CASE (F)

MAHARAJA COLLEGE'S GYMNATORIUM
SYSTEMS IMPLEMENTATION
IMPLEMENTATION PLAN AND ACTIVITIES

OVERALL IMPLEMENTATION PLAN

The PERT diagram of the overall implementation plan for STS is shown in Figure F-I.

IMPLEMENTATION ACTIVITIES

Order Technology

Upon MCG officials signing the contract with DEL, the purchasing department prepared and released the purchase order to DEL. Delivery dates for the computing platform were mutually decided to coincide with the completion of the site for installation.
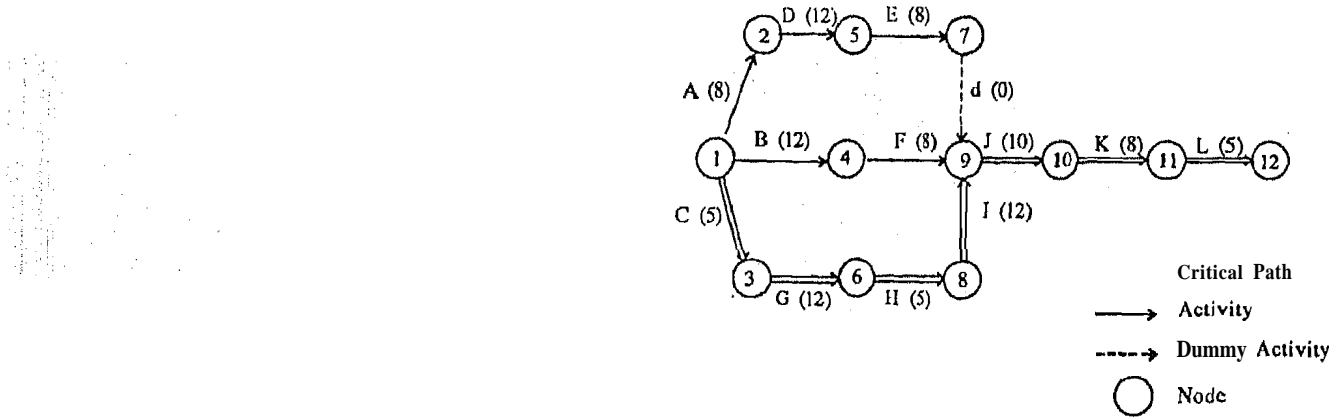
Review of Specifications

An analyst from DEL reviewed the specifications for input, models, output and the data base, to customize the necessary program code for ticketing, event recording and resources planning, accounting and data base maintenance models, as described in the Systems Design Report. (Ref Case-D)

Site Preparation and Installation

The goal of site preparation is to ensure quick and easy installation of the computing platform.

The equipment will be burnt in by DEL at their plant to simulate four weeks of continuous operation. During this time, the facility division of MCG has been informed to prepare the site for the equipment. The environment must be clean and air-conditioned. Sufficient space is to be provided for shelving, stands, tables and disk and tape storage trays and cabinets.

Representatives from DEL will be at the MCG to coordinate the installation of cabling. They will provide recommendations on improving CHI (Computer Human Interface) viz. acoustics. privacy panels, printer enclosures and ergonomically designed furniture and workstations.

A   =   Order Computing Platform
B   =   Prepare Site
C   =   Review Specifications
D   =   Install Equipment
E   =   Test Hardware
F   =   Training
G   =   Write Programs
H   =   Test Programs
I   =   Test Software
J   =   Convert Systems
K   =   Implement followup
L   =   Accept

Figure **F-1:** PERT Chart of System Installation Activities

Test Technology

DEL plans to install hardware monitors on the CPU and disk drives for three weeks to monitor their operation. A software monitor will be installed permanently to monitor the usage of the software. Code modifications will be performed to increase efficiency. DEL will provide utilities such as data set optimizers to improve throughput by reducing wasted file storage on disk. They will also provide schedulers to help meet timing demands and balance job mix.

Write Programs

Comparing the detailed programming specifications against the turnkey system provided by DEL expressed the need for additional programming, to customize the software. A team of DEL programmers worked on this job in consultation with Sarita and Anil.

Test Programs

Anil Abraham performed a structured walkthrough of all the amended program modules written by DEL. After the modules were tested and integrated with DEL's core software packages, both valid and invalid test transactions were run to test the total software system. No errors were found, and Anil Abraham certified the software system 100 percent reliable.

Programming changes to the core system in the future will be performed by DEL as specified in the conuact between the MCG and DEL. The MCG is allowed to produce custom reports and develop programs that read from the data base. Anil Abraham will receive specialized training in SQL to aid users in preparing ad hoc reports.

User Training

Based on an assessment of the tasks required to operate the new system, it is deemed unnecessary to hire new employees.

