

STUDENTS' GUIDE TO HIGHER DIPLOMA IN SOFTWARE ENGINEERING

```
add back the deselected mirror modifier:
active = modifier_ob
fier_ob)) # modifier ob is the active
```

2023

DEPARTMENT OF COMPUTING &
INFORMATION SYSTEMS
FACULTY OF APPLIED SCIENCES
WAYAMBA UNIVERSITY OF SRI LANKA



Overview of the Higher Diploma in Software Engineering

Wayamba University of Sri Lanka has been offering several diplomas related to computer science and information technology, through the Department of CMIS of the Faculty of Applied Sciences and the ICT Centers at both Kuliypitiya and Makandura premises. These courses provide quality education to learners coming from different educational backgrounds. The attraction from the public to these programmes over the years is evidence of their need for quality education and opportunities to obtain recognized academic qualification from a reputed educational institute. Wayamba University being the highest level educational institute and the only state university in the North Western province is in a strong position to provide such education.

The Department of CMIS is in the view that introducing a Higher Diploma adhering to the latest SLQF standards would open a progressive educational avenue to address such educational needs, while providing an opportunity to advance the academic qualifications already provided by other related diploma programmes of the University. The Department is also in the process of developing an external degree programme progressively, to provide completeness to the external academic qualification path as well as to provide comprehensive graduate level education to the suitable general public at a reasonable cost.

The Higher Diploma in Software Engineering (HDSE) ensures that participants will have comprehensive skills in systematic designing and development of software applications. Essential skills and techniques are taught and practiced to perfection in a creative atmosphere with a strong emphasis on Software Engineering concepts.



THE AIM OF THE PROPOSED PROGRAM IS TO;

- PRODUCE SKILLED SOFTWARE SOLUTION PROVIDERS WITH SOUND THEORETICAL AND PRACTICAL KNOWLEDGE IN SOFTWARE ENGINEERING THEORIES AND PRACTICES, WITH THE EMPHASIS ON SOFTWARE DESIGN AND DEVELOPMENT AS WELL AS PROJECT MANAGEMENT,
- DEVELOP PROFESSIONAL QUALITIES, TRANSFERABLE AND SUBJECT SPECIFIC SKILLS AND RIGHTFUL ATTITUDE TO PURSUE A CAREER IN SOFTWARE ENGINEERING.



AT THE END OF THE PROGRAM, THE PARTICIPANT WILL BE ABLE TO;

- APPLY PRINCIPLES AND TECHNIQUES OF SOFTWARE ENGINEERING TO THE DEVELOPMENT AND SUPPORT OF SOFTWARE SYSTEMS,
- DEVELOP SIMPLE SOFTWARE PROJECTS TO APPLY KNOWLEDGE IN ANALYZING, DESIGNING AND IMPLEMENTING COMPUTING SOLUTIONS,
- DEMONSTRATE PROFESSIONAL ATTITUDES WITH NECESSARY LEADERSHIP AND TEAMWORK SKILLS,
- SHOWCASE IN INDEPENDENT SOFTWARE DEVELOPMENT TASKS.

The Structure and Content of the Course

Higher Diploma in Software Engineering emphasizes in developing basic skills into the area of Systems Analysis & Design, Database Design, Software Engineering and Business Information Systems. The course has a marked practical emphasis to ensure that participants reach a level of programming competence sufficient to develop semi-advanced level software applications individually.

The HDSE is a program with total credit weighting amounting to 60. A credit is defined as the workload of 15 lecture hours. The participants are required to follow all the course modules mentioned in the course curriculum in four terms, including two comprehensive Projects at the end of each second term. A minimum of 100 hours of study is recommended for each module. Also, a minimum 200 hours of study recommended for a project.

1. Duration of the Course

Two Academic Years [Total 840 student contact hours and 1050 student directed study hours, over 104 weeks which includes a two Comprehensive Projects at the second semester of each academic year (weekend classes held online)]

Note:

Prospective students who have completed the Diploma level of the same program (DSE/DSAD) or any similar Diploma program (equivalent to SLQF Level 3 or NVQ Level 5 or above) acceptable to the Board of Study and the Senate of WUSL or any other qualification not listed above, but may be considered case by case and acceptable to the Board of Study of the HDSE and the Senate of WUSL, may also apply for the program.

