DEPARTMENT OF MINING ENGINEERING

PROGRAMME EDUCATIONAL OBJECTIVES

1. To provide students with sound foundation in science, mathematics, other engineering fundamentals, core mining fundamentals and their field applications.
2. To develop graduates to able to work with professionals in related fields of mining engineering with special emphasis on planning, execution and monitoring of various mining processes and systems.
3. To develop the analytical and logical aptitude amongst students to quickly adapt to new work environments, assimilate new information, exposure to cutting edge technology and problem solving.
4. To develop the aptitude towards research for problem solving in challenges arises in mining field as well as for pursuing Post Graduate/ Doctoral/ Post Doctoral education and research.
5. To inculcate self learning, discipline, human values, leadership qualities with good soft skills in students. A graduate must have the basic knowledge of environmental fundamentals, problems, challenges and countering measures with reference to mining.

Curriculum components contributing to PEOs

Course Group	Courses	PEOs fulfilled
Science	ENVS100 Environment Studies BS111 Mathematics-I BS100P Engineering Physics BS100C Engineering Chemistry BS121 Mathematics-II BS211(All Branches) Mathematics-III BS221(EE, EC, ME, Mi) Mathematics-IV	1, 4
HSS Courses	BS100E English & Communication Skills, NSS/NCC courses	1, 3, 4, 5
Basic Engineering Course	ME113 Mechanical Engineering-I ME114 Workshop Practice CE115 Engineering Drawing CE100 Engineering Mechanics EE100 Electrical Engineering-I EC100 Electronics & Instrumentation CS100 Introduction to Computer Programming and Data Structures CE122 Civil Engineering ME123 Machine Drawing-I ME124 Workshop Technology CE 221 (AE, MI): Fluid Mechanics ME 223 (EE, MI): Mechanical Engineering II	1, 2, 4
Geo Science Courses	MI 214: Mining Geology I MI 224: Mining Geology II Mi 325: Mining Geology III Mi 316: Rock Mechanics I Mi 326: Rock Mechanics II	1, 2, 3, 4
Mining Technology Courses	MI 215: Elements of Mining MI 225: Mine Development MI 312: Surface Mining MI 313: Underground Coal Mining MI 322: Dimensional Stone Technology MI 323: Underground Metalliferrous Mining	1, 2, 3, 4
Mine Machinery Courses	MI 216: Mine Machinery I MI 324: Mine Machinery II MI 413: Mine Machinery III	1, 2, 3, 4
Surveying and planning Courses	MI 226: Mine Surveying I MI 227: Mine Computing Lab I MI 314: Computer Application in Mining MI 315: Mine Surveying II MI 416: Mine Computing Lab II MI 422: Mine Planning & Design	1-5
Mine Environment and Ventilation Courses	MI 311: Mine Ventilation MI 321: Underground Mine Environment MI 415: Environmental Management in Surface Mines	1, 2, 4
General/Multidisciplinary and management Courses	MI411: Mine Legislation & Safety MI 412: Mine Management MI 414: Mineral Processing MI 421: Mine Economics & Financial Management	1, 3
Electives	MI 423: Elective I MI 424: Elective II	1, 2, 4
Seminar, Project, etc.	MI327: Survey camp MI 425 Project1 MI 425 Project2 MI 426 Practical Training, Tour/visits, Mining Camp	1, 2, 3, 5

Course Group	Courses	PEOs fulfilled
	MI 427 Seminar	

Program outcomes (POs).

