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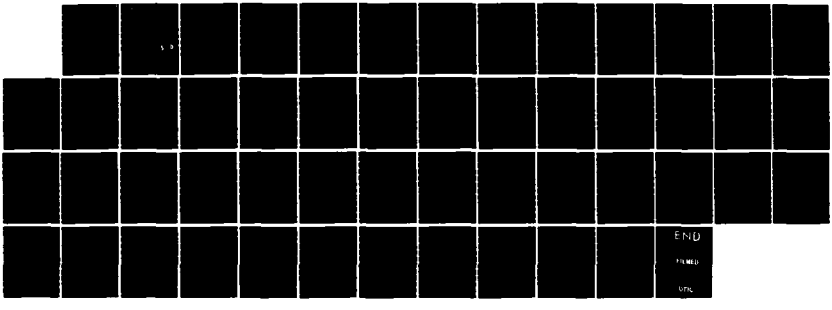

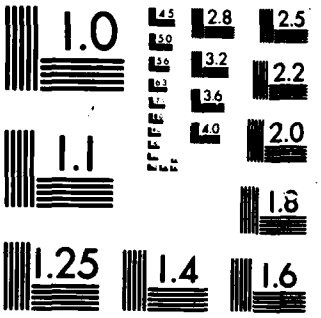

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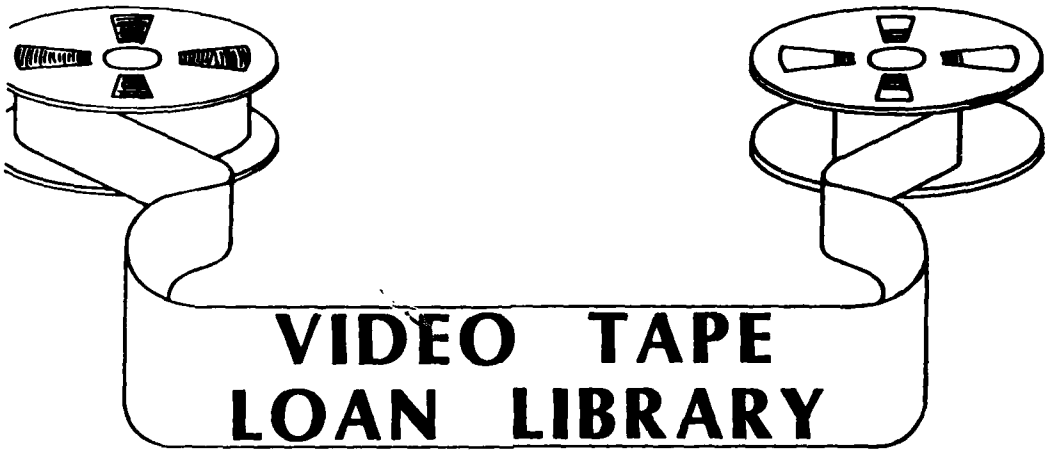

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BORROWING VIDEO TAPES

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Most video tapes described on the following pages were made during lectures presented in training courses given at the Hydrologic Engineering Center (HEC). The tapes conform to standard EIA (Electronics Industry Association) TV signals and are 3/4-inch cartridges. All 3/4-inch cartridge players meet EIA standards. During FY 1985, the HEC started recording lectures on 1/2-inch VHS cartridges. Also, the library of 3/4-inch cartridges were copied onto the VHS format. Therefore, all tapes in this catalog are now available in 3/4-inch Umatic (U) or 1/2-inch VHS (S) formats. When ordering tapes indicate on the order form which format is required.

Power supplies vary in foreign countries, thus, the 110-120 AC required for U.S. equipment may not be available. Converters are available from most equipment manufacturers. Also most video tape players will not be compatible with monitors manufactured in other countries and vice versa. For this reason it is advisable that player, monitor, and tapes all be manufactured to U.S. standards.

Tape Descriptions

In the tape descriptions which follow, the lecturer, year in which the tape was made, type of tape and time are identified. The symbols used for type of tape are:

cass (U)	3/4-inch cassette, Scotch UCA (Sony KCA)
vhs (S)	1/2-inch cassette
b/w	presentation is in black and white
color	presentation is in color

Support Materials

A copy of the lecture outline and handout material used in the tape are supplied with each tape if available. All supporting material should be returned with the tapes.

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TAPE NUMBER

Basic Concepts and Methods

INTRODUCTION TO THE BASIC METHODS AND PROCEDURES OF EXECUTING INTERACTIVELY ON THE BOEING COMPUTER SYSTEM (BCS) — HEC-253

Introduction to interactive execution; BCS structure capabilities, requirements, and user options.

(Pabst;1979;cass;b/w;60 min.)

CONCEPTS OF COMPUTER SYSTEMS — HEC-264

The material presented in this tape covers concepts of 1) access to remote computer systems through remote job entry (RJE) terminals and interactive (IA) terminal, 2) job processing, and 3) files and libraries of files. The material is of interest to engineers and ADP personnel desiring a better understanding of these concepts, particularly as they apply to Control Data Corporation (CDC) equipment. Examples are taken from the Lawrence Berkeley Laboratory (LBL) and Boeing Computer System (BCS) systems.

(Pabst;1978;cass;color;60 min.)

INTRODUCTION TO THE BOEING COMPUTER SYSTEMS — HEC-265

The material presented in this tape is directed to a new user of the Boeing Computer System (BCS). Basic commands are discussed that will allow the new user to begin accomplishing simple tasks on the system. Areas covered include permanent and local file commands, editing, linking and execution, and miscellaneous job control. It is assumed that the viewer is familiar with the concepts covered in the tape "Concepts of Computer Systems."

(Pabst;1978;cass;color;60 min.)

TAPE NUMBER

Characteristics of Dam-Break Floods

BASIC CONCEPTS OF DAM BREAKS AND DEVELOPMENT OF DAM-BREAK HYDROGRAPHS — HEC-395
Basic concepts and assumptions; methods of developing the dam-break hydrograph for various modes of failure; envelope curves; failure scenarios.
(Gee;1980;cass;color;51 min.)

DISTINCTIVE CHARACTERISTICS OF THE DAM-BREAK FLOOD — HEC-149
Aspects of dam break flood that make it behave significantly different from precipitation floods.
(Strelkoff;1976;cass;b/w;60 min. & 18 min.)

COMPARISON OF DIFFERENT ROUTING METHODS - REQUIREMENTS AND RESULTS — HEC-260
Several hydrologic and hydraulic routing methods are compared. Data requirements; setup time, computer costs, and accuracy are compared; advantages and disadvantages of each method are discussed.
(Gee/MacArthur;1978;cass;b/w;60 min.)

USE OF THE DIMENSIONLESS GRAPHS FOR ESTIMATING IMPACT OF A DAM-BREAK FLOOD — HEC-151
Simple technique for estimating maximum water depth, discharge, and travel time.
(Strelkoff;1976;cass;b/w;60 min.)

Computer Program HEC-1 for Dam-Break Floods

APPLICATION OF HEC-1 TO DAM SAFETY ANALYSIS — HEC-257
Basic structure; capabilities; user options, input requirements; output interpretation; coding format.
(Feldman;1978;cass;b/w;60 min. & 10 min.)

Computer Program DAMBRK

BASIC CONCEPTS OF DAM BREAKS AND DEVELOPMENT OF DAM-BREAK HYDROGRAPHS — HEC-395
Basic concepts and assumptions; methods of developing the dam-break hydrograph for various modes of failure; envelope curves; failure scenarios.
(Gee;1980;cass;color;51 min.)

INTRODUCTION TO COMPUTER PROGRAM DAMBRK — HEC-396
Nature and purpose of DAMBRK; breach simulation and storage routing capabilities; basis for reservoir outflow determination.
(Peters;1980;cass;color;61 min.)

	TAPE NUMBER
DEVELOPMENT OF CROSS SECTION AND ROUGHNESS DATA FOR DAMBRK Input required to define geometric and roughness characteristics of cross sections; cross section consistency requirements; cross section spacing; bridges; definition of off-channel storage; conversion of HEC-2 format data; development of composite n values. (Peters;1980;cass;color;60 min.)	HEC-397
INPUT REQUIREMENT FOR DAMBRK Input structure; example input preparation for a basic application. (Gee;1980;cass;color;61 min.)	HEC-398
DAMBRK OUTPUT Types of output; use of the variable JNK to control output; detailed description of output for a basic application. (Peters;1980;cass;color;62 min.)	HEC-399
DAMBRK OPTIONS Multiple-dam, multiple-reach options; simultaneous solution of multiple reaches; input and output illustrations. (Fread;1980;cass;color;60 min. & 15 min.)	HEC-400
TROUBLESHOOTING DAMBRK OUTPUT Causes of program "blow-ups"; common input errors; automatic procedures in DAMBRK to counter nonconvergence; checking procedures. (Fread;1980;cass;color;60 min.)	HEC-402
DAMBRK VERSION B (FLOOD PLAIN MODEL) Capabilities of version B; input and output for version B; sensitivity of flood wave movement to flood plain segmentation. (Fread;1980;cass;color;60 min. & 15 min.)	HEC-403
Dam Inspection	
A TYPICAL CASE STUDY - FROM FIELD INSPECTION TO REPORTING Presentation of a real inspection problem from its initiation and field inspection phases to the presentation of results; discussion. (Fischer;1978;cass;b/w;60 min. & 15 min.)	HEC-261
TECHNOLOGY TRANSFER AND REPORTING PROCEDURES Having completed the inspection and analyses, how does one present the important results; what should be included in a report; possible formats to use, timing and teamwork. Technology Transfer - methods of conveying the methods and procedures learned in this course to others; training of State or A/E personnel. (Fischer;1978;cass;b/w;60 min.)	HEC-263

