur vo anumaan kisakee or se jab lagaaya jaayega? Jab thekedaar kee or se anumaan lagaaya jaayega tab inaka vishesh mahatv hota hai. Is baat ko ham udaaharan ke saath spasht karana chaahenge. Kisee bhee nirmaan kaary mein thekedaar ka kuchh vyay direct (seedha) hota hai saamagree khareedane mein, vahaan par niyukt ya vahaan par rakhe

gaye karmachaariyon ke vetan mein ityaadi. Lekin kuchh vyay aisa hota hai jo ki us project kee laagat mein directly (seedhe) nahin aata hai jaise ki aap ye sochiye ki ek company hotee hai jisako ki ek project haasil karane ke liye chaar projects par biding karanee padatee hai, jo project usako mil gaya usakee laagat to usase nikal aayegee lekin jo project usako nhi mile, maan lejiye teen project ya chaar project nhi mile tab jaakar ye project mila to in teen-chaar projects mein bid banaane mein, usako bhejane mein even usaka ek praarambhik nireekshan (preliminary survey) karane mein jo bhee vyay hua, vo kahaan se aayega? Vah to isee project se lena hoga.

Doosara udaaharan hai aap mein se kae log vishvavidyaalayon mein padh rahe honge vahaan par campus placements hota hai kisee bhee company ke log vahaan placement ke liye aate hain to placement kee jo team aatee hai usake aane-jaane mein jo vyay hai, vo sab kahaan se aayega? Vo sab isee project, jo projects us company ko milate hain un projects kee indirect cost (apratyaksh laagat) mein jaate hain aur is tareeke ke vyay ko company jodakar overheads ka ek title detee hai.

Ab main aapase se poochhana chaahoonga ki aap vichaar kejiye ki agar badee company hai aur ek chhotee company hai, to overhead kisake jyaada honge? Nishchit taur par jo badee companies hain unake is tareeke ke vyay adhik hote hain. Jahaan tak mark-up ka savaal hai, mark-up seedhe taur par ek saral tareeke se agar samajhen to profit ka doosara naam hai. Thekedaar kee or se agar socha jaaye to agar project mein ek crores rupaye kee laagat aayegee, to usamen kuchh na kuchh profit (laabh) to hona chaahiye; us profit ka anupaat kitana hoga? Vo 5% rakha jaaye ki 10% rakha jaaye, overhead ke alaava. Ek soch ye bhee ho sakatee hai ki jitana overhead hai vo sab munaaphe se hee kharch kiya jaaye aur antat: vahee hoga lekin ek division karane ke liye apane dimaag mein alag rakhane ke liye mark-up profit kee taraph jaata hai overhead vaastavik vyay (actual expense) hai usako ham kaheen na kaheen se ugaahae kar rahe hain, kaheen na kaheen se usako ham apane paas leke aa rahe hain mark-up profit vo ham apane paas profit ke roop mein rakhana chaahate hain. Ab profit kitana hona chaahiye kitana nhi hona chaahiye ye baat ek strategic decision hotee hai jo ki thekedaar ke haayar leval par lie jaate hain. Mark-up jin baaton par nirbhar karate hain is par charcha ham karenge jab ham module ke upar vistrt baate karenge. To in do comments (tippane) ke saath jisamen ki hamane overhead aur mark-up par charcha kee.

(Reference Time 05:09)



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पाठ्यक्रम के मॉड्यूल

- परिचय एवं विहंगम छवि/दृश्य
- परियोजना की लागत का अनुमान
- निर्माण अर्थशास्त्र
- प्लानिंग एवं प्रोड्यूसिंग
- गुणवत्ता प्रबंधन
- सुरक्षा प्रबंधन
- अनुबंध प्रबंधन

Ham log aage badhate hain aaj kee charcha ke vishay mein jahaan par ki ham gunavatta prabandhan, suraksha prabandhan aur anubandh prabandhan kee vishesh roop se baat karenge.

(Reference Time 05:18)



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मॉड्यूल 5 : गुणवत्ता प्रबंधन

गुणवत्ता की परिभाषा, गुणवत्ता नियंत्रण, गुणवत्ता आश्वासन, कुल गुणवत्ता प्रबंधन, गुणवत्ता ऑडिट, गुणवत्ता का मूल्य, आईएसओ (ISO) मानक, निरीक्षण

निर्माण सामग्री vs कोई हिस्सा vs सिस्टम मान्य होने के लिए मानक (परखने कि विधि)

स्वयं सोचिये
निर्माण कार्यों में आपका 'उत्पाद' क्या है ?

