

University of Kalyani

Three-year Semester-wise **B.Sc. (Honours)** Courses of Studies in Computer Science effective from the Academic Session 2018-2019 Computer Science Honours Course

Course Structure

SEMESTER-I				
Course Code	Course Title	Course wise Class	Credit	Full Marks (CAIA + SEE)*
UG-H-CC-L-101	Computer Fundamentals and Programming using C	Core Theory	4	15+60
UG-H-CC-P-101	Programming using C	Core Practical	2	15+60
UG-H-CC-L-102	Digital System Design	Core Theory	4	15+60
UG-H-CC-P-102	Digital System Design Lab	Core Practical	2	15+60
	GE-1	General Elective	6	15+60
AECC-101	Environmental Science / English/MIL communication	AECC	2	10+ 40
Total	4 courses	Total	20	425
SEMESTER-II				
Course Code	Course Title	Course Nature	Credit	Full Marks (CAIA + SEE)*
UG-H-CC-L-203	Programming in C++	Core Theory	4	15+60
UG-H-CC-P-203	Programming in C++ Lab	Core Practical	2	15+60
UG-H-CC-L-204	Computer System Architecture	Core Theory	5	15+40
UG-H-CC-T-204	Computer System Architecture Tutorial	Core Tutorial	1	0+20
	GE-2	General Elective	6	15+60
AECC-202	Environmental Science / English/MIL communication	AECC	2	10+40
Total	4 courses	Total	20	350
SEMESTER-III				
Course Code	Course Title	Course Nature	Credit	Full Marks (CAIA + SEE)*
UG-H-CC-L-305	Data Structures	Core Theory	4	15+60
UG-H-CC-P-305	Data Structures Lab	Core Practical	2	15+60
UG-H-CC-L-306	Design and Analysis of Algorithms	Core Theory	4	15+60
UG-H-CC-P-306	Design and Analysis of Algorithms Lab	Core Practical	2	15+60
UG-H-CC-L-307	Discrete Structures	Core Theory	5	15+40
UG-H-CC-T-307	Discrete Structures Tutorial	Core Tutorial	1	0+20
	GE-3	General Elective	6	15+60
UG-H-SEC-L-301	UNIX/LINUX Programming	SEC	2	10+40
Total	5 courses	Total	26	500
SEMESTER-IV				
Course Code	Course Title	Course Nature	Credit	Full Marks (CAIA + SEE)*
UG-H-CC-L-408	Operating System	Core Theory	5	15+40
UG-H-CC-T-408	Operating System Tutorial	Core Tutorial	1	0+20
UG-H-CC-L-409	Computer Networks	Core Theory	5	15+40
UG-H-CC-T-409	Computer Networks Tutorial	Core Tutorial	1	0+20
UG-H-CC-L-410	Database Management Systems	Core Theory	4	15+60
UG-H-CC-P-410	Data Management Systems Lab	Core Practical	2	15+60
	GE-4	General Elective	6	15+60
UG-H-SEC-L-402	Programming with MATLAB	SEC	2	10+40
Total	5 courses	Total	26	425
SEMESTER-V				
Course Code	Course Title	Course Nature	Credit	Full Marks (CAIA + SEE)*
UG-H-CC-L-511	Theory of Computation	Core Theory	5	15+40

