Certification Course on CATIA

Resource Person Dr. B. Sudarshan

Co-ordinator: Sri P. Siva Seshu

Date(s) of Event: 21/09/20 to 09/10/20

Organizing department: Mechanical Engineering

K.S.R.M.COLLEGEOFENGINEERING

(UGC-AUTONOMOUS)

Kadapa,Andhra Pradesh,India–516 005

ApprovedbyAICTE,NewDelhi&AffiliatedtoJNTUA,Ananthapuramu.

Cr./KSRMCE/(Department of Mechanical Engineering)/2020-2021

Date: 14/09/2020

To

The Principal,

KSRM College of Engineering,

Kadapa.

Respected Sir

Sub: KSRMCE-(Department of ME) permission to conduct certification course on "**CATIA**"-Request-Reg.

It is brought to your kind notice that, with reference to the cited, the ME department is planning to conduct Certification Course on "**CATIA**" for B.Tech, V Sem Students from In this regard I kindly request you to grant permission to conduct the certification course. This is submitted for your kind perusal.

Thanking you sir,

Yours Faithfully

Sri P. Siva Seshu

Asst.Prof,Dept.ME

KSRMCE,Kadapa.

Permitted

V. S-S. Mnely

Forwarded to principal sir

To the Director for Information
To All Deans/HoD's/IQAC

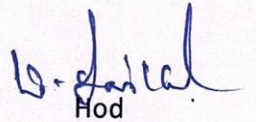Cr./KSRMCE/(Department of Mechanical Engineering)/2020-2021

Date: 14/09/2020

Circular

All the B.Tech V Sem ME students are here by informed that department of **MECHANICAL** is going to conduct certificate course on **CATIA**" interested students may register their names on or before 19-09-2020, 5 PM

For any queries contact faculty coordinator:

Sri P. Siva Seshu, Asst.Prof,Dept.ME, KSRMCE, Kadapa.

Hod

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

K.S.R.M.COLLEGE OF ENGINEERING
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Kadapa, Andhra Pradesh, India–516 005
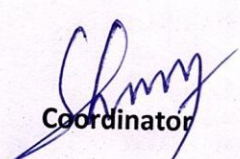Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu

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Department of Mechanical Engineering
Certification Course on CATIA

List of Participants

S.no	Roll No	Name of the Student	Email Id's
1	189Y1A0311	CHEEMALA ARAVIND REDDY	189Y1A0311@ksrmce.ac.in
2	189Y1A0312	CHILAKALA ASHOK	189Y1A0312@ksrmce.ac.in
3	189Y1A0313	DASARI BHARATH KUMAR REDDY	189Y1A0313@ksrmce.ac.in
4	189Y1A0314	DUDDELA SANDEEP KUMAR	189Y1A0314@ksrmce.ac.in
5	189Y1A0315	DUDYALA RAVI KUMAR	189Y1A0315@ksrmce.ac.in
6	189Y1A0316	GADWAL SHAIK MOHAMMED NASEERUDDIN	189Y1A0316@ksrmce.ac.in
7	189Y1A0317	GOVINDU VIKAS	189Y1A0317@ksrmce.ac.in
8	189Y1A0318	GOWRIGALLA ASHOK	189Y1A0318@ksrmce.ac.in
9	189Y1A0319	GUGULA SAI KUMAR	189Y1A0319@ksrmce.ac.in
10	189Y1A0320	JUTURU VIKAS	189Y1A0320@ksrmce.ac.in
11	189Y1A0321	KAMPARAJU RAVI SANKAR	189Y1A0321@ksrmce.ac.in
12	189Y1A0322	KANDUKURI JANARDHAN REDDY	189Y1A0322@ksrmce.ac.in
13	189Y1A0323	KATIKA YASHWANTH REDDY	189Y1A0323@ksrmce.ac.in
14	189Y1A0324	KUMMETHA CHANDRASEKHAR REDDY	189Y1A0324@ksrmce.ac.in
15	189Y1A0325	KURAKU HARI KRISHNA	189Y1A0325@ksrmce.ac.in
16	189Y1A0326	KURUVA MAHESH BABU	189Y1A0326@ksrmce.ac.in
17	189Y1A0327	LINGAREDDY SIVA VENKATA SAI REDDY	189Y1A0327@ksrmce.ac.in
18	189Y1A0328	MAJJARI VENKATA BHASKAR	189Y1A0328@ksrmce.ac.in

19	189Y1A0329	MALKAPURAM THIRUMALESH	189Y1A0329@ksrmce.ac.in
20	189Y1A0330	MOGAL MOHINUDDIN BAIG	189Y1A0330@ksrmce.ac.in
21	189Y1A0332	MUMMADI CHINNA SUBBA REDDY	189Y1A0332@ksrmce.ac.in
22	189Y1A0333	MUTUKUNDU SOMA SEKHAR REDDY	189Y1A0333@ksrmce.ac.in
23	189Y1A0334	NAGURU SAMPATH KUMAR	189Y1A0334@ksrmce.ac.in
24	189Y1A0335	NERSUPALLI SAI KUMAR REDDY	189Y1A0335@ksrmce.ac.in
25	189Y1A0340	PASUPURATHI RAJASEKHAR REDDY	189Y1A0340@ksrmce.ac.in
26	189Y1A0341	PATAN ASHRAF ALI KHAN	189Y1A0341@ksrmce.ac.in
27	189Y1A0342	PATAN SAMEER KHAN	189Y1A0342@ksrmce.ac.in
28	189Y1A0343	PATHAN ARBAAZ KHAN	189Y1A0343@ksrmce.ac.in
29	189Y1A0344	PATHAN NADEEM KHAN	189Y1A0344@ksrmce.ac.in
30	189Y1A0345	PEDDANAGGARI SIVAGIRINATH REDDY	189Y1A0345@ksrmce.ac.in
31	189Y1A0346	PERAM VARUN KUMAR REDDY	189Y1A0346@ksrmce.ac.in
32	189Y1A0347	POOJARI RAJKUMAR	189Y1A0347@ksrmce.ac.in
33	189Y1A0348	POTHUTEJESWARREDDY	189Y1A0348@ksrmce.ac.in
34	189Y1A0349	PRODDUTURU NAGA DASTAGIRI	189Y1A0349@ksrmce.ac.in
35	189Y1A0362	SHAIK ZUBAIR	189Y1A0362@ksrmce.ac.in
36	189Y1A0363	SHAIK ZUBAIR HUSSAIN	189Y1A0363@ksrmce.ac.in
37	189Y1A0364	SHAIKLALAHAMEDGARI KHALEEL AHAMED	189Y1A0364@ksrmce.ac.in
38	189Y1A0365	SHARON SAMUEL	189Y1A0365@ksrmce.ac.in
39	189Y1A0366	SIDDAREDDY LINGAMAIAH	189Y1A0366@ksrmce.ac.in
40	189Y1A0367	SOORABOINA VENKATESH	189Y1A0367@ksrmce.ac.in
41	189Y1A0368	SYED GHAYAZ AHMED	189Y1A0368@ksrmce.ac.in
42	189Y1A0369	TALUPULA AVINASH	189Y1A0369@ksrmce.ac.in
43	189Y1A0370	THAMBALA VEERESH	189Y1A0370@ksrmce.ac.in
44	199Y5A0301	ALAMURU MABU BASHA	199Y5A0301@ksrmce.ac.in

