|  |  |  |  |
| --- | --- | --- | --- |
| DATA DICTIONARY | | | |
| ENTITY | DEFINITION | ENTITY RELATIONSHIPS | ATTRIBUTES |
| student | A person who is registered with the institution and has registered for a course, this individual is also taking modules or subjects that are offered within the course, thus ultimately a student is an individual who has at least registered a single module. – this is according to this business rule – an individual who is registers with the institution and registered for a course but has not registered for a module is called a prospective student a student cannot register for a module without having registered for a course – For the module is dependent on the course. – It is assumed that an individual who is registered for a course is also registered with the institution. | a **STUDENT** registers to an **INSTITUTION** – An **INSTITUTION** takes many **STUDENTS** | stud\_number  first\_name  last\_name  id\_nr  sex  phone  email  address |
| a **STUDENT** registers to a single **COURSE** a **COURSE** is taken by many **STUDENTS** |
| a **STUDENT** attends one or many **LECTURES**, a **LECTURE** is attended by one of many **STUDENTS** |
| a **STUDENT** takes one or many **MODULES**, a **MODULE** may be taken by many **STUDENTS** |
| module | A module is take by the student, specific modules make up a course or we can also say a course describes a specific set of modules a module is taught by lecturer during a lecture [class]  A student receives marks at the end of the semester for the module they have enrolled for – a module has a time frame, it has a start date and an end date. | a **MODULE** may be taught in/during one or many **LECTURES** | PK module\_code  module\_name  year  semester |
| a **STUDENT** takes one or many **MODULES**, a **MODULE** may be taken by many **STUDENTS** |
| lecture [class] | A lecture/class is attended by a student, a lecture may contain many students and may be taught by many lecturers – When lectures are taught by many lecturers [based upon the number of students] Lecture are divided into lecture [Class] groups. A lecture takes place in a venue, at specific times and dates, a lecture has a duration~~. Students will be allocated marks at the end of the lecture~~ a lecture is derived from a module ~~a lecture is thus depended on a module for the purpose of the lecture is the module.~~  For the purpose simplicity the word lecture is used with the word class interchangeably – They are thus syno  nymous | a **LECTURE** is attended by one or many **STUDENTS** – but at a point in time a **STUDENT** must attend only one **LECTURE** | lecture\_id INT(5) PRIMARY KEY  module\_code FK |
| at point in time a **LECTURE** is facilitated by one **LECTURER** |
| a **LECTURER** is assigned one or many **LECTURES** but the same instance of **LECTURE** may not be assigned to more than one **LECTURER** at a time |
| a **MODULE** is taught during a **LECTURE**, but the same **MODULE** may taught in more than one **LECTURE** at a time |
| lecturer | A lecturer is an individual who is registered with the institution to facilitate a lecture~~, The lecturer allocates marks to students based upon their performance~~ – This individual lectures a module or many modules, Lecturers are not confined to courses but they belong to a department.  The definition of a lecturer in this overview is based upon the business rules of the system which has thus being proposed.  A lecture entity can be thought of as a file that describes a set of events that a student has been involved in that contribute to a student being assessed by the institution. For this event to occur there needs to be a student, Module and Lecturer other things that are not be mandatory but advised to have such as venue, time and day define the lecture. | a **LECTURER** facilitates one or many **LECTURES**, a **LECTURE** is facilitated by one or many **LECTURERS** | lecture\_id  module\_code  semester  year  prerequisite\_module |
| lecture\_student | A lecture\_student is a file containing all the lectures that a takes or has taken [This file serves as an associative entity – For a student can take many lectures and the same lecture can be taken by many students]  In this business case a student registers for a course which contains a set of related modules that are specific to that course [as per definition of the **course** entity], and therefore every semester a student takes one or many lectures [in the internal and conceptual level a student takes a lecture – The lecture contains a module, for the lecture is derived from the module – Therefore the institution issues lectures for students to enrol – The lecture connects a module, lecturer and student together thus producing a file that acts as a student’s academic record –People in the real world would use the phrase ‘student registers for a module’] a student may therefore take no lecture at all but if they are registered to a course they are considered as student and if they are not registered to any course they cannot take a lecture – for the lecture is derived from a module which module is derived from a course, but the student has freedom to choose the number of lectures they take, based upon the lectures prerequisite modules. | this is an associative entity for **LECTURE** and **STUDENT** this break the many to many relationship between **LECTURE** and **STUDENT** table | lecture\_student\_id  reg\_date  lecture\_id |