UG-H-CC-T-511	Theory of Computation Tutorial	Core Tutorial	1	0+20
UG-H-CC-L-512	Internet Technologies	Core Theory	4	15+60
UG-H-CC-P-512	Internet Technologies Lab	Core Practical	2	15+60
UG-H-DSE-L-501	Microprocessor/ Digital Image Processing	DSE Theory	4	15+60
UG-H-DSE-P-501	Microprocessor/ Digital Image Processing Lab	DSE Practical	2	15+60
UG-H-DSE-L-502	Numerical Methods/ Machine Learning	DSE Theory	4	15+60
UG-H-DSE-P-502	Numerical Methods/ Machine Learning Lab	DSE Practical	2	15+60
Total	4 courses	Total	24	525
SEMESTER-VI				
Course Code	Course Title	Course Nature	Credit	Full Marks (CAIA + SEE)*
UG-H-CC-L-613	Software Engineering	Core Theory	5	15+40
UG-H-CC-T-613	Software Engineering Tutorial	Core Tutorial	1	0+20
UG-H-CC-L-614	Computer Graphics	Core Theory	4	15+60
UG-H-CC-P-614	Computer Graphics Lab	Core Practical	2	15+60
UG-H-DSE-L-603	System Programming/Introduction to Data Science	DSE Theory	4	15+60
UG-H-DSE-P-603	System Programming/Introduction to Data Science Lab	DSE Practical	2	15+60
UG-H-DSE-PRO-604	Project Work/Dissertation	DSE	6	15+60
Total	4 courses	Total	24	450
Total (All semesters)	26 courses	Total	140	2675

*CAIA: Class Attendance-cum Internal Assessment; SEE: Semester End Examination

NOTE: The following General Elective Courses cannot be taken by students in B.Sc. (Hons.) in Computer Science. Credit of each course is 6 and full marks is 75. Internal Assessment (IA) is 15.

TABLE-1

General Elective Course	Course Name	Course Code (Theory and Lab/Tutorial)	Credit	Full Marks (excluding IA)
GE-1	Computer Fundamentals and Programming using C	UG-H-GE-L-101	4	40
	Computer Fundamentals and Programming using C Lab	UG-H-GE-P-101	2	20
GE-2	Computer System Architecture	UG-H-GE-L-202	5	40
	Computer System Architecture Tutorial	UG-H-GE-T-202	1	20
GE-3	Analysis of Algorithms and Data Structures	UG-H-GE-L-303	4	40
	Analysis of Algorithms and Data Structures Lab	UG-H-GE-P-303	2	20
GE-4	Operating System	UG-H-GE-L-404	5	40
	Operating System Tutorial	UG-H-GE-T-404	1	20

No. of classes per week:

	L	T	P
Core Course	4	1	4

Discipline Specific Elective	4	1	4
General Elective	4	1	4
Skill Enhancement Course	1	1	2
Ability Enhancement Compulsory Course	1	1	0

L: Theory; T: Tutorial; P: Practical/Lab

Note:

- (1) At least 60 periods of classes must be taken for subjects with credits 4 or 5.
- (2) Wherever there is a practical there will be no tutorial and vice-versa.
- (3) In tutorial no internal assessment examination will be conducted by the university.
- (4) The size of the practical group for practical papers is recommended to be 10-15 students.
- (5) The size of tutorial group for papers without practical is recommended to be 8-10 students.

EVALUATION PROCESS FOR CC AND DSE PAPERS:

Marks distribution in question papers of theoretical subjects with credit 4 with full marks 75:

Class Attendance cum Internal Assessment= 15

Semester end theoretical examination = 60

Group A: Answer any 10 questions out of 15 carrying 2 marks each (10 X 2 = 20)

Group B: Answer any 4 questions out of 6 carrying 5 marks each (4 X 5= 20)

Group C: Answer any 2 questions out of 4 carrying 10 marks each (2 X 10 = 20)

Marks distribution in question papers of theoretical subjects with credit 5 with full marks 55:

Class Attendance cum Internal Assessment= 15

Semester end theoretical examination = 40

Group A: Answer any 5 questions out of 8 carrying 2 marks each (5 X 2 = 10)

Group B: Answer any 2 questions out of 4 carrying 5 marks each (2 X 5= 10)

Group C: Answer any 2 questions out of 4 carrying 10 marks each (2 X 10 = 20)

Marks distribution in tutorial subjects with credit 1 with full marks 20:

Class Attendance cum Internal Assessment= 0

Semester end tutorial examination conducted by college = 20

Marks distribution in question papers of practical subjects with credit 2 with full marks 75:

Class Attendance cum Internal Assessment= 15
Semester end practical examination = 60