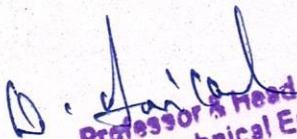| 45	199Y5A0303	ATHMAKURU MAHESHBABU	199Y5A0303@ksrmce.ac.in
46	199Y5A0304	BIJILI SATISH KUMAR	199Y5A0304@ksrmce.ac.in
47	199Y5A0305	BODAGALA SAIBHARATH	199Y5A0305@ksrmce.ac.in
48	199Y5A0306	BOGGULA OBULA REDDY	199Y5A0306@ksrmce.ac.in
49	199Y5A0307	CHANDOLI SREENIVASULU	199Y5A0307@ksrmce.ac.in
50	199Y5A0308	CHEPURI AMARENDRA KUMAR	199Y5A0308@ksrmce.ac.in
51	199Y5A0309	GAJJALA VEERA PRASAD	199Y5A0309@ksrmce.ac.in
52	199Y5A0310	GUJJULA VAMSI	199Y5A0310@ksrmce.ac.in
53	199Y5A0312	JINKALA SUBHAN	199Y5A0312@ksrmce.ac.in
54	199Y5A0313	KAIPA VAMSI KRISHNA	199Y5A0313@ksrmce.ac.in
55	199Y5A0314	KAMISETTY BHARGAV	199Y5A0314@ksrmce.ac.in
56	199Y5A0315	KETHAVATH SIVARAM NAIK	199Y5A0315@ksrmce.ac.in
57	199Y5A0316	KONDURU VENKATESH	199Y5A0316@ksrmce.ac.in
58	199Y5A0318	KOTHAPALLI PRUDHVI	199Y5A0318@ksrmce.ac.in

Coordinator

HOD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

Syllabus

CATIA

01: Introduction to CATIA

02: Drawing Sketches in the Sketcher workbench -I

03: Drawing Sketches in the sketcher workbench -II

04: Constraining Sketches and Creating Base Features

05: Reference Elements and Sketch-Based Features

06: Creating Dress-Up And Hole Features

07: Editing Features

08: Transformation Features and Advanced Modeling Tools

09: Advanced Modeling Tools-II

10: Working With the Wireframe and Surface Design Workbench

11: Editing and Modifying Surfaces

12: Assembly Modeling

13: Working With the Drafting Workbench-I

14: Working With the Drafting Workbench-I

15: Working With Sheet Metal Components

16: DMU Kinematics (Optional)

K.S.R.M.COLLEGE OF ENGINEERING

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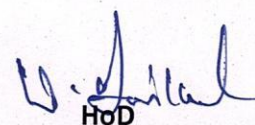

Department of Mechanical Engineering

Certification Course on CATIA

Schedule

Timing: 4:00pm – 6:00pm

S.No	Date	Course Coordinator	Topic Covered
1	21-09-2020	Dr. B. Sudarshan	Introduction to CATIA
2	22-09-2020	Sri P. Siva Seshu	Drawing Sketches in the Sketcher workbench -I
3	24-09-2020	Dr. B. Sudarshan	Drawing Sketches in the sketcher workbench -II
4	25-09-2020	Sri P. Siva Seshu	Constraining Sketches and Creating Base Features
5	26-09-2020	Dr. B. Sudarshan	Reference Elements and Sketch-Based Features
6	28-09-2020	Sri P. Siva Seshu	Creating Dress-Up And Hole Features
7	30-09-2020	Dr. B. Sudarshan	Editing Features, Transformation Features and Advanced Modeling Tools
8	01-10-2020	Sri P. Siva Seshu	Advanced Modeling Tools-II
9	03-10-2020	Dr. B. Sudarshan	Working With the Wireframe and Surface Design Workbench
10	04-10-2020	Sri P. Siva Seshu	Editing and Modifying Surfaces
11	05-10-2020	Dr. B. Sudarshan	Working With the Drafting Workbench-I
12	06-10-2020	Sri P. Siva Seshu	Working With Sheet Metal Components
13	07-10-2020	Dr. B. Sudarshan	DMU Kinematics
14	08-10-2020	Sri P. Siva Seshu	Assembly Modeling
15	09-10-2020	Dr. B. Sudarshan	Working With the Drafting Workbench-II

Coordinator

HoD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

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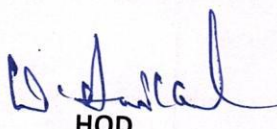### Department of Mechanical Engineering

Activity Report

Name of the Event	: Certification Course on **CATIA**
Duration of the Event	: 21-09-2020 to 09-10-2020
Scheduled Time	: 4.00 to 6.00PM
Target Audience	: B.Tech V Sem Students
Course Co oridnator	: P. Siva seshu

Activity Description:

CATIA supports multiple stages of product development from conceptualization, design and engineering to manufacturing , it is considered a software and is sometimes referred to as a 3d Product Lifecycle Management software suite. Like most of its completion.

CATIA has been used by architect Frank Gehry to design some of his signature curvilinear buildings and his company Gehry technologies was developing their Digital Project software based on CATIA. Dept of ME organized a certificate course on **CATIA** , Head of the Dept , Faculty & participation of the course inaugurated with all good spirit. Resource person being the first day first session introduction to **CATIA.** The course is concluded with : DMU Kinematics., finally valedictory. Students were issued participation certificates by the Head of the Department.

Coordinator

HOD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

Principal

V. S. S. murly

PRINCIPAL
K.S.R.M. COLLEGE OF ENGINEERING
KADAPA - 516 003. (A.P.)

K.S.R.M. COLLEGE OF ENGINEERING

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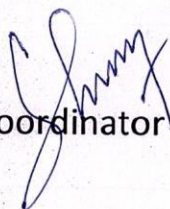Kadapa, Andhra Pradesh, India– 516 003

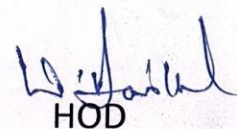# Certificate Course on

CATIA

21/09/2020 to 09/10/2020

Organized by
DEPARTMENT
OF
MECHANICAL ENGINEERING

K.S.R.M.COLLEGEOFENGINEERING

(UGC-AUTONOMOUS)

Kadapa,Andhra Pradesh,India–516 005
ApprovedbyAICTE,NewDelhi&AffiliatedtoJNTUA,Ananthapuramu.

Department of Mechanical Engineering

Certification Course on **CATIA**

Attendance Sheet

S.No	Name of the Student	Roll List	24Oct 2020	25 Oct	26 OCt	27	28	29	01 Nov	02 Nov	03 Nov	04 Nov	05 Nov	06 Nov	07 Nov	08 Nov	09Nov 2020
1	CHEEMALA ARAVIND REDDY	189Y1A0311	✓	✓	✓	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	A
2	CHILAKALA ASHOK	189Y1A0312	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	A	✓	✓
3	DASARI BHARATH KUMAR REDDY	189Y1A0313	✓	A	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓
4	DUDDELA SANDEEP KUMAR	189Y1A0314	✓	✓	✓	A	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
5	DUDYALA RAVI KUMAR	189Y1A0315	✓	✓	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓
6	GADWAL SHAIK MOHAMMED NASEERUDDIN	189Y1A0316	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	A	✓	✓	✓
7	GOVINDU VIKAS	189Y1A0317	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓
8	GOWRIGALLA ASHOK	189Y1A0318	✓	✓	✓	✓	✓	A	✓	A	✓	✓	✓	✓	✓	✓	✓
9	GUGULA SAI KUMAR	189Y1A0319	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	A
10	JUTURU VIKAS	189Y1A0320	✓	A	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	A
11	KAMPARAJU RAVI SANKAR	189Y1A0321	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	A	✓	✓	A
12	KANDUKURI JANARDHAN REDDY	189Y1A0322	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	A	✓	✓