DEL will conduct one week of on-site training before the hardware is installed. The company will organize seminars and group instruction during this week. DEL remains oh-site two weeks after the hardware is installed to provide on-the-job training to operators and users. Interactive video programs on CD-ROM are also provided fat personnel who wish lo review training material. DEL also provides a voice-mail based hot line to answer any questions.

Input Testing

One week prior to delivery of hardware, the divisions will be instructed on how to fill out the forms. Users will be tested to determine if they are completing the forms correctly. Accuracy and speed of data entry personnel will be evaluated. The efficiency of screen input layouts will be evaluated. Any screens that are cluttered or contain unnecessary data will be identified and corrected.

Output Testing

Reports and enquiry screens will be tested for accuracy based on live data that are entered during the training sessions. All reports will be issued to the final users. and each user will be required to fill out a questionnaire to see if the reports meet his or her information needs. The questionnaire will address the following issues:

1. Are headings accurate and understandable?

2. Are editing characteristics of report fields correct?

3. Are debit/credit and notations correct?

4. Are page numbers in correct sequence?

5. Are end-of-report indicators understandable?

6. Are reports issued with the correct date?

7. Are reports understandable and accurate?

8. Comments?

Data Base Testing

After live data are entered, data files are tested for completeness by comparing batch control totals to totals produced from the database. Other database tests are performed by DEL during development.

Control Testing

Controls testing emphasizes the way transactions are prepared and entered. Specific items lo be tested are as follows:

1. Are new programs being booked with proper authorization?

2. Are customer accounts being created with proper authorization?

3. Are ticket transactions being performed in proper sequence?

4. Is the use of passwords being controlled?

5. Are control totals being prepared and reported back to the control group?

Controls built into the system by DEL to be tested are:

I. Numeric, alphabetic and special character checks

2. Validity checks on key data fields

3. Limit and reasonableness checks

Systems Conversion

The systems conversion process is performed in parallel with the manual system currently in place for six months in all areas except ticketing, which will be converted directly on DD/MM/YY. Parallel conversion in accounting, programs and resources divisions is necessary to reconcile differences that may occur. Parallel conversion of ticketing is not practical. The new system is converted directly and must perform on its own.

All current data are converted directly and reconciled during the training sessions in cooperation with DEL. A rehearsal for direct conversion of the ticketing operations is to be performed on Sunday, Month DD 19XX. The ticket office is normally closed on Sunday and will remain closed during the trial, if the trial is performed successfully, then the STS ticketing system will be used on Monday, Month DD, 19XX.

IMPLEMENTATION FOLLOW-UP AND ACCEPTANCE MEETING

Implementation Follow-up

A user representative assigned by Mukul Gupta will perform implementation follow-up. Sarita and Anil will be available to answer questions. The representative will be responsible to review and report on a monthly basis how STS is operating.

The review covers the following areas:

1. Input, processing and output schedules

2. Activities of input preparation personnel

3. Backup procedures

4. Computer operator procedures

5. Report utilisation

6. Hardware maintenance

The user representative report will contain:

1. Areas that need improvement

2. Recommended methods for reconciling errors

3. Recommended areas where additional control is required.

4. Areas where old material will be eliminated from the system.

5. Requested upgrades to the system.

Acceptance Meeting

An acceptance meeting will be held on DD/MM/YY to discuss the achievements upon completion of training sessions and to determine if the gymnatorium is ready to perform parallel conversion. The meeting will be attended by systems analysts, systems operating personnel and users. If a consensus is reached that the system installed is ready for use then the systems analysts will be released from working on the development of STS to perform work on the Facilitating and Seating System, a follow-up to STS. After systems conversion, STS will become the responsibility of Mukul Gupta and his staff.

ASSIGNMENT ON MCG CASE (F)

Q.1 Consider the PERT diagram for systems implementation as shown in Figure F-1. Based in the data available in MCG cases A-F assign reasonable time values to various activities listed and determine the implementation time.

4.2 Assume that DEL software engineer has found a problem with ticketing model as described in MCG Case (D). Try to identify the problem and write the psuedo-code of that model again.

Q.3 Prepare a plan for training and educating users of new information system at MCG.

Q.4 Write a Acceptance Report (by considering yourself to be Sarita Kakkar), consequent to conduct of an Acceptance meeting.

