5.1.3 Capacity building and skills enhancement initiatives taken by the institution

ICT/computing skills

SI No	Name of the Document
1	JMP Software Program- Formulation Development
2	R Studio software-Biostatistics
3	Ex-Pharma Series software

For the Year

2016-2017

KRUPANIDHI COLLEGE OF PHARMACY

RECOGNISED BY GOVT OF KARNATAKA |APPROVED BY PHARMACY COUNCIL OF INDIA| AICTE,NEW DELHI AND AFFILIATED TO RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES |AN ISO 9001:2015 CERTIFIED INSTITUTION NAAC 'A' GRADE ACCREDITED
#12/1,CHIKKABELANDHUR, CARMELARAM POST, BANGALORE-560 035

JMP Software Programm (Formulation Develepment)

08/07/2016 to 01/06/2017

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

DATE: 04.07.2016

CIRCULAR

This is to inform all the B Pharm, M Pharm, Pharm D students that, the college is organizing the **JMP Software Programm- Formulation Develepment** training program from 08.07.2016 to 01.06.2017. All the interested students can attend the program.

8/10/22

Krupanidhi College of Pharmacy IQAC Date: Bangalore-35

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

Principal

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

JMP (statistical software)

REPORT

Attendees: M.Pharm Students

DATE:08/07/2016 - 01/06/2016 **Time: 9:30 AM-1:30 PM**

The hands on training was given by the Prof. Chandramouli R and he has shown the different following aspects of JMP software -

- **JMP** (pronounced "jump") is a suite of computer program for statistical analysis developed by the JMP business unit of SAS Institute.
- At Krupanidhi College of Pharmacy, we extensively use ***JMP*® 13.2.1 software (Academic license from SAS, SAS Institute, Cary, NC, USA).** for performing statistical analysis of data generated through students' academic projects.

Beneficiaries of the Software:

I and II M Pharm students (Dept. of Quality Assurance and Dept. of Pharmaceutics) undertaking academic projects are the primary beneficiaries of the tool. The software is also used to provide hands-on training for M Pharm students on application of software in product development.

Activities performed using JMP:

- Pharmaceutical formulation development:
  - ✔ Representing the risk involved in the product development- Inshikawa diagram.
  - ✔ Statistical Design of experiment.
  - ✔ DoE Evaluation/Model Fit.
  - ✔ Validation of the selected design.
  - ✔ Optimized formulation development.

Krupanidhi College of Pharmacy IQAC Date: Bangalore-35 8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035
8/10/22

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

Software Utilization in Krupanidhi College of Pharmacy:

Since 2016, JMP has been used extensively in Krupanidhi College of Pharmacy for M PHARM student project purpose:

Total projects involving JMP : 01

M Pharm :13

Glimpse Of the Events

8/10/22

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

8/10/22

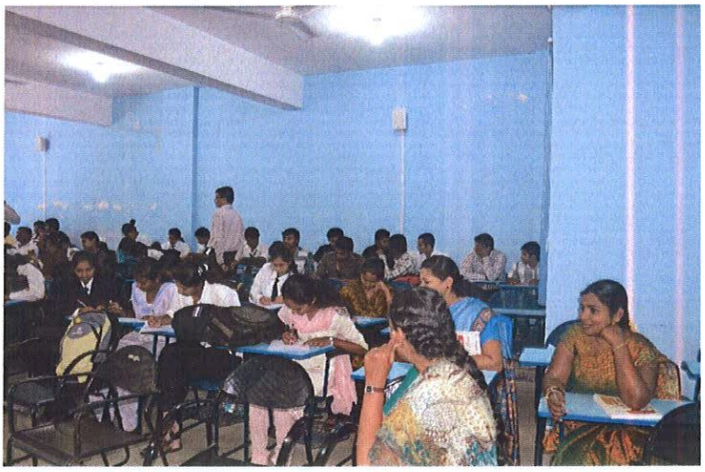
Krupanidhi College of Pharmacy IQAC Date: Bangalore-35