Roll	Name	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13	KATIKA YASHWANTH REDDY	189Y1A0323	✓	✓	✓	✓	✓	A	✓	✓	A	✓	✓	✓	✓	✓	✓		
14	KUMMETHA CHANDRASEKHAR REDDY	189Y1A0324	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓		
15	KURAKU HARI KRISHNA	189Y1A0325	A	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓		
16	KURUVA MAHESH BABU	189Y1A0326	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	A	✓			
17	LINGAREDDY SIVA VENKATA SAI REDDY	189Y1A0327	✓	✓	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	A			
18	MAJJARI VENKATA BHASKAR	189Y1A0328	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	A			
19	MALKAPURAM THIRUMALESH	189Y1A0329	✓	✓	✓	✓	A	✓	✓	✓	A	✓	✓	A	✓	✓			
20	MOGAL MOHINUDDIN BAIG	189Y1A0330	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	A			
21	MUMMADI CHINNA SUBBA REDDY	189Y1A0332	A	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
22	MUTUKUNDU SOMA SEKHAR REDDY	189Y1A0333	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓				
23	NAGURU SAMPATH KUMAR	189Y1A0334	✓	✓	✓	✓	✓	A	A	✓	✓	✓	✓	✓	✓				
24	NERSUPALLI SAI KUMAR REDDY	189Y1A0335	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓				
25	PASUPURATHI RAJASEKHAR REDDY	189Y1A0340	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	A				
26	PATAN ASHRAF ALI KHAN	189Y1A0341	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓			
27	PATAN SAMEER KHAN	189Y1A0342	✓	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓			
28	PATHAN ARBAAZ KHAN	189Y1A0343	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓				
29	PATHAN NADEEM KHAN	189Y1A0344	✓	✓	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓				
30	PEDDANAGGARI SIVAGIRINATH REDDY	189Y1A0345	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
31	PERAM VARUN KUMAR REDDY	189Y1A0346	✓	A	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓				
32	POOJARI RAJKUMAR	189Y1A0347	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	A			
33	POTHUTEJESWARREDDY	189Y1A0348	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓			

#	Name	ID														
34	PRODDUTURU NAGA DASTAGIRI	189Y1A0349	✓	✓	✓	✓	A	✓	✓	A	✓	✓	✓	✓	✓	✓
35	SHAIK ZUBAIR	189Y1A0362	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A
36	SHAIK ZUBAIR HUSSAIN	189Y1A0363	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓
37	SHAIKLALAHAMEDGARI KHALEEL AHAMED	189Y1A0364	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	A
38	SHARON SAMUEL	189Y1A0365	✓	✓	✓	✓	✓	✓	A	A	✓	✓	✓	✓	✓	✓
39	SIDDAREDDY LINGAMAIAH	189Y1A0366	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	A	✓
40	SOORABOINA VENKATESH	189Y1A0367	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓
41	SYED GHAYAZ AHMED	189Y1A0368	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	A
42	TALUPULA AVINASH	189Y1A0369	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
43	THAMBALA VEERESH	189Y1A0370	✓	✓	A	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓
44	ALAMURU MABU BASHA	199Y5A0301	✓	A	✓	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓
45	ATHMAKURU MAHESHBABU	199Y5A0303	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
46	BIJILI SATISH KUMAR	199Y5A0304	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	A	✓	✓
47	BODAGALA SAIBHARATH	199Y5A0305	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓
48	BOGGULA OBULA REDDY	199Y5A0306	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓	✓
49	CHANDOLI SREENIVASULU	199Y5A0307	✓	✓	✓	✓	✓	✓	A	✓	✓	✓	✓	✓	✓	✓
50	CHEPURI AMARENDRA KUMAR	199Y5A0308	A	✓	✓	✓	✓	✓	✓	A	A	✓	✓	✓	✓	✓
51	GAJJALA VEERA PRASAD	199Y5A0309	✓	✓	✓	A	✓	✓	✓	✓	✓	A	✓	✓	✓	✓
52	GUJJULA VAMSI	199Y5A0310	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓
53	JINKALA SUBHAN	199Y5A0312	✓	A	✓	✓	✓	✓	✓	✓	✓	✓	✓	A	✓	✓
54	KAIPA VAMSI KRISHNA	199Y5A0313	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A
55	KAMISETTY BHARGAV	199Y5A0314	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

56	KETHAVATH SIVARAM NAIK	199Y5A0315	✓	✓	✓	✓	A	✓	✓	✓	A	✓	✓	✓	✓	✓	✓
57	KONDURU VENKATESH	199Y5A0316	✓	✓	✓	✓	✓	✓	·	✓	✓	✓	A	✓	·	✓	✓
58	KOTHAPALLI PRUDHVI	199Y5A0318	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Coordinator

HOD

Introduction to CATIA V5

Release 16

(A Hands-On Tutorial Approach)
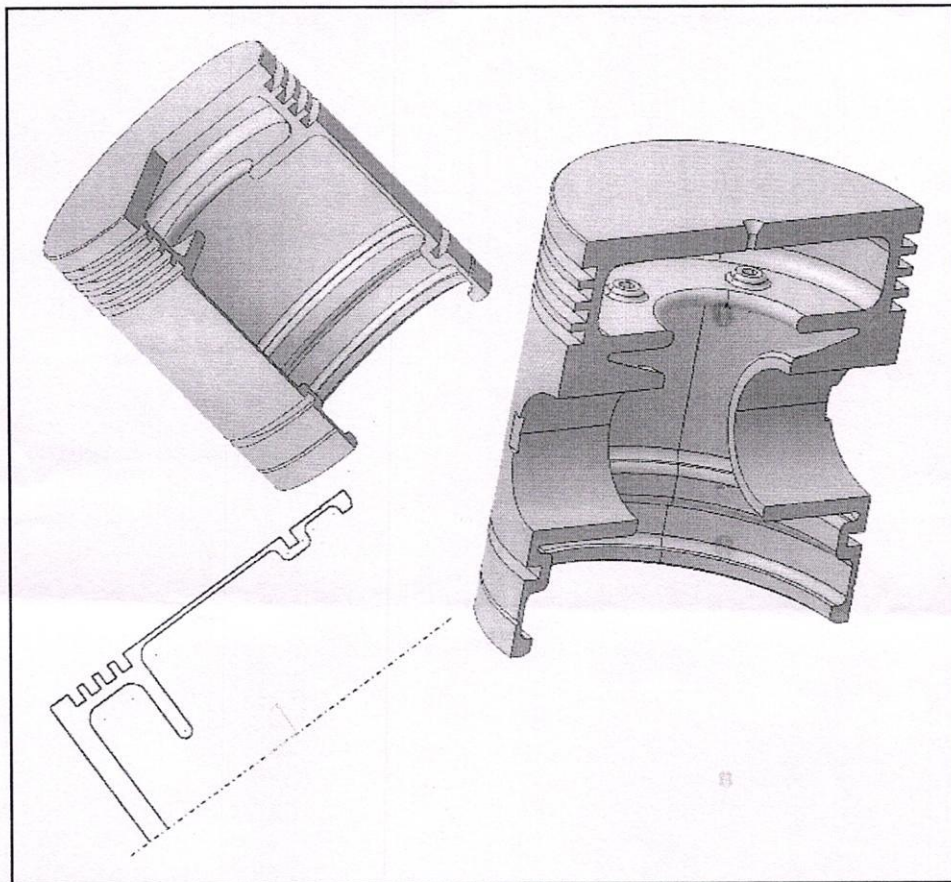
CATIA Overview

- CATIA v5 is an Integrated Computer Aided Engineering tool:
  - ❑ Incorporates CAD, CAM, CAE, and other applications
  - ❑ Completely re-written since CATIA v4 and still under development
  - ❑ CATIA v5 is a native Windows application
  - ❑ User friendly icon based graphical user interface
  - ❑ Based on Variational/ Parametric technology
  - ❑ Encourages design flexibility and design reuse
  - ❑ Supports Knowledge Based Design

CATIA v5 Philosophy

- ## A Flexible Modelling environment
  - ❑ Ability to easily modify models, and implement design changes
  - ❑ Support for data sharing, and data reuse

- ## Knowledge enabled
  - ❑ Capture of design constraints, and design intent as well as final model geometry
  - ❑ Management of non-geometric as well as geometric design information

- ## The 3D Part is the Master Model
  - ❑ Drawings, Assemblies and Analyses are associative to the 3D parts. If the part design changes, the downstream models with change too.