DATA STORAGE SYSTEM

	TAPE NUMBER
USE OF THE HEC DATA STORAGE SYSTEM FOR WATER AND PLANNING STUDIES Capability of HEC system HECDSS and water control software; application of HECDSS: use of functions, macros and menus. (Pabst;1983;cass;color;62 min.)	HEC-467
CAPABILITIES OF DISPLAY Program options and applications. (Montalvo;1983;cass;color;52 min.)	HEC-470
INTRODUCTION TO DSS Capability of the HEC Data Storage Systems (HECDSS); application to software for planning studies and real-time water control; utility programs; pathname convention. (Charley;1984;VHS;color;60 min.)	HEC-532
EDITING, CATALOGING & INVENTORY OF DATA FILES Use of DSSUTL and DATAST. (Charley;1983;CA and VHS;color;46 min.)	HEC-513

TAPE NUMBER

Hydrograph Analysis

INTRODUCTION TO HYDROGRAPH ANALYSIS — HEC-275
Description of hydrologic system components, and their relative importance in analysis, basin precipitation and loss determinations, and the theory, assumptions and general derivation and applications of unit hydrographs and base flow are presented.
(Peters;1978;cass;b/w;62 min., 30 min. & 10 min.)

HYDROLOGIC ANALYSIS OF FLOODS - AN OVERVIEW — HEC-537
Overview of water resource investigations and objectives involving the hydrologic analysis of floods by basin modeling.
(Peters;7/15/85;VHS;color;60 min.)

UNIT HYDROGRAPH CONCEPTS AND CALCULATIONS — HEC-250
Assumptions and theory behind unit hydrograph concepts; for Clark, Snyder, and SCS methods; estimations of loss rate parameters, base flow conditions, and determination of PMF for ungaged basins.
(Peters;1978;cass;b/w;60 min. & 30 min.)

CLARK METHOD FOR DERIVING UNIT HYDROGRAPHS — HEC-002
The problem of determining unit hydrographs for ungaged basins; conceptual models of the instantaneous unit hydrograph; deriving a translation hydrograph; example applications.
(Peters;1974;cass;b/w;69 min.)

SNYDER METHOD FOR DERIVING UNIT HYDROGRAPHS — HEC-003
The Snyder method for determining the peak of a unit hydrograph; shaping the unit hydrograph; example applications.
(Pabst;1974;cass;b/w;69 min.)

BASIN RAINFALL AND LOSS ANALYSIS — HEC-551
Techniques for areal averaging of rainfall and for distributing rainfall in time; the concept of effective rainfall; computer program HEC-1 loss analysis methods.
(Willey;1985;VHS;color;60 min.)

NONUNIFORM LOSS RATE ANALYSIS — HEC-499
HEC-1 exponential loss function; Horton, Holtan and SCS loss functions; concepts of continuous soil moisture accounting.
(Feldman;1983;cass;color;58 min.)

TAPE NUMBER

Flood Routing

INTRODUCTION TO FLOOD ROUTING AND HYDROLOGIC TECHNIQUES FOR FLOOD ROUTING — HEC-006

General approaches to flood routing; reservoirs; modified Puls method applied to rivers. Basis for hydrologic methods; Muskingum method.
(Peters;1974;cass;b/w;58 min. & 63 min.)

REVIEW OF TRADITIONAL HYDROLOGIC ROUTING METHODS — HEC-256

Brief theory and basic equations; continuity of mass; differences with the full equations (hydraulic routing methods); Modified Puls river routing; general hydrologic data requirements.
(Bonner;1978;cass;b/w;60 min.)

COMPARISON OF DIFFERENT ROUTING METHODS - REQUIREMENTS AND RESULTS — HEC-260

Several hydrologic and hydraulic routing methods are compared. Data requirements; setup time, computer costs, and accuracy are compared; advantages and disadvantages of each method are discussed.
(Gee/MacArthur;1978;cass;b/w;60 min.)

Hypothetical Storms

STANDARD PROJECT FLOOD — HEC-013

Basis for developing generalized rainfall criteria; criteria for the eastern U.S. for standard project storms; criteria for other areas.
(Burnett;1974;cass;b/w;69 min.)

HYPOTHETICAL STORMS — HEC-266

Definition and purpose of design storms; types of design storms; use of generalized rainfall criteria to establish an X-year design storm; Standard Project Storm Criteria.
(Dyhouse;1979;cass;color;61 min. & 10 min.)

STANDARD PROJECT AND PROBABLE MAXIMUM STORM DETERMINATION — HEC-506

Description of the concepts and application of the SPS and the PMS criteria.
(Peters;1983;cass;color;58 min.)

Computer Program HEC-1

INTRODUCTION TO HEC-1 FLOOD HYDROGRAPH PACKAGE — HEC-500

Flood hydrograph analysis techniques available in HEC-1 including precipitation and loss computations and capabilities for computing runoff.
(Bonner;1983;cass;color;53 min.)

	TAPE NUMBER
UNIT HYDROGRAPH AND LOSS RATE COMPUTATION BY COMPUTER The derivation (optimization) problem; optimization method; program application; computer input for unit hydrograph and loss rate derivation. (Pabst;1974;cass;b/w;69 min.)	HEC-005
HEC-1 INPUT REQUIREMENTS Description of general input requirements for determining subbasin runoff, job set-up, options and examples. (Ely;1983;cass;color;47 min.)	HEC-501
ESTIMATION OF UNIT HYDROGRAPH AND LOSS RATE PARAMETERS Theory and application of parameter estimation; basin model calibration using HEC-1. (Ford;1983;cass;color;50 min.)	HEC-502
REGIONALIZATION OF UNIT HYDROGRAPH AND LOSS RATE PARAMETERS Need for regionalization; approaches to regionalization; nature of regression analysis; selecting watershed characteristics; assessing reliability. (Feldman;1983;cass;color;54 min.)	HEC-503
BASIN MODELING WITH HEC-1 Purposes of basin modeling; general data requirements; basin topology; steps in model construction. (Bonner;1974;cass;b/w;60 min.)	HEC-008
DEVELOPMENT OF A RIVER BASIN MODEL USING HEC-1 Description of HEC-1 input required for river basin analysis. (Peters;1983;cass;color;62 min.)	HEC-505
BASIN MODELING LEADING TO PLAN SELECTION Multiplan approach with the addition of economic data; HEC-1 input requirements; system optimization capabilities and applications. (Feldman;1983;cass;color;60 min.)	HEC-511
MULTIPLAN ANALYSIS Description of basin modeling using multiflood, multiplan approach and HEC-1 input requirements. (Feldman;1983;cass;color;60 min.)	HEC-512
PLANNING, COMPUTER MODELS AND INTEGRATED USE Describe how HEC-1 and other HEC models are typically interfaced to perform comprehensive planning studies. Overview the planning process, computer tool usage and discuss the Passaic River Basin study as an example methodology of how to conduct a comprehensive flood control study. (Davis;1985;VHS;color;60 min.)	HEC-539

TAPE NUMBER

Flood Forecasting

REAL-TIME PRECIPITATION ANALYSIS — HEC-514
Creation of a subset data file with EXTRCT; the EXTLIST input file for EXTRCT; concepts related to precipitation analysis in real time; purpose and capabilities of computer program PRECIP; input requirements for PRECIP; output from PRECIP; precipitation summary table.
(Peters;1983;CA and VHS;color;66 min.)

INTRODUCTION TO RUNOFF FORECASTING AND HEC-1F* — HEC-515
Aspects of short term runoff forecasting; approaches and practical considerations; forecast evaluation; characteristics of HEC-1F as a tool for forecasting; criteria for basin subdivision; forecasting as a two-step process; parameter estimation in real time; generating forecasts at downstream control points; zonal estimate of runoff parameters; summary of forecasting procedure.
(Ford;1983;CA;color;51 min.)

PARAMETER ESTIMATION WITH HEC-1F* — HEC-516
Purpose and role of parameter estimation; forecasting framework; parameters subject to estimating; objective function; parameter constraints; univariate search technique; missing data and other operational features.
(Ford;1983;CA;color;51 min.)

INPUT/OUTPUT FOR PARAMETER ESTIMATION WITH HEC-1F* — HEC-517
Input requirements for real-time parameter estimation with HEC-1F; use of DSS; example input set; output interpretation; parameter estimation summary table; implementation of HEC-1F with MODCON.
(Ford;1983;CA;color;51 min.)

INTERACTIVE PROCESSING AND FILE CONTROL — HEC-518
MODCON'S role in defining and controlling analysis tasks. Role of PREFOR.
(Huff;1983;CA and VHS;color;45 min.)