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

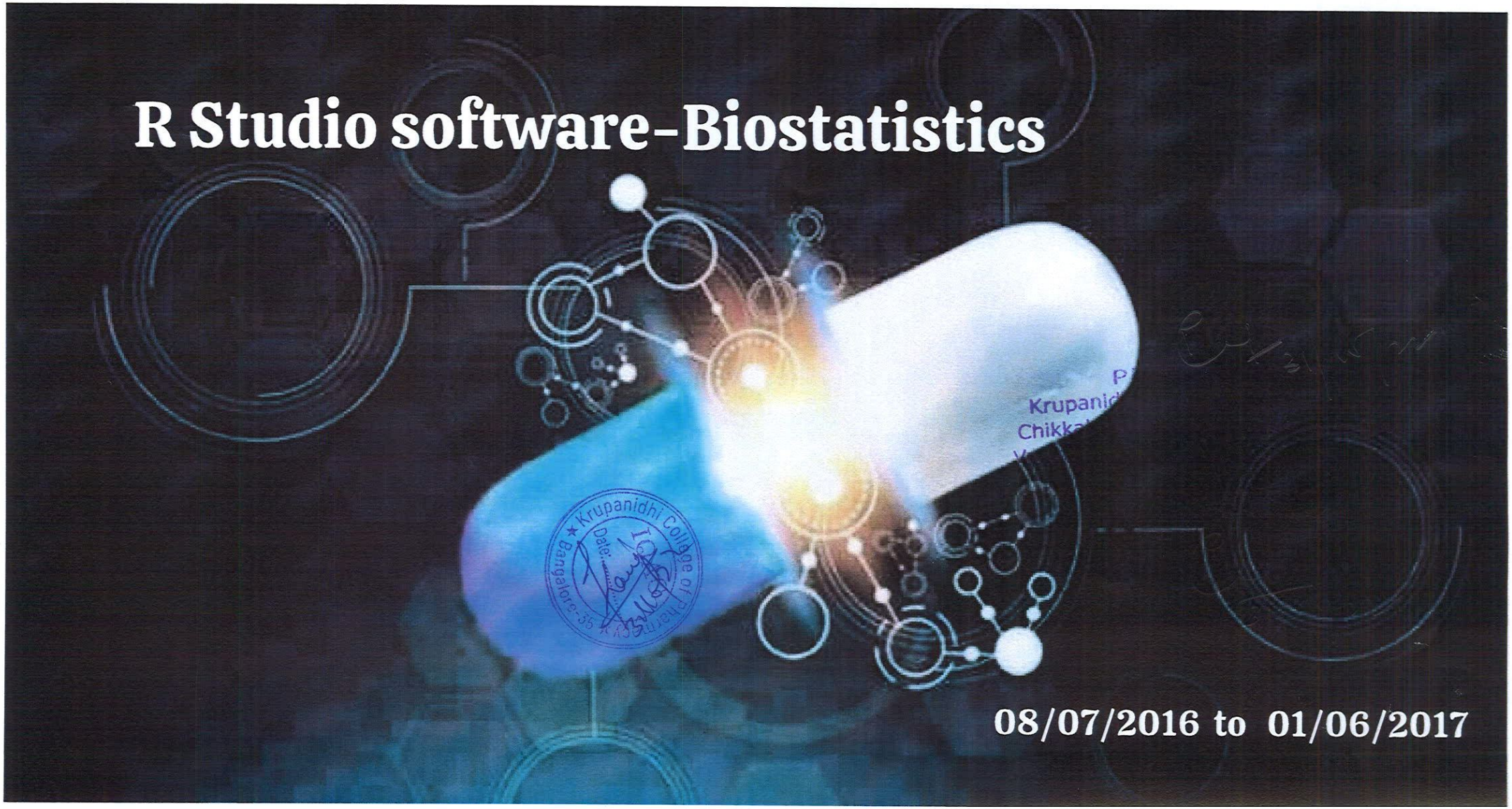


Krupanidhi College of Pharmacy IQAC Date: Bangalore-35 8/10/22

PRINCIPAL 8/10/22
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

RECOGNISED BY GOVT OF KARNATAKA |APPROVED BY PHARMACY COUNCIL OF INDIA| AICTE,NEW DELHI AND AFFILIATED TO RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES |AN ISO 9001:2015 CERTIFIED INSTITUTION NAAC 'A' GRADE ACCREDITED
#12/1,CHIKKABELANDHUR, CARMELARAM POST, BANGALORE-560 035



KRUPANIDHI COLLEGE OF PHARMACY
AICTE, PCI, RGUHS approved, NAAC "A"

DATE: 04.07.2016

CIRCULAR

This is to inform all the B Pharm, M Pharm, Pharm D students that, the college is organizing the **R Studio software-Biostatistics** training program from 08.07.2016 to 01.06.2017. All the interested students can attend the program.

Principal

8/10/22

Krupanidhi College of Pharmacy IQAC Date: Bangalore-35

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

R Studio & EZR

REPORT

Attendees: 5th & 6 th PharmD

DATE:08/07/2016 - 01/06/2017 **Time: 9:30 AM-1:30 PM**

- R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS.
- EZR is a graphical user interface for R based on R commander.
- At Krupanidhi College of Pharmacy, we extensively use EZR and R foundation package for performing statistical analysis of data generated through students' academic projects.

Beneficiaries of the Software:

V & VI Pharm D students undertaking academic projects are the primary beneficiaries of the tool. The software is also used to provide hands on training for IV PharmD students on Biostatistics.

Activities performed using EZR Interface for R:

- Sample size estimation for pharmaco epidemiologic and clinical interventional studies involving human participants as follows:
  - ✔ Sample size estimation from control and desired response rates.