CATIA v5 Applications

- Product Structure
- Part Design
- Assembly Design
- Sketcher
- Drafting (Interactive and Generative)
- Wireframe and Surface

- Freestyle Shaper
- Digital Shape Editor
- Knowledgeware
- Photo Studio
- 4D Navigator (including kinematics)
- Manufacturing
- Finite Element Analysis

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Lecture 1

CATIA User Interface
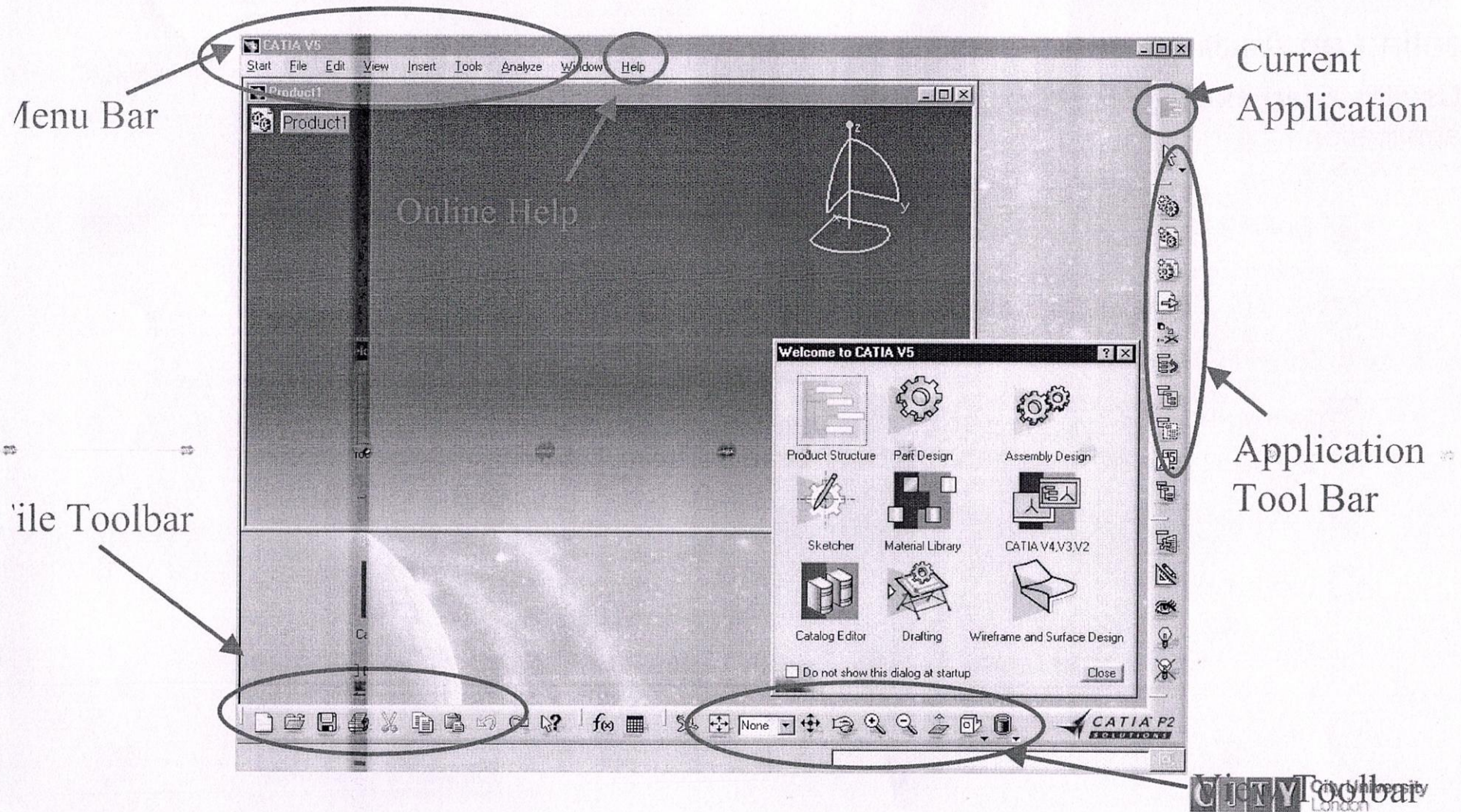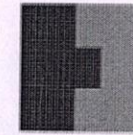
Interacting with CATIA (1)

- Selecting an Application
  - ❑ Use the **Start** menu to select an application

- Working with Files
  - ❑ Use the File menu to create, open, save and print

Drafting	
Product Structure	
Catalog Editor	
CATIA V4,V3,V2	
Sketcher	
Infrastructure ▶	
Mechanical Design ▶	
✓ 1 Product1	
User Galaxy	
Exit	

File	Edit	View	Insert
New...			Ctrl+N
New from...			
Open...			Ctrl+O
Close			
Save			Ctrl+S
Save As...			
Save All			
Save All As...			
Print...			Ctrl+P
Desk...			
Send To ▶			
1 SelectionS..Part			
Exit			

New ? ✕

List of Types:
Analysis
CatalogDocument
Drawing
Part
Process
ProcessLibrary

Selection:
Analysis

OK   Cancel

Interacting with CATIA (2)
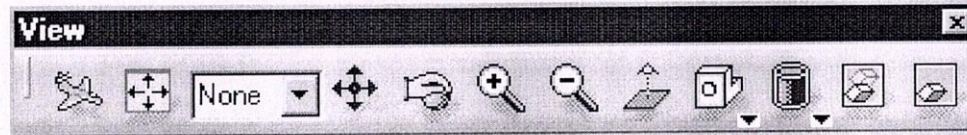
- **Display Commands**
  - ❑ Fly Through
  - ❑ Fit View
  - ❑ Layer control
  - ❑ Pan
  - ❑ Rotate
  - ❑ Zoom
  - ❑ Normal View
  - ❑ Standard Views
  - ❑ View Types: Shaded/ Hidden Line/ Wireframe/ User Defined

- **Hide/ Show**
  - ❑ Hide
  - ❑ Swap Visible Space

- **Properties**
  - ❑ Display Characteristics for an object are set by selecting the entity, then pressing the right mouse button and selecting **Properties** from the menu
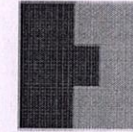
Manipulating the Display using the Mouse

- Pan
  - ❏ Press and hold the middle mouse button and move the mouse to pan

- Rotate
  - ❏ Press and hold the middle mouse button then the left mouse button and move the mouse to rotate

- Zoom
  - ❏ Press and hold the middle mouse button and click the left mouse button then move the mouse to zoom in and out

- Using the compass

free rotation handle

compass manipulation handle

privileged plane
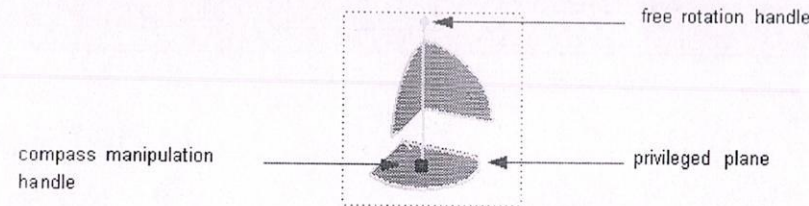
- Drag the axes or planes of the compass to dynamically rotate the display

- Multi-select entities by holding down the **Shift** key

More Common Commands

- Copy/ Paste
  - ❏ Geometry entities can be copied and pasted from one part to another.
  - ❏ Paste Special allows you to:
    - Paste a complete copy with history
    - Paste a linked copy
    - Paste the result without linking
- Undo/ Redo
  - ❏ Allows you to undo previous actions
  - ❏ Redo repeats an action that has been undone

- Hide/ Show
  - ❏ Allows you to temporarily hide entities from the display
  - ❏ Hidden entities can be recovered by clicking on the "Swap visible space" icon, and then selecting the entity to make visible
- Update
  - ❏ Used to update the part after modification
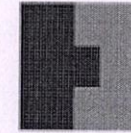
The Specification Tree

- The Specification Tree is displayed on the left side of the screen while you are working
- Provides access to the history of how a part was constructed, and shows the product structure
- Product entities can be selected from the spec. tree or in the geometry area
- Parts can be modified by selecting them from the spec. tree.
- Click on + to open a tree branch
- Solid Parts are stored in the PartBody branch of the Part tree

Print.CATPart

Print
- xy plane
- yz plane
- zx plane
PartBody
   Pad.1
      Sketch.1
   Hole.1
      Sketch.2