GENERATION OF BASIN-WIDE RUNOFF FORECASTS WITH HEC-1 — HEC-519
Forecast requirements; concept of blending; sequence of computations for basin-wide forecasting; input requirements; zonal designation of parameters; output; forecast summary table; missing data considerations.
(Peters;1983;CA and VHS;color;62 min.)

*These lectures are available on one 153-minute VHS cassette.

TAPE NUMBER

Principles of Ground Water

GEOLOGY AND THE OCCURRENCE OF GROUND WATER - PART 1 — HEC-386
Basic terminology and principles used in ground water hydrology and ground water management.
(Brown;1979;cass;color;65 min. & 03 min.)

GEOLOGY AND THE OCCURRENCE OF GROUND WATER - PART 2 — HEC-388
Explanation of the interaction of surface and subsurface geology and the occurrence of ground water, its distribution, quantity and quality; discuss different kinds of aquifers.
(Brown;1979;cass;color;65 min. & 25 min.)

DETERMINATION OF AQUIFER CHARACTERISTICS — HEC-282
Ground water as a resource; physical characteristics; hydrologic evaluation of ground water potential.
(Scalmanini;1978;cass;b/w;62 min. & 33 min.)

AQUIFER CHARACTERISTICS — HEC-382
Methods of determining and analyzing the characteristics (permeability, transmissivity, storage coefficient) of different types of aquifers.
(Scalmanini;1979;cass;color/55 min. & 22 min.)

WELL HYDRAULICS — HEC-284
Well production considerations; testing and analysis; terminology; determination of aquifer characteristics.
(Scalmanini;1978;cass;b/w;62 min. & 25 min.)

THEORY OF GROUND WATER MOVEMENT — HEC-384
Theory of ground water movement; dynamics of the flow; balance of forces; statement of continuity and basic energy principles necessary for the description and analysis of ground water movement.
(Scalmanini;1979;cass;color;61 min. & 25 min.)

Methods of Analysis

ANALYSIS OF GROUND WATER EXTRACTION, MINING AND METHODS OF ARTIFICIAL RECHARGE — HEC-391
General concepts and components of ground water extraction, mining and methods of artificial recharge.
(Scalmanini;1979;cass;color;61 min.)

COMPARISON OF REGIONAL DIFFERENCES IN GROUND WATER PROBLEMS AND SOLUTIONS — HEC-392
Regional differences (geological, hydrologic, climatic, and political) in ground water problems and management alternatives associated with these problems are discussed.
(Weber;1979;cass;color;60 min. & 26 min.)

TAPE NUMBER

ESTIMATING LAND SUBSIDENCE — HEC-362
Description of the components and importance of the problems associated with land subsidence; causes; analysis; management.
(Lofgren;1979;cass;color;70 min. & 20 min.)

DETERMINATION OF AQUIFER YIELD — HEC-364
Definition of aquifer yield and a discussion of how different hydrologic, geologic, and aquifer properties affect its magnitude and determination. Methods of determining aquifer yield; interpretation of results; estimation of ground and surface water dependability.
(Helen Peters;1979;cass;color;55 min. & 37 min.)

DETERMINING IMPACTS OF DROUGHT ON GROUND AND SURFACE WATER SOURCES FROM HISTORICAL DATA — HEC-369
Affects of drought on surface and ground water sources; necessary historical data; analysis; management alternatives.
(Bean;1979;cass;color;59 min.)

DETERMINATION OF LOCAL GROUND WATER QUALITY AND PROBLEMS ASSOCIATED WITH COASTAL SALT INTRUSION — HEC-370
Basic constituents found in ground water; what data are necessary to analyze water quality; methods of determining ground water quality; what caused salt water intrusion; how can it be analyzed and managed.
(Helweg;1979;cass;color;55 min. & 31 min.)

PROBLEMS ASSOCIATED WITH HIGH WATER TABLES — HEC-368
Problems associated with high water tables; causes; effects; regional differences; necessary data; problem analysis; management alternatives.
(Bean;1979;cass;color;39 min.)

DETERMINATION OF STORAGE, SUBSURFACE FLOW, AND WATER LEVEL MAPPING — HEC-380
Methods of determining storage, subsurface flow, and water level mapping.
(Kelly;1979;cass;color;59 min. & 20 min.)

Ground Water Management

GROUND WATER MANAGEMENT ALTERNATIVES — HEC-372
The importance of ground water management; specific management alternatives for particular kinds of ground water problems.
(Coe;1979;cass;color;57 min. & 31 min.)

TAPE NUMBER

Computer Models

UTILIZATION OF GROUND WATER MODELS FOR PROBLEM ANALYSIS AND PLANNING — HEC-366

Brief history of ground water modeling; basic concepts, purpose and available tools; advantages and disadvantages of numerical models; necessary data; interpretation of results.

(Lappala;1979;cass;color;55 min. & 54 min.)

CASE STUDY - APPLICATION OF GROUND WATER MODEL — HEC-367

Problem description; setup; necessary data; methods of analysis interpretation of results; discussion of problems during the study of ground water discharges in the Willow Creek Watershed, Northeast Nebraska.

(Lappala;1979;cass;color;54 min.)

Case Studies

EVALUATION OF GROUND WATER DEPLETION AND WATER TABLE DECLINES — HEC-286

Case study of the unconfined aquifer underlying the middle Rio Grande basin in the vicinity of Albuquerque, New Mexico.

(Kelly;1978;cass;b/w;62 min. & 41 min.)

PRESENTATION AND DISCUSSION OF TWO CASE STUDIES (GROUND WATER) — HEC-374

Two unique ground water case studies are presented and discussed with the class.

(Tomlinson/Weber/Wheaton;1979;cass;color;44 min. & 57 min.)

A CASE STUDY OF THE SAN BERNARDINO BASIN WATER SUPPLY PROBLEMS — HEC-376

A case study of the specific water supply problems found in the San Bernardino Valley is presented; discussion of solutions to these problems and water supply management is conducted.

(Rowe;1979;cass;color;59 min. & 57 min.)

ANALYSIS OF COMPLEX MULTIPURPOSE GROUND WATER AND SURFACE WATER SYSTEMS (SANTA CLARA VALLEY) — HEC-378

Presentation and discussion of a case study in the Santa Clara Valley involving the analysis of complex multipurpose ground water and surface water systems.

(Fowler;1979;cass;color;62 min. & 15 min.)

HYDROPOWER

TAPE NUMBER

Basic Concepts and Methods

INTRODUCTION TO HYDROPOWER (PART 1) — HEC-320
Definition of terms and concepts; capacity, energy and load curves, plant factor, load factor.
(Dalton;1977;cass;b/w;70 min. & 15 min.)

INTRODUCTION TO HYDROPOWER (PART 2) — HEC-326
Supply and demand of power. Types of hydropower development; conventional storage and run of the river plants, and pumped storage facilities.
(Fredrich;1977;cass;b/w;70 min. & 29 min.)

USE OF SIMULATION TO ESTIMATE POWER POTENTIAL — HEC-030
Relationship between flow, head and power potential hydrologic factors affecting hydropower potential; constructing the simulation model; constraints; evaluating performance.
(Fredrich;1974;cass;b/w;68 min.)

ANALYSIS OF MULTI-PURPOSE POWER PROJECTS — HEC-316
General discussion of reasons for doing power studies, accuracy of computations; accumulation of errors.
(Fredrich;1977;cass;b/w;70 min. & 18 min.)

CONCEPTS AND PROCEDURES FOR HYDROLOGIC STUDIES — HEC-318
Sequential routing to determine required storage allocation to satisfy firm energy requirement. Single site, single purpose study.
(Dalton;1977;cass;b/w;70 min. & 12 min.)

ESTIMATION OF HYDROPOWER POTENTIAL — HEC-324
Basic relationship between flow, head and power potential. Hydrologic considerations in determining firm energy.
(Fredrich;1977;cass;b/w;70 min. & 08 min.)

Hydropower Data Files

BASIC DATA FILES FOR PHASE I HYDROPOWER STUDIES — HEC-273
Source and development data files; utilization of files; availability of data to the Corps.
(Pabst;1979;cass;color;57 min. & 09 min.)

Hydropower Economics

PROCEDURES AND MODELS FOR POWER BENEFIT COMPUTATION — HEC-342
Review of standard computations, current and future role of models. Background and applications of Investment Cost Model for thermal plants, Production Cost Models, Hydropower Evaluation Model; case study using CHOPS model.
(Biggerstaff;1977;cass;b/w;70 min.)

TAPE NUMBER

ECONOMIC ANALYSIS OF SMALL HYDROPOWER INSTALLATIONS — HEC-348
Economic comparisons to coal-fired plants; turbines; manufacturers of small hydro-electric units.
(Willer;1977;cass;b/w;48 min.)

PRINCIPLES OF POWER BENEFIT COMPUTATIONS — HEC-349
Measurement of hydroelectric power benefits alternative concepts; evaluation factors; data resources; standard computations, including annual capacity benefits, energy benefits, at market and at site power benefits, and adjustments to base power benefits.
(Biggerstaff;1977;cass;b/w;70 min. & 33 min.)

ECONOMIC EVALUATION OF HYDROPOWER — HEC-357
Tests of economic rationality; definitions of important terms, derivation of data for hydrologic studies, economic studies and cost estimation; economic evaluation.
(Fredrich;1977;cass;b/w;60 min. & 22 min.)