| group | A group is a file which contains all the groups that have been created by the lecturer, this file allows students to know their groups, and to also know their group members – Students who belong to a group are grouped based upon their academic level, furthermore they are grouped according to a balanced gender ratio.  A group file may contain many students inside of it – but it should not by default contain a single student unto themselves for a single student is not a group – but a single student by ‘choice’ may choose to work individually.  This file is created by the lecturer, based upon the lecturer’s desired constraints.  This group is for only a single module ~~or for modules which lecturers facilitate~~, for lecturers cannot create groups for modules which they do not facilitate.  The lecturer has the privilege of creating, reading, deleting and inserting data into this file but students only have the privilege of reading this file – For they cannot group themselves expect if they choose to work individually upon which the lecturer will still be the one who will update the group after having consulted with the student. | a **LECTURER** creates one or many **GROUPS**, but the same **GROUP** cannot be created by many **LECTURERS** for it can only be created by one **LECTURER**  a **STUDENT** belongs to only one **GROUP**, but a **GROUP** may contain one or many **STUDENTS**.  a **GROUP** belongs to one **GROUP\_TYPE**, and a **GROUP\_TYPE** may have one or many **GROUPS**  a GROUP belongs to a LECTURE | group\_id  group\_name  member\_name  member\_surname  member\_stud\_number  member\_mark |
| group\_type | A group type is a folder to which a group file belongs. ~~A group type is optional~~ – If there is only one group type, then the group type is considered immaterial but it may still be created – ~~a group type gains its purpose and meaning when more group types are created by the lecturer~~ (For a group type may only be greated by lecturer for a specific lecture – therefore a group type belong belongs to only one lecture and not many lectures) they easily distinguish groups from each other~~, a group belongs to a group type~~ – A group type file specifies academic levels to which students belong.  Every group belong to a group type – This by default. | a **GROUP\_TYPE** belongs to one **LECTUR**E and a **LECTURE** may have one or may **GROUP\_TYPES**  a **GROUP\_TYPE** has one or many **GROUPS**, but the same **GROUPS** can only belong to one **GROUP\_TYPE**  a **GROUP\_TYPE** belongs to one **LECTURE**, and a **LECTURE** may have one or many **GROUPS\_TYPES** | group\_type\_id  group\_type\_name  group\_type\_description  lecture\_id |
| course | A course is an entity to which a student registers – The purpose of such a registration is to declare to the institution the field of study to which the student is going to specify in – A course contains a set of modules that the student has study, upon completion of all the course related modules, the student will then be awarded a certificate stating that the student is competent in that field of study. – A course belongs to a faculty.  A student may choose to discontinue a course upon which they will have to register for another course else the individual will be considered as a prospective student for a ‘student’ cannot take a module without taking a course and thus the individual is a prospective student. | a **STUDEN**T registers for one and only one **COURSE**. a **COURSE** may have one or many **STUDENTS**  a **COURSE** contains a set of **MODULES**, a **MODULE** may belong to more than one **COURSES**  a **CORUSE** belongs to only one **FACUTLY,** a **FUCULTY** may have more than one **COURSES** | course\_id  coruse\_name  faculty\_id |
| group\_member | A group\_member is a likened to a file which associate lecture\_group, group and student entities together – By default a student belongs to a lecture\_group, this means a lecturer is assigned a group of students whom they have to lecture, furthermore a lecturer may subdivide students into smaller groups based upon their desired criteria – |  |  |
|  |  |  |  |

