

SUMMARY OF INFORMATION ON EACH COURSE

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|-----|--|---|-----------|
| 1. | Name of Course | Programming Language Concept | |
| 2. | Course Code | TPL 2141 | |
| 3. | Status of Course [Applies to (cohort)] | Specialisation Core for B.IT (Hons) Artificial Intelligence | |
| 4. | MQF Level/Stage Note : <i>Certificate – MQF Level 3</i> <i>Diploma – MQF Level 4</i> <i>Bachelor – MQF Level 6</i> <i>Masters – MQF Level 7</i> <i>Doctoral – MQF Level 8</i> | Bachelor – MQF Level 6 | |
| 5. | Version (State the date of the Senate approval – history of previous and current approval date) | Date of previous version : | June 2014 |
| | | Date of current version : | May 2016 |
| 6. | Pre-Requisite | TCP1121 Computer Programming | |
| 7. | Name(s) of academic/teaching staff | Ong Lee Yeng | |
| 8. | Semester and Year offered | Trimester 1, Year 2 | |
| 9. | Objective of the course in the programme : This course exposes students to the basic structure of programming languages. This course will improve their understanding on different language implementations and increase their ability in learning new languages | | |
| 10. | Justification for including the course in the programme : This subject describes the fundamental concepts of programming languages by discussing the design issues of the various language constructs, examining the design choices for these constructs in some of the most common languages and critically comparing design alternatives. | | |
| 11. | Course Learning Outcomes : | Domain | Level |
| | LO1: Identify the main constructs of contemporary programming languages. | Cognitive | 1 |
| | LO2: Explain the structure of programming languages. | Cognitive | 2 |
| | LO3: Analyse the constructs and features of various programming languages. | Cognitive | 4 |

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| | LO4: Demonstrate different language implementations correctly and effectively. | | | | | Cognitive | 3 | | | |
| 12. | Mapping of Learning Outcomes to Programme Outcomes : | | | | | | | | | |
| | Learning Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 |
| | LO1 | X | X | | | | | | | |
| | LO2 | X | X | | | | | | | |
| | LO3 | X | X | | | | | | | |
| | LO4 | X | X | | | | | | | |
| 13. | Assessment Methods and Types : | | | | | | | | | |
| | Method and Type | Description/Details | | | | | Percentage | | | |
| | Quiz | Written quiz / written homework | | | | | 15% | | | |
| | Assignment | Group assignment, written report, presentation | | | | | 15% | | | |
| | Test | Written test | | | | | 20% | | | |
| | Final Examination | Written examination | | | | | 50% | | | |
| 14. | Mapping of assessment components to learning outcomes (LOs) | | | | | | | | | |
| | Assessment Components | % | LO1 | LO2 | LO3 | LO4 | | | | |
| | Quiz | 15 | 15 | 15 | 19 | 50 | | | | |
| | Assignment | 15 | 15 | 15 | 19 | 50 | | | | |
| | Test | 20 | 20 | 20 | 0 | 0 | | | | |
| | Final Examination | 50 | 50 | 50 | 62 | 0 | | | | |
| 15. | Details of Course | | | | | | | | | |
| | Topics | | | | | Mode of Delivery | | | | |
| | | | | | | Lecture | | Lab | | |
| | 1. Introduction Programming paradigms, Program domains, Program elements, Nature of language | | | | | 1 | | 2 | | |

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| <p>2. Formal Description of Language Context-free grammars, EBNF grammar, Syntax diagrams, Parse trees, Semantic elements, Lambda calculus.</p> | 4 | 2 |
| <p>3. Lexical and Syntax Analysis Lexical analysis, Parsing problem, recursive-descent parsing, bottom-up parsing.</p> | 2 | 2 |
| <p>4.Names and Bindings Storage objects, Storage models, Design issues related to names, Storage bindings, Type bindings, Scope bindings.</p> | 4 | 4 |
| <p>5.Expressions and Evaluation Operator expressions, Operator precedence and associativity, Operator expression syntax, Functional expressions, Assignment expression, Mixed-mode expressions.</p> | 4 | 4 |
| <p>6.Functions and Parameters Parameter binding, Functional side effects, Parameter passing mechanisms, Overloaded subprograms, Generic subprograms.</p> | 4 | 4 |
| <p>7. Control Structures Conditional expressions, Statement level control structures, Control diagrams, Branch statements.</p> | 4 | 4 |

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| 8.Language Examples | | | |
| Comparison of languages (such as C, Java, C#, LISP) with regard to the concepts taught in this course. | | 1 | 2 |
| Total | | 24 | 24 |
| | | | |
| Total Student Learning Time (SLT) | Face to Face / Guided Learning | Independent Learning | |
| Lecture | 24 | 24 | |
| Tutorials | | | |
| Laboratory/Practical | 24 | 12 | |
| Presentation | 1 | 2 | |
| Assignment | - | 10 | |
| Quiz / Homework (2 times) | | 2 | |
| Mid Term Test | 1 | 3 | |
| Final Exam | 2 | 15 | |
| Sub Total | 52 | 68 | |
| Total SLT | | 120 | |
| 16. Credit Value | | 3 | |
| 17. Reading Materials : | | | |
| | Textbooks | | |
| | Robert W. Sebesta (2015). Concepts of Programming Languages (11 th ed.). Pearson. | | |
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| | | | |
| | Reference Material (including 'Statutes' for Law) | | |
| | 1. P. Sestoft (2012) Programming Language Concepts. Springer. | | |
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Appendix (to be compiled when submitting the complete syllabus for the programme) :

1. Mission and Vision of the University and Faculty
2. Programme Objectives or Programme Educational Objectives
3. Programme Outcomes (POs)
4. Mapping of POs to the 8 MQF domain
5. Summary of the Bloom's Taxonomy's Domain Coverage in all the Los in the format below :

| Subject | Learning Outcomes (please state the learning Outcomes) | Bloom's Taxonomy Domain | | |
|---------|---|-------------------------|-----------|-------------|
| | | Affective | Cognitive | Psychomotor |
| ABC1234 | Learning Outcome 1 | | | |
| | Learning Outcome 2 | | | |
| | Learning Outcome 3 | | | |
| | Learning Outcome 4 | | | |
| DEF5678 | Learning Outcome 1 | | | |
| | Learning Outcome 2 | | | |
| | Learning Outcome 3 | | | |
| | Learning Outcome 4 | | | |

6. Summary of LO to PO measurement
7. Measurement and Tabulation of result for LO achievement
8. Measurement Tabulation of result for PO achievement