Experiment(s) : 50
Viva : 10

Evaluation process AECC Papers will same as per guidelines of Annexure-III of University of Kalyani

EVALUATION PROCESS FOR GE PAPER WITH FULL MARKS 75:

Class Attendance cum Internal Assessment= 15
Marks distribution in question papers of theoretical subjects with credit 4 or 5 and full marks 40:

Semester end theoretical examination = 40

Group A: Answer any 5 questions out of 8 carrying 2 marks each (5 X 2 = 10)

Group B: Answer any 2 questions out of 4 carrying 5 marks each (2 X 5= 10)

Group C: Answer any 2 questions out of 4 carrying 10 marks each (2 X 10 = 20)

Marks distribution in question papers of practical subjects with credit 2 and full marks 20:

Semester end theoretical examination= 20

Experiment(s): 10;
Notebook: 5;
Viva: 5.

Marks distribution in question papers of tutorial subjects with credit 1 and full marks 20:

Class Attendance cum Internal Assessment= 0
Semester end tutorial examination conducted by college = 20

EVALUATION PROCESS FOR SEC PAPER (PRACTICAL) WITH FULL MARKS 50:

Class Attendance cum Internal Assessment= 10

Marks distribution in question papers of practical subjects with credit 2 and full marks 40:

Semester end practical examination = 40

Experiment(s) : 30
Viva : 10

University of Kalyani

Three-year Semester-wise **B.Sc. (General)** Courses of Studies in
Computer Science effective from the Academic Session 2018-2019

Computer Science General Course Course Structure

SEMESTER-I					
Course Code	Course Title	Course Type	Credit	Full Marks	Remarks
UG-G-CC-L-101A	Computer Fundamentals and Programming using C(CC-1A)	Core Theory	4	75	
UG-G-CC-P-101A	Programming using C Lab (CC-1A/P)	Core Practical	2		
	CC-2A	Core	6	75	
	CC-3A	Core	6	75	
AECC-101	Environmental Science/English/MIL Communication (AECC-1)	AECC	2	50	
Total	4 courses	Total	20	275	
SEMESTER-II					
Course Code	Course Title	Course Nature	Credit	Full Marks	Remarks
UG-G-CC-L-201B	Computer System Architecture (CC-1B)	Core Theory	5	75	
UG-G-CC-T-201B	Computer System Architecture Tutorial(CC-1B/T)	Core Tutorial	1		
	CC-2B	Core	6	75	
	CC-3B	Core	6	75	
AECC-202	Environmental Science/English/MIL Communication(AECC-2)	AECC	2	50	
Total	4 courses	Total	20	275	
SEMESTER-III					
Course Code	Course Title	Course Nature	Credit	Full Marks	Remarks
UG-G-CC-L-301C	Analysis of Algorithms and Data Structures (CC-1C)	Core Theory	4	75	
UG-G-CC-P-301C	Analysis of Algorithms and Data Structures (CC-1C/P)	Core Practical	2		
	CC-2C	Core	6	75	
	CC-3C	Core	6	75	
UG-G-SEC-P-301	Any one of the following(SEC-1): 1. Office Automation Tools 2. System Administration and Maintenance	SEC Theory	2	50	
Total	4 courses	Total	20	275	
SEMESTER-IV					
Course Code	Course Title	Course Nature	Credit	Full Marks	Remarks
UG-G-CC-L-401D	Operating System (CC-1D)	Core Theory	5	75	
UG-G-CC-T-401D	Operating System Tutorial (CC-1D/T)	Core Tutorial	1		
	CC-2D	Core	6	75	
	CC-3D	Core	6	75	

