INF-1036

GAUHATI UNIVERSITY Centre for Distance and Online Education

First Semester

(Under CBCS)

M.Sc.IT

Paper: INF 1036

OPERATING SYSTEM



BLOCK I: REVIEW OF COMPUTER ORGANIZATION,

MEMORY ARCHITECTURE, CONCURRENT

PROCESS AND SCHEDULING

BLOCK II: MEMORY AND I/O MANAGEMENT, SYSTEM

DEADLOCK AND MULTIPROGRAMMING

SYSTEM

SLM Development Team:

HoD, Department of Computer Science, GU

Programme Coordinator, MSc-IT, GUCDOE

Prof. Shikhar Kr. Sarma, Department of IT, GU

Dr. Khurshid Alam Borbora, Assistant Professor, GUCDOE

Dr. Swapnanil Gogoi, Assistant Professor, GUCDOE

Mrs. Pallavi Saikia, Assistant Professor, GUCDOE

Dr. Rita Chakraborty, Assistant Professor, GUCDOE

Mr. Hemanta Kalita, Assistant Professor, GUCDOE

Contributors:

Dr. Mirzanur Rahman (Block I : Unit-1)

Asstt. Prof., Dept. of IT, Gauhati University

Dr. Sruti Sruba Bharali (Block I : Unit-2)

Asstt. Prof., HCB School of

Science and Technology. KKHSOU, Assam

Dr. Khurshid Alam Borbora (Block I: Units- 3 & 5)

Asstt. Prof. in Computer Science, GUCDOE, Gauhati University

Dr. Kshirod Sarmah (Block I: Unit-4)

Asstt. Prof., Dept. of Computer Science

PDUAM, Goalpara, Assam

Dr. Sisir Kumar Rajbongshi (Block I: Unit-6)

Asstt. Prof., Dept. of Computer Science

PDUAM, Goalpara, Assam

Mr. Hem Chandra Das (Block I : Unit-7)

Asstt. Prof., Dept. of Computer Science & Technology

Bodoland University

Dr. Irani Hazarika (Block I: Unit- 8/ Block II: Units: 3 & 4)

Asstt. Prof., Dept. of Computer Science

Gauhati University, Assam

Dr. Pranab Das (Block II : Unit-1)

Associate Prof., Dept. of Computer Applications

Don Bosco University, Guwahati, Assam

Mr. Dipankar Dutta (Block II : Unit-2)

Asstt. Prof., School of Computer Science

NERIM, Guwahati

Mrs. Pinky Saikia Dutta (Block II: Unit-5)

Asstt. Prof., Dept. of Computer Science & Engineering

GIMT, Girijananda Chowdhury University

Dr. Utpal Barman (Block II : Unit-6)

Professor, Faculty of Computer Technology

Assam Down Town University, Guwahati

Ms. Mala Ahmed (Block II: Unit-7)

Asstt. Prof., Dept. of Computer Science & Engineering

GIMT, Girijananda Chowdhury University

Dr. Manoj Kumar Deka (Block II : Unit-8)

Associate Prof., Dept. of Computer Science & Technology

Bodoland University

Content Editing:

Dr. Ridip Dev Choudhury Associate Professor, HCB School of

Science and Technology, KKHSOU, Assam

Course Coordination:

Dr. Debahari Talukdar Director, GUCDOE

Prof. Anjana Kakoti Mahanta Programme Coordinator, GUCDOE,

Prof., Dept. of Computer Science, G.U.

Dr. Khurshid Alam Borbora Assistant Professor, GUCDOE

Dr. Swapnanil Gogoi Assistant Professor, GUCDOE

Dipankar Saikia Editor SLM, GUCDOE

Cover Page Designing:

Bhaskar Jyoti Goswami GUCDOE

ISBN: 978-81-964628-2-6

July, 2023

© Copyright by GUCDOE. All rights reserved. No part of this work may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise.

Published on behalf of Gauhati University Centre for Distance and Online Education by the Director, and printed at Gauhati University Press, Guwahati-781014.

CONTENTS

		Page No.
Block I	: Review of Computer Organization, Memory	
	Architecture, Concurrent Process and Schedu	ling
Unit 1	: Computer System Review	7 - 30
Unit 2	: Operating System(OS) Overview	31 - 43
Unit 3	: Introduction to Linux	44 - 60
Unit 4	: Process Management	61 - 90
Unit 5	: System Calls	91 - 104
Unit 6	: Process Scheduling Algorithms I	105 - 126
Unit 7	: Process Scheduling Algorithms II	127 - 149
Unit 8	: Concurrent Process Management	150 - 168
Block I	I: Memory and I/O Management, System Deadlo	ock
	and Multiprogramming System	
Unit 1	: Memory Management	170 - 195
Unit 2	: Input-Output Organization	196 - 220
Unit 3	: Introduction to Deadlock	221 - 231
Unit 4	: Deadlock Prevention, Detection and Avoidance	232 - 249
Unit 5	: Multiprogramming System	250 - 291
Unit 6	: Secondary Storage Management	292 - 307
Unit 7	: Security	308 - 315
Unit 8	: Distributed Operating System	316 - 345