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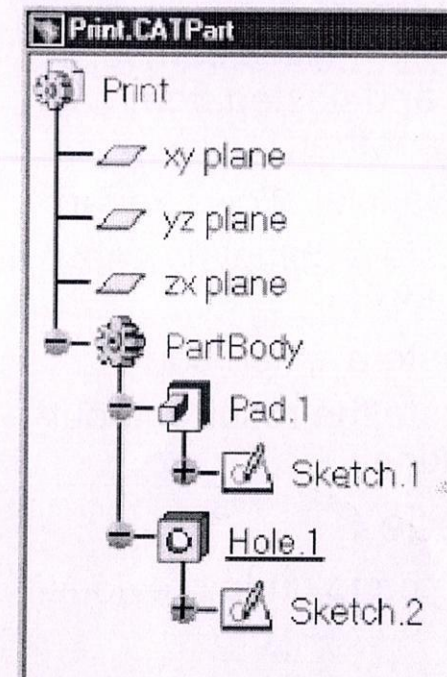
Getting Help

- The online help library can be accessed by selecting the **Help -> Contents, Index and Search** command
- The Help home page provides a search facility, and allows you to browse by application.
- Every CATIA task has a getting started guide

University
London
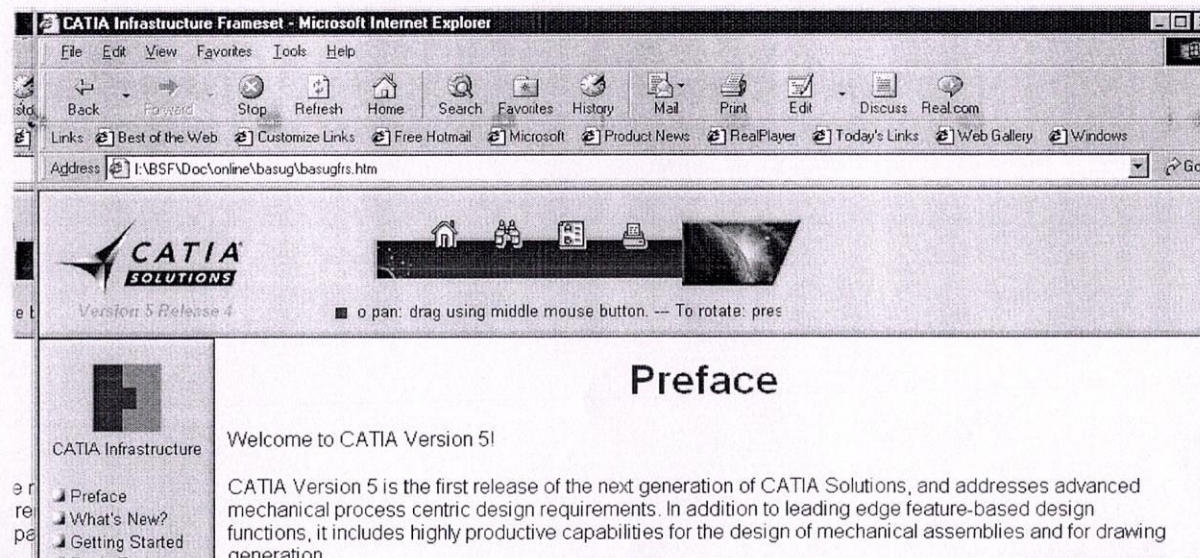
Getting Help from the CATIA Community

- For general information about CATIA from IBM and Dassault Systemes refer to:

  www.catia.com

- For access to the database of known problems refer to:

  http://service.boulder.ibm.com/support/catia.support/databases

- The CATIA operator's exchange provides a forum for the exchange of ideas and advice about using CATIA at:

  www.coe.org

- And look at Member Center -> Forum

Part Design

- The Part Design application is used to create solid models of parts
- Solid parts are usually created from 2D profiles that are extruded or revolved to form a base feature
- The Part Design task is tightly integrated with a 2D sketching tool
- A library of features is provided to allow user to add additional details to a base part
- Parts can be modified by selecting their features in the specification tree
- Parts are stored in files with the extension .CATPart

Part Design

- ## Base Features

  Sketch-Based Features
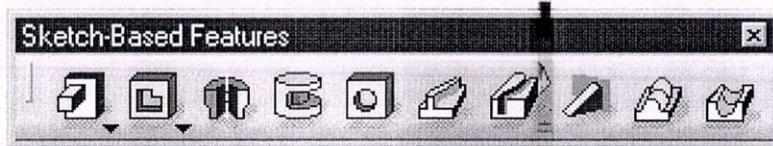
  - ❑ Pad
  - ❑ Pocket
  - ❑ Shaft
  - ❑ Slot
  - ❑ Hole
  - ❑ Groove

- ## Reference Elements

  Reference Elem...
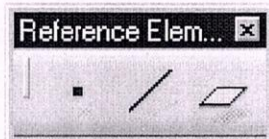
  - ❑ Point
  - ❑ Line
  - ❑ Plane

- ## Dress-up Features

  Dress-Up Features

  - ❑ Fillets
  - ❑ Chamfers
  - ❑ Draft Shell
  - ❑ Thickness

- ## Transformation Features

  Transformation Features

  - ❑ Translation
  - ❑ Rotation
  - ❑ Mirror
  - ❑ Pattern
  - ❑ Scale

Sketcher
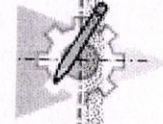
- The sketcher is used to create 2D sketches of designs, and apply constraints to the sketched geometry

- The sketcher is now the main environment for developing 2D profiles that will be used to build solid models (but traditional 2D wireframe techniques are available in the Wireframe and Surface application)

- The sketcher provides a flexible environment for creating and modifying 2D geometry

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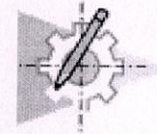
Sketcher

- **Entering the sketcher**
  - ❑ Click on the Sketcher icon or select Start -> Mechanical Design -> Sketcher

- **Exiting from the Sketcher**
  - ❑ Click on the Exit icon to leave the sketcher and return to the 3D workspace
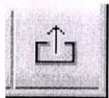
- **Geometry Creation**

  Profiles
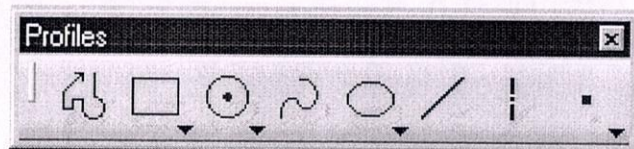
- **Geometry Operations**

  Operations
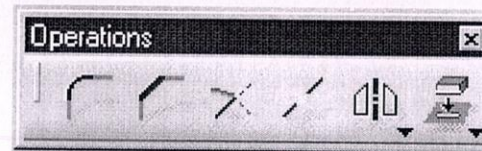
- **Constraint Creation**

  Constraint

- **Tools Toolbar**

  Tools
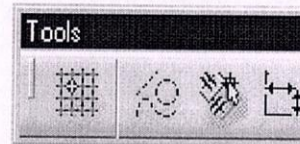
  - ❑ Snap to point
  - ❑ Construction Geometry
  - ❑ Constraint

Using the Sketcher

- The Sketcher is a parametric design tool

- It allows you to quickly draw the approximate shape of a design, and then assign constraints to complete the shape definition

- Constraints can be applied as:

  ❑ Driving Dimensions – dimensions that control the size of a geometric entity.