parameter

Direct & Indirect

Plan

Aaiye ham log shuroo karate hain charcha gunavatta prabandhan kee. To gunavatta prabandhan (quality management), hamako dekhana hai nirmaan pariyojanaon ke pariprekshy mein. Yah pariprekshy, yah bhoomika industrial quality control se bilkul bhinn hai. Kyon bhinn hai is baat ka aadha javaab isee slide mein denge lekin aadha javaab ham chhod denge aapake liye homework ke roop mein. Is module mein charcha karate samay ham baat karenge gunavatta kee paribhaasha, gunavatta niyantran, gunavatta aashvaasan, kul gunavatta prabandhan, gunavatta audit, gunavatta ka mooly, iso maanak aur nireekshan. Ye hamaare

keywords honge. To sabase pahale baat karenge gunavatta ke paribhaasha. Gunavatta hai kya? Is vishay se hamaara abhipraay kya hai? Kya ham kisee bhee cheej ke charcha karenge to usakee gunavatta ke liye hamaare paas kuchh parameter hone chaahiye, kuchh aise maapadand hone chaahiye jin par khara utarana gunavatta ka prateek ho. Ham kah sakate hain ki jo cheej jitane mahangee hai vo utanee hee achchhee hai lekin kya ye baat vaastav me sahee hai? Mahanga hona gunavatta ka dyotak nhi hai. Gunavatta ka dyotak to kuchh aur hona chaahiye vo baat doosaree hai ki gunavatta ke prati agar ham jaagaruk hote hain ham gunavatta badhaana chaahate hain to thoda bahut cost (mooly) badhata hai vahaan par baat aatee hai gunavatta ke mooly kee. Gunavatta ka mooly, is vishay par agar ham charcha karenge, to mooly do tareeke se samajha ja sakata hai. Ek hai direct cost jo ki hamen gunavatta ko ensure karane ke liye, yah baat tay karane ke liye ki hamaara utpaad gunavatta ke maanakon par khara utare is baat ko sunishchit karane ke liye jo prayaas hota hai usamen jitane laagat aatee hai vo to hai direct cost . Direct cost ke saath-saath gunavatta mein paroksh roop se bahut saaree indirect cost (apratyaksh laagat) bhee aatee hai. Kya aap samajh sakate hain kyon? Yah us samay kee baat hogee jabaki hamaare utpaad mein gunavatta nahin hogee, vo kharaab gunavatta ka utpaad (product) hoga to hamen usako recall karana padega. Ho sakata hai hamen usako repair karana pade ya replace karana pade us samay jo kuchh bhee laagat aayegee vo bhee to gunavatta kee hee laagat mein jaayegee, vo negative expense (nakaaraatmak vyay) hai ek tareeke se. Jab karana chaahiye tha tab jo nahin kiya vahaan par kuchh direct cost to hamane bacha lee ye baat to tay hai lekin usake chakkar mein indirect cost agar hamako denee padee to ek total vyoo agar dekhen, comprehensively (vyaapak roop se) dekhen to hame gunavatta ka mooly direct aur indirect cost ye dono hee jodakar hee dekha jaana chaahiye. Is baat kee charcha ham udaaharanon sahit module 5 mein karenge.

Nireekshan (inspection) gunavatta; nireekshan gunavatta ko yah sunishchit karane ke liye ki hamaare utpaad gunavatta ke maanakon ke anusaar banaaye ja rahe hain jo maanak aavashyak hain unaka anupaalan kiya ja raha hai usake liye lagaataar nireekshan hote rahana aavashyak hai aur in nireekshan kee jo laagat hai vo sab ek direct cost ka bhaag hai nireekshan mein upayog mein laaye jaane vaale upakaran vo bhee sab direct cost ka ek hissa maane ja sakate hain. Gunavatta niyantran, aashvaasan, kul gunavatta prabandhan aadi ye sab audyogikee shetr se jo gunavattaapoom saahity, jo gunavatta kee research hai usase aayaatik concept hai vo nirmaan kaaryon mein kitana upayogee hain, kitane relevant hain us par ham log charcha karenge module 5 mein.

Aage badhate hain aur ham baat karate hain nirmaan ke prshthabhoomi kee aur gunavatta kee baat karate hain isake saath. To aap ye dekhiye ki nirmaan saamagree ham prayog karate hain, ham cement ka prayog karate hain, sariya ka prayog karate hain, ham tails ka prayog karate hain, ham plumbing kee fittings use karate hain unakee gunavatta maapane ke liye tarah-tarah ke maanak hain, tarah-tarah ke parakhane kee vidhiyaan hain jo ki inspection mein jaatee hain. Lekin kya vo hamaare utpaad hain nirmaan kee jo ek prakriya hai vo ek nal lagaane kee nhi hai, vo ek building banaane kee hai, vo ek aspatal banaane kee hai us pooree building kee gunavatta kee baat honee chaahiye, usamen nirmaan saamagree ka istemaal hota hai us nirmaan saamagree ko lekar ham ek component banaate hain chaahen vo beam ho, chaahen vo slab ho, chaahen vo flooring ho, chaahen vo furniture ho vo hamaare component hain aur usake aage baat hotee hai pooree system kee pooree building, pooree sadak, pooree sadak mein bridge bhee aayenge dividers bhee aayenge, berms bhee aayenge, divider bhee aayenge. To us prakaar se hamen ek nirmaan pariyojana ko baantakar dekhana hoga aur baantakar dekhane ke baad har bhaag/paart kee gunavatta kee baat karane hogee aur us part mein istemaal kee jaane vaalee saamagree kee baat karane hogee. To ye vishay itana vistr

ho jaayega ki hamen samajh mein nhi aayega ki ham kya karen. Isaliye maatr kuchh udaaharanon se ham log module 5 mein charcha karake chhod denge ki isake aage agar aapako kisee samay apane professional career mein kisee doosare project mein kaam karana pade to inhee siddhaanton ko lekar aap un projects mein gunavatta niyantran ke system vikasit kar saken.

