

## In This Issue . . .

- **Pattern Recognition - A Global Elective** : Statistics of the students undergoing the course
- **Illustration**: Usage of Taylor series expansion to minimize a function using Newton's iterative method
- **On-going research work**: Current research work in Pattern Recognition and Computational Intelligence Laboratory.

Dear friends! **COMPSIG NITT** is a monthly newsletter to share the research work done in the Pattern recognition and computational intelligence laboratory, Department of Electronics and Communication Engineering, National Institute of Technology Trichy.

Concepts, Ideas pertaining to Computational intelligence, Pattern recognition and Signal processing are also included in this newsletter.

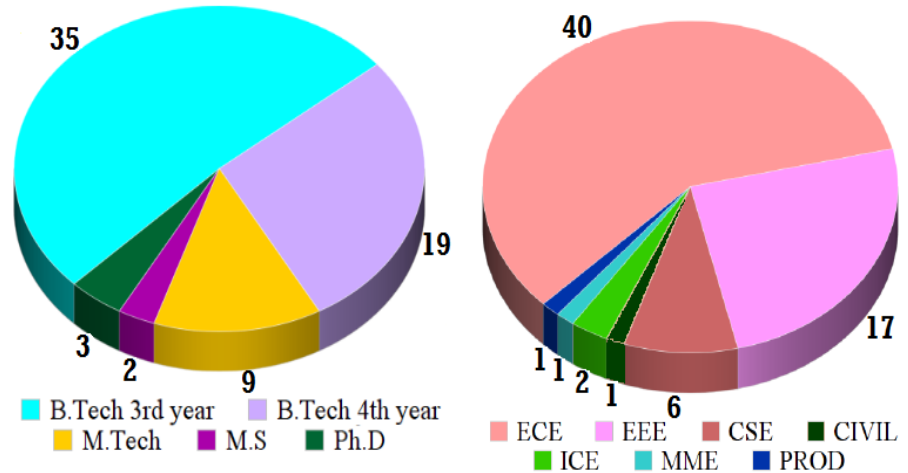
We expect the feedback, comments and articles from you all.

**Issue 3-3: March 2017**

### Team members

1. Dr. E.S.Gopi, Co-ordinator.
2. G. Jaya Brindha, Ph.D. Scholar.
3. Neema.M, Ph.D. Scholar.
4. Rajasekharreddy Poreddy, Ph.D Scholar.
5. Florintina.C, M.Tech, Communication systems.
6. Ankur Satpute, M.Tech, Communication systems.

## Pattern Recognition - A Global Elective



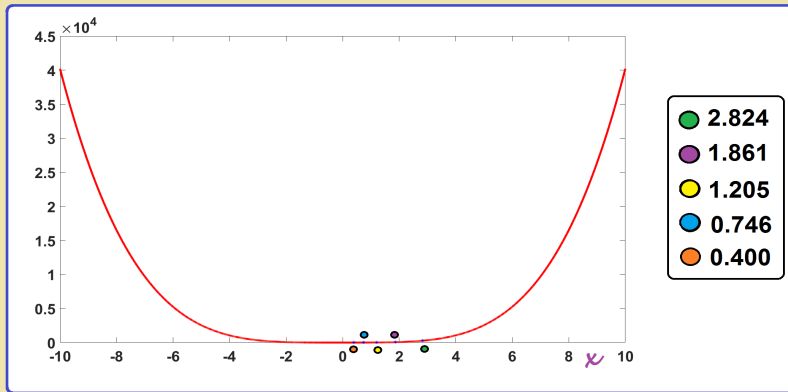
The global elective, Pattern recognition (EC459), introduced for the even semester (Jan 2017 to Apr 2017), has attracted a total of 68 students from a wide array of departments. Students pursuing their undergraduate and postgraduate courses and doctoral thesis have shown avid interest in the course. The pie charts give the distribution of students amidst the various departments and courses. The UG students are divided into groups of 3-4 and are asked to prepare and present audio slides based on mini projects on classification/regression techniques to be employed on the different datasets allocated to each group. The postgraduate and Ph.D. students are to work on the different learning techniques allocated to each of them by applying the techniques in 5G wireless communication.



Students undergoing the Pattern recognition course

[Back to Contents](#)

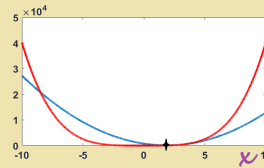
## Illustration



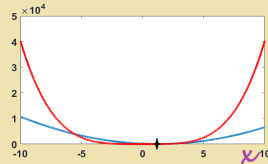
Initialize the value for  $x$  as ●

[1] Approximate the function ■ using the first three terms of the Taylor series expansion constructed at the point ● as ■

[2] Compute  $x$  corresponding to the minimum of the blue colored curve to obtain ●

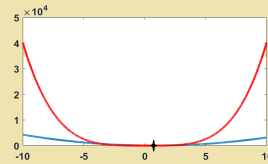


[3] Repeat [1] at ●



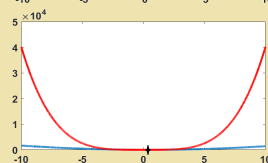
[4] Repeat [2] to obtain ●

[5] Repeat [1] at ●



[6] Repeat [2] to obtain ●

[7] Repeat [1] at ●



[8] Repeat [2] to obtain ●

*This illustrates the usage of Taylor series based function approximation to minimize the function in Newton's iterative method*

Link to the M file pertaining to this illustration: <http://silver.nitt.edu/~esgopi/mfiles/Newtonsmethod/>

[Back to Contents](#)

### Quotes

“Let not thy winged days be spent in vain. When once gone no gold can buy them back again.” — Dr. A.P.J. Abdul Kalam

© 2017 by PRCI lab. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, without the prior permission.

## On-going Research

- Constructing a Sunflower plant database for classification purposes.
- Developing a methodology to visualize the data collected from newspapers for knowledge discovery.
- Improving the classifier's result using randomized decision rule.
- Music composition inspired by sea waves.
- Breast cancer detection and diagnosis using machine learning.

[Back to Contents](#)

## Feedback

COMP SIG NITT invites articles and innovative ideas from readers for the [Reader's Space](#) column. We expect feedback and comments to monthly newsletter [COMP SIG NITT](#). Readers can share their views in our facebook page, "[COMP SIG NITT](#)". Those who are interested can be a part of the facebook group.

[Back to Contents](#)

### Contact Information:

[Pattern Recognition and Computational Intelligence Laboratory](#),

Department of Electronics and Communication Engineering,  
National Institute of Technology Trichy - 620015

E-mail: [esgopi@nitt.edu](mailto:esgopi@nitt.edu)