  - ✔ Sample size estimation from proportion and confidence interval.
  - ✔ Sample size estimation for comparison with specified proportion.
  - ✔ Power calculation for comparison with specified proportion.
  - ✔ Sample size estimation for non-inferiority trial of two proportions.
  - ✔ Sample size estimation from standard deviation and confidence interval.
  - ✔ Sample size and power calculation for comparison between two means.

8/10/22

Krupanidhi College of Pharmacy ★ IQAC Date: ★ Bangalore-35 ★

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

- ✔ Sample size and power calculation for comparison and non-inferiority trial of two survival curves and two paired means.

❖ Perform the following descriptive summary and inferential statistics involving discrete and continuous variables.

- ✔ Frequency distributions
- ✔ Assess data normality using Q-Q plot and Shapiro-Wilk test.
- ✔ Compute measures of central tendency and dispersion.
- ✔ Construct relevant graphs and charts for given statistical tests.
- ✔ Perform parametric (Unpaired t-test, paired t-test and ANOVA) and non-parametric tests (Mann-Whitney U, Wilcoxon Rank Sum and Kruskal Wallis test) for comparison.
- ✔ Perform Pearson's Product Moment Correlation and Spearman's Ranked Correlation of continuous variables.
- ✔ Perform Chi-square and Fisher's Exact test to associate dichotomous variables.
- ✔ Perform post-hoc analysis of variables involving ordinary and repeated measures: Bonferroni corrections.

Software Utilization in Krupanidhi College of Pharmacy:

Since 2018, EZR has been used extensively in Krupanidhi College of Pharmacy for V year PharmD project statistical analysis purpose:

1. Total students trained in EZR for statistical analysis : 30

Krupanidhi College of Pharmacy IQAC Date: Bangalore-35 8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035
8/10/22