Maine kaha tha ki gunavatta prabandhan aur nirmaan ke upar ham aadha javaab ham denge/us par ham aaj charcha karenge. To vo jo prashn hai vo ye hai ki nirmaan kaaryon mein aapaka utpaad kya hai maine abhee kaha aapaka utpaad ek bridge ho sakata hai, ek pooree sadak kee pariyojana ho sakatee hai, ek building ho sakatee hai, ek shiksha sansthaan ho sakati hai. Usakee gunavatta sunishchit karane ke liye hamen ek gunavatta yojana ya plan kee aavashyakata hotee hai aur vo gunavatta plan hamaaree planning ke charan mein hee socha jaana chaahiye kyonki jab tak hamaara plan ham us samay nahin sochenge, us samay ham us par vichaar nhi karenge to jab execution (kaaryaanvayan) mein aa jaayenge vahaan par gunavatta ka plan sochane mein samay lagega aur gunavatta utanee aasaanee se aap sunishchit nahin kar paayenge.

(Reference Time 12:33)

Department of Civil Engineering
Indian Institute of Technology Kanpur

मॉड्यूल 6: सुरक्षा प्रबंधन

असुरक्षित कार्य और परिस्थितियाँ, दुर्घटनाएँ, पीपीई (PPE), सुरक्षा ऑडिट, परियोजना प्रबंधक की भूमिका, सुरक्षा के सिद्धांत, सुरक्षा का मूल्य, सेफ्टी प्लान, प्रोत्साहन नीति, OSHA

स्वयं सोचिये
क्या सुरक्षा के लिए उठाये जाने वाले कठम निर्माण कार्य के अनुसार बदलते हैं ?

भारत सरकार की MOOCS पहल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत

8

To ham log aage chalate hain agale module kee or – suraksha prabandhan/safety. Safety kee baat jab ham log karenge to ham asurakshit kaary aur paristhitiyaan, unsafe conditions (asurakshit paristhitiyaan) end unsafe act (asurakshit adhiniyam). Unsafe act hota hai jo ki karmachaaree jaane-anajaane mein ek aisa kaam kar baithata hai jisase ki durghatana ho jaatee hai ya durghatana ho sakatee hai. Asurakshit paristhitiyaan ya unsafe conditions vo hotee hain jisamen kee poora vaataavaran vahaan ka jo hai usamen kuchh aisee baat aa gayee jisamen ki karmachaaree kee galatee to nhi hain lekin ek sthiti aisee utpann ho gayee jahaan par ki asurakshit vaataavaran ban gaya. Udaaharan ke taur par agar kisee jameen par kisee karmachaaree se kuchh gir gaya aur us karmachaaree ne usako saaph nahin kiya aur ghar chala gaya. Agala karmachaaree jab aaya tab usako ye pata nhi tha ki yahaan par kuchh gira hua hai vo aakar ye jaanate hue ki yahaan kuchh nhi hoga usane kaary shuru karane kee koshish kee aur durghatana ho gayee. Ab isake liye jab durghatana huee to ek asurakshit paristhiti banee huee thee usake liye vo vyakti jimmedaar nhi hai jisase kee durghatana huee,

jimmedaar vo vyakti hua jisane kee us sthiti ko sambhaala nhi. Usane kyon nhi sambhaala, kaise nhi sambhaala, sambhaalana chaahiye tha ityaadi ye sab baad mein vistaar se charcha ka vishay ban jaata hai.

Ham sabhee jaanate hain ki durghatanaen bahut hee durbhaagyapoorn baat hotee hai jab kisee project site par durghatana hotee hai, log hataahat hote hain. Log hataahat hon na hon vo to ek baat hai, apanee jagah bahut gambheer baat hai lekin kabhee-kabhee hamaaree masheenon ko kshati hotee hai. Hamaara project vilambit ho jaata hai ye sab baaten bhee hamen antat: kachotatee hain. Ye na ho is baat ko sunishchit karane kee soch ye suraksha prabandhan ke antargat aatee hain. Ppe (personal protective equipment/vyaktigat suraksha upakaran). Ye equipment chaahen vo helmet ho, life jacket ho, safety belt, boots ho ya goggles ho, ye sab ppe mein aate hain. Ye vo equipment (upakaran) hain jo ham karmachaariyon ko yah sunishchit karane ke liye dete hain ki yadi durghatana ho jaatee hai to unako chot na lage ya chot lage to kam se kam lage. Ab aap yah samajh hee gaye honge ki ppe kae prakaar ke ho sakate hain. Main aapase ye prashn poochhana chaahata hoon kya sabhee nirmaan kaaryon mein ek hee tarah ke ppe diye jaane chaahiye? Is par ham log shaayad baad mein charcha karenge.