DETERMINING POWER COSTS SEPARABLE AND ALLOCATED — HEC-359
Description, principles and methods of cost allocation; description of alternative and separable costs; cost allocation when additional purposes are added to existing projects.
(Johnson;1977;cass;b/w;60 min. & 10 min.)

Marketing Hydropower

ROLE OF HYDROPOWER PROJECTS IN REGIONAL AND NATIONAL POWER SUPPLY SYSTEMS — HEC-340
Overview of role of hydropower in meeting electric demand. Quantitative capacity in regions is discussed, dependability of power and uses of other power sources. Financial and economic costs of alternative power sources. Brief mention of Federal marketing of hydropower and problems associated with optimizing the role of hydropower.
(Trisko;1977;cass;b/w;68 min.)

MARKETING CONSIDERATIONS AND FINANCIAL FEASIBILITY — HEC-353
Discussion of marketing criteria; inclosing area, customer needs, area needs and type of plan. Power sales, power system studies, annual costs, repayment studies, power rates, and marketability of power.
(Weaver;1977;cass;b/w;70 min. & 21 min.)

Small Hydropower

CASE HISTORIES OF SMALL HYDROPOWER INSTALLATIONS — HEC-361
Rollins Dam, Barber Dam, Lake Siskiyou Power Plant, San Antonio Dam, Toston Dam, Camanche Power Project, Merced Irrigation District, South San Joaquin Irrigation District.
(Willer;1977;cass;b/w;36 min.)

	TAPE NUMBER
ECONOMIC ANALYSIS OF SMALL HYDROPOWER INSTALLATIONS Economic comparisons to coal-fired plants; turbines; manufacturers of small hydro-electric units. (Willer;1977;cass;b/w;48 min.)	HEC-348

Computer Program HEC-5

CAPABILITIES OF HEC-5 FOR HYDROPOWER ANALYSIS HEC-5 options for hydropower analysis; example applications. (Eichert;1983;cass;color;61 min.)	HEC-475
MODELING HYDROPOWER RESERVOIRS Relationship between flow, head, and power potential; hydrologic factors; constructing a simulation model; evaluating performance. (Bonner;1978;cass;b/w;59 min.)	HEC-233
PUMP-STORAGE CONCEPTS (HEC-5) Need for pump-storage operation; basis of operation; typical plant arrangements; and modeling pump operation with HEC-5. (Bonner;1978;cass;b/w;59 min.)	HEC-235
STRATEGIES FOR RELOCATION STUDIES USING HEC-5 Use of HEC-5 to investigate the impact of changes in operating policies, priorities, and storage assignments. (Eichert;1977;cass;b/w;62 min.)	HEC-228
SCREENING TECHNIQUES FOR PHASE I HYDROPOWER STUDIES Description of the techniques; data assumptions; evaluation criteria. (Franc;1979;cass;color;60 min. & 20 min.)	HEC-271
SYSTEM POWER CONCEPTS Benefits and limitations of a system operation; HEC-5 system power routine; added program input requirements. (Bonner;1983;cass;color;60 min.)	HEC-476
HYDROPOWER OPTIMIZATION USING HEC-5 Application to energy and capacity determination; input and output description. (Eichert;1983;cass;color;57 min. & 12 min.)	HEC-477

TAPE NUMBER

Basic Concepts and Methods

EVALUATION OF INTERIOR FLOOD CONTROL - STUDY CONSIDERATIONS — HEC-242
Physical characteristics of "interior" areas; illustrations of interior flooding situations; data requirements; type of flood alleviation measures; physical, operational and cost characteristics of gravity drains, pumps, and other measures.
(Dyhouse;1978;cass;b/w;61 min. & 24 min.)

SIMULATION OF AGRICULTURAL INTERIOR FLOOD CONTROL IMPROVEMENTS — HEC-244
Capabilities of St. Louis District computer program for continuous period-of-record analysis for interior flood control; theoretical basis for program; input and output; example application.
(Bader;1978;cass;b/w;26 min.)

Case Studies

CASE STUDY - PERRY COUNTY INTERIOR FLOOD CONTROL PROJECT — HEC-245
Use of St. Louis District computer program to evaluate semi-independent multisite flood control components (gravity drains and pumping stations) for survey report; program refinement for Phase I GDM.
(Bader;1978;cass;b/w;61 min.)

NONSTRUCTURAL PLANNING

	TAPE NUMBER
CONCEPTS AND CHARACTERISTICS OF NONSTRUCTURAL MEASURES Description of the evolution of nonstructural measures in water resources planning; categorization of nonstructural measures for balanced investigations; and important characteristics and considerations of nonstructural measures in the formulation and evaluation process. Overview of analytical tools for evaluating nonstructural measures. (Ford;1984;VHS;color;50 min.)	HEC-523
ECONOMIC CHARACTERISTICS OF NONSTRUCTURAL MEASURES Summary physical characteristics, and relationships between location in flood plain and expected annual damage, comparing costs and flood damage reduction, preliminary screening criteria. (Ford;1984;VHS;color;50 min.)	HEC-524
COMPUTATION OF NED BENEFITS FOR NONSTRUCTURAL MEASURES Review of Corps regulations and reporting requirements for benefit computations, conceptual basis, computations, examples and illustrations. (Johnson;1984;VHS;color;55 min.)	HEC-525
A STRATEGY FOR SYSTEM FORMULATION System formulation concepts and important perspectives, descriptions of a systematic, logic-based procedure for configuring flood plain management measures (structural and nonstructural) into alternative systems. (Ford;1984;VHS;color;53 min.)	HEC-526
OVERVIEW OF EXPECTED ANNUAL FLOOD DAMAGE PROGRAM Overview of EAD program and description of computational concepts and methods, input requirements and output displays. (Kubik;1984;VHS;color;84 min.)	HEC-527
CASE STUDY - NONSTRUCTURAL PLAN FORMULATION FOR PHOENIX AREA Overview of investigation, analytical procedures and use of spatial analysis, implementation issues, status of investigation (Burnham;1984;VHS;color;53 min.)	HEC-528
FLOOD FORECASTING, FLOOD WARNING AND FLOOD EMERGENCY PREPAREDNESS PLANNING (Owen;1984;VHS;color;46 min.)	HEC-529

RESERVOIR SYSTEMS ANALYSIS

TAPE NUMBER

Basic Concepts

USE OF OPTIMIZATION MODELS FOR RESERVOIR ANALYSIS — HEC-472
Application of system analysis tools to reservoir design and operation problems; summary of applicable operation research (OR) tools; review of available "optimization" models of reservoir systems; prognostication of applications of OR models.
(Ford;1983;cass;color;56 min.)

RESERVOIR ROUTING — HEC-538
Discuss HEC-1 reservoir routing capability and limitations. Describe the capability of HEC-5 for use on controlled structures.
(Hayes;1985;VHS;color;45 min.)

Reservoir Characteristics

METHODS OF AREA-CAPACITY CURVE COMPUTATION — HEC-254
Reservoir characterization, calculation of area-volume capacity curves for reservoirs, methods of estimating area-volume capacity curves for reservoirs with little or no data, reservoir routing using Modified Puls, sources of reservoir data.
(Franc;1978;cass;b/w;60 min.)

Computer Program HEC-5

INTRODUCTION TO HEC-5 — HEC-479
An overview of the capabilities of the HEC program for simulation of Flood Control and Conservation Systems.
(Eichert;1983;cass;color;57 min. & 22 min.)

HEC-5 INPUT AND OUTPUT — HEC-466
Input requirements and output examples.
(Hayes;1983;cass;color;62 min.)

MODELING A RESERVOIR SYSTEM WITH HEC-5 — HEC-468
Developing a system model; input requirements for HEC-5; output analysis.
(Bonner;1983;cass;color;60 min.)

OPERATION CRITERIA FOR RESERVOIR SYSTEMS — HEC-469
Concepts of multiple reservoir operation; tandem and parallel reservoirs, index levels; equivalent reservoirs.
(Eichert;1983;cass;color;60 min.)

Flood Control Using HEC-5

FLOOD CONTROL SIMULATION FOR ONE RESERVOIR — HEC-530
Data development for a simulation model for flood control operation.
(Hayes;12/4/84;VHS;color;60 min.)

TAPE NUMBER

HEC-5 FLOOD CONTROL OPTIONS — HEC-531
HEC-5 flood control options; forecast interval, contingency factor, system flood control guide curves; variable channel capacities, scheduling options and hinge pool option.
(Hayes;1984;VHS;color;60 min.)

HEC-5, EMERGENCY FLOOD — HEC-533
Use of the HEC-5 option for gated spillway flood routing; RG card input description; simulation of gated and uncontrolled spillways; output analysis.
(Eichert;1984;VHS;color;60 min.)

GATED SPILLWAY FLOOD ROUTING — HEC-534
Routing through reservoirs controlled by gated spillways; Modified Puls routing; gate regulation curve computations using computer program SWGRC.
(Peters;1984;VHS;color;60 min.)

OPERATION CRITERIA FOR RESERVOIR SYSTEM — HEC-520
Concepts of multiple reservoir operation; tandem and parallel reservoirs; index levels, equivalent reservoirs.
(Bonner;1983;CA;color;58 min.)

