Template for Curricula/Syllabi of Degree Program

Program Title: **BS Information Technology**

Department: **Punjab University College of Information Technology (PUCIT)**

Faculty: **Faculty of Science**

1. **Department Mission**: Our mission is to rigorously train our students in IT and affiliated fields, so that they can serve humanity with skill, knowledge and high character, and be a source of pride to the nation of Pakistan.

2. **Introduction**: Information Technology has been a key player in digitizing our lives. From daily routine jobs to the most sophisticated financial applications, information technology provides the necessary enabling environment. Information technology infrastructure in an organization is as important as its other physical infrastructure and human resource. PUCIT provides state-of-the-art training to its students so that they are considered competitive both in national and international markets.

3. **Program Introduction:** The Information Technology program at the PUCIT has been designed in accordance with the guidelines provided by the Higher Education Commission (HEC)/National Computing Education Accreditation Council (NCEAC). With the cutting-edge training imparted to the PUCIT students, the curriculum prepares PUCIT students not only for higher education but also for self-initiated ventures that may translate into successful startups.

4. Program Objectives

The objectives of the BS Information Technology program are to

1. Cultivate skills that cater to organizational needs, such as system maintenance, management of data, and secure access.
2. Hone the skills that facilitate learning and integrating new tools and technologies.

3. Nurture software development and problem-solving skills, clarity of thought, and creativity.
4. Build a strong foundation in theoretical concepts in computing and software engineering.
5. Prepare students for rigors of graduate studies, as well as for careers in the industry.
6. Provide a balanced exposure to liberal arts.
7. Prepare students for effective oral and technical communication.
8. Foster a sense of professional and ethical responsibilities.

5. Market Need / Rationale of the Program

Note: *Since it is just a revision of already approved curriculum of Information Technology program, hence Market Need / Rationale of the Program is not required.*

The proposal fornew program should include a market survey to address the need for introducing the program.

Program need assessment may include feedback from multiple sources such as:

a) ***Potential Students for the program***. (Career needs, subject interest etc.)

b) ***Potential Employers*** (Public, private, NGOs, required skill set, industry projections, employment opportunities/estimated market demand/Number of job openings, Current and future prospects)

c) ***Academic Projections*** (The national/ international universities that have launched the similar program)

d) ***Faculty*** (Faculty credentials, capacity, resources sufficiency etc.)

e) Physical Facilities (Lab and library facilities etc.)

6. Admission Eligibility Criteria

- Years of Study completed: 12 Years
- Study Program/Subject: Intermediate of Computer Science (ICS), FSc Pre-engineering, FSc Pre-medical, FSc Pre-medical with Additional Mathematics, Intermediate with Mathematics and Physics, Intermediate with Mathematics and Computer Science, Intermediate with Mathematics and Statistics, A-Levels (with relevant subjects), Diploma of Associate Engineer (DAE) in relevant discipline.

- Percentage/CGPA: 50% marks required with the exception of DAE where 60% marks are required for admission.
- Entry Test (if applicable) with minimum requirement: There is no compulsory entry test requirement. However, owing to large number of applicants PUCIT conducts an entry test to select students as per number of available seats.
- Any other (if applicable)

7. Duration of the Program

8 Semesters, 4 Years, 130 Credit hours

8. Categorization of Courses as per HEC Recommendation and Difference

***Note**: Basics courses represent Math and Science Foundation course as per HEC/NCEAC approved curriculum.*

CC = Computing Core, DC = Domain Core, MS = Math and Science Foundation, GE = General Education, UE = University Elective, MD = Math Deficiency,

Semester	Courses	Category(Credit Hours)								
		Core Courses		Basic Courses		Major Electives (IT Elective)	Minor Electives (IT Supporting)	Any Other		Semester Load
		CC	DC	MS	GE			UE	MD	
1	6	3	0	6	6	0	0	0	3*	**15**
2	7	4	0	3	10	0	0	0	3*	**17**
3	5	7	0	3	0	3	0	3	0	**16**
4	5	8	6	0	0	0	3	0	0	**17**
5	5	8	6	0	0	0	3	0	0	**17**
6	5	0	8	0	0	6	3	0	0	**17**
7	5	6	4	0	0	3	0	3	0	**16**
8	6	3	0	0	3	3		6	0	**15**
PU	**44**	**39**	**24**	**12**	**19**	**15**	**9**	**12**	**6***	**130**
HEC Guidelines	**44**	**39**	**24**	**12**	**19**	**15**	**9**	**12**		**130**
Difference (HEC &) PU	**0**	**0**		**0**		**0**	**0**	**0**		**0**

**Core: Compulsory, Basic: Foundation, Major Electives: Professional Minor Electives: Specialization*

Note: The course/column heads are customizable according to nature and level of the program.