Suraksha audit, pariyojana prabandhak kee bhoomika, suraksha ke siddhaant, suraksha ke mooly, safety plan, protsaahan neeti aur osha kee guidelines in par bhee suraksha prabandhan ke dauraan charcha hogee. Suraksha ke mooly, is par main ek chhotee see tippanee avashy karana chaahata hoon ki kuchh der pahale jab ham gunavatta kee baat kar rahe the tab hamane baat kee thee direct aur indirect costs (pratyaksh aur paroksh laagat) kee. Safety mein bhee durghatanaon ke prabandhan mein bhee direct aur indirect cost ka vishleshan kiya ja sakata hai. Direct cost of safety vo laagat hai ya vah mooly hai vo cheejen usamen jaayengee jo ki hamen durghatanaen na ho yah sunishchit karane ke liye jo bhee kadam ham uthaate hain vo sab honge direct cost of safety. Durghatana ho jaane ke baad hone vaale tamaam vyay usamen kuchh direct honge kuchh indirect honge lekin jo tamaam indirect vyay jo honge unako bhee hamen dhyaan mein rakhana hoga. Aakhir gunavatta ke tareeke se hee suraksha mein bhee aksar ham direct cost chaahe ppe hon, chaahen vo training ho isamen jab nivesh nahin karate hain to durghatana hone ke baad ek bhaaree keemat chukaane padatee hai. Is baat ka mahatv jaanana ek nirmaan prabandhak ke liye bahut hee aavashyak hai. Safety plan hona bhee utana hee aavashyak hai. Hamen yah sochana chaahiye ki ham jab koe bhee cheej nirmaan karenge kis prakaar kee durghatanaen vahaan ho sakatee hain, kis tareeke se usase bacha jaaye, usase kshati na ho to isaliye kis prakaar ka ppe karmachaariyon ko diya jaaye. Phir aap ye bhee sochiye kya karmachaariyon ko hee ppe dene se kaam chal jaayega, nahin jo bhee vyakti site par jaayega usako bhee ppe diya jaana chaahiye, yah baat bhee dhyaan mein rakhane chaahiye. Protsaahan neeti ek protsaahan yojana ho sakatee hai, ek anubandh mein ek contract mein. Theek hai site par poore nirmaan kaary ke dauraan koe durghatana nhi huee to ek present, do parsent, aadha parsent project value aapako bonus ke roop mein diya jaayega to is prakaar kee tamaam protsaahan diye ja sakate hain is baat ko sunishchit karane ke liye ki thekedar tatha any sabhee hitadhaarak suraksha ke prati jaagaruk hon aur jisako kee english mein kahate hain don't cut corners (short cut) apanaane kee koshish na karen.

OSHA hai (occupational safety hazard administration), isake baare mein aaj main abhee charcha nahin karana chaahoonga. Aapako main homework ke roop mein chhod sakata hoon ki aap isake baare me thoda sochiye, jaanakaaree haasil keejiye aur jab ham module 6 par pahunchenge tab ham isakee vistr charcha karenge. Yah prashn mainne aapase pahale bhee

