

Computer Applications in Mining Engineering

تطبيقات الحاسب الالكتروني في هندسة التعدين

The Importance Of Mining

- <https://www.youtube.com/watch?v=HVTwfErmLco>
- <https://www.micromine.com/micromine-mining-software/>
- <https://blogs.3ds.com/geovia/geovia-surpac-6-9-released/>
- <https://ventsim.com/?gclid=CjwKCAjw5c6LBhBdEiwAP9ejG5dIMozrVLFdDL5GfVO5fY4J6yBseAgNiEDxLYVbOjZNOXrs1CIZExoCFYcQAvD BwE>
- <https://www.youtube.com/watch?v=onC5JQX-KAc>
- <https://www.solidworks.com/>
- <https://www.youtube.com/watch?v=7-N0G6VuJKM>

Inside Mining Engineering

Mining engineering is a discipline that applies science, technology and mechanical principles to locate and extract mineral resources from the earth as safely, efficiently and non-destructively as possible. The recovery techniques used depend on whether a mine is a surface or an underground operation. Mining engineers may also play a role in converting exhausted mining sites into livable habitats. Aspiring mining engineers have several educational and professional routes at their disposal

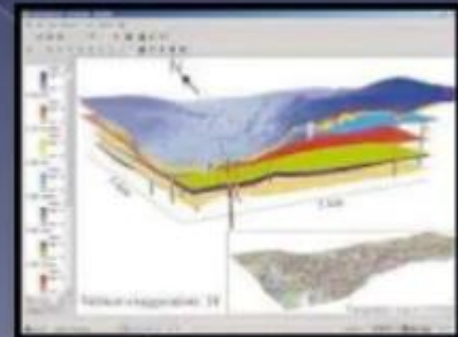
COMPUTER APPLICATION OF MINING ENGINEERING

- ◉ **NOWADAYS EVERY FIELD OF SCIENCE HAS BEEN COMPUTERISED SO AS IN MINING ENGINEERING.IT SAVES A LOT OF TIME ,ENERGY,MANPOWER THUS INCREASING THE NET EFFICIENCY OF THE WORK PROCESS.IT ALSO GIVES US COMFORT AND REST DUE TO THE FACT THAT WE NEED NOT DO HARD WORK**



SOME OF COMPUTER'S USE IN MINING ENGINEERING

- 1. SURVEYING MACHINES ARE CONNECTED TO LAPTOPS WITH WHICH WE CAN HAVE A 3-D VIEW OF THE DISTRIBUTED GEOLOGY AROUND THE PLACE. FOR ex; THE DISTRIBUTION OF ROCK LAYERS ,SOIL etc. IT HELPS US UNDERSTAND THE GEOLOGY IN A LOT BETTER WAY .





0

CONTINUED....

- 2. ESTABLISHING THE BEST MEANS OF COMMUNICATION BETWEEN THE SURFACE AND UNDERGROUND WHICH ENHANCES THE BETTER SAFETY OF THE MINERS .IT WILL BE EASY TO FACE THE CASE OF EMERGENCY WITHOUT GETTING PANIC WITH THE HELP OF ADVANCED COMM.SYSTEM



CONTINUED...

- 3. **COMPUTER IS ALSO USED IN CONTROLLING THE CONVEYER BELT WHICH IS USED IN THE TRANSPORTATION OF ORE FROM THE MINE AREA TO THE MINERAL PROCESSING PLANT FAR APART. THE MANUAL TRANSPORTATION OF THE ORE WOULD CONSUME MORE TIME .**



CONTINUED...

- 4. USED IN GPS SYSTEM INSIDE THE MINES i.e., REGARDING THE MINERS' LOCATION IN THE MINES ,HOW FAR THEY ARE AWAY FROM LAND ,HABITATS,POWER PLANT.ALSO USED IN PRESERVING THE INFO REGARDING THE MINERALS UPTO DATE .



CONCLUSION

- I WOULD LIKE TO CONCLUDE MY PRESENTATION WITH A SIMPLE SAYING THAT WITHOUT COMPUTERS MINING WILL BECOME A MAJOR HECTIC PROCESS WHICH WILL TEST THE PATIENCE AND SKILL OF THE WORKERS ALL TOGETHER, WHICH SHOWS THAT THE WORLD RUNS BEHIND COMPUTERS FOR THIS VERY REASON!!!



Computer application in mining engineering

. We are now living in the age of information. Information is the vital resource in any decision making process. Business survival in the 21st century is dependent on the ability of business to manage their information, in the way they interact and in the way they react to changes. Information technology, as in other fields, can play a significant role in enhancing the productivity of mining industry. As Information Technology has advanced from mainframes to minicomputers to PCs to the World Wide web, Mining Industry is also absorbing state-of-art technology in its operations. The constantly increasing portfolio of computer applications in Mining industry includes analyzing and mapping exploration data, estimation of ore reserves, designing mines, planning production,



Computer application in mining lab


Although many applications of computers to exploration and mining geology had been developed prior to 1969, their use and acceptance in mining was limited, even by the technologically advanced countries. Today, most mining companies and governmental agencies concerned with natural resources apply computers extensively.

During the decade, Matheron's French geostatistics has undergone extensive theoretical expansion on the one hand, and reduction to understandable form, through several textbooks, on the other hand. Classical statistics for mining geology has been refined further as the result of many detailed applications with much feedback from industrial practice.

Computer application in mine desining

The computer has made a significant impact on mine planning and design. Computer systems are now available to emulate existing planning techniques and also to perform what were once manually difficult tasks.

The present paper briefly reviews the introduction of computer systems into mine planning and design and then looks at a selection of areas of application. These include reserve estimation, layout evaluation and equipment selection and scheduling. Future developments in computer technology are also discussed together with their possible impact on the mining industry.



The Importance Of this Course

- The use of computer techniques in modern geoscience modelling of mining, geology, and environmental problems such as exploration, geological characterization and mining exploitation.

This course include:

- Using of computers in designing mining plans.
- Estimation of ore reserves using both **AutoCAD**& SolidWorks and specialized mining software such as MICROMIN& Surpac etc.
- Assessment of mine stability using computer modelling.
- Modelling of ventilation circuits using **Ventsim** software.
- Study the economic aspects of mining operations through programs such as Excel.
- Modelling the operation of a mineral processing unit and metallurgical process units using advanced software such as ANSYS& Comsol etc.

This course include:

- استخدام الحاسب الآلي في تصميم مخططات المناجم.
- تقدير احتياطات الخام باستخدام كل من برنامج **AutoCAD** و **Solidworks** و برامج التعدين المتخصصة مثل ال **Micromine** و **Surpac**.
- تقييم استقرار المناجم باستخدام النمذجة الحاسوبية.
- نمذجة دوائر التهوية عبر برنامج **Ventsim**.
- دراسة الجوانب الاقتصادية لعمليات التعدين عبر برامج مثل **Excel**.
- استخدام برامج هندسية اخرى مثل **ANSYS**.