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

GLIMSE OF THE EVENT

8/10/22

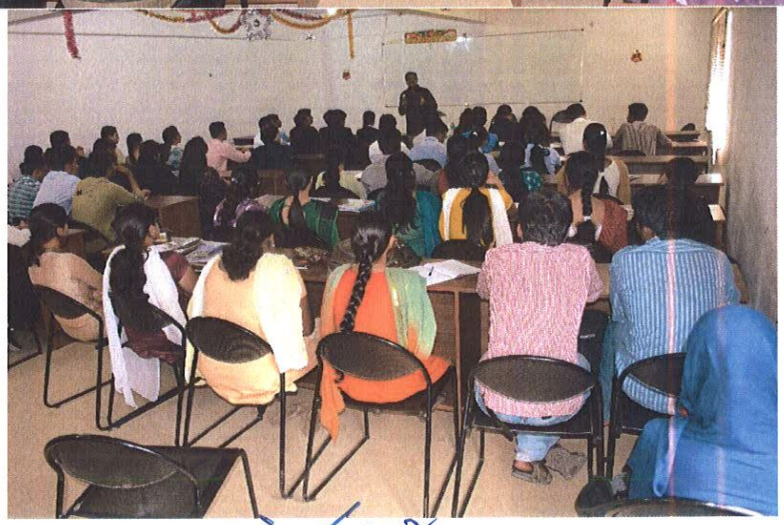
Krupanidhi College of Pharmacy
IQAC
Date:
Bangalore-35

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"



8/10/22

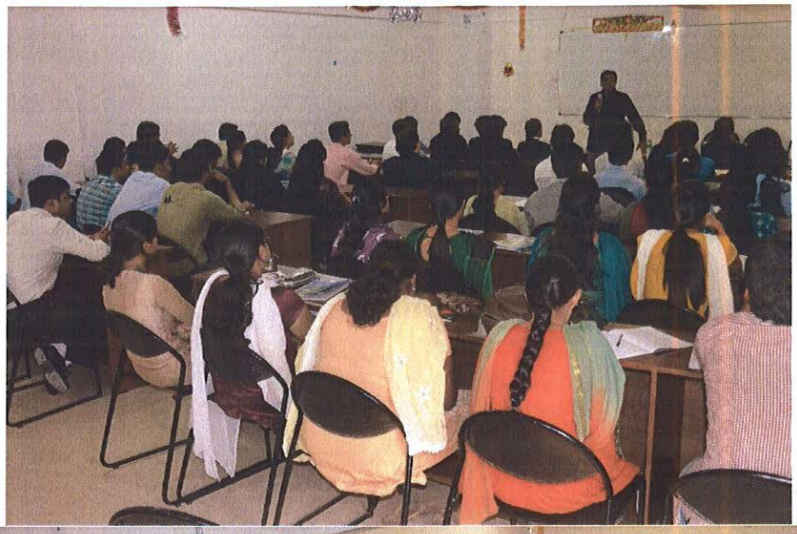
PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

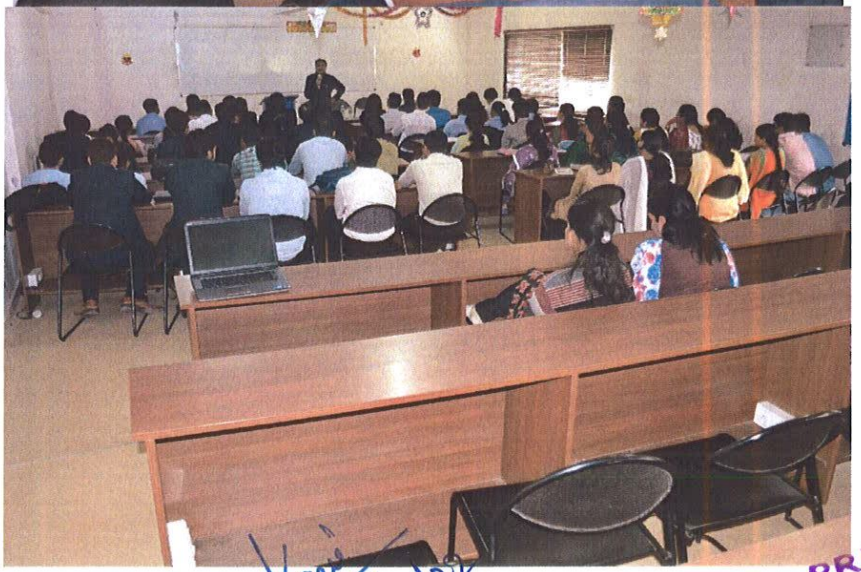
8/10/22

Krupanidhi College of Pharmacy
IQAC
Date:
Bangalore-35

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"