  ❑ Geometric Constraints – geometric relationships such as parallel, perpendicular, tangent, collinear
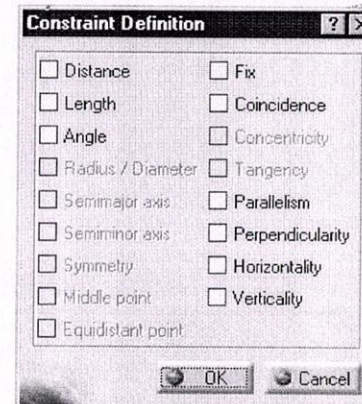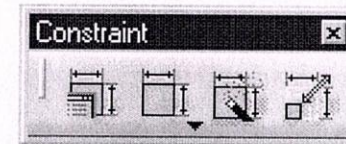
Sketching Example
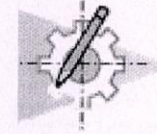
1. Click on the Sketcher icon
2. Select the 2D plane to sketch on (may be a plane, or the face of an existing part), and the sketching window will appear
3. Sketch the profile
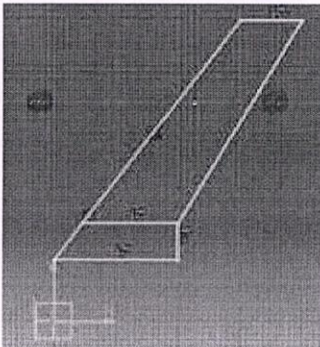
4. Apply constraints to define the exact geometry required
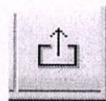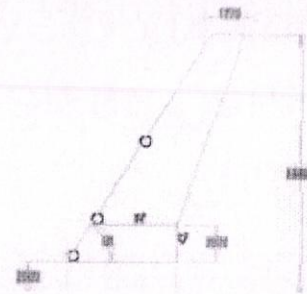
4. Click on the exit icon to quit the sketcher
5. Sketch is transferred into the 3D modelling environment
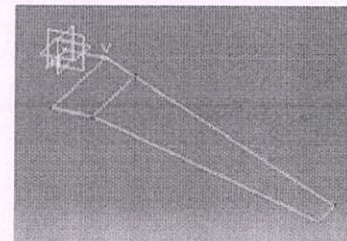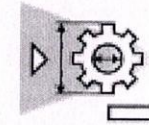
Generative Drafting

- The Generative Drafting Application allows you to create engineering drawings from parts or assemblies

- Generative Drafting automatically lays out orthographic projections of a part onto a drawing sheet

- Traditional Drafting functions can be used to annotate the drawing layout

- Drawings are stored in files with the extension .CATDrawing
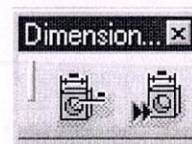
Generative Drafting
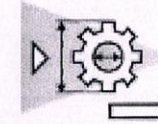
- Views Toolbar
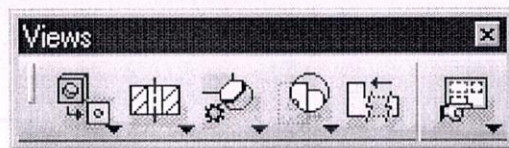
  - ❑ Create a Front View (other views available underneath icon)
  - ❑ Create a section view
  - ❑ Create a detail view
  - ❑ Create a Clipping View
  - ❑ Create Views Via Wizard

- Automatic Dimension Creation

  - ❑ Auto-dimension
  - ❑ Semi-Automatic Dimensions

Sketching Tips

- To edit an existing sketch ensure that you select the sketch from the specification tree, or select an element in the sketch. (If you do not do this you will create a new sketch instead of modifying the existing one)

- If the sketch goes purple while you are constraining it is over-constrained. Generally it is best to **Undo** the last constraint and examine existing constraints to find the problem before continuing

- Solids can only be created from sketches that form a single closed boundary

- The profile icon allows you to create complicated profiles including lines and arcs. See the online help for more information

Creating a Solid Part from a Sketch

1. Click on the Pad icon to create an extruded part

2. Select the sketch containing the profile you want to extrude (note the sketch is treated as a single entity)

3. The Pad definition window will appear

4. Select the limit type from:

   ❑ Dimension

   ❑ Up To Next

   ❑ Up To Last

   ❑ Up To Plane

5. Type in the length if required

6. Check the extrude direction arrow

7. Click on **OK** to create the Part
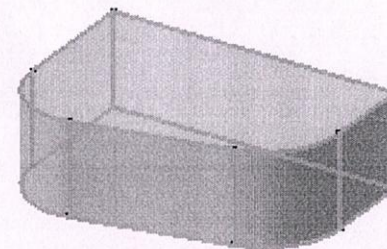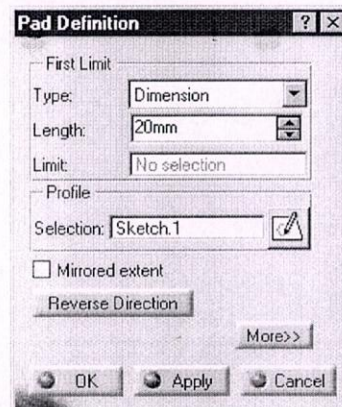
Working with Features

- The Part Design task uses intelligent design features

- The features contain information about their context as well as their shape

- For example a Hole feature can only be created once you have created a part body

  - ❑ A hole feature requires an attachment face, and driving dimensions

  - ❑ A hole is a negative feature – it is automatically subtracted from the main Part Body

- Other features include Pad, Revolve, Pocket, Groove, Thread, Rib, Slot, Stiffener

- When a new feature is added to a solid part it is automatically combined with the existing part

Modifying a Part

- All parts created in Part Design can be edited at any time in the life of the part

- The parameters used to create a feature can be accessed by double clicking on the feature definition in the product specification tree or on the part geometry

- For example to change the height of a pad you should double click on the pad node in the specification tree.

- The original feature dialogue will appear on the screen

- Change the values and click on OK.

- When you have modified the feature parameters the part will automatically update. The part turns red briefly to indicate that it is out of date

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Assembly Design

- The Assembly Design application allows you to create a product model from a number of separate parts

- The parts in a product assembly are not joined together, but assembled as they would be in a physical assembly

- The product assembly structure is hierarchical and allows you to model complex product relationships

- Constraints can be applied between the parts in assembly to define relationships between them

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Assembly Design

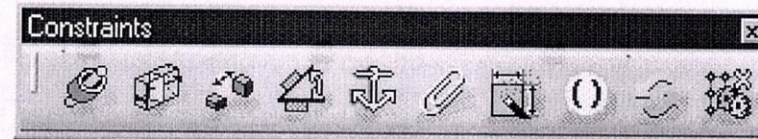- ## Product Structure Tools

  - ☐ Insert New Component
  - ☐ Insert New Product
  - ☐ Insert New Part
  - ☐ Insert Existing Component
  - ☐ Replace Component
  - ☐ Reorder Tree
  - ☐ Generate Numbers
  - ☐ Load Components
  - ☐ Unload Components
  - ☐ Manage Representations
  - ☐ Multi-Instantiation

- ## Move Toolbar

  - ☐ Manipulate
  - ☐ Snap
  - ☐ Explode and Assembly

- ## Constraints Toolbar

  - ☐ Coincidence
  - ☐ Contact
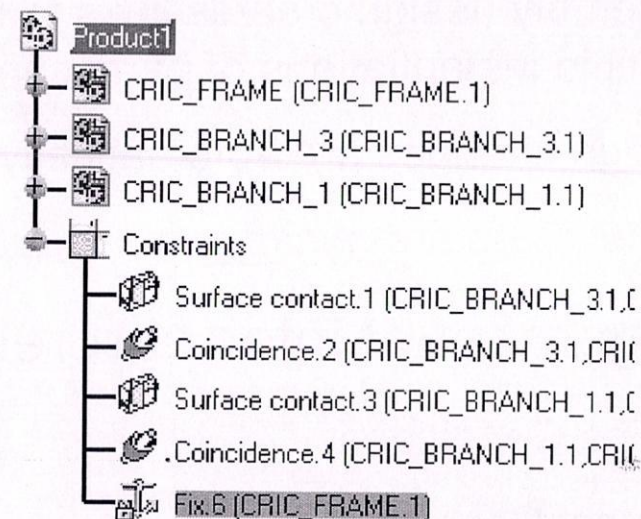 - ☐ Offset
  - ☐ Angular
  - ☐ Anchor
  - ☐ Fix Together

Benefits of Assembly Modelling

- Support for reuse of standard parts

  ❑ Assembly design creates links to the master geometry definition, so multiple instantiations of parts can be efficiently created

  ❑ Design changes are automatically reflected in the assembly

  ❑ Model sizes are minimised because geometry files are not copied

- Management of inter-part relationships

  ❑ Mating Conditions

  ❑ Contact Constraints

- Development of Kinematics models

  ❑ Simple mechanisms analysis available

Using the Product Structure Tree

- The specification tree shows product structure information relating to the parts and sub-assemblies contained in an assembly

  ❑ In the example shown on the right the product is called Product1

  ❑ The product contains three components CRIC_FRAME, CRIC_BRANCH_3 and CRIC_BRANCH_1.