REAL-TIME USE OF HEC-5 — HEC-521
Linking forecast and operating models; use of DSS, MODCON and PREOP. Key variables.
(Bonner;1983;CA;color;53 min.)

Water Supply Using HEC-5

RESERVOIR SYSTEM ANALYSIS FOR WATER SUPPLY (HEC-3, HEC-5) — HEC-310
Use of simulation models HEC-3 and HEC-5 in water supply planning and operation; analysis of systems of reservoirs; other conservation considerations.
(Bonner;1978;cass;b/w;55 min.)

WATER SUPPLY YIELD DETERMINATION USING HEC-5 — HEC-473
Use of HEC-5 optimization capabilities to determine yield; determination of storage requirements for a specified demand; example applications.
(Eichert;1983;cass;color;60 min. & 19 min.)

Water Quality Using HEC-5Q

INTRODUCTION TO HEC-5Q — HEC-535
An overview of the water quality analysis version of computer program HEC-5.
(Willey;1984;VHS;color;60 min)

TAPE NUMBER

Water Surface Profile Computations

STREAMFLOW PROFILE ANALYSIS AND PLANNING — HEC-110
The role of profile analysis in hydrologic studies and the interface with other components of the planning study are discussed. The relative effect of the various factors of flow, geometry, roughness and local obstructions is also illustrated and discussed.
(Bonner;1975;cass;b/w;70 min.)

WATER SURFACE PROFILE COMPUTATIONS — HEC-014
Classification of open channel flow; energy principles; flow resistance equations; critical depth; Standard Step calculations.
(Peters;1974;cass;b/w;69 min.)

DATA REQUIREMENTS FOR RIVER MODELS — HEC-312
Locating cross sections; cross section detail; loss coefficients; data evaluation; sensitivity of data.
(Bonner;1978;cass;b/w;61 min. & 14 min.)

Computer Program HEC-2

INTRODUCTION TO COMPUTER PROGRAM HEC-2 — HEC-407
General program description; data requirements; computational procedure; critical depth solution; bridge losses, utility features.
(Hayes;1979;cass;color;39 min.)

BASIC INPUT REQUIREMENTS FOR HEC-2 — HEC-224
This video tape is intended for new users of computer program HEC-2 and provides information on how to prepare input for basic applications.
(Bonner;1974;cass;b/w;33 min.)

OUTPUT ANALYSIS FOR HEC-2 — HEC-408
Printout sequence; cross section computation; special notes; profile plot; summary printout; cross section plots; output review.
(Hayes;1979;cass;color;60 min.)

WATER SURFACE PROFILES THROUGH BRIDGES — HEC-020
Nature of flow through bridges; approaches to bridge losses; components of bridge losses; methods available in HEC-2; selection of method; modeling boundaries.
(Bonner;1974;cass;b/w;69 min.)

NORMAL BRIDGE ROUTINE (HEC-2) — HEC-222
Location of cross sections; input requirements; computational procedure; example application.
(Bonner;1977;cass;b/w;70 min. & 15 min.)

	TAPE NUMBER
SPECIAL BRIDGE ROUTINE (HEC-2) Location of cross sections special bridge routine input requirements and computational procedures. (Bonner;1979;cass;color;61 min. & 22 min.)	HEC-269
FLOODWAY DETERMINATION Floodway definitions; general guidelines; computer procedures; program input requirements for floodway calculations. (Oto;1979;cass;color;62 min.)	HEC-536
REVIEW OF HEC-2 INPUT AND OUTPUT Checking survey data; review sequence; head loss coefficients and 'n' values; cross section location; evaluation of bridge modeling, verification from field data. (Dyhouse;1979;cass;b/w;61 min. & 17 min.)	HEC-405
CHANNEL IMPROVEMENT ANALYSIS Use of the HEC-2 Channel Improvement (CHIMP) option; example applications. (Hayes;1982;cass;color;61 min.)	HEC-465
USE OF GRAPHICS WITH HEC-2 Description of the Hydraulics Graphics Package (HGP); example appplications. (Montalvo;1985;VHS;color;70 min.)	HEC-553

TAPE NUMBER

Principles and Methods

INTRODUCTION TO FLUVIAL HYDRAULICS — HEC-164
Classification of a stream as alluvial or non-alluvial; the meander of natural streams, definition of terminology such as bed form, meander pattern, alluvial channel, bed material load, wash load, total load, etc.; identification of the sediment problems that must be dealt with at the planning, design, construction or operation phase of water resource projects.
(Nordin;1976;cass;b/w;56 min.)

PRINCIPLES OF SEDIMENT TRANSPORT — HEC 439
Movement of bed material, mechanics of suspension and settling; shear stress; critical tractive force; effect of hydraulic roughness and how it changes with flow condition, geometry, and temperature; important physical properties of fluids, and sediments (structure, chemistry, etc.) effect of hydraulic conditions.
(Arithurai;1980;cass;color;60 min. & 5 min.)

PHYSICAL PROPERTIES OF SEDIMENT — HEC-165
Classification of sediment by grain size; the significance and calculation of fall velocity; factors that affect fall velocity, the density of sediment.
(Nordin;1976;cass;b/w;41 min.)

ANALYSIS OF SEDIMENT DATA — HEC-166
Concentration as a measure of suspended sediment load; the important statistical properties of a sediment sample; variability from one sample to another; weight to volume conversion; the effect of time on unit weight of sediment deposits.
(Nordin;1976;cass;b/w;63 min. & 08 min.)

PRINCIPLES OF SEDIMENT MOVEMENT — HEC-168
Transport of bed material load; the importance of hydraulic roughness in transport theories; secondary currents; critical tractive forces.
(Prasuhn;1976;cass;b/w;60 min. & 20 min.)

INTRODUCTION TO SEDIMENT TRANSPORT EQUATIONS — HEC-443
History, assumptions, limitations and advantages of various methods of computing sediment transport; definition of the different portions of total sediment load; basic data requirements, limitations; qualitative comparison of several different methods from the standpoint of data required, ease of use, accuracy, reliability, etc.; Laursen's, DuBoy's, Yang's Einstein's, and Toffaleti's methods.
(Ariathurai;1980;cass;color;50 min.)

TRANSPORT METHODS — HEC-170
Basic equations; assumptions and limitations; data requirements.
(Prasuhn;1976;cass;b/w;59 min.)

	TAPE NUMBER
TOFFALETI TRANSPORT PROCEDURES AND SYSTEM CHARACTERIZATION Discussion of Toffaleti's methods, example calculations using Toffaleti's method; discussion of the importance of characterizing the prototype system being modeled. (Gee;1980;cass;color;54 min.)	HEC-444
THE TOFFALETI TRANSPORT PROCEDURE Discussion of the relationship to Toffaleti's procedure to Einstein's bed load concept. Data requirements, reliability of results. (Prasuhn;1976;cass;b/w;60 min.)	HEC-171
FLOW RESISTANCE IN ALLUVIAL STREAMS The difficulty of establishing hydraulic roughness values is discussed and current techniques for treating this problem are presented. (Gee;1976;cass;b/w;59 min. & 16 min.)	HEC-185
MEASUREMENT OF SEDIMENT PROPERTIES, QUANTITIES AND TRANSPORT RATES Techniques and equipment for measuring bed and suspended load; methods of obtaining bed material samples; data availability, reliability, and costs; effects of seasons and single events, USGS film on Flow in Alluvial Channels (442) (Childers;1980;cass;color;61 min. & 42 min.)	HEC-441
IN-STREAM DATA COLLECTION Sampling of bed material. Spatial and temporal distribution of samples. Measurement of bed and suspended load. Variability and reliability of field data. (Livesey;1976;cass;b/w;59 min.)	HEC-187
ESTIMATING SEDIMENT YIELD Erosion process; delivery of sediment to streams; methods of determining sediment yield; basic data required; the importance of selecting a time frame appropriate for planning, design, construction or operation scope, the influence of urbanization of yield. (Livesey;1976;cass;b/w;43 min.)	HEC-188
SURFACE EROSION - THE PROCESSES AND CONSEQUENCES Discussion of the physics of overland flow and erosion; gullying; problems and consequences; methods of quantifying various aspects of erosion, soil loss, and mass wasting. (Steffen;1982;cass;color;52 min.)	HEC-488
COMPUTATIONAL METHODS FOR ESTIMATING SOIL LOSS AND SEDIMENT DELIVERY FROM A WATERSHED How to compute soil loss, sediment production rates and delivery ratios; design methods for sediment traps and debris basins. (Steffen;1982;cass;color;59 min.)	HEC-489
SEDIMENT TRANSPORT IN NATURAL STREAMS The natural formation of stream channels flowing through alluvial material is discussed. Concepts of sediment transport and the effects of physical work are stressed. (MacArthur;1978;cass;color;62 min. & 10 min.)	HEC-278

TAPE NUMBER

PROPERTIES OF NONCOHESIVE SEDIMENT AND CHARACTERISTICS OF ITS MOVEMENT HEC-481
Physical characteristics of sediment; classification by grain size, significance and calculation of settling velocity, material density, initiation of particle motion; Shield's criteria and usage; definition of bed load, suspended, total load, etc.
(Krone;1982;cass;color;60 min. & 9 min.)