8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 03

8/10/22

Krupanidhi College of Pharmacy
IQAC
Date:
Bangalore-35

KRUPANIDHI COLLEGE OF PHARMACY

RECOGNISED BY GOVT OF KARNATAKA |APPROVED BY PHARMACY COUNCIL OF INDIA | AICTE,NEW DELHI AND AFFILIATED TO RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES |AN ISO 9001:2015 CERTIFIED INSTITUTION NAAC 'A' GRADE ACCREDITED

#12/1,CHIKKABELANDHUR, CARMELARAM POST, BANGALORE-560 035

Expharma Series software

08/07/2016 to 01/06/2017

DATE: 04.07.2016

CIRCULAR

This is to inform all the B Pharm, M Pharm, Pharm D students that, the college is organizing the **Expharma Series software** training program from 08.07.2016 to 01.06.2017. All the interested students can attend the program.

Principal

Krupanidhi College of Pharmacy IQAC Date: Bangalore-35 8/10/22

8/10/22
PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"

SUMMARY ON EXPHARMA SERIES

(EXPERIMENTAL PHARMACOLOGY SERIES)

REPORT

Attendees: III & IV B. Pharm and III PharmD

DATE:08/07/2016 - 01/06/2017 **Time: 9:30 AM-1:30 PM**

- This is a computer assisted learning package containing various programs which simulate animal experiments in Pharmacology.
- These programs can be used to demonstrate drugs on different animal's systems.
- The package is user friendly, highly interactive and full of animated sequences which make simulation appear realistic.

BENEFICIARIES OF THE SOFTWARE:

- Software is aimed for medical, pharmacy and dental undergraduate students. The software can also be used by the students of paramedical courses such as nursing, medical laboratory technology and physiotherapy etc.
- III & IV B. Pharm and III PharmD students undergo the regular practicals by using this software.

ACTIVITIES PERFORMED USING EXPHARMA SOFTWARE:

1. Experiment on effects of various drugs (Mydriatic, Miotic and Local Anaesthetic) on rabbit's eye.
2. (Epinephrine, Atropine, Ephedrine, Physostigmine, Lignocaine)
3. Study of Analgesic activity with the help of "Tail Flick Apparatus" (Analgesiometer).
4. Study of Antihistaminic drugs/Anti allergic drugs by mast cell stabilization method with the help of "Histamine Chamber"
5. Study of Muscle Relaxant activity with the help of "Rota-Rod Apparatus".
6. Study of CNS Depressants & Stimulants Using "Actophotometer".
7. Study of Analgesic activity with the help of "Hot Plate Apparatus" (Analgesiometer).
8. Effect of Different Drugs (Including Saline Purgatives) on Ciliary Motility of Frog Oesophagus.
9. Study of Drugs acting on CNS (Including Anxiolytic Activity) using following modules
   - Elevated Plus Maze Method
   - Pole Climbing Method
10. Study of anticonvulsant activity using "Electro Convulsiometer".
11. Experiment on Effect of various drugs on Isolated Frog's Heart. (DRC- Dose Response Curve)
    - Epinephrine
    - Norepinephrine
    - Isoprenaline

Krupanidhi College of Pharmacy IQAC Date: Bangalore-35 8/10/22

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

- Calcium Chloride
- Propranolol
- Acetylcholine
- Potassium chloride
- Atropine sulphate

