

Rajshahi University of Engineering & Technology

Department of Computer Science & Engineering

Class Routine (Effective from 27th April, 2019)

A									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	
8.00 am - 8.50 am	8.50 am - 9.40 am	9.40 am - 10.30 am	10.50 am - 11.40 am	11.40 am - 12.30 pm	12.30 pm - 1.20 pm	2.30 pm - 3.20 pm	3.20 pm - 4.10 pm	4.10 pm - 5.00 pm	
CSE 4102 / CSE 4104 MKP / NS OS / NW			CSE 4103 NS 202	CSE 4107 MRI 202	CSE 4107 MRI 202	CSE 4000			
B									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	
8.00 am - 8.50 am	8.50 am - 9.40 am	9.40 am - 10.30 am	10.50 am - 11.40 am	11.40 am - 12.30 pm	12.30 pm - 1.20 pm	2.30 pm - 3.20 pm	3.20 pm - 4.10 pm	4.10 pm - 5.00 pm	
			CSE 4101 MKP 201	CSE 4107 MRI 201	CSE 4117 BZI / NS 201				
C									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	
8.00 am - 8.50 am	8.50 am - 9.40 am	9.40 am - 10.30 am	10.50 am - 11.40 am	11.40 am - 12.30 pm	12.30 pm - 1.20 pm	2.30 pm - 3.20 pm	3.20 pm - 4.10 pm	4.10 pm - 5.00 pm	
			CSE 4117 BZI / NS 201	CSE 4103 NS 201	CSE 4105 RT 201				
Day →	D								
Period→	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Time →	8.00 am - 8.50 am	8.50 am - 9.40 am	9.40 am - 10.30 am	10.50 am - 11.40 am	11.40 am - 12.30 pm	12.30 pm - 1.20 pm	2.30 pm - 3.20 pm	3.20 pm - 4.10 pm	4.10 pm - 5.00 pm
4th Year Odd Sem Sec A		CSE 4105 RT 201	CSE 4101 MKP 201	CSE 4103 NS 201	CSE 4117 BZI / NS 201				
E									
1st	2nd	3rd	4th	5th	6th	7th	8th	9th	
8.00 am - 8.50 am	8.50 am - 9.40 am	9.40 am - 10.30 am	10.50 am - 11.40 am	11.40 am - 12.30 pm	12.30 pm - 1.20 pm	2.30 pm - 3.20 pm	3.20 pm - 4.10 pm	4.10 pm - 5.00 pm	
	CSE 4105 RT 202	CSE 4101 MKP 202	CSE 4106 / CSE 4108 RT/ MRI OS / NW						

Code	Full Name
SUZ	Prof. Dr. Md. Shahid Uz Zaman
NIM	Prof. Dr. Md. Nazrul Islam Mondal
MRI	Prof. Dr. Md. Rabiul Islam
BA	Prof. Dr. Boshir Ahmed
MAM	Prof. Dr. Md. Al Mamun
MSS	Prof. Dr. A.H.M. Sarowar Sattar
MJK	Prof. Dr. Mir Md. Jahangir Kabir
AMH	Dr. Md. Al Mehedi Hasan
FM	Firoz Mahmud
RT	Rizoan Toufiq
BP	Biprodip Pal
JR	Julia Rahman
SA	Shyla Afroge
MAH	Dr. Md. Ali Hossain
EKH	Emrana Kabir Hashi
SZM	Sadia Zaman Mishu
AS	Abu Saveed
BS	Barshon Sen
MKP	Mahit Kumar Paul
MAR	Md. Asifur Rahman
SSG	Suhrid Shakhar Ghosh
BZI	Bayezid Islam
NS	Nahin Ul Sadad

4TH YEAR ODD SEMESTER

CSE 4100 Project / Thesis I Prerequisite: None Study of problems in the field of Computer Science and Engineering.	Contact hours/week: 2 Credits: 1.00
N.B. The project/thesis topic selected in this course is to be continued in the CSE 4200 course.	
CSE 4101 Compiler Design Prerequisite: CSE 2205	Contact hours/week: 3 Credits: 3.00

Introduction to Compiler: Compiler structure, analysis-synthesis model of compilation, various phases of a compiler, tool based approach to compiler construction, Compiler-compilers and translator writing systems.

Lexical Analysis: interface with input, parser and symbol table, token, lexeme and patterns, difficulties in lexical analysis, error reporting, implementation, regular definition, transition diagrams, LEX.

Syntax Analysis: CFGs, ambiguity, associativity, precedence, top down parsing, recursive descent parsing, transformation on the grammars, predictive parsing, bottom up parsing, operator precedence grammars, LR parsers (SLR, LALR, LR), YACC.

Syntax Directed Definitions: inherited and synthesized attributes, dependency graph, evaluation order, bottom up and top down evaluation of attributes, L- and S-attributed definitions.

Type Checking: type system, type expressions, structural and name equivalence of types, type conversion, overloaded functions and operators, polymorphic functions.

Run Time System: storage organization, activation tree, activation record, parameter passing, symbol table, dynamic storage allocation, Heap storage management.

Intermediate Code Generation: intermediate representations, translation of declarations, assignments, control flow, boolean expressions and procedure calls, implementation issues.