**** These Math courses will be as Non-Credit courses with only Pass/Fail grade assigned to the students so that overall credit will not affect.***

9. Scheme of Studies / Semester-wise workload

#	Code	Course Title	Course Type	Prerequisite	Credit hours
Semester I					
1.	GE-161	Introduction to ICT	General Education		2-1
2.	CC-111	Discrete Structures	Computing Core		3
3.	MS-152	Probability & Statistics	Math & Science Foundation		3
4.	GE-162	English Composition & Comprehension	General Education		3
5.	MS-151	Applied Physics	Math & Science Foundation		3
6.	MD-001	Math Deficiency - I	Deficiency Course		3*
Total Credit Hours: 15					
Semester II					
1.	GE-163	Islamic Studies	General Education		2
2.	GE-164	Communication & Presentation Skills	General Education		3
3.	MS-153	Linear Algebra	Math & Science Foundation		3
4.	GE-165	Pakistan Studies	General Education		2
5.	GE-166	Professional Practices	General Education		3
6.	CC-112	Programming Fundamentals	Computing Core		3-1
7.	MD-002	Math Deficiency - II	Deficiency Course		3*
Total Credit Hours: 17					
Semester III					
1.	UE-27X	Social Science Related UE	University Elective		3
2.	EI-23X	IT Elective - I	IT Elective		3
3.	CC-211	Object Oriented Programming	Computing Core	Programming Fundamentals	3-1
4.	MS-251	Calculus & Analytical Geometry	Math & Science Foundation		3
5.	CC-212	Software Engineering	Computing Core		3
Total Credit Hours: 16					
Semester IV					
1.	DI-221	IT Infrastructure	Domain Core		3
2.	CC-214	Computer Networks	Computing Core		3-1
3.	CC-213	Data Structures & Algorithms	Computing Core	Object Oriented Programming	3-1
4.	SI-24X	IT Supporting - I	IT Supporting		3
5.	DI-222	Web Technologies	Domain Core		3

Total Credit Hours: 17					
Semester V					
1.	DI-221	IT Infrastructure	Domain Core	Data Structures & Algorithms	3-1
2.	CC-214	Computer Networks	Computing Core		3
3.	CC-213	Data Structures & Algorithms	Computing Core		3
4.	SI-24X	IT Supporting - I	IT Supporting	Data Structures & Algorithms	3-1
5.	DI-222	Web Technologies	Domain Core		3
Total Credit Hours: 17					
Semester VI					
1.	DI-323	Database Administration & Management	Domain Core		3-1
2.	EI-33X	IT Elective - II	IT Elective		3
3.	SI-34X	IT Supporting - III	IT Supporting		3
4.	DI-324	System and Network Administration	Domain Core	Operating Systems	3-1
5.	EI-33X	IT Elective - III	IT Elective		3
Total Credit Hours: 17					
Semester VII					
1.	CC-411	Final Year Project - I	Computing Core		0-3
2.	UE-47X	Economy Related UE	University Elective		3
3.	DI-421	Virtual Systems & Services	Domain Core		3-1
4.	CC-413	Information Security	Computing Core		3
5.	EI-43X	IT Elective - IV	IT Elective		3
Total Credit Hours: 16					
Semester VIII					
1.	CC-412	Final Year Project - II	Computing Core		0-3
2.	UE-47X	Foreign Language UE	University Elective		2
3.	UE-47X	Social Services UE	University Elective		1
4.	GE-461	Technical & Business Writing	General Education		3
5.	UE-47X	Management Related UE	University Elective		3
6.	EI-43X	IT Elective - V	IT Elective		3
Total Credit Hours: 15					

1. Type of course may be core (compulsory), basic (foundation), major elective (professional), minor elective (specialization) etc.

Research Thesis / Project /Internship

Final Year Project (6 credit hours, VII & VIII semesters)

10. Award of Degree

Degree awarding criteria stating:

CGPA percentage required to Qualify: 2.0

Thesis /Project/Internship: Final Year Project Required

Any other requirement, e.g. Comprehensive examination (if applicable)

11. NOC from Professional Councils (if applicable)

Not applicable

12. Faculty Strength

Degree	Area/Specialization	Total
PhD	1. Computing: 25 2. Mathematics: 3 3. Physics: 1	29
MS/MPhil	1. Computing: 24 2. Mathematics: 1 3. Physics: 1 4. English: 1	27
Total		**56**

13. Present Student Teacher Ratio in the Department

Total Number of Students: 2,500

Total fulltime permanent faculty: 66

Total fulltime permanent faculty on duty: 56

Student Teacher ratio: 2500 / 56 = 44.64

14. Course Outlines separately for each course. The course outline has following elements:

- Basic Information. Title and Code Number, Semester, and Credit Hours
- Pre-requisites course requirements/ skills
- Learning Outcomes

- Contents
- Teaching-learning Strategies
- Assignments- Types and Number with calendar
- Assessment and Examinations:

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	It takes place at the mid-point of the semester.
2.	Formative Assessment	25%	It is continuous assessment. It includes: classroom participation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.
3.	Final Assessment	40%	It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.

- Textbooks. In the detail course outline, one may mention chapters of the textbook with the content topics
- Suggested Readings
    - Books
    - Journal Articles/ Reports

Note:

1. It is preferable to use latest available editions of books. Mention the publisher & year of publication.
2. The References/ bibliography may be in accordance with the typing manual of the concerned faculty/subject

Checklist for a New Academic Program

Parameters	
1. Department Mission and Introduction	✔
2. Program Introduction	✔
3. Program Alignment with University Mission	✔
4. Program Objectives	✔
5. Market Need/ Rationale	✔
6. Admission Eligibility Criteria	✔
7. Duration of the Program	✔
8. Assessment Criteria	✔
9. Courses Categorization as per HEC Recommendation	✔
10. Curriculum Difference	✔
11. Study Scheme / Semester-wise Workload	✔
12. Award of Degree	✔
13. Faculty Strength	✔
14. NOC from Professional Councils (if applicable)	✔

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Program Coordinator **Chairperson**