If the prospective student satisfies the conditions set for the completion of Academic Year 1 of the HDSE program, the student may join the program at the Second academic year. Thereby the duration of the program will be 1 year.

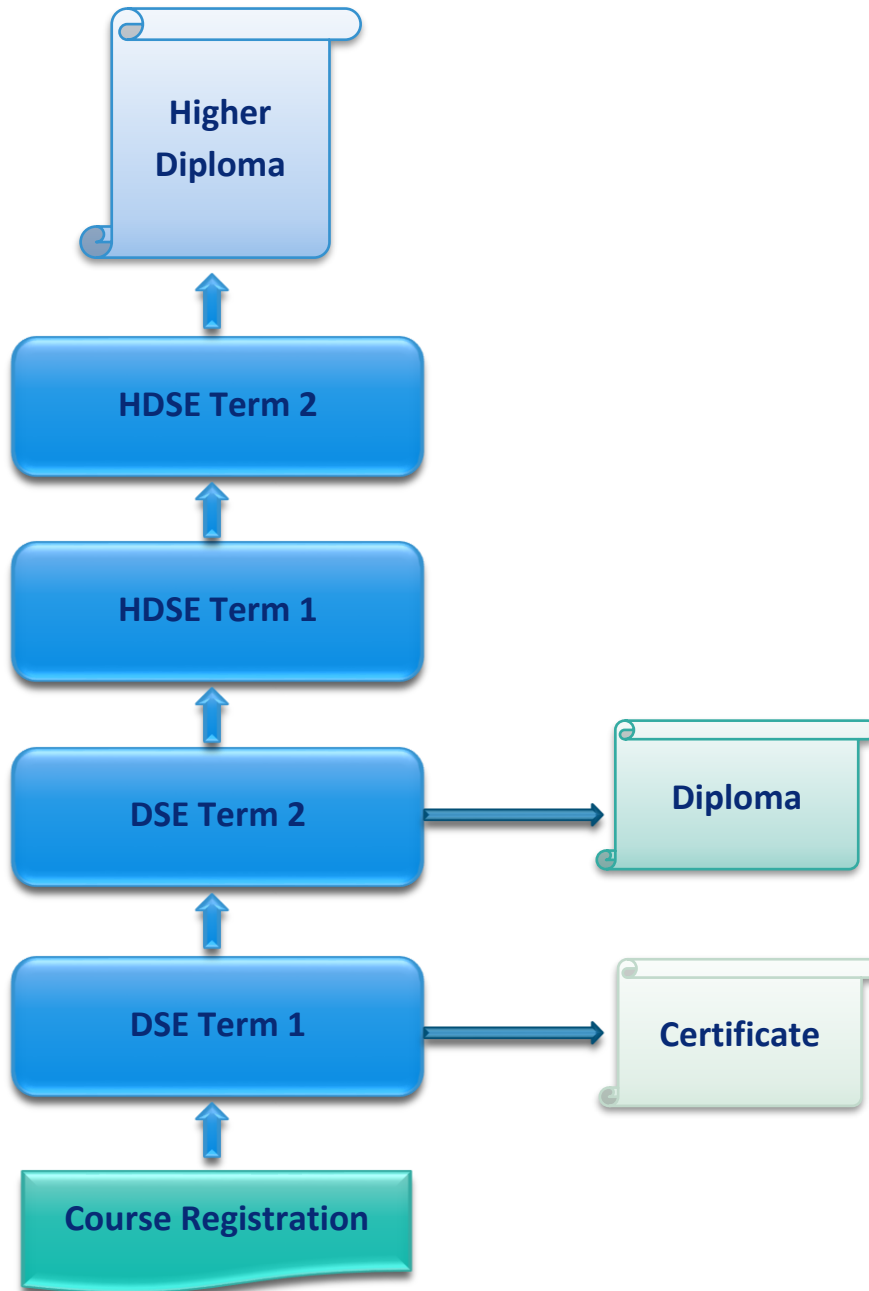
2. Location

Department of Computing and Information Systems, Faculty of Applied Sciences located at the Kuliypitiya premises of the Wayamba University of Sri Lanka.

3. The Syllabus

The participants are required to follow all the subjects mentioned in course curriculum in both academic years, including comprehensive projects at the second semester of each year.