PROPERTIES OF COHESIVE SEDIMENT AND CHARACTERISTICS OF ITS MOVEMENT HEC-483
Physical and chemical characteristics of cohesive sediments, effects of turbulence and ion concentrations, and methods of determining incipient motion; the occurrence of scour and deposition.
(Krone;1982;cass;color;60 min.)

PROCEDURES FOR ORGANIZING AND CONDUCTING A SEDIMENT INVESTIGATION AND DATA-COLLECTION PROGRAM HEC-484
What important sediment characteristics should be measured for various kinds of sediment-related problems and how to establish and conduct a data gathering program, typical costs.
(Childers;1983;cass;color;52 min.)

METHODS OF ADDRESSING MULTIDIMENSIONAL SEDIMENT TRANSPORT AND CIRCULATION PROBLEMS HEC-486
Recent developments and applications of multidimensional numerical models to simulate complex sediment transport problems.
(Arithurai;1982;cass;color;55 min.)

EVALUATION OF SEDIMENT-RELATED PROBLEMS WITH THE USE OF PHYSICAL MODELS HEC-487
What is a physical model, when are they appropriate, what kinds of problems are they best suited for, how much time and what does it take to conduct a physical model investigation, how can physical models be used in conjunction with numerical models (e.g., hybrid models), methods of estimating local scour problems, effects of model distortion, limitations, research needs; methods of computing similarity and distortion criteria for river and reservoir simulations; computation of sediment material similarity criteria; limitations, problems.
(Glover;1982;cass;color;60 min.)

FIELD INVESTIGATION METHODS HEC-496
Details of how to plan, organize and conduct a detailed field inspection in order to identify potential sediment problems.
(Vanoni;1982;cass;color;60 min.)

ENVIRONMENTAL CONSIDERATIONS - SOME IMPACTS AND CONSEQUENCES OF SEDIMENT HEC-497
Review of sediment-related problems associated with rivers, lakes and estuaries; consideration of both beneficial and detrimental effects of sediment on water quality and ecology of water bodies.
(Goldman;1983;cass;color;60 min. & 50 min.)

TAPE NUMBER

Navigation Requirements

DESIGNING FOR NAVIGATION DEPTHS — HEC-178
Establishing the bed material load for pre-project conditions, establishing and stabilizing channel alignment; identifying potential trouble spots; determining the impact of changes either to water or to sediment yield or the ability to transport sediment material. Encroaching to deepen channels and increase sediment transport.
(Harrison;1976;cass;b/w;60 min. & 15 min.)

HYDRAULIC MODELS AS A DESIGN AID FOR NAVIGATION — HEC-180
Moveable bed models for designing channel alignment and construction works; the importance of the design discharge hydrograph; time scales; interpretation of results; field verification of results.
(Harrison;1976;cass;b/w;60 min. & 13 min.)

AN OVERVIEW OF THE CORPS DREDGING PROGRAM AND BEACH EROSION CONTROL PROJECTS — HEC-494
Discussion of problems, expenses, methods, and management.
(Hummer;1982;cass;color;60 min.)

OVERVIEW OF HEC'S DREDGE MATERIAL DISPOSAL MANAGEMENT — HEC-495
Discussion of a newly developed dredging management tool called "D2M2" for optimizing use of dredges and disposal areas.
(Davis;1982;cass;color;60 min.)

Scour

LOCALIZED SCOUR — HEC-184
Classification of local scour; mechanisms causing scour; predicting and reducing scour.
(Fletcher;1976;cass;b/w;26 min.)

DESIGN OF STABLE SECTIONS — HEC-182
Techniques used to stabilize major rivers; types of protection works, sizing of stone and placement techniques for protection works; inspection and evaluation of protection works.
(Harrison;1976;cass;b/w;60 min. & 08 min.)

METHODS OF EROSION CONTROL — HEC-490
Procedures for the control or erosion and soil loss due to road construction, development practices, agricultural activities; emergency methods and placement and construction of control structures.
(Steffen;1982;cass;color;45 min.)

STREAMBANK EROSION CONTROL, BANK STABILIZATION AND RIVER TRAINING METHODS — HEC-491
MRD's experiences and case histories of river bank stabilization methods and procedures; summary of the Section 32 research program.
(Mellema;1982;cass;color;56 min.)

STABLE CHANNEL DESIGN PROCEDURES — HEC-492
Computational methods for evaluating and designing stable earthen channels.
(Smith;1982;cass;color;60 min.)

	TAPE NUMBER
PURPOSE, APPLICATION AND GENERAL DESIGN CONSIDERATIONS FOR RIP RAP, GABIONS, LOG CRIBBS AND CONCRETE MATRESSING Where, when and how to use structural protection to minimize river bank erosion; other alternatives. (Smith;1982;cass;color;60 min.)	HEC-493

Reservoir Sedimentation

RESERVOIR SEDIMENTATION The location of sediment deposits; the magnitude; the influence of hydrology; the influence of the construction of a project on sediment deposition profiles are discussed. (Thomas;1976;cass;b/w;62 min. & 04 min.)	HEC-191

Computer Program HEC-6

INTRODUCTION TO HEC-6 Basic assumptions, concepts and theories; equations of continuity for sediment; basis for hydraulic computation (HEC-2); numerical solution technique, limitations of model; typical itemized application capabilities (kinds of problems); restate the importance of characterizing the prototype systems. (Gee;1980;cass;color;54 min.)	HEC-445
MATHEMATICAL MODELING OF SCOUR, TRANSPORT AND DEPOSITION OF SEDIMENT MATERIAL The equation of continuity of sediment is discussed and numerical solution techniques are presented. (Thomas;1976;cass;b/w;58 min.)	HEC-173
THEORY AND CONCEPTS OF THE EQUILIBRIUM BED, ARMORING AND SEDIMENT ACCOUNTING CALCULATIONS USED BY HEC-6 Discussion of procedures used in HEC-6 to simulate changes in bed material gradation and bed armoring; concepts of equilibrium depth and active and inactive bed layers; example calculations. (Thomas;1982;cass;color;60 min.)	HEC-485
SIMULATION OF HYDRAULIC SORTING AND ARMORING The procedure used in HEC-6 for approximating hydraulic sorting and armoring of the streambed is presented. (Thomas;1976;cass;b/w;37 min.)	HEC-174
INPUT DATA REQUIREMENTS FOR HEC-6 Data requirements; data availability, input structure and format, discussion of what kinds of data go on the I, L, and N (sediment characteristics) cards; what are the variable default values and where did they come from; explain relative importance of the quality of input data to HEC-6. (Gee;1980;cass;color;58 min.)	HEC-448
INPUT DATA REQUIREMENTS FOR HEC-6 Input format; input for basic application; optional input and example application. (Thomas;1976;cass;b/w;60 min.)	HEC-175

TAPE NUMBER

INTERPRETATION OF RESULTS FROM HEC-6 — HEC-449
Printout sequence; optional output, error messages; special notes; discussion of how to evaluate the quality of your answers; when should HEC-6 be used to solve a problem; limitations with results; interpretation of general model behavior.
(Thomas;1980;cass;color;61 min. & 31 min.)

INTERPRETATION OF RESULTS FROM HEC-6 — HEC-176
Printout sequence; cross section computation; special notes; output review.
(Thomas;1976;cass;b/w;59 min.)

CALIBRATION TECHNIQUES — HEC-451
Techniques for calibrating n-values; estimating the computational interval; verifying the inflowing sediment load; adjustments to cross section geometry to establish initial conditions and simulate bank-full discharges; how and why to operate in the fixed-bed mode; numerical examples.
(Williams;1980;cass;color;61 min. & 10 min.)

CALIBRATION TECHNIQUES — HEC-177
Techniques for calibrating n-values; estimating the computational interval; verifying the inflowing sediment load; adjustments to cross section geometry to establish initial conditions of the channel and to simulate bank-fill discharge.
(Thomas;1976;cass;b/w;58 min.)

SPECIAL CAPABILITIES OF HEC-6 — HEC-453
Qualitatively introduce special program capabilities such as: dredging (X3 card usage, X5 card usage), fixed bed mode, dikes, levees, bank protection, bridges encroachments, reservoir studies, special print levels and restart capabilities.
(Thomas;1980;cass;color;60 min.)

NEW CAPABILITIES OF HEC-6 — HEC-454
Introduce gravel mining, interactive operation and plotted results capabilities.
(MacArthur, Montalvo;1980;cass;color;61 min. & 31 min.)

DEBUGGING METHODS AND TROUBLESHOOTING — HEC-458
Typical problems; print options; methods of debugging; typical bombs and problems with data.
(Williams; 1980;cass;color;52 min.)

STREAM HYDRAULICS GRAPHICS PACKAGE FOR HEC-6 — HEC-432
Introduction to the use and capabilities of the Stream Hydraulics Graphics Package as it relates to the HEC-6 computer program.
(Montalvo;1980;cass;color;36 min.)

THEORY AND CONCEPTS OF THE EQUILIBRIUM BED, ARMORING AND SEDIMENT ACCOUNTING CALCULATIONS USED BY HEC-6 — HEC-485
Discussion of procedures used in HEC-6 to simulate changes in bed material gradation and bed armoring; concepts of equilibrium depth and active and inactive bed layers; example calculations.
(Thomas;1982;cass;color;60 min.)