    - The Product and the Components do not contain any geometry

  ❑ Geometry is stored in parts inside the Component definitions

  ❑ The Constraints Branch shows the constraints that have been created to define the relationships between the components in the product structure

Product1
- CRIC_FRAME (CRIC_FRAME.1)
- CRIC_BRANCH_3 (CRIC_BRANCH_3.1)
- CRIC_BRANCH_1 (CRIC_BRANCH_1.1)
- Constraints
  - Surface contact.1 (CRIC_BRANCH_3.1,C
  - Coincidence.2 (CRIC_BRANCH_3.1,CRI(
  - Surface contact.3 (CRIC_BRANCH_1.1,C
  - .Coincidence.4 (CRIC_BRANCH_1.1,CRI(
  - Fix.6 (CRIC_FRAME.1)

Steps for Creating an Assembly

1. Create a new CATProduct using *File -> New -> Product*.

2. Use the Product Structure tools to lay out the main assembly structure

3. Use *Insert Existing Component* or *Insert New Part* to create geometry in the Assembly

4. Use Constraints to capture the design relationships between the various parts in the assembly

Saving Assembly Information

- Assembly information is stored in a file with the extension *.CATProduct*.

- The *CATProduct* file contains only information relating to the product assembly.

- The detailed geometric information about the parts in the assembly is referenced to the original .CATPart files

Warning

- ❑ If you copy a.CATProduct file it will still point to the original part files

- ❑ To copy an entire assembly use **File -> Save All As…** , specify a new location for the .CATProduct file, then click on the **Propagate** button.
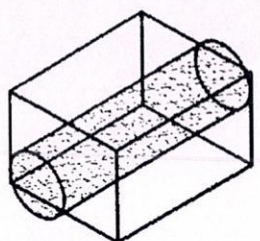
More Advanced Part Design

- Boolean Operations
- Transforming Parts
- Assigning Materials
- Calculating Mass Properties
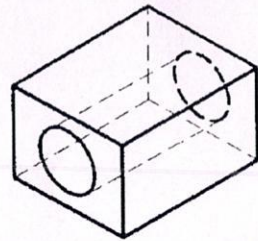
Using Boolean Operations

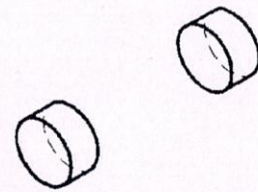

PRIMITIVES

BLOCK AND
CYLINDER

ORIENTATION

CYLINDER AXIS
NORMAL TO FACE
AND CENTERED
ON FRONT OF
BLOCK

DIFFERENCE

BLOCK — CYLINDER

CYLINDER — BLOCK

INTERSECT
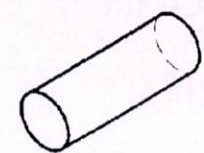
JOIN
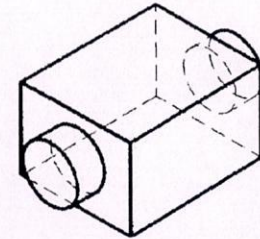
Using Boolean Operations

- To use the traditional Boolean operations approach to solid modelling you must create multiple bodies within a part.

- Create additional Bodies by selecting the function

  Insert -> New Body

- Boolean operations (join, subtract, intersect) can only be applied between the main PartBody, and other bodies in the same Part

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Transforming Parts

- Solid features can be transformed using the transform functions
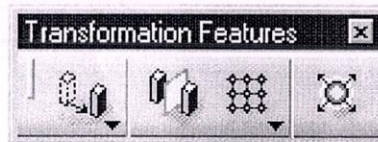
- Features can be mirrored, translated, rotated and scaled

- Patterns are used to created rectangular or circular arrays of features

Generative Part Structural Analysis

- **Mesh Specification Toolbar**

  - ❏ Local Mesh Size
  - ❏ Create Connections
  - ❏ Create Virtual Parts

- **Equipment Toolbar**
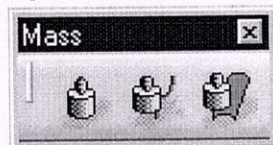
  - ❏ Created distributed and lumped masses

- **Restraints Toolbar**

  - ❏ Create Clamp
  - ❏ Create Slider
  - ❏ Create Ball Joint

- **Loads Toolbar**

  - ❏ Create Pressure
  - ❏ Create Distributed Force
  - ❏ Create Acceleration

Steps for Performing an Analysis

1. Select the parts or features for analysis

2. Define any connections, attached parts and non-structural masses

3. Specify loads and restraints acting on the part

4. Submit the job for analysis

5. Visualise Results

Knowledge Advisor

- CATIA stores information about a part in form of parameters

$f(x)$

- Formula function – allows you to create new parameters and create relationships between existing parameters.

- Rules function – allows you to define design rules relating to design parameters in a part or product

- Parameters and Relations are displayed in the specification tree

Generative Part Structural Analysis

- Generative Part Structural Analysis allows you to perform a finite element analysis on a solid part

- It is highly automated and allows an analysis to be performed with the minimum of interaction from the user

- Generative Part Structural Analysis provides very limited mesh control, and can only be applied to solid geometry

- It is generally used as a "quick check" for structural analysis

Generative Part Structural Analysis

- Compute Toolbar

  ❏ Specify External Storage
  ❏ Compute Static Solution
  ❏ Compute Frequency Solution
  ❏ Compute Buckling Solution

- Image Toolbar

  ❏ Visualise Deformations
  ❏ Visualise Von Mises Stresses
  ❏ Visualise Displacements
  ❏ Visualise Principle Stresses

- Analysis Toolbar

Parameters and Formulas

- CATIA V5 contains a group of applications that provide CATIA Knowledgeware capabilities

- These tools allow you to perform design automation, and capture non-geometric information about a product

- The most basic Knowledgeware tool is the Knowledge Advisor

- Using Knowledge advisor you can create parameters and relationships relating to parts

Knowledge Advisor Example

- This relations branch shows two formulas:

```
   fx
   Relations
      fx  Formula.1: PartBody\Sketch.1\Radius.1\Radius=PartBody\Hole.1\Diameter * 2
      fx  Formula.2: PadLength=PartBody\Pad.1\FirstLimit\Length + PartBody\Pad.1\SecondLimit\Length
```
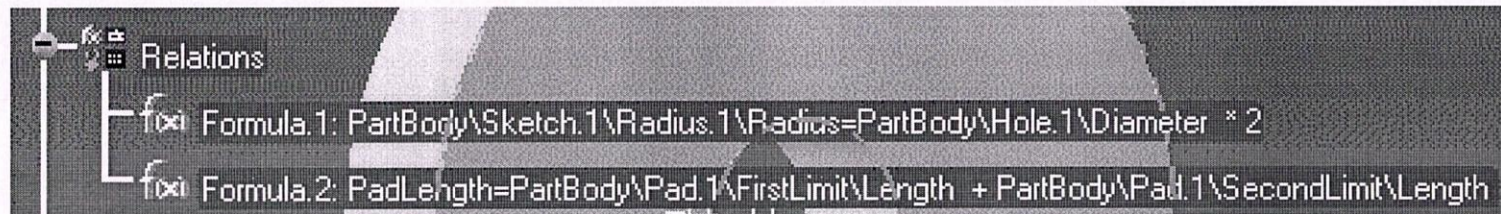
❏ The value of the diameter Radius.1 is set equal to 2* the diameter of Hole.1 in the part

❏ The value of the user defined parameter PadLength is set equal to the sum of the two limits on Pad.1

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KADAPA , AP – 516 005

This is to certify that

Mr/Ms. J. Vikas

Bearing the Roll No 189Y1A0320

has Succesfully completed certification course on

CATIA

From 21/09/2020 to 09/10/2020 , Organized by Department of

Mechanical Engineering

Coordinator

Head Of Department

V. S. S. Murly
Principal

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V. S. S. Murthy
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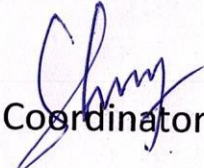## (UGC-AUTONOMOUS)
Kadapa,Andhra Pradesh,India–516 005
ApprovedbyAICTE,NewDelhi&AffiliatedtoJNTUA,Ananthapuramu.