4. The HDSE path



5. Course Curriculum - Higher Diploma in Software Engineering

| Course Code | Course Name | Credits | Pre-requisites | |
|---|---|-----------|--------------------|-----------------|
| DSE 113 | Principles of Computing | 3 | - | Academic Year 1 |
| DSE 123 | Fundamentals in Software Engineering | 3 | - | |
| DSE 132 | Software Engineering Methodologies | 2 | - | |
| DSE 143 | Principles of Database Management Systems | 3 | - | |
| DSE 152 | Database Development Practices | 2 | - | |
| DSE 163 | Computer Programming Concepts | 3 | - | |
| DSE 173 | Data Communication and Computer Networks | 3 | - | |
| Number of Credits in Semester I | | 19 | | |
| Exit Point 1: Certificate in Software Engineering | | | | |
| DSE 213 | Advanced Computer Programming Concepts | 3 | - | |
| DSE 222 | Computer Architecture | 2 | - | |
| DSE 232 | Mathematics for Computing | 2 | - | |
| DSE 244 | Computer Project I | 4 | - | |
| Number of Credits in Semester II | | 11 | - | |
| Total Number of Credits at Diploma Level | | 30 | | |
| Exit Point 2: Diploma in Software Engineering | | | | |
| HDSE 113 | Software Engineering Theories and Practices | 3 | DSE 123 | Academic Year 2 |
| HDSE 123 | Advanced Database Management | 3 | DSE 143 | |
| HDSE 132 | Database Management Systems Development | 2 | DSE 143, DSE 152 | |
| HDSE 143 | Object Oriented Programming | 3 | DSE 163, DSE 173 | |
| HDSE 153 | Web Development Techniques | 3 | - | |
| Number of Credits in Semester I | | 14 | - | |
| HDSE 213 | Data Structures and Analysis of Algorithms | 3 | - | |
| HDSE 222 | Data Structures and Algorithms Practices | 2 | HDSE 213, HDSE 143 | |
| HDSE 233 | E-Commerce | 3 | DSE 213 | |
| HDSE 242 | Report Writing Skills | 2 | - | |
| HDSE 252 | Probability and Statistics for Computing | 2 | DSE 232 | |
| HDSE 264 | Computer Project II | 4 | - | |
| Number of Credits in Semester II | | 16 | | |
| Total Number of Credits at Higher Diploma Level | | 60 | | |
| Exit Point 3: Higher Diploma in Software Engineering | | | | |

6. Teaching & Learning Methods

The program contents are delivered through lectures, classroom discussions, presentations, practical sessions and group projects. The material for all modules except independent project is taught through lectures. Supporting materials, including notes, slides and videos are made available to participants. Lecturers may also direct participants to recommended reading to supplement the lecture material.

Online resources and online learning platform or Learning Management System (LMS) will be used throughout the course for submission of tutorials, quizzes, lecture notes and presentations and assignments as well as a forum for discussion. The course is planned as a Distance Education Course. Therefore, the lectures are planned to be conducted online through live sessions and recordings as well as self-study materials provided through the LMS. This allows the students to follow the course at the own phase and on convenient time.

Teaching Panel

Director – HDSE



Dr. V.G.T.N. Vidanagama (Senior Lecturer)

B.Sc. (Hons) in Computer Science (Peradeniya),
M.Sc., Ph.D. In Global Information & Telecommunication
Studies, Waseda University, Japan
e-mail: tharinda@wyb.ac.lk

Academic Coordinator – HDSE



Mr. T. Arudchelvam (Senior Lecturer)

B.Sc. (Hons) in Computer Science (Jaffna),
M.Sc. (Peradeniya),
MPhil (Peradeniya, SL) (Bath, UK) (RPI,US)
E-mail: tarudchelvam@gmail.com, arul@wyb.ac.lk

Lecturers – HDSE



Mrs. W. M. L. N. Wanninayake (Lecturer)

BSc. (Hons) in Computer Science (Peradeniya),
M.Sc. in Computer Science (Peradeniya)
E-mail: lakminiw@wyb.ac.lk



Mr. W.C.C. Premarathna (Lecturer)

B.Sc. (Hons.) in Computer Science (Wayamba)
E-mail: chamidu@wyb.ac.lk



Higher Diploma in Software Engineering



Department of
Computing & Information
Systems
Faculty of Applied Sciences
Wayamba University of Sri
Lanka
2023