TAPE NUMBER

Case Studies

PROBLEMS RESULTING FROM SEDIMENT DEPOSITION IN RESERVOIRS — HEC-189
Specific case studies are presented to illustrate problems the Corps has encountered as a result of sediment deposition.
(Livesey;1976;cass;b/w;62 min. & 04 min.)

CASE STUDY — HEC-459
Relate case studies back to what program can or may not be able to do; emphasize assumptions that were made and methods that were used.
(Williams and Dyhouse;1980;cass;color;62 min., 32 min., & 7 min.)

Procedures to Conduct a Sediment Study

SUMMARY OF STEPS, METHODS, DATA AND PROCEDURES TO CONDUCT A SEDIMENT HEC-6 — HEC-462
(Williams;1980;cass;color;28 min.)

SPATIAL DATA MANAGEMENT

	TAPE NUMBER
INTRODUCTION TO SPATIAL DATA MANAGEMENT Background information on automated geographic information systems, what they are and how they have been used historically, and current activities within Corps. (Davis;1979;cass;color;58 min. & 12 min.)	HEC-409
CREATING GRID CELL DATA BANKS Discussion and illustration of the steps necessary to create a grid cell data bank. Discussion of encoding and file system, e.g., run length encoding, polygon encoding, and multivariable file. (Webb;1979;cass;color;29 min., 26 min. & 24 min.)	HEC-411
DATA BANK MANAGEMENT Creating derived variables such as hydrologic soil group, slope, etc., is discussed as well as use of the BANK program. (Webb;1979;cass;color;47 min.)	HEC-414
TOWN MEETING (TRAIL CREEK) Illustration of the capability of the Resource Information and Analysis program in a public forum for locating future industrial development in the Trail Creek watershed. Four different perspectives are presented: homeowners, industrialists, federal government and green grassers environmental group. (Burnham;1979;cass;color;50 min.)	HEC-415
HEC-SAM SYSTEM Integrated study management techniques based on spatial data management; XFPI and Survey Pilot Study Program. (Davis;1979;cass;color;52 min.)	HEC-416
THE ADAPT SYSTEM The structure and components of the ADAPT system (a system based on irregular triangular grids) are presented and applications are discussed. (Males;1979;cass;color;54 min. & 32 min.)	HEC-417
COORDINATED MANAGEMENT OF HYDROLOGIC AND ECONOMIC DATA The coordination in data gathering and analysis of hydrologic and economic data is discussed along with the roles that the HYDPAR, DAMCAL and ATODTA programs have in the coordination. (Davis;1979;cass;color;47 min.)	HEC-421
ROWLETT CREEK CASE STUDY The experience of the Ft. Worth District in using the HEC-SAM system is discussed. (M. Smith;1979;cass;color;56 min.)	HEC-422
ENVIRONMENTAL ASSESSMENTS USING SPATIAL DATA MANAGEMENT TECHNIQUES Tools and assessment techniques which are used for environmental evaluations are discussed. (Dangermond;1979;cass;color;60 min.)	HEC-423

	TAPE NUMBER
URBAN STORMWATER ANALYSIS Input requirements, output and interfaces with grid cell data banks for the STORM Program is discussed along with results from a recent application. (Feldman;1979;cass;color;51 min.)	HEC-425
WILMINGTON CASE STUDY The use of RIA and other programs by the Wilmington District for an environmental assessment of the Upper Dam and Roanoke River Basin is discussed. (Mitchell;1979;cass;color;44 min.)	HEC-426
RELATIONSHIP: HEC-SAM AND CORPS PLANNING Overview of relationship between spatial data management and Corps planning process/stages. (Davis;1979;cass;color;50 min.)	HEC-427
COMPUTER GRAPHICS AND HEC-SAM The use of pen plots, line printer plots, 35 mm film, microfiche, CRT's and color for data verification and display of analysis results is discussed. (Webb;1979;cass;color;31 min.)	HEC-428
LOCAL COMMUNITY'S USE OF SPATIAL DATA (GEOGRAPHIC INFORMATION SYSTEMS) The types of information required for local community planning based on DIME file information, traffic analysis zones (TAZ), etc., is presented. (L. Johnson;1979;cass;color;59 min. & 18 min.)	HEC-429

TAPE NUMBER

Flood Frequency Analysis

CONCEPTS AND PRINCIPLES OF FLOW FREQUENCY ANALYSIS — HEC-522
An introduction to the probability concepts of hydrologic phenomena, the distinction between risk and uncertainty, and a general approach to flow frequency analysis will be given. The frequency curve will be defined.
(Ford;1984;VHS;color)

STREAMFLOW FREQUENCY CONCEPTS — HEC-552
Concepts and principles of flow frequency analysis; overview of frequency analysis methods; interpretation of frequency curves; basic steps involved in development of frequency curves.
(Kubik;1985;VHS;color;60 min.)

ANALYTICAL FREQUENCY METHODS — HEC-010
Advantages of the analytical method; various model distributions; log-Pearson Type III characteristics and parameters, computation of frequency curve; expected probability adjustment.
(Feldman;1974;cass;b/w;65 min.)

DETERMINATION OF DISCHARGE-FREQUENCY RELATIONSHIPS — HEC-507
Description of various techniques to determine flood-frequency relationships: Bulletin 17B, regional frequency, USGS regional equations, and design storms.
(Burnham;1983;cass;color;50 min.)

WEIGHTING PROCEDURE FOR GENERALIZED SKEW — HEC-544
Uncertainty in computed skew coefficient; mean square error; computation of weighted skew.
(Kubik;1985;VHS;color;60 min.)

RELIABILITY OF FREQUENCY ESTIMATES — HEC-545
Techniques for determining reliability; sampling errors of mean, standard deviation, and skew; statistical significance; confidence limits.
(Kubik;1985;VHS;color;60 min.)

RISK AND UNCERTAINTY — HEC-546
Examples of risk and uncertainty; bias in frequency estimates; expected probability adjustment; use of risk and uncertainty in project design.
(Davis;1985/VHS;color;60 min.)

EXPECTED PROBABILITY ADJUSTMENT — HEC-161
Philosophy and application of the expected probability adjustment; example.
(Beard;1976;cass;b/w;58 min.)

TAPE NUMBER

Coincident Frequency Analysis

COINCIDENT FREQUENCY ANALYSIS — HEC-049
Objective of coincident frequency analysis; marginal and conditional probability distributions; total probability theorem; example.
(Peters;1975;cass;b/w;60 min. & 10 min.)

Regional Analysis

REGIONAL ANALYSIS — HEC-011
Nature and purpose of regional correlation analysis; regional analysis of analytical frequency statistics; regional analysis of unit graph parameters; selection of basin parameters; application of regression analysis; correlation coefficient and standard error of estimate.
(Kubik;1974;cass;b/w;57 min.)

APPLICATION OF MULTIPLE LINEAR REGRESSION — HEC-547
Applications in hydrologic analyses; formulation of regression models; effects of nonlinearities; transformations; interpreting results.
(Carl;1985;VHS;color;60 min.)

RELIABILITY OF REGRESSION RESULTS — HEC-548
Standard error of estimate; error in predicted Y values; confidence limits about regression line.
(Kubik;1985;VHS;color;60 min.)

DEVELOPMENT OF GENERALIZED SKEW COEFFICIENTS — HEC-549
Procedural steps in Bulletin 17B; problems with mapping skew; mean square error; case study - Delaware River Basin.
(Kubik;1985;VHS;color;60 min.)

RELIABILITY OF REGIONALIZED RESULTS — HEC-550
Worth of regionalized results, sensitivity of process to regional values.
(Dawdy;1985;VHS;color:60 min.)

Computer Program WATSTORE

RETRIEVAL OF DATA FROM WATSTORE — HEC-234
Available data; statistical and frequency routines used with data; strategies for using WATSTORE in a frequency study.
(Hayes;1978;cass;b/w;59 min.)

TAPE NUMBER

Effects of Urbanization

EFFECT OF BASIN DEVELOPMENT ON FREQUENCY CURVES — HEC-508
Effect of basin development on the hydrologic system. Describe how urbanization, reservoirs, levees and channel modifications impact on the frequency curve.
(Burnham;1983;cass;color;44 min.)

EFFECT OF URBANIZATION — HEC-509
Discuss the effects of urbanization on the hydrologic system and describe the method of analysis using the kinematic wave method.
(DeVries;1983;cass;color;52 min.)

Methods of Analysis

METHODS OF ANALYZING QUANTITY OF URBAN STORM RUNOFF — HEC-129
Introduction to various methods suited for determining runoff from urban watersheds; discussion of use of the "rational" method; data considerations and availability; degree of refinement necessary considering specific objectives, i.e., peak flows, single events, continuous hydrographs, volume.
(Davis;1975;cass;b/w;71 min. & 14 min.)

DEVELOPMENT OF FREQUENCY CURVES IN AREAS UNDERGOING URBANIZATION — HEC-131
Statistical considerations and assumptions in frequency analysis of rainfall and runoff as they pertain to watersheds undergoing urbanization; specific methods available for urbanized areas; results of previous investigations; use of rainfall-runoff models to develop or modify frequency curves; rainfall frequency; storm frequency.
(Kubik;1975;cass;b/w;71 min.)

