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Digital Image Processing

By Prof. Prabir Kumar Biswas | IIT Kharagpur

Learners enrolled: 6038

Prof P K Biswas



ABOUT THE COURSE :

Digital image processing deals with processing of images which are digital in nature. Study of the subject is motivated by three major applications. The first application is in improvement of pictorial information for human perception i.e. enhancing the quality of the image so that the image will have a better look. The second is for autonomous machine applications which have wider applications in industries, particularly for quality control in assembly automation and many similar applications. This course will introduce various image processing techniques, algorithms and their applications.

INTENDED AUDIENCE: BE/ME/MS/PhD

PRE-REQUISITES



Digital Signal Processing

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INDUSTRY SUPPORT : Defense labs like DRDO, Space ISRO, TCS

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Summary

Course Status :	Completed
Course Type :	Elective
Duration :	12 weeks
Category :	<ul style="list-style-type: none">◦ Electrical, Electronics and Communications Engineering◦ Communication and Signal Processing◦ Robotics
Credit Points :	3
Level :	Undergraduate/Postgraduate
Start Date :	25 Jul 2022
End Date :	14 Oct 2022
Enrollment Ends :	08 Aug 2022
Exam Date :	29 Oct 2022 IST

Note: This exam date is subjected to change based on seat availability. You can check final exam date on your hall ticket.

This is an AICTE approved FDP course

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Course layout

Week 1: Introduction and signal digitization

Week 2: Pixel relationship

Week 3: Camera models & imaging geometry

Week 4: Image interpolation

Week 5: Image transformation

Week 6: Image enhancement I

Week 7: Image enhancement

Week 8: Image enhancement

Week 9: Image restoration

Week 10: Image restoration II & Image registration

Week 11: Colour image processing

Week 12: Image segmentation

Week 13: Morphological image processing

Week 14: Object representation, description and recognition



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Books and references

1. Digital Image Processing by Rafael C Gonzalez & Richard E Woods, 3rd Edition
2. Fundamentals of Digital Image Processing by Anil K Jain
3. Digital Image Processing by William K Pratt

Instructor bio



Prof. Prabir Kumar Biswas

IIT Kharagpur

Dr. Prabir Kr. Biswas completed his B.Tech(Hons), M.Tech and Ph.D from the Department of Electronics and Electrical Communication Engineering, IIT Kharagpur, India in the year 1985, 1989 and 1991 respectively. From 1985 to 1987 he was with Bharat Electronics Ltd. Ghaziabad as a deputy engineer. Since 1991 he has been working as a faculty member in the department of Electronics and Electrical Communication Engineering, IIT Kharagpur, where he is currently holding the position of Professor and Head of the Department. Prof. Biswas visited University of Kaiserslautern, Germany under the Alexander von Humboldt Research Fellowship during March 2002 to February 2003. Prof. Biswas has more than a hundred research publications in international and national journals and conferences and has filed seven international patents. His area of interest are image processing, pattern recognition, computer vision, video compression, parallel and distributed processing and computer networks. He is a senior member of IEEE and was the chairman of the IEEE Kharagpur Section, 2008.

Course certificate

The course is free to enroll and learn from. But if you want a certificate, you have to register and write the proctored exam conducted by us in person at any of the designated exam centres.

The exam is optional for a fee of Rs 1000/- (Rupees one thousand only).

Date and Time of Exams: **29 October 2022** Morning session 9am to 12 noon; Afternoon Session 2pm to 5pm.

Registration url: Announcements will be made when the registration form is open for registrations.

The online registration form has to be filled and the certification exam fee needs to be paid. More details will be made available when the exam registration form is published. If there are any changes, it will be mentioned then.

Please check the f
etc.



Is on the cities where the exams will be held, the conditions you agree to when you fill the form
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CRITERIA TO GET A CERTIFICATE

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Average assignment score = 25% of average of best 8 assignments out of the total 12 assignments given in the course.

Exam score = 75% of the proctored certification exam score out of 100

Final score = Average assignment score + Exam score

YOU WILL BE ELIGIBLE FOR A CERTIFICATE ONLY IF AVERAGE ASSIGNMENT SCORE $\geq 10/25$ AND EXAM SCORE $\geq 30/75$. If one of the 2 criteria is not met, you will not get the certificate even if the Final score $\geq 40/100$.

Certificate will have your name, photograph and the score in the final exam with the breakup. It will have the logos of NPTEL and IIT Kharapur .It will be e-verifiable at nptel.ac.in/noc (<http://nptel.ac.in/noc>).

Only the e-certificate will be made available. Hard copies will not be dispatched.

Once again, thanks for your interest in our online courses and certification. Happy learning.

- NPTEL team



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Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

RENUKA DEVI SM

for successfully completing the course

Digital Image Processing

with a consolidated score of **86 %**

Online Assignments	23.44/25	Proctored Exam	63/75
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Prof. Anupam Basu
NPTEL Coordinator
IIT Kharagpur

Total number of candidates certified in this course: **1031**

Jul-Oct 2018
(12 week course)

Prof. Adrijit Goswami
Dean
Continuing Education, IIT Kharagpur



Indian Institute of Technology Kharagpur



Roll No: NPTEL18EE40S21380746

To validate and check scores: <http://nptel.ac.in/noc>