12. Experiment on Bioassay of Histamine on the Ileum of Guinea Pig.
13. Simulation of pupil control
    - Simulation of the effects of the physiological stimuli and drugs on the papillary reflexes.
    - Simulation of the control in patient with partial parasymathectomy.
14. Experiments on Lagendorff's Apparatus
    - Effect of coronary vasodilators on isolated heart
    - Effect of parasympathomimetics.
15. Test for pyrogens using rabbits.
16. Effect of drugs on isolated guinea pig ileum (in-vitro).
17. To Study Respiratory depression effect on rabbit.
18. Determination of acute irritation of a test substance.
    - Skin irritation (Including edema formation)
    - Eye irritation
19. Experiments on colonic motility in rat in vitro.
20. Experiments on thyroid and antithyroid drugs
    - The effect of thyroxin, TSH, propylthiouracil, on metabolism.
21. Experiments on blood sugar
22. - The effect of insulin (hypoglycaemic activity) and alloxan on blood glucose.
23. Bioassay of Acetylcholine on the isolated rectus abdominis muscle of frog
    - By Matching Method
    - By Interpolation Method
    - By 3 Point Method
    - By 4 Point Method

EXPHARMA SERIES UTILIZATION IN KRUPANIDHI COLLEGE OF PHARMACY

- Since 2018, Expharma series has been extensively used in Krupanidhi College of Pharmacy for III, IV B. Pharm and III Pharm D students for learning Simulated experiments in pharmacology.
- Total Number of experiments involving Expharma series :23
- Total Number of students used Expharma series:
    1. IV B. Pharm – 60 students
    2. III Pharm D – 30 students.
    3. Total- **90 students.**

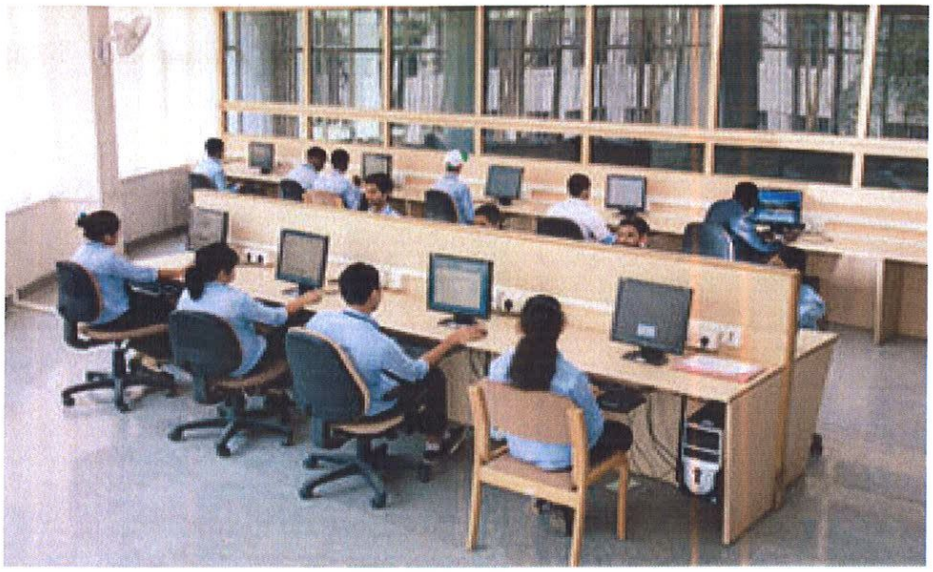
Krupanidhi College of Pharmacy IQAC Date Bangalore-35

4/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Bangalore - 560 035

KRUPANIDHI COLLEGE OF PHARMACY

AICTE, PCI, RGUHS approved, NAAC "A"



Demonstration of the Ex Pharma software in the digital library

8/10/22

PRINCIPAL
Krupanidhi College of Pharmacy
Chikkabellandur, Carmelaram Post,
Varthur Hobli, Bangalore - 560 035

8/10/22

Krupanidhi College of Pharmacy
IQAC
Date:
Bangalore-35