DETERMINATION OF KINEMATIC WAVE PARAMETERS — HEC-510
Techniques for developing kinematic wave parameters and application using HEC-1.
(DeVries;1983;cass;color;62 min.)

CHANGES IN UNIT HYDROGRAPH CHARACTERISTICS DUE TO URBANIZATION — HEC-132
Use of HEC-1 to model an urban watershed; description of parameter modifications required to simulate an urbanized watershed, changes in unit graph and loss rate characteristics due to urbanization; Denver criteria; Tracor criteria.
(Peters;1975;cass;b/w;71 min. & 20 min.)

CHANGES IN ROUTING CHARACTERISTICS DUE TO URBANIZATION — HEC-134
Application of HEC-1 to model changes in drainage system of an urbanizing watershed; discussion of which routing methods to use; selection of modified routing coefficients for urban conditions; adaptations to simulate closed conduit systems; hydraulic considerations.
(Bonner;1975;cass;b/w;70 min. & 23 min.)

TAPE NUMBER

Data Storage System

USE OF THE HEC DATA STORAGE SYSTEM FOR WATER AND PLANNING STUDIES — HEC-467
Capability of HEC system HECDSS and water control software; application of HECDSS: use of functions, macros and menus.
(Pabst;1983;cass;color;62 min.)

CAPABILITIES OF DISPLAY — HEC-470
Program options and applications.
(Montalvo;1983;cass;color;52 min.)

Planning Models

HYDROLOGIC ENGINEERING MODELS — HEC-122
The various categories of hydrologic models are discussed. A selection of statistical, single storm event simulation, continuous synthesis and operation and analysis models are described.
(Davis;1975;cass;b/w;61 min.)

Formulation

FLOOD CONTROL ALTERNATIVES — HEC-068
Purpose of flood loss management; types and effects of flood control alternatives; selecting and evaluating flood control alternatives.
(Davis;1975;cass;b/w;60 min. & 15 min.)

METHODS FOR HYDROLOGIC EVALUATION OF FLOOD CONTROL SYSTEMS — HEC-471
Developing flow data for evaluation of flood control system performance; use of historic data; design storms; single event modeling; period of record analysis.
(Davis;1983;cass;color;58 min.)

Economic Analysis

ECONOMIC EVALUATION OF FLOOD CONTROL ALTERNATIVES — HEC-080
Basic economic concepts, damage function derivation and manipulation; benefits categorization, selection of representative hydrology.
(Davis;1975;cass;b/w;60 min. & 06 min.)

TAPE NUMBER

Methods of Analysis

STATISTICAL TECHNIQUES FOR WATER SUPPLY POTENTIAL — HEC-302
Flow-duration, low-flow frequency techniques for evaluating surface water potential.
(Kubik;1978;cass;b/w;62 min. & 27 min.)

RESERVOIR YIELD ANALYSIS — HEC-306
Techniques for determining reservoir yield; mass diagrams; nonsequential mass curve analysis; sequential analysis, stochastic techniques.
(Morris;1978;cass;b/w;63 min. & 11 min.)

ESTIMATING LOW-FLOW DATA FOR UNGAGED BASINS — HEC-540
Estimating flow and frequency for ungaged watersheds; use of other data sources.
(Kubik;1985;VHS;color;60 min.)

STOCHASTIC ANALYSIS OF DROUGHT PHENOMENA — HEC-543
Probabilistic models; stochastic process; drought statistics, HEC-4 monthly streamflow operation.
(Goldman;1985;VHS;color;60 min.)

Water Demand Forecasting

A WATER DEMAND FORECASTING MODEL (DEMAND) — HEC-308
Program description and function; input requirements; output; application to Corps study.
(Sonnen;1978;cass;b/w;52 min. & 16 min.)

Water Balance

HYDROLOGY OF WATER SUPPLY — HEC-541
Surface and ground water sources; droughts and floods; surface water storage and withdrawal; shortages and surpluses.
(Feldman;1985;VHS;color;60 min.)

DEVELOPMENT OF A WATER BALANCE — HEC-390
Why and how a thorough hydrologic water balance is conceptualized and performed; case study middle Rio Grande at Albuquerque.
(Johnson;1979;cass;color;57 min.)

APPLICATION OF SPREADSHEETS SOFTWARE TO WATER BALANCE DEVELOPMENT — HEC-542
Structure, capability, and use of microcomputer spreadsheet and database for water supply and use data.
(Johnson;8/20/85;VHS;color;60 min.)

TAPE NUMBER

Water Quality

WATER QUALITY CONSIDERATIONS FOR WATER SUPPLY — HEC-288
Impurities in water; chemical and bacteriological characteristics of water; water quality standards for drinking water supplies; water quality for agricultural use; quality for industrial use.
(Smith;1978;cass;b/w;61 min. & 33 min.)

Formulation

FORMULATION OF WATER SUPPLY PLANS — HEC-296
Considerations in formulating alternative plans; strategies for developing alternatives; being responsive to identified needs.
(Dixon;1978;cass;b/w;62 min. & 04 min.)

Agricultural Water Supply

ESTIMATION OF FUTURE AGRICULTURAL WATER NEEDS — HEC-291
Predicting crop's water requirements; crop evapotranspiration factors affecting evapotranspiration; seasonal and peak requirements.
(Pruitt;1978;cass;b/w;54 min. & 28 min.)

Water Conservation

WATER CONSERVATION — HEC-293
Water conservation as a way to reduce water demand; effectiveness of water conservation; case studies; water conservation in State and Federal planning.
(Bollman;1978;cass;b/w;61 min. & 56 min.)

Case Studies

WATER REUSE: PHOENIX URBAN STUDY — HEC-295
Case study of the consideration of water reuse in the Phoenix Urban Study.
(Dixon;1978;cass;b/w;62 min.)

TAPE NUMBER

Basic Concepts and Methods

GENERAL CONCEPTS OF WATER QUALITY — HEC-091
Define water quality and discuss water quality parameters, sources of pollution, significance of receiving water standards versus effluent standards, and beneficial uses of water.
(Willey;1975;cass;b/w;67 min.)

WATER QUALITY DETERMINATIONS FOR STREAMS — HEC-092
General concepts and example application of manual calculation methods for analysis of BOD, and analysis of a DO profile for streams' channels.
(Willey;1975;cass;b/w;67 min.)

STREAM TEMPERATURE DETERMINATIONS — HEC-093
General concepts and example application of a manual calculation method for analysis of a stream temperature profile.
(Willey;1975;cass;b/w;64 min.)

FISH — HEC-152
The characteristics of several species of fish are described. Environmental changes affecting their production and mortality are presented.
(Jenkins;1976;cass;b/w;65 min. & 03 min.)

WATER QUALITY CONSIDERATION FOR WATER SUPPLY — HEC-288
Impurities in water; chemical and bacteriological characteristics of water; water quality standards for drinking water supplies; water quality for agricultural use; quality for industrial use.
(Smith;1978;cass;b/w;61 min. & 33 min.)

WATER QUALITY CONSIDERATIONS — HEC-084
Important quality parameters; water quality considerations in reservoir operations; methods of analysis available.
(Willey;1975;cass;b/w;68 min. & 13 min.)

METHODS OF ANALYZING QUALITY OF URBAN RUNOFF — HEC-137, HEC-138
Techniques used to evaluate water quality problems; state-of-the-art; survey of available computer models (STORM, EPA, and others); applicability of models.
(Chen;1975;cass;b/w;70 min. & 11 min.)

TAPE NUMBER

Computer Program STORM

INTRODUCTION OF WATER QUALITY OF URBAN RUNOFF — HEC-136
Water Quality problems; parameters and their interrelationships; sources of pollutants; washoff phenomena; transport of pollutants; data availability and other considerations.
(Chen;1975;cass;b/w;55 min.)

INTRODUCTION TO STORM WATER WATER QUALITY ANALYSIS — HEC-215
Water quality problems; pertinent water quality parameters, source of pollutants; washoff functions; transport of pollutants; modeling storm water quality; dry weather flow.
(Abbott;1977;cass;b/w;60 min.)

GUIDELINES FOR DATA COLLECTION FOR WATER QUALITY MODELS — HEC-140
Suggested procedures for collecting data necessary to operate the models, data needs (what to sample), frequency of sampling; time and spatial consideration; associated costs; impact of adequate sampling on study results.
(Willey;1975;cass;b/w;70 min. & 41 min.)

USE OF "STORM" FOR WATER QUALITY STUDIES — HEC-142
Methods used in STORM for determining urban storm runoff; estimation of input parameters; default values; data preparation.
(Abbott;1975;cass;b/w;67 min.)

INPUT FOR STORM - QUANTITY AND QUALITY — HEC-216
Input data requirements; structure of input deck; data card preparation; examples; output analysis.
(Abbott;1977;cass;b/w;62 min.)

URBAN STORMWATER ANALYSIS — HEC-425
Input requirements, output and interfaces with grid cell data banks for the STORM Program is discussed along with results from a recent application.
(Feldman;1979;cass;color;51 min.)

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