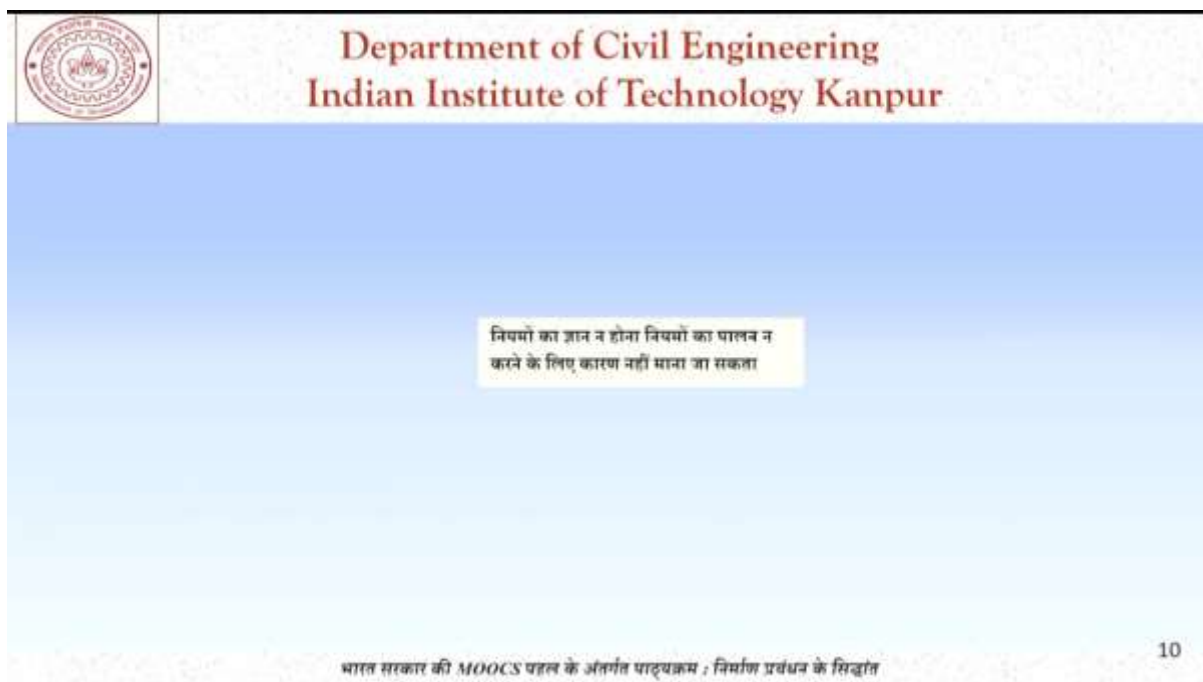
poochha tha ki kya suraksha ke liye uthaaye jaane vaale kadam nirmaan kaary ke anusaar badalate hain? Isaka uttar bilkul saaph hai, badalenge hee. Jis prakaar ke suraksha ke kadam ek tunnel project mein (ek surang) banaate samay apanaaye jaane chaahiye. Agar ham unakee tulana karen ek bridge banaate samay jahaan par kee doobane ka khatara hai vahaan par kiye jaane vaale suraksha prabandhon se ye to jaahir see baat hai ki dono alag-alag honge to ek pariyojana prabandhak ya nirmaan prabandhak jo bhee hoga usako yah samajhana chaahiye ki hamaare nirmaan kaaryon mein us samay ek nirmaan kaary mein bhee samay ke anusaar ppe kee demand ya durghatana ka nurture badal sakata hai jaise ham ek badee building bana rahe hain, ek unchee imaatat bana rahe hain to jab tak ham foundation bana rahe hain tab jis prakaar kee durghatana ho sakatee hai usase bachane ke upaay usase ham tulana karen ki jab hamaaree building 4 floors tak pahunch gayee, 10 floors tak pahunch gayee, 60 floors tak pahunch gayee tab us samay kis prakaar kee durghatana ho sakatee hai isakee jaanakaree usase bachane ke upaay in sabhee ko dhyaan mein rakhate hue hamen ek safety plan banaana chaahiye aur ye jimmedaaree kisakee hotee hai? Pariyojana prabandhak kee.

(Reference Time 20:15)

To aage badhate hain ab charcha karate hain ham log anubandh prabandhan kee arthaat contract management. Ye maine aapako shaayad pahale lecture mein bhee kaha tha ki kisee bhee nirmaan kaary mein bahut saare hitadhaarak hain, jismen client se lekar designer, contractor, user, regulator, investor. Us samay ye sabhee hitadhaarak ek doosare se anubandh se jude hote hain. Us anubandh mein ye likha hota hai ki kaun kya karega, kab karega aur usako vo kaam karane ke liye kya compensation milega, usako kya remuneration milega, kya consideration milega. Aksar aisa hota hai ki jab nirmaan kaary dheere-dheere aage badhata hai tab usamen badalaav kiye jaate hain, unako ham log deviation kahate hain arthaat jo anubandh mein vivaran diya gaya hai usase itar. Maan lejiye ek flooring (pharsh) hai, drawing mein likha gaya hai ki mosaic flooring hogee jab building banake taiyaar hone lagee aur flooring ka samay aaya to client ne kaha ki in kamaron mein mosaic kee jagah hamen tile flooring kar deejiye kyonki bilding aakhirakaar 50 saal yooz hone vaalee hai to ye kahana ki nhi anubandh mein mosaic flooring hai to mosaic flooring hee hogee yah bhee nyaayochit nhi hai. To yah baat maanane hotee hai ki haan theek hai client kah rahe hain ek deviation hai

mosaic flooring se tile flooring karane ka. To usamen kya cost changes, usaka mooly badal jaayega to jahaan tak aapas mein baithakar ye baat tay kee ja sake ki haan theek hai isamen deviation tha kitana phark pada chaahe vo cost mein ho, chaahe vo time mein ho aur aapas mein samajhauta ho jaaye vahaan tak to theek hai. Agar samajhauta nhi hota hai to baat aa jaatee hai vivaad par aur vivaad sulajhaane ke liye ek mechanism hona aavashyak hai. Kisee bhee anubandh mein vivaad aa jaane par kaun yah madhyastata karega ye vivaad kaise sulajhaaya jaayega taaki yah dhyaan mein rakhate hue ki project ko kam se kam phark pade is baat ko dhyaan mein rakhate hue madhyastata tatha any resolution mechanism (niraakaran) pranaalee kee charcha bhee ham log is course ke module 7 mein karenge. Shram tatha any kaanoon, isape bhee baat honee chaaehiye kyonki aakhirakaar nirmaan kaaryon mein bahut saare shramik kaam karate hain aur tarah-tarah ke kaanoon, tarah-tarah ke niyam laagoo hote hain.

