

**GLOBAL POSITIONING SYSTEMS(GPS) BASE STATION
TO BE ESTABLISHED AT
KANSAS COLLEGE OF TECHNOLOGY**

The Department of Civil Engineering Technology at Kansas College of Technology(KCT) is proud to announce that a **Global Positioning Systems(GPS) Base Station is to be established at KCT**. Effective November 30, 1990, KCT entered into a contract with the Kansas Department of Health and Environment and the Kansas Water Office (representing the Kansas Geographic Information Systems(GIS) Policy Board) which will establish the GPS Base Station at KCT. KCT faculty member Steve Thompson is a member of the Technical Advisory Committee to the Kansas GIS Policy Board.

Under the terms of the contract KDHE will be responsible for the operation of mobile GPS equipment and KCT will be responsible for the simultaneous operation of the base station GPS equipment. The GPS equipment will be used to establish the locations of contaminated sites, water supplies, and waste water dischargers for the development of a statewide Geographic Information Systems coverage.

A GPS is a system which uses the military navigational satellites orbiting the earth to provide a precise location of points on the earth's surface. The GPS technology provides an efficient, cost effective means of establishing the locations (latitude-longitude) of the sites which would be too costly to locate by traditional surveying methods.

A Geographic Information System(GIS) is a computer-based mapping system which combines computer graphics (mapping) with an efficient informational database. The GIS stores, integrates, and analyzes information about land aspects--what is on it (and under it), who owns it, what it is worth, where the natural resources, utilities, and environmentally sensitive areas are located relative to each other and to other land aspects, etc. KCT is currently offering introductory GIS courses and developing an associate degree program in GIS.

KCT will collect satellite data each day with the GPS Base Station and provide that data to KDHE in Topeka. The data will also be available to other state agencies doing similar GPS work statewide. The method known as "differential GPS" will be employed to obtain the most accurate positioning. With differential GPS, satellite data is collected by a receiver at a known location and elevation, and by a roving receiver at a remote site whose location is to be determined. The data collected at the remote site is then post processed via computer with the data from the known location and the remote data is corrected based on the known data.

KCT students will assist in the precise location and installation of the GPS Base Station on campus. It is also anticipated that they will be involved in a pilot project to test the system statewide before fulltime operation commences. Because the GPS system is the surveying system of the future, KCT's Civil Engineering Technology faculty are working hard to obtain additional GPS hardware to compliment the already well equipped surveying lab at the college.

KANSAS COLLEGE OF TECHNOLOGY
CIVIL ENGINEERING TECHNOLOGY DEPARTMENT

The Civil Engineering Technology Department at Kansas College of Technology is developing an associate degree program in **Geographic Information Systems (GIS) Technology**. The proposed GIS curriculum has been submitted to the Kansas Board of Regents for approval. Pending the Regents' approval in March of 1991, the GIS program will be, to our knowledge, the **first associate degree GIS program in the nation**. The program is being developed to address a rapidly increasing need for technicians in the field of GIS. An introductory course in GIS and a GIS projects course are already being taught.

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On June 15, 1990, the Civil Engineering Technology Department at Kansas College of Technology was awarded a \$50,000 National Science Foundation (NSF) grant to support the development of the GIS laboratory at the college. KCT faculty member Stephen Thompson, project investigator for the grant, has since been selected by the NSF to review other grants submitted to NSF in 1991. The grant monies awarded to KCT are to be applied to the purchase of additional GIS computer equipment and software for the existing GIS Lab, as well as a total station surveying instrument and related software. A total station was purchased October, 1990. The department also intends to acquire a Global Position Satellite (GPS) surveying system. The GPS system and total station surveying systems will be added to the existing, well-equipped surveying lab and used to support the Civil Engineering Technology and Surveying Technology programs as well as the new GIS program.

November 30, 1990, the Civil Engineering Technology Department at KCT entered into an agreement which will establish a Global Positioning System (GPS) Base Station at KCT to provide statewide coverage for other state agencies. KCT signed the agreement with the Kansas Department of Health and Environment and the Kansas Water Office (representing the Kansas GIS Policy Board). KCT faculty member Stephen Thompson is a member of the Technical Advisory Committee to the GIS Policy Board.

A GPS is a system for the location of precise points on the earth through the use of 21 military navigational satellites orbiting the earth. A total station surveying instrument is a device used for the electronic observation and recording of angles, distances, and identification of points which can then be downloaded to a computer for analysis and plotting. A total station automates the previous surveying process of reading angles and measuring distances manually and physically writing them into a field book and then going back to the office and manually plotting the points on a drawing.

The Civil Engineering Technology Department in conjunction with the Continuing Education Department at the college, hosts an annual Surveyor's Conference in January in Salina for the Kansas Society of Land Surveyors. The conference is attended by Surveyors from all over Kansas and several adjoining states.