DSO GROUPING SYSTEM DATA EXAMPLES

|  |  |  |
| --- | --- | --- |
| COURSE | | |
| course\_id | course\_name | faculty\_id |
| 1 | Development Software | ICT |
| 2 | Industrial Information System | ICT |
|  | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| STUDENT | | | | | | |
| stud\_number | first\_name | last\_name | id\_nr | sex | phone | email |
| 216955960 | Shiko | Matlala | 9511275418082 | M | 0765870538 | shikomatlala@gmail.com |
| 218995411 | James | Livinigston | 9811275418082 | M | 0775870538 | jameston@gmail.com |
| 217695472 | Nqobile | Manaka | 9801010025086 | F | 0885210566 | nqobilemanaka@gmail.com |
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| --- | --- | --- | --- |
| STUDENT\_COURSE\_RESITRATION | | | |
| course\_reg\_id | date | stud\_number | course\_id |
| 1 | 28-06-2021 | 216955960 | 1 |
| 2 | 28-06-2021 | 217695472 | 2 |
| 3 | 28-06-2021 | 218995411 | 1 |
|  | | | |

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| --- | --- | --- |
| MODULE | | |
| module\_code | module\_name | credit |
| DSO34BT | Development Software III B | 0.125 |
| DSO34AT | Development Software III A | 0.125 |
| ISY34AT |  | 0.125 |
| ISY34BT |  | 0.125 |
| IDC30AT |  | 0.125 |
| ISY23BT |  | 0.125 |
| TPG201AT | Technical Programming III A | 0.250 |
| DSO23BT |  | 0.125 |
| SSF24BT |  | 0.125 |
| ISY23AT |  | 0.125 |
| DSO23AT |  | 0.125 |
| TPG111T |  | 0.250 |
| SSF23AT |  | 0.125 |
| DSO17BT |  | 0.125 |
| CFS10BT |  | 0.125 |
| CGS10BT |  | 0.125 |
| CMK10BT |  | 0.125 |
| DSO17AT |  | 0.125 |
| CFS10AT |  | 0.125 |
| CGS10AT |  | 0.125 |
| CMK10AT |  | 0.125 |
|  | |  |

|  |  |  |  |
| --- | --- | --- | --- |
| COURSE\_MODULE | | | |
| course\_module\_id | date | course\_id | module\_code |
| 1 | 28-06-2016 | 1 | DSO34BT |
| 2 | 28-06-2016 | 1 | DSO34AT |
| 3 | 28-06-2015 | 1 | ISY34AT |
| 4 | 28-06-2015 | 1 | ISY34BT |
| 5 | 28-06-2015 | 1 | IDC30AT |
| 2nd year | | | |
| 6 | 28-06-2016 | 1 | ISY23BT |
| 7 | 28-06-2016 | 1 | TPG201AT |
| 23 | 28-06-2016 | 2 | TPG201AT |
| 8 | 28-06-2015 | 1 | DSO23BT |
| 9 | 28-06-2015 | 1 | SSF24BT |
| 10 | 28-06-2016 | 1 | ISY23AT |
| 11 | 28-06-2016 | 1 | DSO23AT |
| 12 | 28-06-2015 | 1 | TPG111T |
| 22 | 28-06-2015 | 2 | TPG111T |
| 13 | 28-06-2015 | 1 | SSF23AT |
| 1ST year | | | |
| 14 | 28-06-2016 | 1 | DSO17BT |
| 15 | 28-06-2016 | 1 | CFS10BT |
| 16 | 28-06-2015 | 1 | CGS10BT |
| 17 | 28-06-2015 | 1 | CMK10BT |
| 18 | 28-06-2016 | 1 | DSO17AT |
| 19 | 28-06-2016 | 1 | CFS10AT |
| 20 | 28-06-2015 | 1 | CGS10AT |
| 21 | 28-06-2015 | 1 | CMK10AT |
|  | | | |

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| --- | --- | --- | --- | --- |
| LECTURE | | | | |
| lecture\_id | module\_code | semester | year | prerequisite\_module |
| 1 | DSO34BT | 1 | 2021 | DSO23BT |
| 2 | DSO34AT | 1 | 2021 | DSO23BT |

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| --- | --- | --- | --- |
| LECTURE\_STUDENT | | | |
| lecture\_stud\_id | reg\_date | lecture\_id | stud\_number |
| 1 | 12-02-2021 | 1 | 216955960 |
| 2 | 12-02-2021 | 2 | 216955960 |

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| --- | --- | --- | --- | --- | --- | --- |
| LECTURER | | | | | | |
| staff\_number | first\_name | last\_name | id\_nr | sex | phone | email |
| 10023 | Lerutle | Pholo | 6911275418082 | M | 0765870538 | lerutlepholo@gmail.com |
| 22010 | Ephraim | Sanyane | 7011275418082 | M | 0775870538 | ephraimsanyane@gmail.com |
| 18203 | Lerato | Makapane | 8901010025086 | F | 0885210566 | leratomakapane@gmail.com |

