

AMMI-15 DIMENSIONAL STONE TECHNOLOGY

UNIT-1 INTRODUCTION

1.1 Definition, historical use of natural stones.

UNIT-2 GEOLOGY AND OCCURRENCES

2.1 Classification of dimensional stones, composition, chemical and geo-chemical properties,
2.2 Various standards for normalization of dimensional stones.

UNIT-3 MINING OF DIMENSIONAL STONES

3.1 Various techniques of dimensional stone mining- block mining and slab mining;
3.2 Manual mining; Mechanized mining
3.3 line drilling, in-situ sawing by wire saw, chain saw, portable circular saw, flame cutting.

UNIT-4 CUTTING / SAWING TOOLS

4.1 Tool carrier- circular steel blade, steel wire rope, chain jib saw, physical and mechanical properties, elastic properties, tension etc.;
4.2 Cutting tools- diamond segments, diamond pearls/ bits, tungsten bits etc.;
4.3 Process of manufacture, ingredients, brazing / fitting, wearing pattern and control;
4.4 Cost of cutting. Handling of blocks and slabs:
4.5 Equipment used derrick crane, front loaders, fork-lifts, mobile cranes, trucks and trailers.

UNIT-5 QUARRYING MACHINES FOR DIMENSIONAL STONES

5.1 Portable circular saw, wire saw, chain saw, line drills- special design features of the machines, techniques of use and maintenance.
5.2 Production monitoring: Recovery, waste generation, productivity, inherent defects, measurement and corrective actions, cost evaluation. Environmental issues:
5.3 Management of solid waste, slurry waste, soil land and water; Protection and rehabilitation.

UNIT-6 HEALTH, SAFETY AND WELFARE

6.1 Protective care from abrasive dust, personal safety and welfare.
6.2 Application, processing and architecture in dimensional stone:
6.3 Application – flooring, roofing, cladding, stairs, paving, facets;
6.4 Processing and polishing- various techniques for sawing of blocks, shaping of edges, polishing and calibration; Fixing and installation- techniques of fixing of dimensional stones in various applications like flooring, cladding, faceds, stairs, roofing and paving;
6.5 Care and maintenance of dimensional stones- techniques for post fixing care and maintenance of dimensional stones in various applications.

Reference Books:

1. Dimensional Stone Technology, Edition: 2000, Publisher: Himanshu Publications, New Delhi Editor: S.S.Rathore, Govind Singh Bhardwaj and S.C.jain, ISBN: 81-86231-92-7, Authors: Govind Singh Bhardwaj