Department of Mechanical Engineering
Certification Course on CATIA

S.No	Name of the Student	Roll List	Is the Course content meet your expectation	Is the lecture sequence well planned	Is the level of course high	Is the course exposed you to the new knowledge and practices	Rate the Knowledge of the Speaker	Rate the value of Course in increasing your skills	Any Issues
1	CHEEMALA ARAVIND REDDY	189Y1A0311	yes	Agree	Strongly Agree	Yes	4	5	Nil
2	CHILAKALA ASHOK	189Y1A0312	yes	Agree	Agree	Yes	5	5	Need extra Explanation
3	DASARI BHARATH KUMAR REDDY	189Y1A0313	yes	Agree	Agree	Yes	4	5	Nil
4	DUDDELA SANDEEP KUMAR	189Y1A0314	yes	Agree	Agree	Yes	5	5	Nil
5	DUDYALA RAVI KUMAR .	189Y1A0315	yes-	Agree	Agree	Yes	5	5	Provide PPT
6	GADWAL SHAIK MOHAMMED NASEERUDDIN	189Y1A0316	yes	Agree	Agree	Yes	5	4	Nil
7	GOVINDU VIKAS	189Y1A0317	yes	Agree	Agree	Yes	5	4	Nil
8	GOWRIGALLA ASHOK	189Y1A0318	yes	Agree	Agree	Yes	4	5	Nil
9	GUGULA SAI KUMAR	189Y1A0319	yes	Agree	Agree	Yes	5	5	Nil
10	JUTURU VIKAS	189Y1A0320	yes	Agree	Agree	Yes	5	5	Nil
11	KAMPARAJU RAVI SANKAR	189Y1A0321	yes	Agree	Agree	Yes	5	5	Nil
12	KANDUKURI JANARDHAN REDDY	189Y1A0322	yes	Agree	Agree	Yes	5	5	Nil
13	KATIKA YASHWANTH REDDY	189Y1A0323	yes	Agree	Agree	Yes		5	Nil
14	KUMMETHA CHANDRASEKHAR REDDY	189Y1A0324	yes	Agree	Agree	Yes	5	5	Nil
15	KURAKU HARI KRISHNA	189Y1A0325	yes	Agree	Agree	Yes	5	5	Nil
16	KURUVA MAHESH BABU	189Y1A0326	yes	Agree	Agree	Yes	5	5	Nil
17	LINGAREDDY SIVA VENKATA SAI REDDY	189Y1A0327	yes	Agree	Agree	Yes	5	5	Nil

No	Name	Roll No							
18	MAJJARI VENKATA BHASKAR	189Y1A0328	yes	Agree	Agree	Yes		4	5	Nil
19	MALKAPURAM THIRUMALESH	189Y1A0329	yes	Agree	Agree	Yes		5	5	Nil
20	MOGAL MOHINUDDIN BAIG	189Y1A0330	yes	Agree	Agree	Yes		5	5	Nil
21	MUMMADI CHINNA SUBBA REDDY	189Y1A0332	yes	Agree	Agree	Yes		5	5	Nil
22	MUTUKUNDU SOMA SEKHAR REDDY	189Y1A0333	yes	Agree	Agree	Yes		5	5	Nil
23	NAGURU SAMPATH KUMAR	189Y1A0334	yes	Agree	Agree	Yes			5	Nil
24	NERSUPALLI SAI KUMAR REDDY	189Y1A0335	yes	Agree	Agree	Yes		5	5	Nil
25	PASUPURATHI RAJASEKHAR REDDY	189Y1A0340	yes	Agree	Agree	Yes		5	5	Nil
26	PATAN ASHRAF ALI KHAN	189Y1A0341	yes	Agree	Agree	Yes		5	5	Nil
27	PATAN SAMEER KHAN	189Y1A0342	yes	Agree	Agree	Yes		5	5	Nil
28	PATHAN ARBAAZ KHAN	189Y1A0343	yes	Agree	Agree	Yes		5	5	Nil
29	PATHAN NADEEM KHAN	189Y1A0344	yes	Agree	Agree	Yes			5	Nil
30	PEDDANAGGARI SIVAGIRINATH REDDY	189Y1A0345	yes	Agree	Agree	Yes		5	5	Nil
31	PERAM VARUN KUMAR REDDY	189Y1A0346	yes	Agree	Agree	Yes		5	5	Nil
32	POOJARI RAJKUMAR	189Y1A0347	yes	Agree	Agree	Yes		5	5	Nil
33	POTHUTEJESWARREDDY	189Y1A0348	yes	Agree	Agree	Yes		5	5	Nil
34	PRODDUTURU NAGA DASTAGIRI	189Y1A0349	yes	Agree	Agree	Yes		4	5	Nil
35	SHAIK ZUBAIR	189Y1A0362	yes	Agree	Agree	Yes		5	5	Nil
36	SHAIK ZUBAIR HUSSAIN	189Y1A0363	yes	Agree	Agree	Yes		5	5	Nil
37	SHAIKLALAHAMEDGARI KHALEEL AHAMED	189Y1A0364	yes	Agree	Agree	Yes		5	5	Nil
38	SHARON SAMUEL	189Y1A0365	yes	Agree	Agree	Yes		5	5	Nil
39	SIDDAREDDY LINGAMAIAH	189Y1A0366	yes	Agree	Agree	Yes		4	5	Nil
40	SOORABOINA VENKATESH	189Y1A0367	yes	Agree	Agree	Yes		5	5	Nil
41	SYED GHAYAZ AHMED	189Y1A0368	yes	Agree	Agree	Yes		5	5	Nil
42	TALUPULA AVINASH	189Y1A0369	yes	Agree	Agree	Yes		5	5	Nil
43	THAMBALA VEERESH	189Y1A0370	yes	Agree	Agree	Yes		5	5	Nil
44	ALAMURU MABU BASHA	199Y5A0301	yes	Agree	Agree	Yes		4	5	Nil
45	ATHMAKURU MAHESHBABU	199Y5A0303	yes	Agree	Agree	Yes		5	5	Nil
46	BIJILI SATISH KUMAR	199Y5A0304	yes	Agree	Agree	Yes		5	5	Nil
47	BODAGALA SAIBHARATH	199Y5A0305	yes	Agree	Agree	Yes		5	5	Nil
48	BOGGULA OBULA REDDY	199Y5A0306	yes	Agree	Agree	Yes		4	5	Nil

48	CHANDOLI SREENIVASULU	199Y5A0307	yes	Agree	Agree	Yes	5	5	Nil
50	CHEPURI AMARENDRA KUMAR	199Y5A0308	yes	Agree	Agree	Yes	5	5	Nil
51	GAJJALA VEERA PRASAD	199Y5A0309	yes	Agree	Agree	Yes	5	5	Nil
52	GUJJULA VAMSI	199Y5A0310	yes	Agree	Agree	Yes	5	5	Nil
53	JINKALA SUBHAN	199Y5A0312	yes	Agree	Agree	Yes	5	5	Nil
54	KAIPA VAMSI KRISHNA	199Y5A0313	yes	Agree	Agree	Yes	5	5	Nil
55	KAMISETTY BHARGAV	199Y5A0314	yes	Agree	Agree	Yes	4	5	Nil
56	KETHAVATH SIVARAM NAIK	199Y5A0315	yes	Agree	Agree	Yes	5	5	Nil
57	KONDURU VENKATESH	199Y5A0316	yes	Agree	Agree	Yes	5	5	Nil
58	KOTHAPALLI PRUDHVI	199Y5A0318	yes	Agree	Agree	Yes	5	5	Nil

Coordinator

HOD