UG-G-SEC-P-402	Any one of the following(SEC-2): 1. HTML Programming 2. XML Programming	SEC	2	50	
Total	4 courses	Total	20	275	
SEMESTER-V					
Course Code	Course Title	Course Nature	Credit	Full Marks	Remarks
UG-G-DSE-L-501A	Database Management Systems (DSE-1A)	DSE Theory	4	75	
UG-G-DSE-P-501A	Database Management Systems Lab (DSE-1A/P)	DSE Practical	2		
	DSE-2A	DSE	6	75	
	DSE-3A	DSE	6	75	
UG-G-SEC-P-503	Any one of the following (SEC-3): 1. Programming in Visual Basic/GAMBAS 2. Multimedia And Applications	SEC	2	50	
Total	4 courses	Total	20	275	
SEMESTER-VI					
Course Code	Course Title	Course Nature	Credit	Full Marks	Remarks
UG-G-DSE-PRO-601B	Project Work (DSE-1B)	DSE	6	75	
	DSE-2B	DSE	6	75	
	DSE-3B	DSE	6	75	
UG-G-SEC-P-604	Any one of the following (SEC-4): 1. MySQL Programming (using SQL/PL-SQL) 2. R Programming	SEC	2	50	
Total	4 courses	Total	20	275	
Total (All semesters)	24 courses	Total	120	1650	

Courses to be Offered by other Departments	
Core Courses	CC-2A
	CC-3A
	CC-2B
	CC-3B
	CC-2C
	CC-3C
	CC-2D
	CC-3D
Discipline Specific Electives	DSE-2A
	DSE-3A
	DSE-2B
	DSE-3B

No. of classes per week:

	L	T	P
Core Course	4	1	4
Discipline Specific Elective	4	1	4
Skill Enhancement Course	1	1	2

L: Theory; T: Tutorial; P: Practical/Lab

Note:

- (1) At least 60 periods of classes must be taken for subjects with credits 4 or 5.
- (2) Wherever there is a practical there will be no tutorial and vice-versa.
- (3) In Tutorial no internal assessment examination will be conducted by the university.
- (4) The size of the practical group for practical papers is recommended to be 10-15 students.
- (5) The size of tutorial group for papers without practical is recommended to be 8-10 students.

TABLE- 2 for CORE Courses

Core Courses	Course Name	Course Code (Theory and Lab/Tutorial)	Credit	Full Marks (excluding IA)
CC-1A	Computer Fundamentals and Programming using C	UG-G-CC-L-101A	4	40
	Computer Fundamentals and Programming using C Lab	UG-G-CC-P-101A	2	20
CC-1B	Computer System Architecture	UG-G-GE-CC-201B	5	40
	Computer System Architecture Tutorial	UG-G-CC-T-201B	1	20
CC-1C	Analysis of Algorithms and Data Structures	UG-G-CC-L-301C	4	40
	Analysis of Algorithms and Data Structures Lab	UG-G-CC-P-301C	2	20
CC-1D	Operating System	UG-G-CC-L-401D	5	40
	Operating System Tutorial	UG-G-CC-T-401D	1	20

EVALUATION PROCESS FOR CC AND DSE PAPER WITH FULL MARKS 75:

Class Attendance cum Internal Assessment= 15

Marks distribution in question papers of theoretical subjects with credit 4 and 5 and full marks 40:

Semester end theoretical examination = 40

Group A: Answer any 5 questions out of 8 carrying 2 marks each (5 X 2 = 10)

Group B: Answer any 2 questions out of 4 carrying 5 marks each (2 X 5= 10)

Group C: Answer any 2 questions out of 4 carrying 10 marks each (2 X 10 = 20)

Marks distribution in question papers of practical subjects with credit 2 and full marks 20:

Semester end theoretical examination= 20

Experiment(s): 10;

Notebook: 5;

Viva: 5.

Marks distribution in question papers of tutorial subjects with credit 1 and full marks 20:

Class Attendance cum Internal Assessment= 0

Semester end tutorial examination conducted by college = 20

Evaluation process: AECC Papers will same as per guidelines of Annexure-III of University of Kalyani

EVALUATION PROCESS FOR SEC PAPER (PRACTICAL) WITH FULL MARKS 50:

Class Attendance cum Internal Assessment= 10

Marks distribution in question papers of practical subjects with credit 2 and full marks 40:

Semester end practical examination = 40

Experiment(s) : 30

Viva : 10