1. **Graduates will demonstrate** an ability to apply knowledge of mining engineering, mathematics, probability and statistics as it applies to the field of mining engineering.
2. **Graduates will demonstrate** in depth knowledge of topics which are critical to surface and underground mining especially mine planning, method of work, drilling systems, blasting, safety, mine environmental engineering and economics. In addition to these, some mine management, mine computing, etc.
3. Graduates will demonstrate the ability to function as a member of engineering and science laboratory teams, as well as on multidisciplinary design teams.
4. Graduates will demonstrate the ability to learn and work independently to identify and solve mining engineering related problems.
5. Graduates will demonstrate an understanding of professional and ethical responsibilities.
6. Graduates will posses effective communication skills both orally and in writing.
7. Graduates will have the confidence and potential to apply engineering solutions in global and social contexts.
8. Graduates will be disciplined and will show the capabilities of independent problem solving, self learning and innovation.
9. Graduates will be truly educated and will have a point of view regarding global scenario of the impact of mining technology on society and especially on environment will demonstrate awareness of contemporary issues at large.

Courses outcomes

Courses	Course Outcome(S) Fulfilled
ENVS100 Environment Studies BS111 Mathematics-I BS100P Engineering Physics BS100C Engineering Chemistry BS121 Mathematics-II BS211(All Branches) Mathematics-III BS221(EE, EC, ME, Mi) Mathematics-IV	Basic Sciences courses for sound knowledge of Engineering physics, chemistry and mathematics as well as general environment
BS100E English & Communication Skills, NSS/NCC courses	HSS Courses for good english and communication skill and acquivanted with NSS/NCC work
ME113 Mechanical Engineering-I ME114 Workshop Practice CE115 Engineering Drawing CE100 Engineering Mechanics EE100 Electrical Engineering-I EC100 Electronics & Instrumentation CS100 Introduction to Computer Programming and Data Structures CE122 Civil Engineering ME123 Machine Drawing-I ME124 Workshop Technology CE 221 (AE, MI): Fluid Mechanics ME 223 (EE, MI): Mechanical Engineering II	Basic Engineering Courses are prerequivisit to understand engineering courses
MI 214: Mining Geology I MI 224: Mining Geology II Mi 325: Mining Geology III	Geo Science Courses for knowledge of mining geology and rock mechanics

Courses	Course Outcome(S) Fulfilled
Mi 316: Rock Mechanics I Mi 326: Rock Mechanics II	
MI 215: Elements of Mining MI 225: Mine Development MI 312: Surface Mining MI 313: Underground Coal Mining MI 322: Dimensional Stone Technology MI 323: Underground Metalliferrous Mining	Mining Technology Courses for surface mining, metal mining , coal mining and dimensional stone mining
MI 216: Mine Machinery I MI 324: Mine Machinery II MI 413: Mine Machinery III	Mine Machinery Courses for machinery aspects
MI 226: Mine Surveying I MI 227: Mine Computing Lab I MI 314: Computer Application in Mining MI 315: Mine Surveying II MI 416: Mine Computing Lab II MI 422: Mine Planning & Design	Surveying and planning Courses for surveyig and computerised mine planning aspects
MI 311: Mine Ventilation MI 321: Underground Mine Environment MI 415: Environmental Management in Surface Mines	Mine Environment and Ventilation Courses for general environment and underground ventilation
MI411: Mine Legislation & Safety MI 412: Mine Management MI 414: Mineral Processing MI 421: Mine Economics & Financial Management	General/Multidisciplinary and management Courses for mine management, mine economics and legislation aspects
Elective I Mi 423 A: Rock Fragmentation Mi 423 B: Rock Engineering Mi 423 C: Computer Aided Mine Design Mi 423 D: Advances in Mine Ventilation Mi 423 E: Maintenance Management Elective II Mi 424 A: Experimental Stress Analysis Mi 424 B: Numerical Methods Mi 424 C: Information Technology for Mineral Industry Mi 424 D: Advanced Mineral Exploration Mi 424 E: Advanced Mineral Processing	Specialization Courses for specific area in mining field
MI327: Survey camp MI 425 Project1 MI 425 Project2 MI 426 Practical Training, Tour/visits, Mining Camp MI 427 Seminar	Seminar, Project, Industrial visits, camps, etc. for practical exposures and solving industrial problems through project work