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| --- | --- | --- | --- | --- | --- | --- |
| LECTURE\_LECTURER | | | | | | |
| lecture\_lecturer\_id | staff\_number | lecture\_id | Vanue | Start\_time | End\_time | day |
| 1 | 10023 | 1 | 10-138 | 10:00 | 11:00 | Monday |
| 2 | 10023 | 1 | 10-138 | 08:00 | 09:00 | Wednesday |
| 3 | 10023 | 1 | 10-138 | 12:00 | 01:00 | Wednesday |
| 4 | 10023 | 1 | 10-138 | 13:00 | 14:00 | Thursday |
| 5 | 10023 | 1 | 10-138 | 14:00 | 15:00 | Thursday |
| 6 | 10023 | 1 | 10-138 | 11:00 | 12:00 | Friday |
| 7 | 22010 | 7 |  |  |  |  |
| 8 | 22010 | 8 |  |  |  |  |
| 9 | 22010 | 9 |  |  |  |  |
| 10 | 22010 | 10 |  |  |  |  |
| 11 | 22010 | 11 |  |  |  |  |
|  | | |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LECTURE | | | | |
| lecture\_group\_id | staff\_number | module\_code | Semester | year |
| 1 | 10023 | DSO34BT | 1 | 2011 |
| 2 |  | DSO34BT | 2 | 2011 |
|  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| GROUP\_TYPE | | | |
| group\_type\_id | group\_type\_name | total\_credit | lecture\_group\_id |
| 1 | Level 1 | 2,250 | 1 |
| 2 | Level 2 | 2,375 | 1 |
| 3 | Level 3 | 2,500 | 1 |
| 4 | Level 4 | 2,625 | 1 |
| 5 | Level 5 | 2,750 | 1 |
| 6 | Level 6 | 2,000 | 1 |
| 7 | Level 7 | 1,875 | 1 |
| 8 | Level 8 | 1,750 | 1 |
| 9 | Level 9 | 1,625 | 1 |
| 10 | Level 10 | 1,500 | 1 |

|  |  |  |
| --- | --- | --- |
| GROUP | | |
| group\_id | group\_name | group\_type\_id |
| 1 | Group J | 1 |
| 2 | Group K | 1 |
| 3 | Group L | 1 |
| 4 | Group M | 1 |
| 5 | Group N | 1 |
| 6 | Group O | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| GROUP\_MEMBER | | | |
| group\_member\_id | member\_mark | member\_stud\_id | group\_id |
| 1 | 0 | 216955960 | 1 |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| LECTURE\_LECTURER | | |
| lecture\_lecturer\_id | staff\_number | lecture\_id |
| 1 | 10023 | 1 |
| 2 | 10023 | 2 |
| 3 | 10023 | 3 |
| 4 | 10023 | 4 |
| 5 | 10023 | 5 |
| 6 | 10023 | 6 |
| 7 | 22010 | 7 |
| 8 | 22010 | 8 |
| 9 | 22010 | 9 |
| 10 | 22010 | 10 |
| 11 | 22010 | 11 |
|  | | |

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| --- | --- | --- | --- | --- | --- |
| LECTURE | | | | | |
| lecture\_id | vanue | module\_code | start\_time | end\_time | day |
| 1 | 10-138 | DSO34BT | 10:00 | 11:00 | Monday |
| 2 | 10-138 | DSO34BT | 08:00 | 09:00 | Wednesday |
| 3 | 10-138 | DSO34BT | 12:00 | 01:00 | Wednesday |
| 4 | 10-138 | DSO34BT | 13:00 | 14:00 | Thursday |
| 5 | 10-138 | DSO34BT | 14:00 | 15:00 | Thursday |
| 6 | 10-138 | DSO34BT | 11:00 | 12:00 | Friday |
| 7 | 10-L57 | DSO34AT | 09:00 | 10:00 | Monday |
| 8 | 10-L57 | DSO34AT | 12:00 | 01:00 | Tuesday |
| 9 | 10-L57 | DSO34AT | 10:00 | 11:00 | Thursday |
| 10 | 10-L57 | DSO34AT | 02:00 | 03:00 | Friday |
| 11 | 10-L57 | DSO34AT | 03:00 | 04:00 | Friday |