Code Generation and Instruction Selection: issues, basic blocks and flow graphs, register allocation, code generation, dag representation of programs, code generation from dags, peep hole optimization, code generator generators, specifications of machine.

CSE 4102 Sessional based on CSE 4101 Prerequisite: None	Contact hours/week: 3/2 Credits: 0.75
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Sessional based on the theory of course CSE 4101.

CSE 4103 Contact hours/week: 3

Digital Signal Processing Prerequisite: None	Credits: 3.00
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Introduction: signals, systems and signal processing, classification of signals, the concept of frequency in continuous time and discrete time signals, analog to digital and digital to analog conversion, Sampling and quantization.

Discrete time signals and systems: Discrete time signals, discrete time systems, analysis of discrete time linear time invariant systems. Discrete time systems described by difference equations, implementation of discrete time systems, correlation and convolution of discrete time

signals.

The z-transform: Introduction, definition of the z-transform, z-transform and ROC of infinite duration sequence, properties of z-transform inversion of the z-transform, the one-sided z-transform.

Frequency analysis of signals and systems: Frequency analysis of continuous time signals,

Frequency analysis of discrete time signals, Properties of Fourier transform of discrete time signals, Frequency domain characteristics of linear time invariant system, linear time invariant systems as frequency selective filters, Inverse systems and deconvolution.

Discrete Fourier Transform (DFT): Discrete Fourier Series (DFS), Properties of DFS, Discrete Fourier Transformation (DFT), Properties and application of DFT.

Fast Fourier Transform Algorithms: FFT algorithms, applications of FFT algorithm.

Digital Filter Design Techniques: Differential and difference equations, Digital Transfer Functions, frequency response, Digital filter realization scheme, Finite Impulse response (FIR)

Infinite Impulse Response (IIR) filter design.

Application of DSP: Speech processing, analysis and coding, Matlab application to DSP.

Recommended Books :

CSE 4104 Sessional based on CSE 4103 Prerequisite: None Sessional based on the theory of course CSE 4103. CSE 4105 Digital Image Processing Prerequisite: None	Contact hours/week: 3/2 Credits: 0.75
Contact hours/week: 3 Credits: 3.00	

Digital Image Fundamentals: Different types of digital images, sampling and quantization, imaging geometry, image acquisition systems.

Bilevel Image Processing: Basic concepts of digital distances, distance transform, medial axis transform, component labeling, thinning, morphological processing, extension to grey scale morphology.

Binarization of Grey level images: Histogram of grey level images, optimal thresholding using Bayesian classification, multilevel thresholding.

Detection of edges : First order and second order edge operators, multi-scale edge detection, Canny's edge detection algorithm, Hough transform for detecting lines and curves, edge linking.

Images Enhancement: Point processing, Spatial Filtering, Frequency domain filtering, multispectral image enhancement, image restoration.

Image Segmentation: Segmentation of grey level images, Water shade algorithm for segmenting grey level image. Image representation and description, recognition and interpretation.

Image compression: Lossy and lossless compression schemes, prediction based compression schemes, vector quantization, sub-band encoding schemes, JPEG compression standard, Fractal compression scheme, Wavelet compression scheme.

CSE 4106 Sessional based on CSE 4105 Prerequisite: None Sessional based on the theory of course CSE 4105.	Contact hours/week: 3/2 Credits: 0.75
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Optional I

CSE 4107(a) Contact hours/week: 3

Information System Analysis & Design Credits: 3.00

Prerequisite: CSE 3105

Application Development Policy and Strategies: Planning of information system, Policy in information system development, Strategies for achieving information system Goals.
Application System Development Life Cycle: Phases in application system development, Interrelationship among each phase.
Feasibility Assessment: Problems and Needs in information system development, Preliminary application requirements determination, Feasibility assessment: Economic, technical, operational and schedule feasibility.
Information Requirements Determination: Strategies for obtaining information requirements, Technique for information requirements determination, Methods for providing assurance that requirement are correct and complete.
Structured Systems Analysis: Steps in structured systems analysis, Activity diagrams and related documentation, Data dictionary, Problem analysis, structured walk through.
Systems Design Methodology: Check list methodology, Process-oriented methodology, Application Generator, Structured design, Program development and testing: structured Programming and Method for testing.

CSE 4108(a) Sessional based on CSE 4107(a) Prerequisite: None Sessional based on the theory of course CSE 4107(a).	Contact hours/week: 3/2 Credits: 0.75
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Optional 2

CSE 4109(a) Contact Hours/week: 3

Parallel and Distributed Processing Prerequisite: None	Credits:3.00
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Multithreaded computing: Basic concepts: processes, threads, scheduling, Multithreaded programming, Thread synchronization: semaphores, locks, monitors , Concurrency issues: deadlock, starvation , Multi-core computers.
Networked computers: Basic concepts: client-server, connections, datagrams , Application protocol design , Client-side socket programming ,Server-side socket programming, Datagram programming.
Network protocols and security: Physical/data link/network/transport/application layers, Network security.
Distributed systems: Architectures: Two-tier, multi-tier, peer-to-peer, many-to-many,
Middleware: distributed objects, web services.
Parallel computing: Architectures: SMP, cluster, hybrid, grid, GPGPU ,Middleware: OpenMP, MPI, grid middleware.