(Reference Time 23:19)



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नियमों का ज्ञान न होना नियमों का पालन न करने के लिए कारण नहीं माना जा सकता

भारत सरकार की MOOCS पहल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत

10

In niyamon kee jaanakaaree hona bahut hee aavashyak hai ek baat aap samajh lejiye niyamon ka gyaan na hona niyamon ka plan na karane ke liye kaaran nhi maana ja sakata hai. Ek nirmaan prabandhak yah nhi kah sakata hai ki mujhe pata nhi tha ye niyam laagoo hota hai isaliye usaka ullanghan ho gaya. Niyamon ke baare mein jaanakaaree hona aur jo niyam aapake upar laagoo hote hain unakee jaanakaaree haasil karana yah aapaka daayitv hai iseeliye yah bahut aavashyak hai ki nirmaan prabandhak ko tamaam niyamon kee jaanakaaree ho aur vo jaanakaaree colleges mein kisee bhee course mein de paana asambhav hai to usake baare mein jaanakaaree/jaagarukata usaka mahatv dheere-dheere anubhav ke saath hee aapake vyaktitv ka ek part/ang ho jaata hai. Kabhee-kabhee kahate hain ki management padhaaya nhi ja sakata vah sirph anubhav se aata hai. Baat aadhee sahee hai aur nirmaan kaaryon mein vishesh roop se. Nirmaan kaaryon mein site par rahana, vahaan par un samasyaon ko dekhana, unako samajhana aur unake hal jaanana yah anubhav ka ek abhinn ang hai aur yah poora paathyakram maatr un pahaluon ko aap tak pahunchaane ka ek prayaas hai.

(Reference Time 24:45)



Department of Civil Engineering Indian Institute of Technology Kanpur

पाठ्यक्रम के मॉड्यूल

परियोजना प्रबंधन और निर्माण प्रबंधन में क्या अंतर है

भारत सरकार की MOOCs पहाल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत

Ham log aage badhate hain aur pariyojana prabandhan aur nirmaan prabandhan ke antar ko ham ek udaaharan ke saath spasht karane ka prayaas karate hain.

(Reference Time 24:56)



Department of Civil Engineering Indian Institute of Technology Kanpur

उदाहरण : तकनीकी संस्थान की स्थापना

- छात्र
- शिक्षक
- अन्य कर्मचारी



भारत सरकार की MOOCs पहाल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत

12

Udaaharan ham lete hain ek takaneeeki sansthaan kee sthaapana. Maan leejiye yah ek nirnay liya gaya ki is kshetr mein arthaat yah ek zameen ka tukada aavantit kar diya gaya yahaan par ek takaneeekke sansthaan kee sthaapana kee jaanee hai aur ek prabandhak se kaha gaya ki ab aap pooree yojana banaiye aur hamen bataiye ki aapako kya-kya sansaadhan chaahiye, to baat kahaan se shuroo hogee? Takaneeekke sansthaan kee sthaapana karanee hai ek shikshan sansthaan hai to vahaan par chhaatr honge, shikshak honge, tamaam any karmachaaree honge, pathan-paathan ka kaary hoga, yahaan se baat shuroo hogee. To hamaare paas ye jo zameen hai usaka ek master plan banaana hoga, lekin master plan banaane ke liye hame kya

input chaahiye, kya jaanakaaree chaahiye, is par bhee to vichaar karana hoga. Pahale to master plan kya hota hai? Master plan ek aisa plan hai jo maatr yah bataata hai ki is zameen par kahaan par kya banega, kahaan par lecture hall banega, kahaan par prayogashaalaen banengee, kahaan par khel-kood ke maidaan honge, kahaan par logon kee mess hogee ya chhaatron ke hostels honge. Usake beech mein jo sadak hogee, vo kitanee badee hogee ya kitanee badee nhi hogee ityaadi. Vahaan par kaise paanee pahunchaaya jaayega, weste water tretament kaise kiya jaayega in sab baaton ko dhyaan mein rakhate hue is zameen ke tukade ka efficient utilization usaka achchha upayog ho sake is baat ka ek plan master plan kahalaata hai. Yah baat aavashyak nhi hai ki master plan mein dee gae sabhee building sabhee suvidhaen ek samaan bana dee jaayen.

Yah kaha ja sakata hai ki yah hamaara master plan hai ye part ham phase 1 (pahale charan) mein banaayenge, yah part ham doosare charan mein banaayenge, ye sab part ham teesare charan mein banaayenge. Lekin yah dhyaan mein rakhana chaahiye ki kuchh suvidhaen ek doosare se judee hotee hain to yahaan tak pahunchane ke liye jo sadak hai vo to hamen banaanee hee hogee jahaan se bhee banaaye, chaahe yahaan se banaanee ho to yahaan kee bana den aur ye sadak baad mein jab ham ye vaala charan is par nirmaan kaary shuru karenge tab us samay yah sadak bhee upayog mein bhee aa jaayegee. To yahaan se master plan kee soch shuroo hotee hai.