Ans. 1. The **Activities** can be named as:

Activity	Nape	t_p	t_m	t_o	$t_e = t_p + \dfrac{4t_m + t_o}{6}$
A(1-2)	Order Equipment	10	9	2	8
B(1-4)	Prepare Site	20	12	4	12
C(1-3)	Review Specs	8	5	2	5
D(2-5)	Install Equipment	18	7.5	4	12
E(5-7)	Test Hardware	10	8.5	4	8
d(7-9)	Dummy	0	0	0	0
F(4-9)	Training	10	9	2	8
G(3-6)	Write Programs	20	12	4	12
H(6-8)	Test Programs	8	5	2	5
I(8-9)	Test Software	18	7.5	4	12
J(9-10)	Convert Systems	16	10	4	10
K(10-11)	Implement Follow-up	10	8.5	4	8
L(11-12)	Accept	8	5	2	5

Possible paths are

1-4-9-10-11-12	=	43 days
1-2-5-7-9-10-11-12	=	51 days
1-3-6-8-9-10-11-12	=	57 days

Hence critical path is

1-3-6-8-9-10-11-12 with tasks C, G, H, I, J, **K, L and the time required f a** implementation . of **MCG systems** project is 57 days.

Ans. 2

The following is a description and a **psuedo-code listing of the corrected program ticketing model earlier presented** in case **(D).**

1.   Ticketing Model:

It allows the user to input seating **assignments.** When a ticket is sold and paid for, the input screen records information about the customer, the amount paid. the purchase date, and the seats assigned. The "available" relation is updated and the **"issued" attribute** is updated to read **"y"** for Yes, which means the ticket a seat has been **issued. The** ticket is then printed.

> In this module, the relation called **"Programs"** is opened. The system looks up the program number for the event the user has selected. The program number is stored in a temporary memory variable called **"number"** for further use by the model.

OPEN THE PROGRAMS RELATION
   LOOKUP THE PROGRAM_NUMBER WHERE THE RECORD NUMBER =
   Select STORE Program_number TO number.

> In this module, the relation called "assigned" is opened. The input screen is displayed and the **customer's ticket** order is input and stored in the "assigned" relation. The event number is stored in the "assigned" relation using the data stored in the temporary memory variable called "number".

OPEN THE assigned RELATION

DISPLAY THE INPUT SCREEN

INPUT log–number
INPUT customer
INPUT phone
INPUT reservation–date
INPUT number–of–reservations
INPUT **amount_paid**
INPUT amount–due
INPUT purchase–date
INPUT seat–assigned–1
INPUT seat–assigned–2
INPUT seat–assigned–3
INPUT seat-assigned–4
INPUT seat–assigned5
INPUT seat–assigned–6
INPUT seat–assigned–7
INPUT seat–assigned
INPUT seat-assigned9
INPUT seat-assigned–10
INPUT seat–assigned–11
INPUT seat–assigned–12
INPUT **seat_assigned_13**
INPUT seat-assigned–14
INPUT seat–assigned–15
INPUT seat–assigned–16
INPUT seat–assigned–17
INPUT seat–assigned–18
INPUT seat-assigned–19
INPUT seat–assigned–20

REPLACE program–number WITH number

> In this module, the routine is **repeated** 20 times to check if **the** user has
> entered a seat assignment or ticket number in 1 of 20 input areas provided
> in the input screen, if a seat assignment or ticket number has been entered,
> the system looks up the ticket number in the "available" relation and stores
> a "y" for yes in the "issued" data **attribute** to indicate **that** the ticket or **seat**
> has been issued. The model **then** prints the ticket.

DO A BIG LOOP UNTIL loop > 20

IF Seat–assigned–1   NOT BLANK AND loop $= 1$
THEN PERFORM START
IF Scat–assigned–2,   NOT BLANK AND loop $= 2$
THEN PERFORM START
IF Seat–assigned–3   NOT BLANK AND loop $= 3$
THEN PERFORM START
IF Seat–assigned–4   NOT BLANK AND loop $= 4$
THEN PERFORM START
IF Scat–assigned–5   NOT BLANK **AND** loop $= 5$
THEN PERFORM START
IF Seat–assigned–6   NOT BLANK *AND* loop $= 6$
THEN PERFORM START
IF Seat–assigned–7   NOT BLANK *AND* loop $= 7$
THEN PERFORM START
IF Seat–assigned8   NOT BLANK AND loop $= 8$
THEN PERFORM START
IF Seat–assigned–9   NOT BLANK AND loop $= 9$
THEN PERFORM START
IF Seat-assigned-10   NOT BLANK AND loop $= 10$
THEN PERFORM START
IF Seat–assigned–11   NOT BLANK AND loop $= 11$
THEN PERFORM START
IF Seat–assigned–12   NOT BLANK AND loop $= 12$
THEN PERFORM START

IF Seat_assigned_13   NOT **BLANK** AND loop = 13
THEN PERFORM START
IF Seat−assigned−14   NOT **BLANK** AND loop = 14
THEN PERFORM START
IF Seat−assigned−I5   NOT **BLANK** AND loop = **15**
THEN PERFORM START
IF Seat−assigned−**16**   NOT **BLANK** AND loop = **16**
THEN PERFORM START
IF Seat−assigned− **I**   NOT **BLANK** AND loop = 17
THEN PERFORM START
IF **Seat_assigned_18**   NOT **BLANK** AND loop = 18
THEN PERFORM START
IF **Seat_assigned_19**   NOT **BLANK** AND loop = 19
THEN PERFORM START
IF Seat−assigned−20   NOT **BLANK** AND loop = 20
THEN PERFORM START

START
OPEN THE available RELATION
REPLACE issued Y/N IN available WITH "Y"

for PROGRAM−NUMBER = NUMBER and DATA =
RESERVATION−date
PRINT THE TICKET STORE loop + TO loop

END **OF** THE BIG LOOP

Ans.3.