(Reference Time 27:33)

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छात्रों के लिए

<ul style="list-style-type: none"> • प्रवेश प्रणाली / संख्या • घटन -पाठन • रहने की व्यवस्था <ul style="list-style-type: none"> • छात्रावास • मैसेज 	<ul style="list-style-type: none"> • खेल कूद की सुविधाएं <ul style="list-style-type: none"> • स्विमिंग पूल, आदि • प्राथमिक स्वास्थ्य केंद्र • सर्वांगीण विकास की अन्य सुविधाएं जैसे कि जिम, इत्यादि
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भारत सरकार की MOOCs पहल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धान्त

13

Ab isako thoda aur agar baareeke se dekhen to chhaatron ke drshtikon se pravesh pranaalee kya hogee, kitane chhaatron ke liye ham ye shikshan sansthaan bana rahe hain, kis prakaar ke vibhaag honge, kis prakaar kee shiksha dee jaayegee, kya ye aavaaseey campus hoga, ki aavaaseey campus nahin hoga. Agar aavaaseey campus hai jahaan par ki chhaatr rahenge to unake liye chhaatraavaas banaane honge, unake liye mess aur khaane-peene kee vyavastha bhee karanee hogee saath hee saath hamen khel-kood kee suvidhaen, swimming pools aadi baanaane honge. Praathamik svaasthy kendr aur unake sarvaangeen vikaas ke liye any suvidhaen jaise ki gym ityaadi par bhee vichaar karake us master plan mein usako ek sthaan aavantit karana hoga.

(Reference Time 27:33)




शिक्षकों एवं कर्मचारियों के लिए

- रहने की व्यवस्था
- बच्चों के लिए स्कूल, आदि

- खेल कूद की सुविधाएं
 - स्विमिंग पूल, घाटण्ड
- प्राथमिक स्वास्थ्य केंद्र
- सर्वांगीण विकास की अन्य सुविधाएं जैसे कि जिम, इत्यादि

Usee prakaar se karmachaariyon aur shikshakon ke liye rahane kee vyavastha karanee hai ya nhi karanee hai unake bachchon ke liye khel-kood kee aur school kee vyavastha karanee hai ki nhi karanee hai. In sab baaton par bhee vichaar karana aur usake liye sansaadhan aavantit karana ek shikshan sansthaan kee pariyojana ke plan ko vikasit karane ka ek abhinn ang hoga. Isake saath hee khel-kood kee suvidhaen, swimming pools aadi alag-alag to nhi banenge. Ho sakata hai usee swimming pool jo ki ham chhaatron ke liye plan karenge sabhee log usaka prayog kar saken. To praathamik svaasthy kendr bhee usee tareeke se sabake liye hoga. Sarvaangeen vikaas ke liye jo suvidhaen hain gym aadi vo bhee sabhee log prayog kar sakate hain lekin ye sab logon ke prayog karane ke liye vo kitanee badee hogee is baat ko tay karane ke liye yah aavashyak hai ki ham ye jaan saken ki kitane chhaatr honge, kitane shikshak honge unake parivaar mein kitane log ek anumaan kee kitane logon ke liye ham praathamik svaasthy kendr bana rahe hain, kitane logo ke liye swimming pool bana rahe hain, kitana bada bana rahe hain, kitana chhota bana rahe hain in sab baaton ka vichaar pahale se hamaaree ek report mein hona chaahiye. Isako ham kahenge ek detailed project report, jab banegee usamen yah sab baaten aanee chaahiye.


(Reference Time 29:40)



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पठन – पाठन

- विभाग
- जलसारा सुगम
- प्रयोगशालाएं
- पुस्तकालय
- कंप्यूटर सेंटर (नेटवर्क)



स्वयं सोचिये

क्या सभी सुविधाओं को एक साथ विकसित करना आवश्यक है?

भारत सरकार की MOOCs पहल के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत

15

Pathan-paathan ka jahaan tak savaal hai vibhaag kaun se honge, classroom kis prakaar ke honge, kitane bade honge, prayogashaalaen ya laboratories kitanee badee hongee, unamen kya suvidhaen hongee, unamen kya upakaran aayenge. Pustakaalay – ab aaj kal ke jamaane mein pustakaalay mein maatr hard copy pustakon ke alaava soft copy pustaken, e-journals unaka subscription usaka prabandhan bhee ek digital pustakaalay ka ek abhinn ang ho gaya hai. Aage chalen to hamen computer center banaana padega, chhaatron ko networking karana padega. Unake kamaron ko lecture halls ko, prayogashaalaon ko, wi-fi ka prabandh karana hoga in sab baaton ko bhee hamen dhyaan mein rakhana hoga. Ab baat aatee hai ki kya hamen sabhee suvidhaon ko ek saath vikasit karana aavashyak hai? Hamane pahale bhee kaha ki aavashyak nhi hai lekin kuchh suvidhaen hain jo ki shaayad baad mein jyaada use hon lekin pahale bhee agar vo use hotee hain to hamen unako vikasit karana hoga pahale charan mein hee. Is baat ko dhyaan mein rakhate hue aap pahalee baar jab ham logon kee charcha huee thee tab ham logon ne kaha tha ki ek time axis agar ham lete hain to hamako kya cheez yahaan chaahiye, kya cheez yahaan chaahiye, kya cheez yahaan chaahiye is baat ka ek bilkul spasht chitr hamaare mastishk mein hona chaahiye tabhee ham is baat ko, jo ki hamane udaaharan liya hai shikshan sansthaan kee sthaapana, usako ham suchaaruu roop se thos roop de sakege.

(Reference Time 31:24)



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शिक्षण संस्थान में भवन

- क्लास रूम
- परीक्षा भवन
- सभागार
- प्रयोगशालाएं
- पुस्तकालय
- चिकित्सा केंद्र
- आवासरीय भवन

Chhotee see baat nirmaan ke liye bahut hee aavashyak ek vishay kee shikshan sansthaanon mein bhavan kitane prakaar ke hote hain yah kahana ki building banegee ya bhavan banenge bahut aasaan hai lekin classroom honge, pareeksha bhavan honge, sabhaagaar, prayogashaalaen, pustakaalay, chikitsa kendr, aavaaseey bhavan ye sab kahane ko to building hain lekin inake specifications, inaka functions bilkul alag hai to jo cheejen hamen pustakaalay mein chaahiye vo cheejen hamen sabhaagaar ya auditorium mein nhi chaahiye. Jo cheejen hamen aavaaseey bhavanon chaahen vo hostels hon, chaahen vo faculty ke quarters hon unamen jo cheejen chaahiye vah hamen classroom mein nhi chaahiye. To har building ka functional design karate samay is baat ko dhyaan mein rakhana chaahiye. Prayogalaon par hamen vishesh dhyaan dena hota hai kyonki prayogashaalaon mein aksar kuchh aisee vastuyen prayog mein laayee jaatee hain aisee vastuon ka istemaal hota hai jo ki toxic hotee hain, mercury use hota hai, acid use hota hai, any tamaam cheejen hain jo ki use hotee hain aur unako kaise rakha jaayega, kaise disposed kiya jaayega waste ke roop mein is baat ka prabandhan is baat ka ek pooro plan banaakar hee ham aage badh sakate hain.

(Reference Time 32:53)



Department of Civil Engineering Indian Institute of Technology Kanpur

उदाहरण : तकनीकी संस्थान की स्थापना

परियोजना प्रबंधन और निर्माण
प्रबंधन में अंतर स्पष्ट हो गया होगा

भारत सरकार की MOOCs portal के अंतर्गत पाठ्यक्रम : निर्माण प्रबंधन के सिद्धांत

17

To main samajhata hoon ki is udaaharan se pariyojana prabandhan aur nirmaan prabandhan mein kuchh to antar spasht hua hoga. Pariyojana prabandhan us takaneekee sansthaan kee sthaapana mein hone vaale tamaam chhote bade kaaryon ko milaakar ek bada roop socha jaana aur usaka praaroop banaana vah to hai pariyojana prabandhan aur har bhavan ko banaana, prayogashaalaon ko banaana, pustakaalay banaana yah ek tareeke se nirmaan prabandhan mein aata hai. To nirmaan prabandhak jo hoga vo yah kah sakata hai ki aap hamako drawings de deejiye, chitr de deejiye jisake anusaar ham is bhavan ka nirmaan kar saken. Is baat ko ham poora kar sake. Ham chaahen vo networking karanee hai to hamen bata diya jaaye ki hame networking kis prakaar kee karanee hai ham us cheej ko implement kar denge ham us cheej ko dharatee par utaar denge lekin usaka overall chitr kya hai vo agar nirmaan prabandhak ko pata hai to adhik yogadaan kar sakata hai adhik kaaragar ho sakata hai lekin agar usako pata nhi hai to vo ek bahut hee sookshm aur bahut hee sankeern daayare mein kaam karata hai. Udaaharan ke taur par agar aap kabhee 500 ya 1000 piece kee zig-saw puzzle banaate hain to us zig-saw puzzle mein poora chitr jab aapake saamane hota hai tab un tukadon ko jod paana aasaan hota hai. To us poore chitr ko samajhana aur usamen kaun see baat kahaan par fit hotee hai is baat ko plan karana aur usako ek tareeke se breakdown karana vo hamane kuchh charcha kee thee breakdown structure kee, to breakdown structure bhee yahaan par istemaal mein aata hai. Usaka bhee ham prayog kar sakate hain us thought process ka prayog kar sakate hain ki ek badee pariyojana ko ham kaise chhotee-chhotee yojanaon mein, chhotee-chhotee buildings mein, chhotee-chhotee services mein divid kare, usako breakdown karen aur phir un chhotee pariyojanaon ko kaaryaanvit karen vo ek nirmaan prabandhan ke kshetr mein aata hai. To isake saath ham aaj ka lecture samaapt karate hain.

Upayogee prakaashit pustakon ke baare mein ham aapako pahale bhee jaanakaaree de chuke hain. Dhanyavaad! Jay hind! Agale lecture mein aapase phir bhent hogee. Namaskaar.