Training is conducted by three representatives from DEL with assistance from Sarita Kakkar and Anil Abraham. Training is customized for top management, supervisors, operating personnel and direct users. Personnel are advised to make available the time necessary to attend appropriate sessions based on the following mining schedule:

1. Top Management Overview Seminars
   Attendees:
   > Mukul Gupta, Director, MCG
   > Neera Tiwari, **EDP** Manager
   > Seminar Session 1 (Monday 8:00-12:00)
   > a   Computing Platform Review
   > b.   STS Design Overview
   > c.   STS Data Base

   Seminar Session 2 (Wednesday 8:00-12:00)
   > a.   Administrative and Procedural Controls
   > b.   Maintenance
   > c.   Reports

2. Supervisors Group Instruction
   Attendees:
   > Suresh Srivastava, Accounting Manager
   > Dinesh Malik, Activities Manager
   > Balwant Singh, Facilities Manager

   Group Instruction Session **1** (Monday 1:00-5:00)
   a.   STS Design Overview
   b.   Menus and Screens Descriptions
   c.   Logical Relationship of STS Data Base

   Group Instruction Session 2 (Tuesday 1:00-5:00)
   a.   Program Module Specifics
   b.   Accounting Module specifics
   c.   Ticketing Module Specifics

   Group Instruction Session 3 (Wednesday 1:00-5:00)
   a.   Procedural Controls
   b.   Administrative Controls
   c.   File Maintenance

3. Operating Personnel Procedural Training
Attendees:
Anoop Sarin, Ticketing Manager
Nasrin Khan, Principal Accountant
Dalip Dalal, Publicity Manager
Sanjay Sharma, Programs **Coordinator**

Events Module Procedural Training Session 1 (Tuesday **8:00-12:00**)
a. Date Scheduling
b. Advertising and Marketing Requirements
c. **Staffing** Requirements
d. Reports

Ticketing Module Procedural Training Session 2 **(Thursday 8:00-12:00)**
a. Seating Assignments and **Ticket** Sales
b. Ticketing Pricing Structure Setup
c. Financial Inquiry
d. Ticket Sales Inquiry
e. Reports

Ticketing Module Procedural Training Session 3 **(Thursday 8:00-12:00)**
a. **Accounts** Receivable
b. Accounts Payable
c. General Journal
d. **Reporting**

4 **Direct** Users On-the-job and Tutorial Training
Attendees:
Feroze **Ticketwallah,** Head Cashier, **Ticket** sales
Minakshi Dutt, Ticket Seller
Rohan Kumar, Ticket Seller
Tirath Kumar, Assistant to the Publicity Manager
Samir Rawat, Assistant to the Programs **Coordinator**

On-the-Job Training Session 1 (Thursday **1:00-5:00**)
a. **Terminals**
b. Printers
c. Documentation
d. Online Help **Screens**
e. Source Data
f. Problem Resolution

On-the-Job **Training** Session 2 (Friday **1:00-5:00**)
a. Program Menus and Screens
b. Ticketing Menus and Screens
c. Accounting Menus and Screens

Ans. 4 : ACCEPTANCE REPORT

Month dd, **19XX**
To   :   All Division **Heads**
From   :   **Sarita Kakkar,** Chief **Systems** Analyst
Sub   :   STS Acceptance Report
Copies   :   **Mukul Gupta, Gymnatorium Director** and Neera **Tiwari,** EDP Manager

Consequent to the acceptance meeting held on **month dd,** 19XX the following points were
noted:

a' STS module is working fine after the systems conversion.

b **All hardware/software components** of the **system are** performing well.

c Training has **been** imparted to satisfaction of all concerned.

d A five working day **formal acceptance tests have** been satisfactorily carried out.

Hence it is decided to accept STS from Systems Development Group by MCG from Month dd, 19XX.

Signatory:	For MCG
For System	All Concerned _____
Development	Divisional Heads _____
Group	

Sarita Kakkar

Approval :	Approval:
_____	_____
Neera Tiwari	Mukul Gupta
EDP Manager	MCG Director

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NOTES.